

**BLENDED LEARNING IN HIGHER EDUCATION: AN
EXPLORATION OF ITS APPROACHES AND CHALLENGES**

Dissertation

**SUBMITTED TO THE NATIONAL INSTITUTE OF EDUCATIONAL PLANNING AND
ADMINISTRATION, NEW DELHI IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE
DEGREE OF M. PHIL**

MASTER OF PHILOSOPHY

KAJAL YADAV



**NATIONAL INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION,
NEW DELHI**

April/ 2022

DECLARATION

Date: April 30th 2022

I Kajal Yadav hereby declare that this M.Phil thesis entitled, Blended Learning in Higher Education: An Exploration of its Approaches and Challenges is based on my original research work, and to the best of my knowledge, has not been submitted in whole or in part in this University or in any other University for the award of any degree.

Kajal yadav
Scholar's Signature

Kajal Yadav
(Scholar Name)

CERTIFICATE

This is to certify that the thesis entitled Blended Learning in Higher Education: An Exploration of its Approaches and Challenges is the work undertaken by Mr./Ms Kajal Yadav under the supervision of Prof. K. Srinivas as part of his/her M.Phil degree. We recommend that this thesis be placed before the examiner(s) for evaluation and award of the degree of M.Phil.

K.Srinivas

Signature of Department, Head

K.Srinivas

Name of the Department, Head

K.Srinivas

Supervisor's Signature

K.Srinivas

((Supervisor's Name)

ACKNOWLEDGEMENTS

I would like to express my earnest gratitude to my supervisor, Prof. K. Srinivas for his constant support throughout the course of the study. I would like to thank him for mentoring, guiding, and supporting me during the process of my research. I am very grateful for his words of encouragement and thoughtful insights into the dissertation work. I am indeed fortunate that I got an opportunity to carry out this study under his supervision. I want to acknowledge him for taking the time to enhance my research.

I am also appreciative of all the participants who took part in the research and talked to me. I am grateful to all the teachers and students for sharing their experiences with me. Thank you for giving time for my research study even when times were tough. Without their support, the study would have been a distant reality.

Last but not least I would like to thank my family and friends for their unconditional love and support. My sincere gratitude to each and everyone who was behind the successful completion of this research work.

Table of Contents

Title	Page No.
Declaration	ii
Certificate	iii
Acknowledgments	iv
Contents	v
List of tables	vi
List of figures	vii
List of appendixes	viii
Chapters	
Introduction	1
Review of Literature	12
Methodology	34
Results and Findings	42
Conclusion and Recommendations	59
References	66
Appendixes	ix

List of Tables

Table	Title	Page
1	Faculty profile	44
2	Faculty region distribution	44
3	Faculty gender distribution	44
4	Faculty blended learning experience	45
5	Learning mediums	45
6	Teachers perceptions and understanding	46
7	Student profile	51
8	Gender distribution	51
9	Students understanding	52
10	Students views on blended learning process	53
11	Strengths and Weakness of blended learning	55

List of figures

Figures	Title	Page
1	Emerging themes	48
2	Primary reasons for learning through online and face to face mode	54
3	Blended learning Strengths as per students	56
4	Blended Learning Weaknesses as per students	57

List of Appendixes

Appendix	Title	Page
1	Questionnaire	ix
2	Interview Guide	xv

Chapter 1 Introduction

The swift and rapid innovation of technologies has changed the field of education during the past decades. This has changed the way people teach and learn, especially in distant education. The arrival of the World Wide Web (WWW) has increased the demand for distance education and concepts like online learning or e-learning have emerged, as a result. Numerous research has been conducted to determine the online learning system benefits and drawbacks and it has been widely employed in higher education (Wang, 2010). Learning is an essentially social activity that can employ a variety of effective learning strategies (Strobl, 2007). The use of new technologies in teaching and learning, such as e-learning, can help improve traditional teaching methods while also helping students build technical skills. Several e-learning technologies are currently accessible (Garrison, 2011). Many of these address mobility of student learning, which enables students to learn anywhere, anytime, and with various devices (Herrington, 2012). Learning management systems provide a virtual platform for students to access educational resources and connect with classmates and other students, as well as web-based flexible learning environments and media to foster collaborative learning among students. When it comes to improving technological abilities, a variety of technologies can be employed to help students to learn. These can range from videos for demonstration, recording and reflective analysis purposes to simulation-based e-learning (SIMBEL) systems.

A circular (2021) by the University Grants Commission (UGC) argues that this blended mode of teaching and learning paves the way for increased student engagement in learning, enhanced student-teacher interactions, improved student learning outcomes and more flexible learning and teaching environments, among other things. Document proposes that all higher education institutions (HEI) should teach 40% of any course online and the rest 60% offline.

The policy document on education, NEP-2020, highlights the major objective of blended learning is “to make the process of learning not only impactful but also engaging, encouraging, interesting and challenging for learners”. It has also emphasized the importance of wide use of technology in teaching to improve student learning and achieve the aim of 100 percent literacy. The policy calls for the development of digital infrastructure as well as to empower teachers to create high-quality e-learning resources. Importantly, blended learning will assist in achieving the NEP-2020 objectives of internationalizing indigenous knowledge through digitized course content while maintaining traditional

learning and teacher roles. Additionally, to improve teaching learning skills there is an emphasis to increase the use of ICT.

According to the UNESCO World Education Report "Teachers and Teaching in a Changing World" (1998), as new technologies emerge, the teaching profession is shifting from a focus on teacher-centered lecture-based instruction to a focus on student-centered, interactive learning environments (UNESCO, 1998). The use of ICT is widely acknowledged as a key component of educational reform to design and implement educational programmes. At the same time, no modern technology can substitute the place of a teacher. Electronic devices, in conjunction with the teacher, can help to enhance learning experiences. Blended learning is "New Models for the New Normal". According to UNESCO and the World Health Organization (2020) report, COVID pandemic has accelerated the use of distance learning systems around the world.

On the other hand, traditional teaching is now referred to as a passive teaching approach since it discourages students from practical usage. Only focusing on face-to-face interaction leaves no room for active and collaborative learning, nor does it allow educators to use higher-order thinking skills. Many university students believe that what is taught in class is boring and unrelated to practical critical thinking and analytical reasoning requirements. They don't frequently see the classroom environment as stimulating or encouraging. Students' experience is changing as the way they learn and communicate in and out of class, while adapting and implementing technology. As a result, teachers must reorganize the learning process and change their teaching resources. According to Laster, (2005) having a diverse group of students with varying learning preferences, the use of several learning modalities to convey the appropriate content in the appropriate format.

The major objective of this research study is to know teachers' and students' perceptions on the use of blended learning. People seek opportunities to genuinely communicate and cooperate with other passionate educators in an increasingly fast-paced society (Alaniz & Wilson, 2015). Furthermore, today's students want to make connections with one another and collaborate on a variety of learning projects (Alaniz & Wilson, 2015). Innovative digital technology tools and resources are becoming available, allowing educators and students to communicate, collaborate, and publish with peers and experts both inside and outside of the institute. (2015) Alaniz and Wilson (Alaniz & Wilson). Blended learning allows for the efficient design and implementation of instructional strategies for students learning (Horn, Gu, & Evans, 2014; Moran, 2010). Institutes around the country are implementing blended learning to improve student achievement and establish a high-quality environment for learning

(Bonk & Graham, 2007; Horn et al., 2014; Watson, 2008). The strategies that promote, facilitate, and enhance students' learning in order to develop academic and non-academic skills. (Watson, Castano Bishop, & Ferdinand-James, 2017).

Blended learning is a concept that connects social media and a digital classroom management system (Moran, 2010).

A learning management system (LMS) is a computer programme or webbased technology platform that allows educators to create and deliver content, track student participation, evaluate student progress and work, and further collaborate on ideas. (Tucker, Wycoff, & Green, 2017).

Blended learning's main goal is to enable instructors aid students in "succeeding in today's environment" and "making online communication simple and economical" (Horn & Staker, 2015). Students will be able to focus on the task while studying educational tech tools if a classroom is equipped with digital tech tools (Horn & Staker, 2015). We must consider stretching the traditional limits of the educational system in order to have an educational system where students, teachers, and parents feel connected. The challenge for educators is to connect with blended learning in order to create a better learning environment for students (Abdalahdi, 2016). In a variety of ways, blended learning has the potential to revolutionise curriculum and instructional practises. Teachers use blended learning to: • personalise instruction based on students' needs and interests; • integrate technology to improve students' 21st-century skills; • expand classroom instructional models to provide students with a variety of learning experiences; and • provide students with online access to additional resources, tools, and courses (Bonk & Graham, 2007; Horn et al., 2014; Horn & Staker, 2015; Murillo, 2017; Tucker et al., 2017).

Defining Blended Learning

Different definitions and descriptions exist for blended learning. However, many studies agree that blended learning is the most efficient learning environment since it combines the strengths of face-to-face and eLearning. In general, blended learning combines the best aspects of online educational content delivery with the best aspects of classroom interaction and live instruction in order to personalise learning, allow thoughtful reflection, and differentiate instruction from student to student across a diverse group of learners (Watson, 2012). Blended learning is characterized by the effective integration of the many means of delivery, educational models, and learning styles in an interactively meaningful learning environment. It represents an opportunity to combine online learning's innovative and technological breakthroughs with engagement.

Driscoll (p. 1) defined four distinct "concepts" denoted by blended learning in 2002:

- 1.To attain an educational goal by combining or mixing forms of web-based technologies (e.g., live virtual classroom, self-paced teaching, collaborative learning, streaming video, audio, and text).
- 2.To use a combination of pedagogical techniques (e.g., constructivism, behaviourism, and cognitivism) to get the best possible learning outcome, using or not using instructional technology.
- 3.To integrate face-to-face instructor-led training with any kind of instructional technology (e.g., VHS, CD-ROM, web-based training, film).
- 4.To integrate or combine instructional technologies with real-world job responsibilities in order to achieve a balanced learning and working environment.

Oliver and Trigwell (2005) suggested three possible definitions of blended learning (p. 17), based on Driscoll's (2002) work:

- (1) "In an e-learning environment, the mixture of media and tools used."
- (2) "The utilisation of a mixture of pedagogic approaches, no matter the training technology utilised."
- (3) "An integrated approach to traditional learning that incorporates web-based online approaches"

According to Oliver and Trigwell (2005), "blended learning" is typically about teaching rather than learning. Instead, they argue that the terms "blended pedagogics," "blended teaching," and "learning using mixed pedagogies" better express the concept's genuine meaning.

De Zure (2002) defines blended learning as courses that integrate face-to-face teaching process with online learning. Blended learning is a shift in classroom instruction away from lecture-style instruction to a learner-centered approach. The current educational system necessitates learner-centered instruction, and blended learning is the best way to meet this requirement. This is due to the fact that students are not engaged, interactive, or personally involved in their own learning, which makes learning more relevant to them (Buckley, 2002).

Blended Learning, according to Thorne. K. (2003), is the most logical and natural progression of our learning agenda, according to Thorne. K. (2003). It proposes an elegant answer to the difficulties of adapting learning to individual needs.

Blended Learning courses integrate online and classroom learning activities and make the most use of resources to improve student learning outcomes and solve critical institutional concerns (Garrison, 2004).

Blended Learning is the organic combination of carefully chosen and compatible face-to-face and online methodologies and technologies (Graham, 2006).

Kazu and Demirkol (2014) described blended learning as a “combination of face-to-face instruction as well as distance learning” (p.79). Being that the term can also be referred to as “hybrid learning and mixed learning” (Kazu & Demirkol, 2014, p. 79)

Horn and Staker (2015) identified “blended learning is any formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/or pace”.

Laster, Otte, Picciano, and Sorg (2005) offered a definition that strikes the proper proportion, as mentioned in Picciano and Dziuban (2007, p. 9). 1. Courses that combine planned, pedagogically valuable online and traditional face-to-face class activities; and 2. Courses in which online activity replaces a percentage (institutionally determined) of face-to-face time.

The Sloan-C Consortium developed this definition at a series of blended learning seminars held at the University of Illinois-Chicago in 2004 and 2005, attended by "thirty professional educators with online learning experience" (Picciano & Dziuban, 2007, p. i).

Blended learning is a teaching method that allows teachers to devote more time to tailoring learning to the needs of their pupils (Fassbender, Lucier, Fink, 2014; Kieschnick, 2017). Students in a mixed learning setting have some influence over their learning pace because learning is personalised (Horn & Staker, 2015). In a blended learning setting, students who do not have a sufficient knowledge or mastery of a concept might spend more time reviewing alternate materials or obtaining customised support from a teacher (Horn & Staker, 2015; Patrick et al., 2013). Students who have demonstrated mastery can continue with content and training without waiting for the rest of the class to catch up (Horn & Staker, 2015). In a blended learning classroom, time is flexible and not limited to a single time of day (Patrick et al., 2013; Staker & Horn, 2012). Students can direct their own learning path by deciding how they wish to learn a particular idea (Horn & Staker, 2015). Students choose their own learning route depending on their interests and requirements in extreme types of blended learning (Staker & Horn, 2012). Some blended learning methods are set up so that students can work on their online assignments wherever they wish (Horn & Staker, 2015). The term "place" refers to a learning environment in which pupils are not constrained to learning within the four walls of the classroom (Staker & Horn, 2012). Students in a mixed learning environment participate in face-to-face learning activities in a supervised classroom (Horn & Staker, 2015; Kieschnick, 2017; Powell et al., 2015). While employing technology to aid learning, students attend classes in a physical building and meet face-to-face with an instructor (Horn & Staker, 2015; Powell et al., 2015; Toppin & Toppin, 2016). Blended learning is a pedagogical technique that allows students to benefit from the necessary socialisation and academic support of being in a brick-and-mortar setting while

also participating in technology-enabled learning experiences (Horn & Staker, 2015; Powell et al., 2015; Vander Ark, 2018).

A blended learning methodology is a combination of formats used to improve learning in an educational setting. Online learning experiences are carefully constructed as part of a teacher's learning path to fulfil the unique needs of students (Horn & Staker, 2015; Powell et al., 2015). Teachers customise learning by incorporating formative evaluations into face-to-face and technology-enabled learning activities such as small groups, partner work, projects, and one-on-one tutoring (Frey et al., 2013; Horn & Staker, 2015; Powell et al., 2015). The online component can differ depending on the setting, content, and technology used (Means et al., 2013).

Rationale of the Study

As John Dewey says, meeting students where they are and helping them get to where they want to be is critical to their success. As a result, it may be argued that the goal of any educational institution should be to ensure their students' success (Dewey, 1938). "Improving student learning should be the central aim that drives all other motivations." Blended methods 28 allow professors to vary how they employ class time in order to help students understand information more effectively" (Osgulthorpe & Graham, 2003, p. 231).

Blended learning is beneficial since it dismantles the traditional barriers to learning that do not function for all pupil. It is a live interaction between teacher and student that uses technology. Blended learning allows flexibility for both students and teachers. It provides various time frames that may be tailored to each individual, allowing them to learn at their own pace. It allows students to personalize their learning experiences by using additional tools beyond the classroom. Learners can identify areas that need more attention and personalize their learning schedule that suits their study plan through blended tools. Blended learning methods can also be used by teachers to supplement their lessons. They can interact with students more efficiently by monitoring their growth and giving instant feedback. This is a more modern method of teaching that can improve a student's learning. This sort of education prepares students for careers that demand digital skills.

The goal of this qualitative research study is to explore teachers' and students' perceptions regarding the use of blended learning. Data was collected through questionnaires and interviews. The instructor develops a learning environment that is both engaging and successful in its use of technology (Pierce, 2017). Examining teachers' perspectives and opinions of blended learning will provide useful feedback

on how to improve the use of appropriate instructional technology in the curriculum. The scholar hopes to gain insight into how the blended learning model allows teachers to create a classroom that is not only student-centered, but also accounts for various learning styles (i.e., visual, kinesthetic, and auditory) through instructional lessons that meet the needs of the learner by researching the use of blended learning. Understanding when and how to use technology, as well as when other modalities might be more appropriate, is part of the challenge of effectively leading blended learning in the classroom (Ardi, 2017; Pierce, 2017). This research will help educators who want to make changes in the field of blended learning. Furthermore, the report emphasises the importance of collaborative learning in allowing learners to take control of their education through digital engagement (Ardi, 2017).

Previous research has revealed the impact of blended learning on student achievement, as well as the styles and models used. Some research looked at perceptions in a blended learning environment and evaluated the effectiveness of blended learning while others examined the challenges faced by different stakeholders. Exploring the research on blended learning, most of the majority of the research is done in other countries. As a result, the study's goal was to gain a better knowledge of the characteristics, methodologies, and realities of blended learning in India. The paper discusses how blended learning methods can be beneficial for teaching learning and future problems of teaching a content-rich syllabus with limited resources and access issues in the education field.

There are challenges in terms of the feasibility, applicability and accessibility to present day technologies and resources of implementing e-learning in higher education context. But there is a body of research supporting the idea of combining face-to-face instruction with an online delivery mode. The trend of combining asynchronous learning with synchronous learning is to have better pedagogy and information accessibility (Bonk &Graham, 2004). Similarly, Garrison and Kanuka (2004) suggests that blended learning might help students study independently and collaboratively and it provides better learning outcomes. Students can explore asynchronous subject in their own time and at their own pace via instructor-led live events and webinars, which are then accompanied by classroom discussion. Combining technology mediated learning with classroom dialogues clearly helps students obtain a better knowledge of the subject matter while also developing their cognitive and social abilities.

This paper is an exploration of such studies highlighting the need for a blended learning approach in addressing rapid technology change in higher education to gauge learning and teaching efficiency and evaluate content and use of new technologies in education. The key purpose of this research is to address the need for blended learning and simultaneously problems associated with it. Next, the paper also

attempts to know the faculty and student's view on it and the real ground phase of blended learning in higher education. Later, in addition, the paper discusses some blended learning methods and tools. Examples will also be given on efficient inclusion of some of the methods and tools in education, such as the simulation-based e-learning (SIMBEL), Learning Management Systems (LMS) to manage a learning environment in an online context, the use of e-assessment as a marking, moderation and feedback tool, and peer assessment. This research concludes by providing benefits and challenges of blended learning in an academic setting.

Statement of problem

The remarkable speed with which technological transformation is occurring is pushing the need for educational reform (Couros, 2015; Greer et al., 2014; Horn & Staker, 2015; Sheninger & 12 Murray, 2017). Around 95% of teenagers have a smartphone, or at least have access to one in their home (Anderson & Jiang, 2018). Smartphones, desktop computers, laptops, tablets, and streaming media devices are now commonplace in many families (Pew Research Center, 2017). Many school authorities are pouring money into expanding access to technology, but many teachers are unprepared to use it effectively to promote student learning (Greer et al., 2014; Harasim, 2017; Horn & Staker, 2015; Means et al., 2010, 2013). They have not changed pedagogical practices to accommodate the technological skills students are developing outside of the classroom (Alijani et al., 2014; Couros, 2015; Horn & Staker, 2015; Onyema & Daniil, 2017; Sheninger & Murray, 2017). Blended learning is rapidly emerging in K-12 schools, but more research is needed in this area (Drysdale et al., 2013; Means et al., 2010, 2013). Teachers' capacity to create a student-centered learning environment for 21st century learners is hampered by the design of traditional or factory-model classrooms (Bransford et al., 2000; Horn & Staker, 2015; Sheninger & Murray, 2017). There is a digital divide between individuals who use technology to improve their creativity, critical thinking, problem-solving, and communication abilities and others who only use it to consume content (OET, 2017). If educators are simply adopting technology to replace what they are doing in the classroom, it is not being used to improve learning and pedagogical methods (Couros, 2015).

In the teaching and learning process, traditional classroom learning has been a key priority followed by pure online learning has also taken the place. Public institutions have given special focus to e-learning, a method that originated from distance education. However, in order to be effective, e-learning, must be integrated with other modes of learning, such as face-to-face learning. Blended learning offers an opportunity for higher student achievement that may not be available to students otherwise. "Traditional

learning is unproductive in terms of learner engagement and interaction, it is packed into a short time frame, and... remote learning (has) resulted in the birth of this new learning environment" (Kazu & Demirkol, p. 79, 2014). The logic for offering a blended learning environment in an academic setting is one that offers students rather more flexibility in their learning moreover as more depth and richness to their studies. "Major reasons for faculty adopting blended learning technique are to improve student participation and engagement in the learning process and improve student learning" (Kenney & Newcombe, 2011, p. 49), thereby increasing their level of achievement. Not only used to improve achievement, blended learning is used by some institutions to help strengthen their pedagogical goals (Kenney & Newcombe, 2011). Blended learning is a new methodology that results from this combination.

Blended learning environments are becoming increasingly popular in educational institutions around the world, although the results of different approaches are uncertain. Specifically, in the Indian scenario It's uncertain whether blended learning affects a teacher's self-perception of integrated technology's usefulness in the classroom. Teachers may face a lack of support in developing an instructional technology classroom, or they may confront students who have little or no experience with technology and may not comprehend many of the fundamentals of using computers or navigating a website or software programme (Alaniz & Wilson, 2015; Brooks, 2008; U.S. Department of Education, 2018). Blended learning is effective, and students typically recognise the value in it since technology allows for individualised education based on a student's level of competency and academic learning needs (Margolis, Porter, & Pitterle, 2017; U.S. Department of Education, 2018). Traditional classrooms are changing to meet the needs of a diverse variety of students. Students are becoming authors and masters of their own learning processes, and instructors are combining resources and modalities to enhance instruction (Tucker et al., 2017).

In the recent past blended learning grabs the attention of researchers and educators. Traditional chalk and talk methods has the many issues in higher education such as Learning style of the learner changed due to fast pace technology, Lack of relevancy with the need of industry, Lack of student's involvement and low attendance in class, Hands on experience etc., To address such issues blended learning can provide suitable solutions. Researcher aims to study the perception of students and faculty in higher education towards Blended Learning pedagogies. The literature will demonstrate that integrating technology into teaching and learning is an issue that is relevant in today's educational system.

Blended learning entails combining technology with face-to-face training to help students learn more effectively (Fassbender et al., 2014; Horn & Staker, 2015; Kieschnick, 2017). Blended learning would be little more than a teacher projecting an online curriculum to the entire class on a whiteboard if this crucial component was missing (Horn & Staker, 2015). Students can study in a way that best matches their requirements while remaining in an environment that encourages creativity, critical thinking, and problem solving. (Gallup, 2019; Horn & Staker, 2015; Kieschnick, 2017; Patrick et al., 2013; Patrick et al., 2013; Patrick et al., 2013). It is crucial to focus on how technology is used in a blended learning approach in order to distinguish it from a technology-rich classroom (Frey et al., 2013; Horn & Staker, 2015; Kieschnick, 2015). It is imperative that teachers, schools and educational institutions continue to search for the best ways in which to prepare students for their future. This research study will consider the blended learning methodology as one possible way to reach this goal.

Research Objectives

The purpose of this study is to investigate the perception of teachers and students of using a blended mode of teaching and learning. It explains how teachers used online and offline modes to create a productive blended learning environment for students. It highlights what challenges and difficulties faced by teachers and students while adopting and implementing a blended model for a higher education. a constructive blended learning environment is defined as one in which students may learn and have a pleasant learning experience. A positive educational experience is defined as one that satisfies the following criteria to meet students' values, priorities and needs for active learners. More specifically, this study seeks to accomplish below given two goals.

The following objectives for the research

- To understand the faculty and student's perceptions towards blended learning
- To explore the challenges of blended learning faced by higher educational institutions

Research questions

The following research questions were framed to know teachers' and students' perceptions of blended learning models. The researcher responded to the research questions through questionnaire surveys and interviews to provide comprehensive and logical responses to the digital era in education. The following research questions fulfill the study's goal of better understanding teachers' and students perspectives of using blended learning models:

- What are teachers' and students' views on blended learning adoption and implementation at university level?
- How do applications and methods of blended learning influence teachers' and students' teaching-learning?
- What challenges do teachers and students faced while using blended learning for teaching and learning?
- What are the approaches and strategies for the successful implementation of blended learning for higher education?

Chapter 2 Review of Literature

A review of past research and ideas relevant to this study can help us understand how teacher training and assistance affect the pedagogical qualities and learner outcomes in a blended language learning environment. The themes that outline the depth and scope of the literature review for this action research are listed below.

The information from the literature review is organized as follows: first, a discussion of how history and pedagogical pioneers have influenced the creation of the building blocks for a blended learning environment, followed by a discussion of diversity and social justice, then a discussion of the theories that combine to make blended learning possible, then the rationale for using a blended learning approach in a classroom setting, and finally, a discussion of the theories that combine to make blended learning possible.

Blended Learning in Higher Education

In higher education, BL is a popular strategy for fostering a more collaborative and inviting learning atmosphere and reducing students' concern about making errors (Wong et al. 2014). It was first used in universities in the late 1990s (Edward et al. 2018), and by the 2000s, many more university courses were being provided in blended format (Graham et al. 2013). BL uses a hybrid of online-mediated and face-to-face instruction to assist lecturers in achieving pedagogical goals such as teaching students algorithmic and constructive logical skills, improving teaching quality, and achieving social order (Kaur 2013). Some academics [such as Bowyer and Chambers (2017)] claim that incorporating technology into the classroom encourages students to learn via discovery. In addition, it increases interactivity and drive, resulting in improved feedback.

As shown in Figure 1, BL implementation typically includes face-to-face and other online learning delivery techniques. Students typically attend traditional lecturer-led F2F sessions with computer-mediated technologies to create a BL environment for gathering experiences and promoting learners' learning achievement and engagement (Moskal et al. 2013; Baragash and Al-Samarraie 2018). In fact, according to Graham (2013) and Graham et al. (2013), BL will become the next course delivery model that uses many media resources to improve student involvement. BL uses a variety of asynchronous and synchronous teaching tactics, such as forums, social networking, live chats, webinars, blogs, and more,

to create engaging and relevant learning experiences for students (Graham 2013; Moskal et al. 2013; Dakduk et al. 2018).

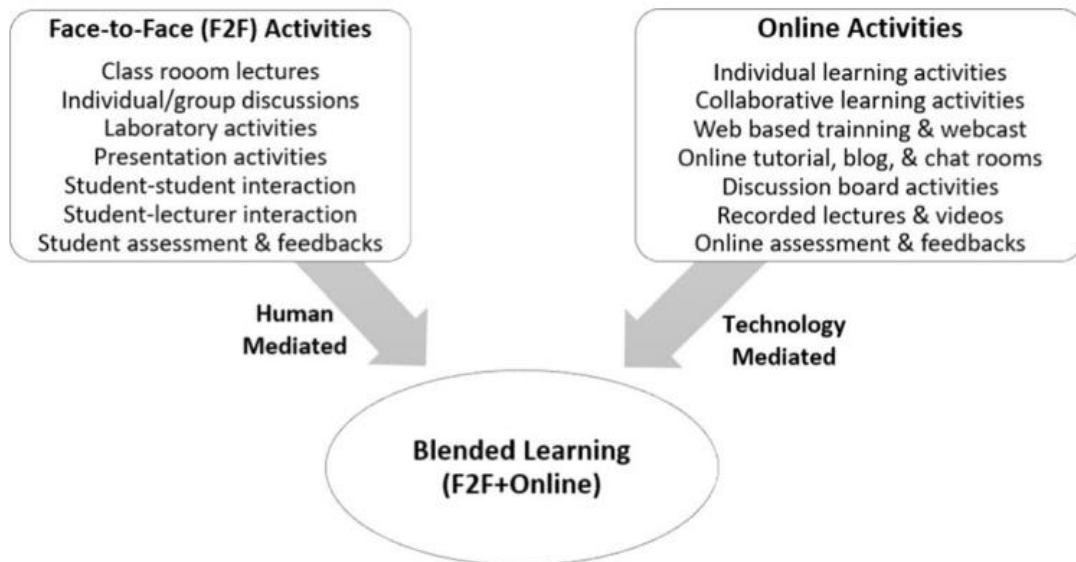


Fig. 1 Key aspects of BL derived from (Graham 2013; Moskal et al. 2013)

Virtual learning management systems, like Blackboard WebCT, Moodle, and other Web 2.0 platforms, are wont to support collaborative learning between students and professors in BL (Edward et al. 2018; Anthony et al. 2019). As a result, in step with Aguti et al. (2014), 80 percent of institutions in developed countries use a dynamic BL approach to support teaching and learning, with 97 percent of institutions using one or more kinds of IT-mediated learning. Figure 1 shows that BL instructional design and delivery methods include online activities like wordbooks, reading materials, an internet writing tool, a message board, web links, tutorials, a discussion forum, reference materials, simulations, and quizzes, among others (Anthony et al. 2019). F2F instruction, on the opposite hand, includes lectures, laboratory activities, assessment skill practises, presentations, individual/group conversations, and dialogues led by the lecturer to assess students' learning performance (Sun and Qiu 2017).

The use of BL in educational activity is certainly on the increase for a range of reasons (Bliuc, Goodyear & Ellis, 2007; Dziuban, Hartman, & Moskal, 2004; Garrison & Vaughan, 2008; Graham, 2006; Oh & Park, 2009; Osguthorpe & Graham, 2003; Shea, 2007). In fact, merging asynchronous learning platforms with on-campus courses could be a significant step forward in learning (Hiltz & Turoff, 2005), resulting in all learning (Masie, 2006; Massy, 2006; Ross & Gage, 2006). But what's it about blended learning that produces it so appealing? Before diving into this subject, it is a good idea to travel over how blended learning may be characterised in additional depth and expand on Graham's concept (2006).

“Blended learning may be a new sort of education prepared for a specific group by combining the positive aspects of various learning approaches” (Kazu & Demirkol, 2014, p. 79). Taking different aspects of the curriculum ideologies and mixing them into one package puts into practice a number of the foremost valuable parts of every of the ideologies. Each of the individual ideologies has their root in educating the kid, albeit with different methods and with different goals in mind leaving an unlimited array of approaches available to show the kid. Blended learning is one in every of such approaches. “The lack of one accepted definition for the term blended learning causes teachers to know blended learning in several ways and so design their courses in line with their own understanding of the concept” (Alammary, et al., 2014, p. 440).

Since there's not necessarily one universally accepted definition of the blended learning approach to the curriculum, teachers have the unique ability to settle on their role and style their course in an exceedingly way they see suitable best work to teach the youngsters they're teaching. “The term means various things to different people; however oriented; which there are age-related stages, to which the approach towards the kid must be tailored; which children must only be offered knowledge after they display a requirement for it” (Koops, 2012, p. 50). While it should not exactly be what Rousseau had in mind, blended learning gives teachers flexibility in their pedagogics thanks to the thought that almost all agree that there's nobody set definition of the teaching method and it gives students a specific amount of flexibility that they'll not have realized before. Rousseau failed to discourage the requirement for an instructor, rather he offered that the person should educate from a particular distance. “The key point is that the authority of the tutor isn't exerted over the kid in any immediate way. Rather it should prepare experiences for the kid. (Lewis, 2012, p. 92). In doing so, Lewis (2012) offers that at the very least an ‘appearance of freedom’ is there for the kid (p.92).r, many researchers suggest that the shortage of a universally accepted definition may after all be a part of the term’s strength” (Alammary, et al., 2014, p. 443). Taking from any of the prescribed roles discussed within the common ideologies, teachers, their schools or school systems have broad latitude to create blended learning what they need it to be. However, any definition of blended learning seems to “have one essential component in common – an integration of various instructional methods” (Alammary, et al., 2014, p. 443).

Blended Historical Perspectives

History has shown an academic landscape where existing themes that defined alternative ways of and reasons for educating have changed with the days. There was a time for educating children to be

memorizers and success was supported regurgitating facts and figures (Mertler, 2014). In its time, the essentialist way of training students was effective for the needs within which it absolutely was intended. the most effective ways to make sure the success of kids was also a priority for a few of the earliest philosophers that wrote concerning education.

Jean-Jacques Rousseau in his book, 'On Education', describes how adults should allow a student to be told and in doing so, he offered that this student would become "an autonomous adult concerned for the common good" (as cited in Zuckerman, 2012, p. 23). Rousseau described the fictitious character, Emile, as a student who "to the age of twelve, (his) education was entirely by experience. He didn't visit school, know of books, cultivate reason, or endure moral indoctrination" (Zuckerman, 2012, p. 21). Rousseau's thoughts on a perfect education for a baby included that the "pedagogy should be child

Blended learning serves to meet Rousseau's concept that teachers shouldn't consistently be the middle of the child's education. His suggestion that the tutor (teacher) should be doing their job without being the middle of the equation helps to underscore the argument for the potential success of blended learning. "The citizen of the West could be a Child of the Enlightenment" (Koops, 2012, p. 46) and it may be argued that educational systems should be held to the current standard. Rousseau was credited with saying, "teach by doing whenever you'll be able to and only fall back upon words when doing is out of the question" (as cited in Chapman & King, 2012, p. 71) and 300 years later, there's a movement working to form his ideal a reality.

Gaining traction within the early part of the 20th century, a special type of educational theory found acceptance in some circles. Progressivism may be a theme that emerged with the writings of educator (Mertler, 2014). Dewey's ideas led to a view concerning education where each individual student is, or should be, the middle of any programme. per Dewey, students' needs and interests should guide the happenings within the classroom and inquiry, discovery and innovation should be championed (Mertler, 2014).

When online learning was initially launched, it was widely assumed that it could handle an infinite number of students, making it an economically viable option for education (Schaber, 2010). Administrators across the state began pushing teachers to convert their classes to online courses as early as the mid-1990s, thanks to the economic practicality of online learning (Schaber, 2010). Shortly after, there was a widespread misconception that online learning would entirely replace traditional learning (Hajjian, 2011). Unfortunately, this effort for online learning did not prove to be as successful as hoped,

since learning remained largely passive—the only real difference being that lectures were now available online (Schaber, 2010). As a result, despite being the most cost-effective option, online learning

As traditional and online learning approaches continued to evolve, a third mode of teaching evolved as a result of combining the two. As a result, blended learning emerged as a method of combining the benefits of a variety of theories, technologies, and practises (Haijian, 2011). Since the inception of blended learning, there has been a lot of debate and research comparing traditional, online, and mixed learning to see which is the most effective. Researchers (Alijani, 2014; Nortvig, 2018; Anthony, 2019) have investigated, for example, Which strategy will result in the best learning outcomes, the most effective degree of student happiness, and the greatest credit completion? When the numbers are added together, however, it appears that the quantity of on-line versus off-line courses is just one of several variables that determine the effectiveness of an programme (Nortvig, 2018). Blended learning has resulted in an increase in students, a change in the organisation of learning, and a change in student engagement in recent years (Haijian et al., 2011).

Despite research-based facts and the clear reality that technology has made its way into practically every home and college in America, offering the ideal conditions for a transformation in the educational system, teaching methods haven't appeared to alter significantly. According to Alijani (2014), an economy's potential to grow is dependent in part on the performance of its educational system, and if today's students are to compete successfully in tomorrow's technology-based job market, the educational system will need to be significantly restructured. Blended learning, as seen in recent years, has the potential to be a method for achieving this restructuring, particularly because it not only inherently creates more opportunities for college students to participate in individualised, one-on-one instruction on a daily basis, but it also increases the allowance for credit recovery and advanced placement opportunities for college students in need of such opportunities (Alijani, 2014).

In the realm of education, an educator incorporates a great opportunity to seem at their curriculum in a very broad sense, beyond traditional structures (Jeffries, 2013). Recognition of the very fact that marginalized people have a natural connection to every other and this connection is strengthened through working together joined to realize movement. this concept of working together is best than working alone so these marginalized people can make meaningful change (Jeffries, 2013). How does an academic professional assist during this opportunity to form change? Through becoming a 'trickster' for the curriculum and his or her students (Jeffries, 2013). A 'trickster' could be a change agent, or someone who is in a position to work out the larger picture and chooses to try and do whatever they have to so as

to urge something done (Jeffries, 2013). An understanding of oppression and multiculturalism and the way it affects people in society is vital to understanding the logic behind studying the blended learning approach to classroom teaching. Students in classrooms that supply just one way of learning, or one methodology by which to realize information are inherently oppressive to students who don't respond well to it particular way of learning. It's through recognition of those actions as oppressive and understanding the possible differences in students through a multicultural lens that strides will be made to enhance their educational experiences. By implementing a blended approach, the researcher becomes the 'trickster' within the classroom and offers students a chance to require all other factors that help define them off the table.

Different perspectives and Conceptual Framework

Holistic Perspective – The delivery of teaching through numerous media is referred to as a holistic perspective. This includes using instructional material into a traditional classroom or a distant learning setting. It also encompasses any mix of media that facilitates instruction, regardless of whether the medium are synchronous or asynchronous (Holden & Westfall, 2006).

Educational perspective - From a pedagogically beneficial standpoint, blended learning refers to courses that combine online and traditional face-to-face class activities in a planned pedagogically value manner, with some face-to-face time substituted by online activity. It is primarily concerned with combining two distinct paradigms: synchronous classroom instruction and asynchronous internet instruction (Laster, 2005).

Pragmatic perspective - Courses that are taught both in and out of the classroom, using a variety of pedagogic methods to combine or combine instructional media with actual professional activities in order to create a harmonious result in terms of learning and coping. (Blended Learning, 2009).

According to the National Research Council (NRC), Blended learning instructional technique had four key components, according to the National Research Council (NRC), as quoted by Abdelaziz, H. A (2012). They are, indeed.

- Knowledge-based, with a focus on comprehension rather than memorization.
- Learner-centered, in which personal and cultural origins, as well as learning styles, are valued.
- Community-focused, with collaborative learning activities that build a community of practise and inquiry with legitimate peripheral participation.

- Assessment-centered, with formative assessment used to make students' ideas visible to them and performance-based evaluations.

Thus, the blended learning instructional design offers a framework for planning, developing and evaluating instructions supported the learners' needs, content requirements and delivery methods.

A Model Driven Design (MDD) is the concept of developing complex learning experiences using a team model (how the team is staffed and empowered), a process model (how the experience is developed), and a perceptual model (how the experience is discussed and visualized) (Stephen, L. (2012). Blended learning can be defined as an instructional design process that commits to attempting to achieve the following goals:

- To come up with a curriculum concept.
- To come up with a high-level design. Create a language and visuals that expresses the program's story.
- to ensure that each unit of the programme has a similar design
- to style and develop all supporting digital materials and exercises that support the educational objectives for the unit. to develop or identify the unit's core or source.
- Review and modify each curricular unit for completeness, effectiveness, and alignment with the planning objectives, as well as overall quality.
- To administer (teach) the new programme, provide support for the initial and ongoing teaching experiences, and analyse the program's long-term efficacy.

Blended learning has the potential to become a popular educational approach. Liu et al. (2016) found that blended learning had a beneficial effect on learning when compared to no intervention in a comprehensive review and metaanalysis of 56 papers. Furthermore, for knowledge acquisition, blended learning training was found to be as successful as or more practical than traditional instruction. At the course level, blended learning has a good influence. Liu compared student performance in a mixed learning course to student performance in a traditional classroom in a meta-analysis. Students in STEM fields had better learning outcomes than those in a regular classroom setting, according to the findings. Although a blended learning environment leads to favourable student results, little study has been done on the dynamic relationships that lead to those positive outcomes.

Psycharis (2013) has endorsed the improvement in students' performance and how it relates to participants' conceptual grasp, as well as the fact that students had more positive views about blended learning.

Taylor, M. L. (2012), have contributed to the research by identifying variables that are special to the blended learning process and lead to an organised and positive transition experience for the scholars from key stakeholders of students and deliverers.

According to Driscoll (2002) and Abdelaziz, H. A. (2012), such a learning environment should: Engage learners in activities to authenticate within the discipline in which they're learning, provide collaboration and the opportunity to interact with multiple perspectives on what's being learned, support learners in setting their goals and regulating their own learning, and encourage learners to reflect on what and how they're learning.

According to Horn and Fisher (2017), learning models usually include a variety of learning pathways and modalities rather than a single path or development toward meaningful technology integration in the classroom. Teachers who participated in Horn and Fisher's (2017) study recognised that blended learning uses technology to not only distinguish more precisely, but also to break down rigid silos of bell schedules, courses, and age-based cohorts. As a result, richer practises, such as multi-week projects, are developed, resulting in deeper learning.

One of the most crucial strategies for developing a sustainable society, according to the Chinese government, is to promote educational advancement, notably through the use of cutting-edge technology (Yao, 2018). Because technology promotes pupil growth and awareness 15, studies have demonstrated the effectiveness of new technology or educational approaches in promoting long-term development (Yao, 2018). The introduction and use of technology can benefit students' learning, training scheme, administrative, and management development (Yao, 2018). In order to expand coaching, educational leadership, and self-learning, education in the United States must embrace technological components through collaborating with other countries (Alaniz & Wilson, 2015; Singh & Liang, 2010).

While blended learning deviates from standard classroom teaching approaches, it has a variety of benefits, including less seating time, improved flexibility in learning outcomes, and increased learner control over their learning environment (Horn & Fisher, 2017). Because of the belief that this strategy improves student engagement, more institutions are implementing blended learning environments. This pedagogical transformation could help students have a better learning experience and achieve better learning results (Garrison & Kanuka, 2004; Graham & Robison, 2006; Manwaring, Larsen, Graham,

Henrie, & Halverson, 2017). The Blended Learning instructional paradigm employs a stage-by-stage approach to instruction production, with stages such as analysis, design, development, implementation, execution, and evaluation (Boitshwarelo, 2009). A focus on content structure, cognitive processes, and collaborative activities underpins this method. The various information kinds and performance goals determine the content structure. The focus of cognitive processes is on aspects that will improve cognitive activity, such as the use of visual formats to improve perception. Collaborative activities are defined by co-participation in activities as well as the trainer's facilitative role.

Blended Learning Model

Researchers developed a blended learning model for teaching. it's supported student's self learning through e-Learning and face-to-face classes. The blended learning style course based model has following four characteristics:

1. Students can study a basic course in Face-to-Face (F2F) lectures at university.
2. Students can implement the sensible a part of the lecture within the lab.
3. Instructors can give lectures and extra learning contents via e-Learning environment.
4. the sensible a part of the lecture may be simulated and available via e-Learning environment.

Essential elements for a blended course

- A. Course Design
- B. Course Content Development
- C. Course Delivery Platforms
- D. Course Transaction
- E. Course Assessment
- F. Discussion Forum

A. Design of course

The design of learning contents includes the essential course plan and proportion of sophistication theory and lab practical. It also includes the duration of every module, designing tests, and residential assignments. the aim of the training process is meant to strengthen the predictability of the educational process.

B. Content Development

In BL, teaching must revolve around resource availability and what all core and additional materials, particularly online resources, are required. These materials should be grouped according to the courses. In the event that online resources are unavailable, new content should be generated with the needs of researchers in mind.

C. Delivery of course and contents

Educators should select learning strategies that motivate learners, facilitate deep processing, build the full person, cater for individual differences, promote meaningful learning, encourage interaction, provide feedback, facilitate contextual learning, and supply support during the learning process. we will use open source LMS, Moodle to host e- Learning contents. the method of authoring courseware for Moodle includes the event of learning materials (weekly lectures and tests), adaptation rules and other content like student discussion groups and forums.

D. Course Transactions

It includes what activities and methods to include inside the classroom and what is outside the classroom. Activities that allow students to practice applying new skills and knowledge. The methods and activities should support the instructional methods and prepare the learner for the assessment. For example Use of the MOOC platform in a transactional way, focusing on the content and interactions that had the greatest impact on learners outcome.

E. Assessment

Assessment is one among the foremost critical ingredients of blended learning, for 2 reasons:

- 1) It enables learners to —test out all of the content they already know, fine- tuning their own blended learning experience,
- 2) It measures the effectiveness of all other learning modalities and events. At the top of the course an assessment of the scholars was conducted.

The purpose of the assessment is to seek out out their academic progress furthermore on what extent the students were accepting the educational model supported the blended learning strategy that integrates self-learning via online e-learning environment and classroom environment.

F. Discussion Forum

A discussion forum will provide an opportunity for students to discuss and have collaborative learning that engages them and allows interactions in an academic idea through which they can improve on their

writing and communication skills. Apart from this, they also improve their research and analytical skills.

Complex Adaptive Blended Learning Systems (CABLS) framework

Although many teaching institutions are adopting a blended learning strategy, there is little study on how a blended learning environment works as a comprehensive system. Future research should focus on non-linear interactions in blended learning with the implementation of the Complex Adaptive Blended Learning Systems (CABLS) paradigm to teaching institutions, according to Wang, Han, and Yang (2015). In a very blended learning environment, the framework provides a transparent perspective of the six subsystems (teacher, learner, institution, learning support, technology, and content influence the blended learning environment) that interact with one other (Wang et al., 2015). Instead of being isolated silos, these subsystems operate as dynamic entities (Wang et al., 2015). CABLS contains teachers as facilitators, moderators, guides, and advisors; learners as researchers, practitioners, and collaborators; institutions for strategy, support, service, and infrastructure; and learners as researchers, practitioners, and collaborators. Content for problem-based learning that is collaborative, interactive, and individualised; Technical and academic support, as well as technology for synchronous and asynchronous (online and offline) learning, are all available. The CABLS can help stakeholders gain a better grasp of blended learning's numerous components, making the process more practical (Wang et al., 2015). This approach can serve as a catalyst for blended learning research and institutional adoption of integrated learning environments. He emphasised the need for greater research into how people perceive non-linear interactions when using a blended learning framework like the Complex Adaptive Blended Learning Systems (CABLS) framework.

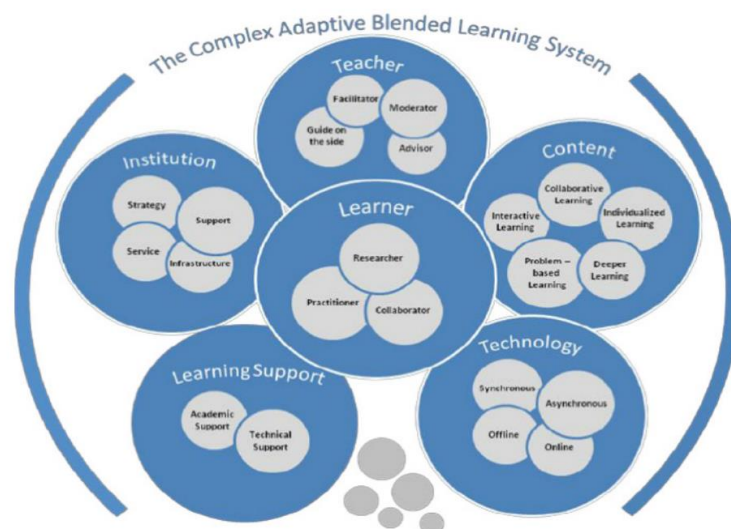


Fig 2: The CABLS used by Wang (2015)

Within a mixed learning setting, there are numerous relationships. Numerous research studies have looked at linear relationships in the blended learning environment (Boelens et al., 2018; Holmes & Prieto-Rodriguez, 2018; Horn & Fisher, 2017; Thurab-Nkhosi, 2018), but none have looked at the dynamic relationships between all of the components involved in the blended learning environment (Boelens et al., 2018; Holmes & Prieto-Rodriguez, 2018; Holmes (Wang et al., 2015).

There were no research that addressed all components of CABLS framework (Wang et al, 2015), rather following studies evaluated many linear interactions inside the blended learning environment.

- Boelens et al. (2017) investigate faculty perspectives of blended learning education in a qualitative study. Faculty and staff perceptions have also been investigated in addition to students' perceptions.
- Holmes and Prieto-Rodriguez (2018) 46 conducted a mixed methods study to see how 470 students and staff felt about a blended learning management system. The results showed that both groups thought the LMS was useful and liked how interactive the tools were (Holmes & Prieto-Rodriguez, 2018). There have been disagreements, however, about the accessibility of internet content (Holmes & Prieto-Rodriguez, 2018). Blended learning research has also looked into the perspectives of administrators.
- Thurab-Nkhosi (2018) did a qualitative study to investigate the perspectives of administrative officers and deans on the blended learning implementation phase. Leaders should present a transparent vision and approaches for effective blended learning, according to the findings (Thurab-Nkhosi, 2018).

Blended learning Approaches

According to the literature, blended learning courses can be created in a variety of methods, ranging from adding extra online activities to a traditional face-to-face course to creating the entire blended learning course from scratch. Due to the lack of a universally acknowledged definition for the phrase blended learning, teachers come to perceive the notion in a variety of ways and then build their courses accordingly.

By examining different processes of designing blended learning courses, Alammary, Sheard, Carbone (2014) were able to identify three distinct design approaches:

- (1) Low-impact blend: adding extra activities to an existing course
- (2) Medium-impact blend: replacing activities in an existing course

(3) High-impact blend: building the blended course from scratch.

1) Low Impact Blend Approach

Extra online exercises are added to a typical face-to-face training in the low-impact approach. The extra activity may have been added to meet a pedagogical need and has shown to be a useful addition to the regular course. McCarthy (2010), for example, added an online activity to a program called Imaging Our World in order to encourage students to communicate more with their classmates. McCarthy required his students to submit work on Facebook and write criticisms of their classmates' entries in addition to the traditional teaching methods of lectures and tutorials. The resulting dialogues were then brought into the real classroom to help students form meaningful relationships that would support the fledgling online ties. He assessed his performance through weekly student comments, pre- and post-semester questionnaires, and project-specific reflections at the end of the semester. He noticed that Facebook's extracurricular activities provided an opportunity for college students to establish basic academic and social contacts with their peers while satisfying a variety of learning demands.

However, in another case, a study conducted by Kaleta et al. (2007) found that the majority teachers designing blended courses add online components to their traditional courses without eliminating any of the prevailing activities. They called this phenomenon “the course-and-a-half syndrome”. Kaleta proposed that adding extra online activities onto an already established course normally happens when inexperienced teachers build their first blended learning course. By simply adding on to their courses, these teachers try and get the advantages of blended learning without investing the trouble in rethinking the full course objectives within the context of a blended learning model.

Benefits

(1) an easy method for creating blended learning courses that could persuade reticent teachers to participate in mixed learning. According to Silverwood (2006), teachers who could benefit from blended learning may be hesitant to implement it because they believe it is excessively hard and technical.

(2) a quick method for creating a mixed learning course. Teachers can introduce a fresh new activity that fits a specific pedagogical need without spending time and effort rethinking and replanning the entire course or studying the different possible blended learning components and delivery systems, if they are motivated by a specific pedagogical need.

(3) a coffee risk of failure if used improperly. The three key risk factors identified by teachers who, according to Vaughan (2007),

(4) A basic understanding of how to teach a conventional course is sufficient to style a mixed course. Even if the trainer has little expertise, he or she can notice a section of the course that would benefit from an additional online exercise.

Challenges

(1) To successfully use this strategy, teachers must have some technology understanding. According to Cennamo, Ross, and Ertmer (2009), in order to successfully integrate technology into the teaching experience, teachers must be able to:

- identify which technological tool is required to meet a specific pedagogical goal
- specify how the tool will be used to assist students in achieving that goal
- improve students' ability to use appropriate technological tools during the various phases of the training process: exploration, analysis, and application

pick and implement technology tools that would enable them to identify and address requirements and challenges related to their own professional development.

(2) A low-impact blend has a high chance of producing two distinct courses. Adding online work to a traditional course without lowering in-class time, according to Newcombe (2011), often results in two separate courses, one online and one face-to-face.

(3) Adding an extra activity is generally perceived as a burden rather than a benefit by pupils. Many students may view the additional exercise as just another chore on top of an already dense course (Garrison & Vaughan, 2011).

(4) Adding a fresh new activity without removing an old one might significantly increase the burden of the instructor. As a result of introducing more online teaching tools, teachers may suffer time limits and onerous workloads.

(5) Extracurricular activity in an established course is frequently overlooked by administrators, and teachers are thus underpaid for their efforts (Amiel & Orey, 2007). According to Lee and Lee (2008), one of the most significant variables influencing teachers' usage of e-learning is inadequate compensation and incentives.

2) Medium Impact Blend Approach

In the medium-impact method, an existing course is modified by substituting online components for a number of face-to-face activities. This strategy is based on the notion that some elements of the course would be easier to complete as online activities. In some circumstances, the remaining face-to-face sessions are retained exactly the same, while in others, the in-school activities are changed. A makeover of a second-year government course is an example of this method (Garrison & Vaughan, 2011). Originally, the subject was taught in three one-hour lectures per week. The trainer noted that the same four or five students dominated the case studies addressed at school. The replacement method was used,

and the three lectures were reduced to two and a half. Because of the replacement method, the three lectures were reduced to two and a web discussion was added. The lecturer separated students into small groups and monitored the conversation time using a learning management system (LMS) for the web discussion. The LMS was also known for informing students on the nature, frequency, and length of their contributions. The credit for the discussion was adjusted to 10% of the final grade by the lecturer. The redesign yielded positive outcomes, including the scholars in more protracted and meaningful conversation.

Benefits

(1) With this technique, teachers can start small and build up gradually, substituting course components pro re nata (Duhaney, 2004).

(2) Teachers' confidence in running a blended learning course might be bolstered by their expertise with this approach (Ertmer & Ottenbreit-Leftwich, 2010).

(3) A good option for professors who have some expertise with blended learning design but don't want to risk making major modifications to their courses. Teachers, according to Kaleta and Garnham (2005), prefer to teach in the same traditional method that they are accustomed with and comfortable with, and find it difficult and challenging to devote a significant amount of time and energy to developing a new course.

(4) Provides teachers with continual chances to experiment with new learning methodologies and educational technologies without sacrificing the basic course's benefits. Learning to utilise technology in an acceptable and effective manner is difficult, according to Garnham and Kaleta (2002), but it may be improved with practise.

Challenges

(1) To apply this approach, teachers must have a strong understanding of technology and a certain amount of confidence, as there is no going back to the prior manner of teaching. The authors found that while knowing how to use technology is important for students' learning, it isn't enough if the instructor doesn't feel comfortable doing so.

(2) Creating a mixed course necessitates devoting time and effort to the replacement and integration of new course components.

(3) There are no clear guidelines for determining what proportion or part of a course should be changed. Many elements impact such judgments, the most important of which being the nature of the course content and, as a result, the teacher's aims (Vaughan, 2007).

(4) Previous experience teaching the standard course is advantageous. When adopting this strategy to

construct a blended learning course, one of the most difficult challenges is identifying the aspects of the course that don't perform well in the traditional format and determining whether they can operate better online. This procedure is complicated by the fact that I have little or no prior experience teaching the subject.

(5) For a successful implementation, extensive long-term preparation, observation, and evaluation of the course are required. Arriving at a fair balance between online and face-to-face components could be the result of a gradual process of introducing new resources or techniques to replace existing ones, and then evaluating whether the use of those new resources or techniques aids students in meeting their learning objectives (Duhaney, 2004).

3) High Impact Blend Approach

The blended learning course is built from the ground up in the high-impact manner, encompassing full redesign, entire redesign, and radical transformation. Harriman (2004) and Hofmann (2004) have defined a standard thanks for using this strategy (2006). They suggested that instead of observing the entire course, the teacher should focus on each individual learning outcome. The trainer must choose the most straightforward method of delivering each outcome. They stated that by using this strategy at the level of educational outcomes, teachers will be able to obtain the most effective blend of technologies and will be able to create a better curriculum. This technique is consistent with the constructive alignment model of curriculum creation, in which assessment tasks are aligned with educational outcomes (Biggs, 1996). Hofmann also stated that it is incorrect to believe that redesigning an existing course will take less time than creating a replacement course, and that designers should instead build the entire course from the ground up, without regard for "slaying the sacred cows of successful traditional programmes" (Hofmann, 2006).

Benefits

(1) Allows for enhancements to the current course as well as the reduction or elimination of difficulties. Teachers begin with a fresh viewpoint and a better possibility of creating more successful courses, especially when the standard one has issues (Graham, 2012).

(2) Facilitates the integration of online and in-person components. According to Littlejohn and Pegler (2007), it is necessary to build the course from the ground up in order to effectively integrate face-to-face and online components.

(3) Provides teachers with the opportunity to maximize the benefits of blended learning and better address the needs of their students. Building the course from the ground up allows you to rethink and restructure the entire course with the needs of the learners in mind. Teachers are willing to consider

incorporating a broader range of delivery methods into their courses, which will improve the effectiveness of the courses (Carman, 2002).

Challenges

- (1) Successful application of this strategy necessitates a high level of technological understanding and confidence. One of the most important elements influencing teachers' technology integration, according to Abrami (2006), is their belief that technology can assist them achieve their instructional goals.
- (2) The strategy has a larger risk of failure than the alternative alternatives since it requires students to take a completely new and untested course.
- (3) Teachers must think about a large number of blended learning components and completely comprehend their ramifications. According to Walters (2008), teachers encounter challenging conditions and pressure while revamping their courses due to the large number of distribution channels available, the vast range of technological combinations available, and the lack of precedents to follow for specific combinations.
- (4) Designing for mixed learning requires prior experience. Teachers who lack the necessary academic knowledge and hands-on experience will find it difficult to fully utilise blended learning. Many authors also said that having a basic understanding of technology and gradually experimenting with blended learning might assist teachers understand how technological media are used in the classroom.
- (5) It takes a long time to plan and build a completely new blended learning course. According to Vaughan (2007), designing a blended course takes two to three times as long as developing an equivalent course in the traditional format.

Online Learning Managing Tools

Educational institutions are seeking for ways to incorporate technology into their teaching and learning processes as online learning grows increasingly popular across the country. As a result of technology improvements, blended learning has exploded. LMSs are also used by institutions to manage and provide instructional content (Psycharis et al., 2013).

Blended learning, according to current research, promotes communication and teamwork while also engaging the student (Aslan et al., 2011). While blended learning and learning management systems (LMSs) have many advantages, researchers have observed that incorporating blended learning into teaching and learning poses a number of challenges (Comas-Quinn, 2011). According to the researchers,

LMSs like as Moodle allow teachers to provide specialised instruction, deliver e-assessments, and provide feedback, allowing for self-regulation (Blanco & Ginovart, 2012).

Moodle and Learning Management Systems

A learning management system (LMS) is a web-based platform for organising and disseminating educational content. They assist institutions, students, and professors with teaching and learning methods, course development, evaluations, and assessments, among other things (Psycharis et al., 2013). Students can also participate in asynchronous discussion threads, synchronous chat rooms, and other forms of learning communication using LMSs or virtual learning environments (Ssekakubo et al., 2013). Among the alternatives are Canvas, H5P, Moodle, Padlet, Mindmap, Kahoot, Quiz Editor, and other LMS.

Moodle is a management system focused on cooperative learning that allows teachers to create a student-centered environment. It was created by Martn Dougiamas, a WebCT administrator (Sanchez & Hueros, 2010). Moodle is based on constructivist and social constructivist learning methods, which empower students to generate their own knowledge (Janzen et al., 2012; Ursache et al., 2012). This open source platform is jam-packed with essential features. Moodle allows teachers to design or upload lessons, quizzes, assignments, and discussion forums that are all linked to a grade book (Ursache et al., 2012). Items can be timed, password-protected, and have set completion times (Brandl, 2005). Moodle also allows you to upload and share a variety of files, including HTML pages and multimedia files like graphics, movies, and audios (Brandl, 2005). Because of its simplicity, this technique is employed in over 200 nations and 80 languages (Tiantong & Teemuangsai, 2013).

Tiantong and Teemuangsai (2013) looked at how Moodle was utilised by student team accomplishment divisions to determine if it enhanced student achievement. The study's authors defended it by arguing that teaching and learning should be tailored to a diverse group of pupils, involve problem-solving skills, include 21st-century technology, and promote collaboration (Tiantong & Teemuangsai, 2013). Students worked in four to five-person groups to reach a learning goal, then took individual assessments to see how successful they were. Moodle, the authors concluded, was a pleasant tool for planning and organising collaborative learning sessions (Tiantong & Teemuangsai, 2013).

Despotovi-Zraki et al. carried out a similar study (2012). The researchers wanted to see how effective an adaptive Moodle course was compared to a nonadaptive course (Despotovi-Zraki et al., 2012). Teachers without programming knowledge were able to adapt the course by adjusting instructional

materials and exercises, according to the findings (Despotovi-Zraki et al., 2012). Adaptivity, which takes into account a student's learning style, allows for individualization of a course. This technique was selected by 95% of students since it helped them get higher results and grades (Despotovi-Zraki et al., 2012). To be useful in offering results for improvement, feedback must occur when the student is thinking about the concepts (Brookhart, 2012). Moodle's quiz modules include fill-in-the-blanks, multiple choice, true-false, matching, and short answer questions (Brandl, 2005). Moodle quizzes' role in formative e-assessment was investigated by Blanco and Ginovart (2012). Students in two first-year math classrooms performed a series of online e-assessments to see how well they understood the material. Moodle quizzes have been found to be an efficient way of notifying students about their performance since they provide rapid feedback without putting the instructor under too much pressure (Blanco & Ginovart, 2012). According to the authors, more research is required.

E-assessments and self-regulation

Formative assessment has long been hailed as a critical strategy that allows educators to improve their methods and students to self-regulate their learning (Black & William, 2009). Because of its link to learning efficacy, self-regulation has become increasingly crucial (Wang, 2011). Self-directed learning allows students to plan, manage, and drive their own learning and learning activities (Wang, 2011). Teachers can use the Moodle quiz tool to provide students with automatic feedback to diagnose their learning (Brandl, 2005).

Formative assessment, according to Black and William (2009), entails five main strategies:

1. A tool for clarifying and sharing learning objectives;
2. A tool for creating evidence of student understanding through classroom discussions and other means;
3. A tool for producing feedback to help the learner progress;
4. A tool for allowing students to assist one another; and
5. A tool for activating students to self-regulate.

These methods should be implemented through the activities that an instructor provides. Other researchers (Brookhart, 2011; Hattie, 2012; Hattie & Timperley, 2007) have also underlined the value of timely, focused feedback. Because feedback is typically immediate, ICTs have the potential to be an useful formative assessment tool, allowing pupils to self-regulate (Gullen & Zimmerman, 2013; Wang, 2011). In her report to the Council of Chief State School Officers, Heritage (2010) stated that formative

assessment is utilised as a test, but it should also be a tool that provides timely information about students' learning status in relation to a "gap" of data (p. 15).

Engagement and collaboration in a blended learning environment

Students can use technology to move learners in ways that are different from traditional education by fostering new and effective methods to speak and collaborate in a blended learning environment (DePietro, 2013; Garcá-Valcárcel et al., 2014).

Delialioglu (2012) compared student involvement in a lecture-based learning environment to a blended learning project-based learning environment. Blended learning combines face-to-face instruction with the use of technology (Kliger & Pfeiffer, 2011). Multiple surveys were distributed to determine motivational factors, and Delialioglu concluded that students in project-based blended learning contexts were much more engaged than students in traditional classroom learning. Future study, according to Delialioglu, should look into instructor behaviours in blended learning environments and their impact on student engagement, as well as how blended learning affects teachers' everyday responsibilities and practises.

Downing et al. (2014) investigated the use of student-generated movies in a blended learning setting. University students stated that they had a better knowledge of the course topic and were more engaged with the use of technology (Downing et al., 2014). 23 In addition, students stated that they had more opportunities to work on real-world challenges that required collaboration and critical thinking (Downing et al., 2014).

Garcá-Valcárcel et al., 2014; Gedik et al., 2012; Klobas & McGill, 2010; Tu et al., 2012) have found that blended learning is helpful for faculty children. Blended learning students were more interested and motivated to be told, according to Gedik et al. (2012) and Garca-Valcárcel et al. (2014), especially when the activity had real-world significance while personalising teaching and serving as a tool to provide effective feedback (Francis, 2012; Horn & Staker, 2011; Kliger & Pfeiffer, 2011). Furthermore, students expressed flexibility and cooperation in learning, including synchronous and asynchronous opportunities as well as individualization (Garca-Valcárcel et al., 2014; Gedik et al., 2012). Chickering and Gamson (1987) specify that active learning occurs through cooperation, communication, engagement, effective feedback, and variation in teaching and learning, and blended learning adheres to these concepts. While blended learning has proven to be useful, it does not come without its drawbacks.

Challenges of blended learning

India's higher education system has immense potential for developing a knowledge-based information society capable of reaping the benefits of technological advancement in the twenty-first century. However, the system has numerous challenges today, including funding and administration, including access, equity, and relevance, reorientation of programmes to emphasise values and ethics, and quality of education, as well as the growing use of information and communication technologies (ICT). The most pressing issue is our goal of significantly increasing intake capacity in order to get closer to the global norm of 40%. To meet this goal, we'd like to significantly increase access to both public and private educational institutions.

Blended learning raises a number of concerns. (Garcá-Valcárcel et al., 2014; Gedik et al., 2012; Sanchez & Hueros, 2010) have both complained about the time commitment required to appreciate a grasp of technology. Users of ICT require technical assistance and knowledge of the technology's perceived utility in order for their attitudes to be influenced (Capo & Orellana, 2012; Gedik et al., 2012; Sanchez & Hueros, 2010). Teachers are also afraid that students would become overly reliant on being told what to do or how to do it, leaving them unable to manage their own learning (Garcá-Valcárcel et al., 2014; Tu et al., 2012). Similarly, after polling 200 undergraduates to see if technology improves engagement, LaRoche and Flanigan (2013) discovered that students were disengaging from school events by going on Facebook or checking their emails. Students do not disengage when the teacher comes prepared and gives possibilities for real-world problem-solving using technology, according to LaRoche and Flanigan, who did not disagree that engagement can occur in a very integrated learning setting.

The following are the major issues that have always existed before the Indian educational system, according to Bansal (2014): In India, there are infrastructure, socioeconomic, linguistic, and physical impediments to education for those who choose to pursue it (Bhattacharya and Sharma, 2007). Education quality involves infrastructure, teachers, and, as a result, process quality. Central and state governments set aside roughly 3.5 percent of GDP for education, compared to the 6 percent targeted by the government (Ministry of Human Resource Development, 2007). Acquisition of skills –Skills are essential for a rustic's economic progress. As our economy grows, we must place a greater focus on the acquisition of skills for production and administration, in addition to knowledge.

Rapid socio-economic and technical changes in emerging nations, particularly in India, have created a clear requirement for educational institutions to assess their teaching procedures from a fresh viewpoint in order to meet the challenges that lie ahead in knowledge-based societies. These challenges include a large population of learners with diverse needs, motivations, abilities, learning preferences, time

availability, and course content requirements; a need for more "client" responsive and versatile courses without corresponding increases in funding; and, as a result, the drive to use information and communication technology (ICT) in teaching and administration. 2014 (Bansal). There are disadvantages to education in India, as well as everywhere else on the earth, such as a shortage of learning materials, teachers, remoteness of educational facilities, and a high dropout rate, to name a few (UNESCO,2002) Digital divides, literacy barriers, financial constraints (primarily in developing countries), changes (increases) in student enrolment numbers (which could be a global phenomenon), global technological developments, and competition between and among HE institutions as well as emerging providers of higher education (all global phenomena) are examples of the forces that drive change contexts (Bansal, 2014).

Kaur (2013) described the subsequent challenges of blended learning

- Technical Issues- The technical issues aren't related to getting technology to work on networks. Rather, they include guaranteeing the program's success by implementing and supporting relevant technologies. Technical hurdles include ensuring that people can utilise the technology successfully and refusing to use technology merely because it is offered. 2011 (Hofmann)
- Organizational Issues- While management generally agrees that blended learning is the way to go for training programmes, it fails to see that this is a sophisticated process that requires more consideration than a one-on-one programme. Overcoming the notion that blended learning isn't as effective as traditional classroom training are among the organisational hurdles. The facilitator's role is being redefined, as is the management and monitoring of participant growth. 2011 (Hofmann)
- Instructional Issues- When learning technologies are introduced, the focus is usually on technology installation, leaving the development of specific appropriate material with insufficient time and funding to provide a successful programme. Observing the manner to teach, not just what to display, is one of the most difficult aspects of instructional design. Matching the most efficient delivery method to the desired results, Instead of simply "talking at" participants, keep online services interactive. With "non-live" features, ensuring participant commitment and follow-through is crucial. Assuring that all of the blend's weather is in sync (Hofmann, 2011)

Chapter 3 Methodology

The methodology design of each research gives focus to the research and provides direction to the researcher. This helps to realize the objectives come into being.

The qualitative approach to data collecting is presented in the section on research methods. The research setting is then described, including the study design, tools, study location, participant information, and data collection methodologies. Finally, the techniques for doing research and analysing data are outlined.

The goal of this qualitative study was to explore how teachers and students viewed blended learning as an educational tool for meeting the needs of a diverse group of students. The study explored the challenges faced by faculty and students of higher education. It also emphasized the approaches and methods employed by them. How people live, work, communicate, and learn is being impacted by the rapid rate of technological change (Horn & Staker, 2015; Means et al., 2013). Despite the fact that the development of technology in the classroom has changed the dynamics of educating 21st century students, many teachers do not appear to be equipped to adjust their pedagogical techniques to effectively utilise technology to personalize learning (Greer et al., 2014; Harasim, 2017; Horn, 2010; Means et al., 2010, 2013). Blended learning is a teaching strategy that has swiftly gained popularity among K-12 educators as a cost-effective way to create a student-centered educational environment (Means et al., 2010; Powell et al., 2015; Suprabha & Subramonian, 2015; Wills, 2015). Both teachers and students benefit from learning to balance effective face-to-face pedagogical techniques with relevant technology-enabled learning experiences (Kieschnick, 2017; OET, 2017).

Qualitative Research Design

Qualitative research investigates a claim in order to comprehend a phenomenon. Qualitative research, according to Smith (1987), is based on the concept of context sensitivity. It is intended to learn about participants' perspectives and experiences, as well as to gain in-depth knowledge of the issues and benefits. The pertinent literature established that the problem exists in other institutions (Creswell, 2012; Merriam, 2009). Learning occurs when knowledge is shared and built jointly, according to the literature review and theoretical framework (Paily, 2013; Siemens, 2008). ICT, according to Chickering and Gamson (1987), could be a good resource for active learning, which includes cooperation, communication, involvement, self-regulation, and individualization. Researchers have discovered that

technology can help students learn better, but further research into teacher pedagogy and satisfaction is needed (Al-Ani, 2013; Delialioglu, 2012).

The strategy, plan, and structure of a groundwork project are defined by the research design (Creswell, 2000). As a result, it is critical that an appropriate design be established for this study in order to better define the research and get better results in data gathering. Therefore the study design utilized during this research is that the explorative design. The researcher uses the qualitative exploratory research methodology to explore the teachers' and students perspectives of the blended learning model. Exploratory research design is a qualitative theoretical framework for gathering background information and defining the research problem's terms. This is frequently used to clarify research challenges and hypotheses, as well as to determine research priorities. Because the participants express their sentiments and describe what they think and experience through their own self-awareness and experiences, the researcher receives knowledge (Connelly, 2015; Smith, 1987). The premise that the physical, historical, material, and social environment in which individuals find themselves comprises a good concerning what they think and thus the way they act within the environment sets research apart most clearly from other types of qualitative writing studies research (Heath, 1997; Smith, 1987).

In qualitative investigations, the researcher is the first tool used to collect data from a small group of people (Creswell, 2012; Merriam, 2009). Data was gathered via a questionnaire, interviews, observations, and documentation, allowing me to piece together how the participants feel and behave when it comes to using technology, and thus the LMS. To provide a relevant picture of the study, the data was evaluated to uncover overarching themes (Creswell, 2012). These are the research's themes and findings. The researcher was able to look at instructor experiences and student comprehension in order to create a student-centered learning environment using blended learning as an instructional style. The researcher gained a better knowledge of how teachers modify instructional approaches to customise learning by examining the real experiences of teachers across the entire process, from professional development through classroom application. Data from in-depth interviews with these teachers, which covered their experiences from the start of their blended learning professional development programme until the time of their interview, offered useful information to help instructors improve equity and accessibility for all students.

Sampling strategy

A relatively small and purposefully selected sample could even be used in a qualitative study (Miles and Huberman, 1994), with the goal of speeding up the depth (as opposed to breadth) of comprehension (Palinkas et al., 2015). All of the subjects were chosen with the research's primary objectives in mind. This study used purposeful sampling to investigate teacher attitudes of blended learning as an educational tool for meeting all students' tutoring needs. Purposive sampling is a type of non-probability sampling in which researchers choose people of the population to participate in their study based on their judgement. Patton is a general in the United States Army (2015), Keep in mind that in qualitative research, smaller sample sizes are purposely chosen by researchers to conduct an in-depth investigation of a certain topic. "Qualitative purposeful sampling draws its rationale and power from the pressure on in-depth comprehension of individual circumstances. Patton (2015, Patton, 2015, Patton, 2015, Patton, 2015 Purposive sampling is "used to pick respondents who are presumably to provide suitable and useful information" (Kelly, 2010: 317), and it will be utilised to find and select cases that will effectively use limited research resources (Palinkas et al., 2015).

During this research, snowball sampling was also used. The researcher had contacted a number of participants who were familiar to her at some point during the process, while the remainder were contacted through their assistance. Snowball sampling is a method of collecting study subjects who are used to providing the names of other actors or subjects. It's a non-probability sampling strategy in which current study participants recruit prospective study participants from their social circles (Michael, 2004). It's a convenience sampling strategy that's used when finding subjects with the desired qualities is challenging. This strategy is based on referrals from previously survey participants to other people who are thought to have the desired feature (Johnson,2014). Sampling will continue until the data is saturated.

The role of the researcher

As a researcher in the field of education who deals with blended learning, the researcher first established a knowledge of how technology advances have influenced education. To get an accurate knowledge of participant experiences, the researcher maintained objectivity throughout the research investigation. This was necessary to ensure that the study's findings may potentially inform instructional methods and that the study's goal was met. The study was done in an ethical and responsible manner, with participants' rights protected, in order to provide a credible, dependable, and transferable study.

Prior to collecting data, the researcher obtained the participants' consent for the study. She decided to introduce herself as a Mphil research scholar and working on the blended learning for educational

purpose to the participants. This helped the researcher in explaining her purpose of contacting them. As part of the research, she gave a short about herself, and her research topic. This method provided participants with a sense of safety while listening to the researcher lecture. There were no hazards to any of the volunteers who elected to participate in this study, and their participation was completely voluntary. All participants were given a detailed written description of the study's purpose, as well as information on how data would be gathered and stored. Before collecting data, the researcher sought written consent from each participant. The researcher made certain that the information was kept safe and secure. The researcher stated that all participants were aware that they might leave the study at any time. To ensure that participant names remained anonymous, pseudonyms were used. Researchers send them a questionnaire via E-mail or in a textual matter within the institutes visited. Following the interview, asked them their time for further detailed conversation with them. In the end, researcher asked feedback for the full data collection and interaction with them and any additional comment they might give in order that the participants feel valued and share anything they felt they may add. At the end, she thanked them for being supportive and responsive. The researcher explore for the following objectives for this study-

- To understand the faculty and student's perceptions towards blended learning
- To explore the challenges of blended learning faced by higher educational institutions

Participants

A purposeful sample of 20 faculty and students respectively participated in this study. The faculty were from higher educational institutions. Most of them were using online learning tools for teaching as access to technology increased especially after the pandemic. The educators are from diverse regions, with different designations and have more than seven years of teaching experience. Researcher contacted a few educators through the contact of her guide and that were known to her, further remaining faculty members were contacted through snowball sampling.

Students of final year and masters year participated in the research survey. The key informants were researcher friends, their friends, sibling classmates or neighbors. They were contacted first and explained the purpose of the questionnaire and interview. Through them, she had got the contact details of their known, whom she further contacted regarding the same. Some of them initially agreed for the questionnaire and interview but later refused for the same for one or the other reasons. Some of the participants readily scheduled and participated in the research.

The researchers contacted the participants via e-mail or phone and invited them to participate in the study. The survey was emailed or handed out in hardcopy to all participants with whom the researcher

met at various educational institutions. The participants were told to answer all of the questions and send the survey back to the researcher. In the poll, all respondents were invited to complete a one-on-one extensive interview to share their views on blended learning and the problems they faced in embracing and integrating technology in the classroom. Participants' vocal and written comments were recorded and examined to determine how they felt about the blended learning paradigm. Responses to survey questions, as well as the follow-up one-on-one interview conversation, yielded themes and patterns that helped the researcher grasp the research study's goal. The researcher can acquire a better understanding of the qualitative data by using the perceptions.

Locale

The principal objective was to determine the challenges faced by higher education faculty and students while adopting blended learning, also what are their perceptions towards it and for the same Delhi and Meerut were chosen as a locale.

Delhi is a true cosmopolitan metropolis. From glorious pasts to vibrant contemporary, the city captures the essence of multiethnic India perfectly. In terms of educational institutions, there are various higher education universities and institutions situated in Delhi. In addition to cultural diversity also people from different states, across the country as well as from different nations migrate to Delhi. Researchers get an opportunity to interact with diverse groups of people.

Meerut is a city situated in Uttar Pradesh, India. There is no significant study available on blended learning. Researcher try to know the perceptions and approaches of blended learning from teachers and students at Meerut. In addition, Meerut is a developing city and to know more about this locale is important for a researcher.

Besides these two locations, one participant each from Maharashtra and Rajasthan were there. Since snowball sampling was used, therefore faculty from Delhi know higher education faculty from these two places. This way faculty from diverse groups were part of the study. This helps the researcher to know the different perspectives.

Research Instrument

The questionnaire and interview with participants were the key sources of data collection for this study, which were based on the research questions that guided it. Given the tiny size of the population, respondents were polled via questionnaires and semi-structured interviews. These are semi-structured in the sense that they follow methods that are less structured (Berg, 2004). The questionnaire and interview each had a collection of questions and bullets that were not precisely organised according to

a pattern, but were designed in such a way that the study topic was not lost. Closed-ended and open-ended questions were included in the questionnaire, and semi-structured questions were used in the interviews to allow for further study of the issues. The researcher asked probing and in-depth questions from higher education institutions faculty and masters and final year graduate students aimed at finding out the challenges, nature of the blended teaching-learning model. What approaches and strategies they used while implementing both online and offline modes. Two different sets of questionnaires (approximately 50), one for faculty and the other for students were circulated. In order to explore further, one-to-one interaction with teachers and students was done respectively. The questionnaire was administered by the researcher followed by an interview. The collection of this data provided important additional insight into the students' and teachers' experiences. It attempts to explore and explain the conditions of the present by using many participants and using questionnaires; interviews to describe a study fully.

- A questionnaire is a quick-reference tool that consists of a series of questions or other prompts designed to elicit information from a respondent. The Statistical Society of London created questionnaires in 1838. These are usually a combination of closed-ended and open-ended inquiries; long-form questions allow the respondent to elaborate on their opinions. It has a qualitative as well as a quantitative aspect. It may or may not be presented as part of a survey's design, but a survey always includes a questionnaire (Bhatt, 2018). An oversized sample questionnaire was chosen to grasp data.
- "Interviews provide people with direct quotes about their experiences, ideas, feelings, and knowledge" (Patton, 2015). Interviews are a type of qualitative research that include conducting in-depth individual interviews with a small group of people to learn about their viewpoints on a specific topic, programme, or situation (Connaway, 2018). Before conducting interviews, it's a good idea to prepare an interview guide that will help you steer the conversation toward the themes and issues you want to hear about. Before conducting an interview, themes for the interview guide were created. During the interview, the researcher used an interview guide with open-ended questions. Each interview was scheduled around the participant's schedule. The interview session allowed participants to provide instances and scenarios of events and incidents that they have encountered when developing an academic blended learning model, as well as to learn more about the respondent interview approach in depth. During the interviews, the researcher made written notes.

The qualitative data for this study were collected through student and teacher surveys via questionnaire and interviews. This study was conducted in two phases. the first phase was using

questionnaires with teachers and students and thus the second phase was interviews designed to know in-depth about the participants. This study was designed to probe the next research questions:

- What are teachers' and students' views on blended learning adoption and implementation at university level?
- How do applications and methods of blended learning influence teachers' and students' teaching-learning?
- What challenges do teachers and students faced while using blended learning for teaching and learning?
- What are the approaches and methods for the successful implementation of blended learning for higher education?

Data Analysis

The data was processed, evaluated, structured, and reorganised by the researcher in search of patterns and themes. To decide whether data needs to be recategorized, the researcher analysed data themes and classifications and looked for similar patterns. According to Bogdan and Biklen (2006), analysis entails analysing data, organising it, breaking it down into themes, synthesising, finding for patterns or sequence, determining what is essential and what should be learned, and selecting what should be shared with others.

The data collected through questionnaires and interviews was subjected to qualitative analysis. The information obtained from students about perception and teaching-learning styles of the blended unit through data collection, insight was gained on any possible different external factors that may have led to the results. The questionnaire data was organized and sorted them into themes. Followed that interviews were audio recorded and were transcribed separately and then analyzed. The data was transcribed in excel sheets. Specifically, information concerning teaching-learning style, attitude and perceptions, and access to technology was organized and sorted that the teachers and students shared. As the data was divided across various themes, therefore thematic analysis was done, while being open to new themes emerging during the analysis.

Reliability and Validity

The content validity of the instrument was established by having university experts assess it for accuracy and completeness. The survey was also examined by the researcher's dissertation advisor, who is a specialist in ICT and blended learning environments. According to Guba and Lincoln (1989) and Erlandson, Harris, Skipper, and Allen (1993), the survey questions and interview sessions met the

criteria for validity. Qualitative research must have the following characteristics to be considered valid: truth, applicability, value, consistency, and neutrality. The following are some of the methods in which this study tries to meet the aforementioned criteria. The truth criteria was met by relying on the participants' unaltered responses. This study met the criteria for applicability since the findings are applicable to both teachers and students. The study's consistency was attained by guaranteeing that each participant received the same questions on the questionnaire and interview session. The researcher's prejudice was reduced when collecting participant replies, resulting in neutrality. The participants received no good or negative feedback. The goal of qualitative research is to characterise or comprehend a phenomenon of interest through the eyes of the participants (Trochim, 2002). Only the participants have a legitimate basis for judging the outcome's legitimacy. The participants' ability to write, review, and add any further remarks to their responses added to the trustworthiness of their responses.

Ethical Considerations

"Ethical treatment of teachers and students, as well as their respective data, must be a crucial component of designing a research project, just as it is with other parts of being a professional researcher." 2014 (Mertler). A comprehensive plan for the ethical treatment of the subjects and the data obtained was laid out before the research began. It is critical that all volunteers in the study do so willingly and that they are fully informed about every component of the investigation. First, the volunteers were assured that the study design would not affect them academically, physically, emotionally, or mentally. The parameters of the study were explained to the staff and students, and they were asked if they would be willing to participate. The participants, the collecting and storage of their data, as well as their confidentiality, were all of the utmost importance. Regardless of the research's conclusions, data was not edited or tampered with in any way in order to preserve the research study's findings pure and honest (Mertler, 2014).

Chapter 4 Result and Findings

The researcher will present the study's findings in this chapter. To better understand and describe the essence of teachers' and students' impressions of blended learning in higher education classrooms, the researcher used a qualitative research technique. The research includes an examination of the difficulties they encountered in adopting and implementing a mixed teaching and learning paradigm. Adapting instructional approaches so that technology may be used successfully to improve learning is a strategic process. The researcher wants to discover more about how teachers' technological, pedagogical, and content knowledge, beliefs, practises, and student learning were impacted by using a blended learning technique. At the same time, how students saw blended learning in terms of better understanding material and concepts as well as their own learning. Participants shared their feelings, explaining what they viewed and experienced via their own self-reflection, perceptions, knowledge, awareness and experiences in an online survey and semi-structured interviews, resulting in knowledge and comprehension. This chapter discusses the results of questionnaire and interview data on online and offline involvement, blended learning models, innovative methods, technology, pedagogy, and content support, difficulties and approaches used, and teachers' and students' perspectives on using advanced technologies to support the learning process. The ideas offered in this chapter are aimed to provide a starting framework for understanding participants' views and opinions toward the new normal paradigm of blended learning and teaching, as well as to create questions and thoughts regarding the participants' experiences.

The findings revealed teachers shared that students were grasping the information better by using different online tools and discussing it with peers and expressed higher levels of interest. Teachers highlighted that soon blended mode will be adopted and implemented to make an active learning process. They shared a strong belief that blended learning facilitates individualization, collaboration, increased organization and engagement, provides real-world relevance, and student-centered learning. However they mentioned at present there are several challenges while implementing technology. The challenges they discussed were professional training for teachers, access and internet connectivity, workload and attitudinal barrier, device and infrastructure concerns, as well as the time to integrate technology effectively. Few teachers mentioned Moodle platform and other online tools like presentation, videos, pdf files etc. They are used in the classroom for teaching and assessment that allows students to self-regulate.

Data was collected from a total of forty participants, that includes twenty teachers and twenty students. Around 50 questionnaires were circulated with teachers and students respectively. Individual interviews were conducted with 10 teachers and 10 students. Researcher collected data for around more than a month. Data focused on how the teachers perceived blended learning influenced teaching and learning, how the teachers used technology, what challenges they faced, what tools and strategies they used, how the students responded to the blended learning approach. The participants answered open and closed-ended questions followed by a semi structured interview via telephonic and face to face conversation. Teacher participants described their experiences modifying teaching approaches to effectively use technology utilising a blended learning methodology in response to the interview questions. They talked about how they needed particular professional development and how it affected their ability to use blended learning to meet the requirements of all students in their class. They talked on the obstacles they encountered when implementing and managing techniques for creating, maintaining, and supporting a student-centered variety of teaching methods. They discussed teaching tactics and how those strategies affected student learning. They highlighted how they had to change their pedagogical and subject knowledge, beliefs, and instructional methods as a result of using technology resources in the classroom. All information was kept electronically as well as printed and stored in corresponding participant files throughout the data collecting process, including questionnaire responses and interview information screenshots.

The core objectives of the study to work on data collection were-

- To understand the faculty and student's perceptions towards blended learning
- To explore the challenges of blended learning faced by higher educational institutions

The supported research questions for the study to understand teachers' and students perceptions and challenges of using blended learning models includes

- What are teachers' and students' views on blended learning adoption and implementation in university education?
- How do applications and methods of blended learning influence teachers' and students' teaching-learning?
- What challenges do teachers and students faced while using blended learning for teaching and learning?
- What are the approaches and strategies for the successful implementation of blended learning for higher education?

Participants description and their background

In order to provide a context for understanding the results and in order to develop a rich narrative about these findings, researcher had provided the participants' description by providing a brief profile of them. Separate profiles of teacher and students were given. The setting for the study was a campus or either online survey and telephonic words.

Designations	Number	%
Heads	2	10
Professors	3	15
Associate Professor	5	25
Assistant Professor	10	50
Total	20	100

Table 1: Faculty profile

Region	N	%
Delhi	10	50
Meerut (UP)	8	40
Jaipur	1	5
Maharashtra	1	5
Total	20	100

Table 2: Faculty region distribution

Gender distribution	N	%
Females	9	45
Males	11	55
Total	20	100

Table 3: Faculty Gender distribution

As shown in Table 1-3, the educators participants, who consented to be part of the study, were from diverse regions, with different designation that includes Heads (2), Professors (3), Associate professors (5), Assistant professors (10). Each of the 20 faculty teach at college or university level situated at Delhi, Meerut, Jaipur and Maharashtra. As per gender distribution there were nine females and eleven males. The educators have been teaching anywhere from seven to more than twenty years of experience in their core curriculum areas. As an ethical consideration no identifying information was shared regarding the individual educator's profile. Therefore numerical figures were given. Demographic data revealed the

highest number was of assistant professors. The presented information was collected from surveys. Surveys were sent to 50 teachers via google form or hard copies were given in the campuses visited; 20 teachers responded and completed the surveys. Ten out of twenty teachers participating in semi structured interviews had advanced experience using technology for instructional purposes.

Blended learning experiences	Number	%
Teaching using blended mode	2	10
Initial phase of blended mode	10	50
No blended mode teaching experience	8	40
Total	20	100

Table 4: Faculty blended learning experience

The researcher requested participants to share their classroom experiences. All of the participants shared their personal experiences with blended learning with their students, as well as the benefits and drawbacks of using ICT in education. At present the majority of teachers at higher education institutions are not using a blended mode of teaching. As per the data only 10% of faculty from short sample size were using blended learning and especially those are from IT background. Rather it is either online or offline mode. During the pandemic they used online platforms like zoom, gmeet, google classroom. Most of the faculty use chalk and board methods in face to face traditional classrooms. From overall data, 8 teachers used both online and offline modes even before the pandemic, as they circulated reading materials and discussed in the classroom. However, the teacher highlighted that soon blended mode will be adopted and implemented in the teaching-learning.

Offline mode	Online mode
Instructor-led classroom using chalk and board Workshops and field trips Peer reviewing and group discussion Practicals, assignments, projects and case studies	Live e-learning classes using google classroom, zoom, Gmeet Resources like presentations, online journals, online quizzes Recorded demos, audio- video materials, discussion forums Use of OERs, Swayam lectures and Moodle Sharing assignments, case studies discussions

Table 5: Learning mediums

As shown in table 5 Stand-alone, asynchronous support aids that enhance teaching and learning are examples of the medium, which is not confined to technology. Both synchronous and asynchronous learning tools were given by participants. For face to face live classrooms, traditional classrooms, labs, or other "hands-on" experiences, reading assignments, or other self-paced learning platforms are used. While for online medium recorded demos, use of OERs, swayam lectures, presentations, platforms like zoom, gmeet for online classes. Classification has been highlighted in the table.

Pointers	Emergent Themes
Understanding of Blended Learning	Instructional Methodology Multiple teaching and learning approach
NEP & UGC emphasis on blended mode	Uninterrupted teaching and learning Distribution in course
Teachers' perceptions on blended learning influence teaching-learning	Effective Instructional Resources
Students perceive the use of technology in the classroom	Personalized Learning Immersive and enthusiastic
Implementing and Managing a Blended Learning Environment	Not institutionalized yet
Strengths and benefits	Active learning & student engagement Improves Quality
Strategic Use of Technology to Enhance Learning	Friendly LMS and OERs Teacher training
Challenges and problems	Infrastructure and Access Internet Connectivity Disturbances Workload and attitudinal barriers Professional Development and technical skills

Table 6: Teachers perception and understanding

Teachers' perspectives were analysed and common themes within the group of educators were identified through surveys and one-on-one encounters. Each survey and discussion was transcribed by the researcher. As shown in table 6, the common terms of teachers were written that emerged from interview data explaining blended learning, a common understanding and used terms for the blended learning. Educators shared their opinions on UGC documents rolled for blended learning. According to them NEP & UGC emphasis on blended mode highlights Uninterrupted teaching and learning and distribution

in the course.

Many themes emerged in regards to teachers' views on influence of blended learning in teaching and learning. These themes include personalized learning, effective resources, incorporating instructional resources and student engagement to increase communication amongst peers, teachers, parents and organization collaboration while describing their personal experience and looking at the future of education with incorporation of technology. In addition, teachers mentioned that students were able to digital a variety of resource materials swiftly. The whole process becomes more scientific and transparent allowing for real-world experiences. They had strong perceptions regarding blended learning to increase student collaboration, active learning and make learning interesting and engaging. In addition, teachers' elaborate blended learning allows students to be responsive and immersive as they are an active part of it and allow integration of technology in their learning. Individualization of student learning enhances, providing choices for personal learning, students become the owner of their education as well as encouraging for students. With technological innovations, blended learning is essential and students' performance can be increased because they have more ways of doing things and more ways of representing their learning." According to teachers it was reported that students were grasping the information better in that manner and expressed higher levels of interest. It was found that teachers highlighted that soon blended mode will be adopted and implemented to make an active learning process.

Teachers articulated a great many benefits and challenges in using technology to implement the blended learning approach. Many teachers found they were ready to individualize their teaching and have interaction students within the learning process. Also, most teachers felt students were ready to collaborate more effectively. Similarly, some of the teachers used Moodle or other web tools for formative assessment. These teachers felt students were more engaged in the learning process and were able to self-regulate and develop a better understanding of the concepts.

At the identical time, the teachers had many concerns regarding blended learning. They shared their concerns over student disengagement, technical issues, and time. Some teachers mentioned that there are some students who don't have access to gadgets. Some students make excuses and got distracted and get engaged in gaming and social media. There were also several technical issues expressed as challenges for the teachers. These issues focused on infrastructure, home Internet access, the device itself, and charging. With regard to online learning the biggest challenge lies in conducting proctored exams. One can deal with a slower pace of teaching but there is no way to ensure that no unfair means have been resorted to by the students. Theoretical aspect could be delivered online, practical aspect

requires face to face interaction

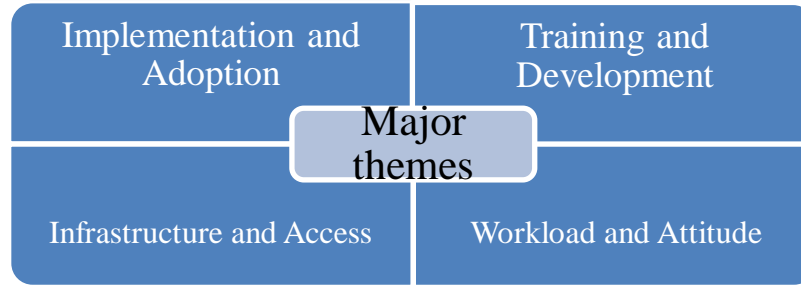


Figure 1 : Emerging themes

The themes reflect the teachers' perceptions and major challenges faced by them. Themes reflect strategies for successful implementation of blended learning. There were four key themes that researchers emerged from the data that depicts keywords, concepts, or words mentioned by most participants. All the themes and challenges are discussed below in detail.

Implementation and Adoption

In regard to implementation and managing a blended learning environment at present teachers at higher education institutions are not using a blended mode of teaching, rather it is either online or offline. Teachers used chalk and board methods and other offline techniques in face-to-face traditional classrooms before this pandemic and during the pandemic, they used online platforms like zoom, gmeet, google classroom. Simultaneously Like we need offline mode, we can't ignore the importance of traditional classrooms. Similarly, we need to adopt technology in it. Only the teachers from ICT background claimed to regularly use technology and be invested in teaching through digital tools and to work load they mentioned that in the beginning, it is difficult to manage but this will help in making learning impactful, effective and challenging. Common perception to use ICT in classrooms was about using multimedia to explain particular difficult topics that would need visual aids. Propensity to use technology evident from data is that teachers do not directly use the blended mode but instead they share videos, documents, and other reading materials and discuss with students in the classrooms. In this way they are using blended mode because this is flipped classroom, a method used in blended learning. From data it was found that all teachers are not equally inclined to use technology freely in their workspaces or keen to understand how a particular gadget can be used in multiple ways or can be used to teach. ICT cannot provide for the learning that is attained through hands-on practical work in science laboratories in the case of this study. Simultaneously it was elaborated that a blended mode of teaching enhances the strategic use of technology to enhance learning, and immediate support and feedback to learners. This

blended mode will become a boom for the education sector.

Training and Development

Additionally, to ensure a successful blended learning experience for students, faculty need training and professional development to teach blended learning courses to be well conversant with new emerging technologies in designing such courses and delivering media. The support for course redesign and learning new teaching with effective technology skills, training, assistance, support needs must be accomplished. Faculty members stated that they needed to learn new teaching techniques, such as how to create online learning communities and online discussion boards. Designing a blended learning course that maximizes the potential of both the face-to-face and online components raises questions: How much of each modality should comprise a course? How to design the blended course? Addressing and managing students' online learning problems. Later updating in the system is important.

Teachers stated that pupils are technologically sophisticated and can engage with all educational materials, but that the number of resources supplied by the campus, including technical education and technological understanding, can overwhelm teachers. How to successfully apply content and pedagogy with appropriate technology. Students and colleges mustn't view the face-to-face aspect of a blended course and therefore the online element as separate components. Teachers need enough training to put digital content with our curriculum. The instructional design perspective requires a re-evaluation of teaching and learning to blend or harmonize the distinction between the two made even more formidable by the presence of the new learners. Facilities to record videos, using platforms like OERs, Moodle and devices to support it are also the major difficulties. Student accomplishment improves when instructors participate in teacher education and receive effective training to work with their pupils. Teachers and students also need time to practice and have training when using technology in the classroom. The lack of proper teacher training and professional development was highlighted.

Infrastructure and Access

The usage of blended mode is more based on the availability of infrastructure and access to digital devices with good network connectivity. The major technical challenges including digital connectivity, limited digital skills, Internet and network facility at places. Given that all classrooms are not smart classes and each institute requires a set of pre-requisites resources, infrastructure, connecting the equipment is a cumbersome process and is therefore undertaken by teachers rarely. Access to digital gadgets, not all students have electronic devices access. Furthermore, technological difficulties are not limited to getting technology to work on networks. Rather than fighting the impulse to utilise technology merely because it is available, they consist of assuring the success of the programme by utilising and

supporting acceptable technologies, as well as developing consensus among students regarding the technology and software that can be employed.

Workload and attitudes

It was observed that female participants faced dual responsibilities while agreeing to blended mode, they believe that their workload increased after online. They had to manage online classes assigned tasks like pre-preparations and household duties as well. There is a disturbance in work-home balance. While few respondents mentioned that we need to change mindset towards online or blended mode. They said that blended mode is so prevalent, we are using just online or either offline mode but towards blended mode we need to change our thoughts and gradually start initiating it in our teaching. Personal motivation to go beyond the systemic hindrances to use technological tools, as they believed that it added value to their teaching or saved time in explaining complicated concepts or both. There is a common perception that blended learning can uplift the standard of education amongst the students, and understand the importance and role of TPACK i.e., Technology, Pedagogy and Content knowledge and how it can be done. Few teachers believe ICT as a part of constructivist pedagogy, something to be engaged in for a long term on a regular basis, something that would facilitate co-creation of knowledge and thereby have inherent multi-faceted learning.

Teachers believe that the pandemic situation impacted education, students were worried, it is essential that psychological counseling to students is essential other than classes. A well-planned blend of relevant activities in both modalities, with a focus on learning outcomes and learner-centered instructions, will ensure that such circumstances do not arise in the future. We must remember BL is not just a mix of online and offline mode, but it needs set plans. Online method shall be optional not compulsion. It may overburden teachers. Let them blend it as per their discretion and be given decision-making powers, especially with regard to their own work.

Other major issues identified by faculty was it excludes the differently-abled, visually impaired, and blind students and addresses their problems using LMS. They feel challenged teaching such students. On the pretext of network issues, they try to avoid timely submissions. Teachers wrote that managing and monitoring progress of students, result and exams evaluations is challenging in online mode. Cheating has become a common feature. They don't try to learn because they have an open book exam. Thus, due to such reasons, it becomes difficult for the teachers to have continued lessons that are aided with IT and to get hold of students. Many parents and teachers share the view that an institute should be more than a virtual learning environment. Teachers say it's harder to provide guided education in a

virtual setting since there's no face-to-face interaction. In a blended learning environment, teachers oversee and guide students while also encouraging the development of digital citizenship and online safety skills. Students learn in a secure physical environment while forming meaningful bonds with their classmates and teachers.

Students Profile

The other group of participants were students and this study used purposeful sampling to investigate students attitudes of blended learning as an educational tool for meeting all students' tutoring needs. The next part of the data for this study is based on students' views and opinions for online and offline mode of learning. The students were purposefully chosen from graduation and masters level. The students were given an online survey and were asked to share their personal experiences and perspective on synchronous and asynchronous learning. Some of the students were known to the researcher while others were through snowball sampling. Most of them were approached through their contact number and online survey links were shared. Students were asked their willingness to participate and can leave the study anytime. After receiving filled survey links, students who were convenient for the interview were contacted. Similar to teachers' identity, students' identity is also confidential.

Qualification	Respondents	%
Graduate	13	65
Post-graduate	7	35
Total	20	100

Table 7: Students profile

Gender	Respondents	%
Females	11	55
Males	9	45
Total	20	100

Table 8: Gender distribution

As shown in table 7 & 8, students' demographic profile is shared. The students participated in the research data collection were from different colleges and universities. Amongst the total number of students, there were 13 (65%) students from second or final year of graduation and remaining 7 (35%) were from previous year of masters. All students were in the age group of 19-21. As per the gender distribution there were more number of females than males.

Bullets	Key terms/ themes	Frequency
Understanding of the term BL	Combination of both online and offline modes	18
	Used Hybrid learning	5
	No idea	2
NEP and UGC rolled out BL	Yes	2
	No	15
	Not much familiar	3

Table 9: Students understanding

The students basic understanding for blended learning is shown in table 9. Since the students had never taken a blended course, they were less experienced of how a blended course would be. However, they were part of both online and offline classes. From that experience students shared their understanding. Therefore, the survey was designed to determine the student perceptions of understanding content and their learning and combination of online and offline delivery methods (blended learning). Some of the students reflected their understanding for blended mode and used the term blended learning as a hybrid model of learning, it is a practice of using digital tools in education, or e-learning and opportunities for interaction online with traditional based classroom methods is given.

With respect to awareness about what UGC and NEP 2020 says of incorporating technology in the teaching and learning, most of the students are not aware. From an overall sample of 20 only 10% (2 students) are aware that the government and ministry emphasizes a blended mode of teaching-learning. Remaining 75% of students are not aware. This shows that blended learning awareness is not amongst students.

Bullets	Terms/themes	Frequency
Primary reason for learning through online mode	Flexibility	15
	Saves time, energy, money	10
	Job responsibilities/ dual tasks	6
	Convenience	8
Adoption & different from traditional classroom	More effective & time-saving	16
	More incorporation in course	15
Preference for learning	Online Offline both	18
	Only Offline	2
	Only Online	0

Table 10: Students views on blended learning process

Interpretation from the table emerged is in response to students' perception towards blended learning. These above-mentioned themes are the students understanding hybrid models, what are their primary reasons for including technology or e-learning in their classroom, How they compare traditional learning from online learning and why including both modes are essential. Researcher can say that perception of students towards blended learning is positive. Since the mode is new for them, students compare it with traditional mode and share a positive attitude towards it. Students describe solo methods as monotonous and boring, they were not happy from only online learning or e-learning and only offline or traditional chalk and talk methods. Students were keen for incorporation of technology in classroom learning and more of practical experiences.

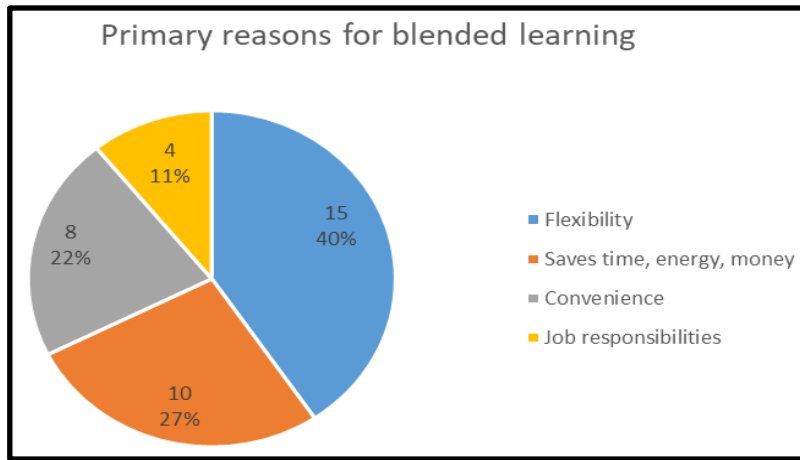


Fig 2: Primary reasons for learning through online and face to face mode

The above graph shows the views students revealed for primary reasons for choosing both face to face and online mode of learning. Blended learning models offer more flexibility and accessibility without compromising face-to-face interactions. Students highlight that blended mode is convenient as going to campus is not often, saves time, energy and money. Sometimes students were not able to attend college due to job and other household roles and responsibilities.

More than half of students prefer blended learning to either online or offline mode. As a learner they prefer both the modes. The content taught through blended mode helps them to remember the information for long since multiple ways of learning and acquiring content is used. This helps them in independent learning since there are diverse learners, some are fast learners while some need time to accumulate things. Table 10 also depicts that students agreed for blended learning. Three-fourth of the students consider blended mode as effective and it should be implemented in all courses of higher education.

Bullets	Key terms/ Themes	Frequency
Strength and positive aspect	Interesting and Effective	16
	Flexibility and convenient	17
	Access anywhere, anytime, saves time	13
	Self-pace & independent learning	08
	Better concept understanding	05
Weakness and negative aspect	Access & technical issues & network connectivity	18
	Understanding instructions and concepts	08
	Inability to manage or assess progress	03

Table 11: Strengths and Weakness of blended learning

According to students there are many positive aspects of blended mode. When respondents were asked what is the most effective aspect they mentioned that one can take the class from the comfort of your home, it is virtual, with your device. We can enter the platform and start the virtual class and then do your assignments. What students understand blended classroom as classes that you are taking in different places; you are not in a physical classroom all the time. The classes are online and you can access them the moment that you want, but yes, it is more comfortable for time management and organization. Students get more time to organize their ideas and retake or watch it as many times as one can. It helps us be outside our comfort zone. Students are more enthusiastic and interesting because they are not only using a textbook and taking notes; they are more accessible. Nowadays, everybody has access to an electronic device and they can access it anytime, anywhere. It has great flexibility in terms of schedule because you can do the readings whenever you have time, you do not have to be connected at an exact time to be in class. Once you have accessed the resources you can join the face to face interaction and discuss with peers and teachers and raise the queries and parts which are not understood. However, when describing the both modes of classroom, the students did not mention the face-to-face practices in which they discussed or put into practice. They described the face-to-face traditional practice as monotonous that sometimes create boredom, suggesting negative attitudes towards the solo practices. Simultaneously they are not agreed for only online learning. It is thus possible that the students just focused on describing the online sessions because they were the new component of the class and they were getting familiar with their dynamics. Researcher can interpret that most of the students suggest a blended mode of teaching and learning.

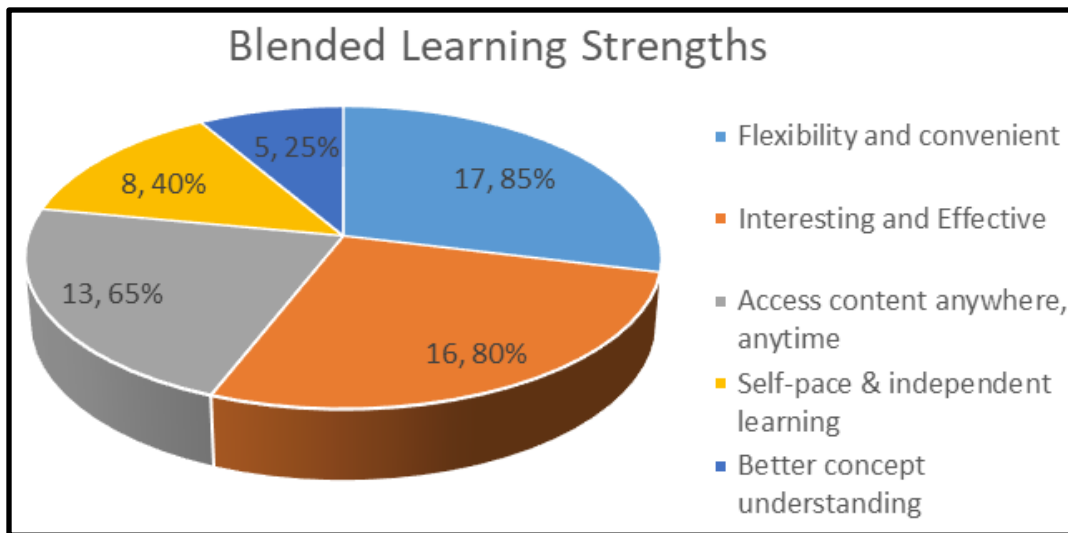


Fig 3: Blended learning Strengths as per students

The above graph shows that 85% of the students from the overall sample considers flexibility of learning and convenience as strengths of major strengths of blended learning. They highlight that this mode has a great flexibility in terms of learning, schedule as they can read, learn whenever they have time and can connect with their peers. They can easily access content multiple times and understand the concept better. This makes their learning effective and interesting, builds their concepts and ideas more stronger and ability to think and reflect. Students can access reading materials anytime and anywhere, from data around 80% of the students believe it. Using multiple resources they are earning not only just textbooks and notes but also through presentations, vidoes, e-learning materials, and resources shared by educators prior to their class. Incorporation of blended learning encourages them to learn and increase their interest in the subject matter. They better understand the concepts when multiple times they can read and go through before discussing in the classroom. 40% of students believe that blended learning makes them independent learners This is the sole purpose of blended learning to make learning interesting, engaging, impactful and challenging. Blended Learning in particular, helps students increase their interactions, communication skills, self-confidence, self-awareness, as well as encourage discussion and collaboration not only with their lecturers but also with their peer classmates and course materials leading to an overall positive experience.

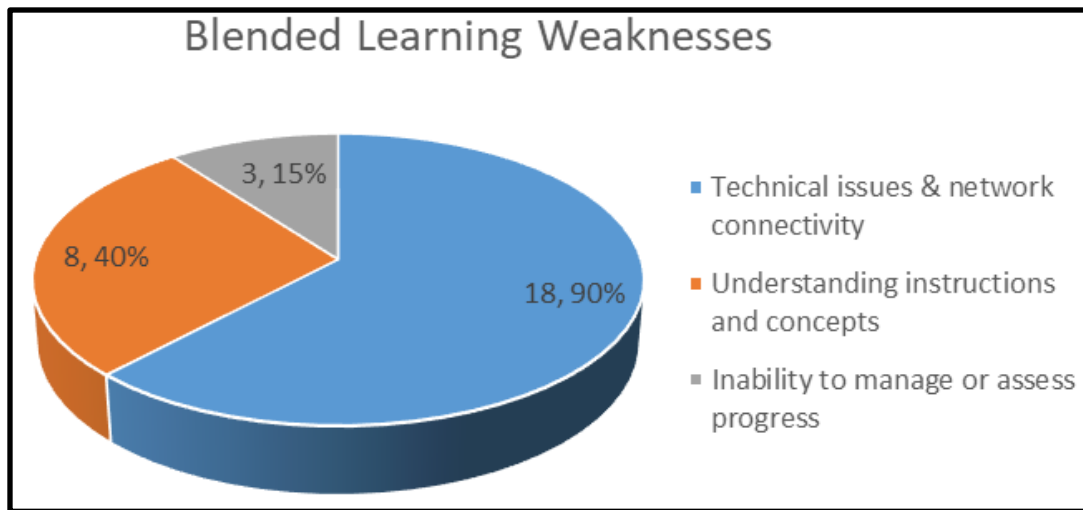


Fig 4 : Blended Learning Weaknesses as per students

As per the graph and details given by students the major challenge they faced were technical issues and network connectivity while attending online classes. Some of the students are at places where network connectivity is poor. There is a need to fill the gap in access to digital technology. Attending only online classes makes it challenging and during pandemic classes were online. Additionally understanding all the concepts in online mode is difficult, theoretical concepts can be built but for practical experiences classroom learning and regular discussion is essential. Students feel that time management and organization is very important. Few students mentioned that to monitor self progress is difficult in online mode while during interview interactions many said that while there is opportunity for classroom interaction then such issues are least.

Strategies

In higher education, the requirement for blended learning strategies will continue to enhance. A blended learning approach needs a strategic planning that requires a shift in thinking in what it means to teach and what it means to learn. Faculty provides some of the essential approaches and strategies needed to be focused for successful implementation of blended mode, some of the following are:

Formal approaches

Most traditional universities offer some form or forms of technology-mediated education—often based on individual faculty interest. These programs or courses are typically managed by the individual faculties, or teaching faculty, and require administrative support. However, a defining characteristic of blended learning is the ability of the Internet to provide an interactive learning experience to large numbers of students in ways that are accessible and cost effective. The use of

VR and AR and other immersive technologies, that lets students set priorities and are able to use the platform effectively to save time and gain fast knowledge. The need to make the LMS learner friendly especially for the children with disabilities (visually impaired) and subject wise OERs. Integrated would be successful if students can go with use of OER more frequent, when they are comfortable to complete task within less time expenditure. As a result, need for a more formal approach to the development of operations required to support blended learning approaches.

Resources

The need to carefully assess the resources required to implement and sustain effective blended learning environments cannot be overemphasized. The resources required fall into three broad categories: financial, human, and technical. The better knowledge of software and active participation of the students, technical support from the college and university, Digitization of the entire process, increase in the net speed and quality, reduce the price are important aspects. Finance and 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).

Planning

Related to organizational and administrative support is planning. Strategic planning for the needs, goals, and objectives in an action plan are necessary to operationalize blended mode. With respect to blended learning, breaking the glass ceiling of attitudinal stereotype and creating awareness. The element of malpractice while writing exams can be combated. All efforts are nullified when the teacher has no clue whether the answers written by the students are their own or with help of the internet amongst other sources. Teachers need academic feedback that is believable to monitor the progress of learners. Discussion and interactivity is equally important to influence dual interactions and make active processes.

Chapter 6 Conclusions and Recommendations

The research is summarized in this chapter. It includes Summary, Conclusions, and Recommendations. An overview of the study methodology and results, followed to concluding remarks and finally recommendation for further research analysis.

One of the areas of education that has been influenced by the rapid rate of technological innovation is teaching and learning. It explains how to teach integration using a mixed learning approach. The Blended learning is an instructional paradigm in which teachers mix proven instructional practises with the meaningful and intentional use of technology for effective learning. It consists of face to face instruction, exercises from textbooks and developed courseware that is also made available on e-learning. Blended learning results obtained from the study shows that teachers and students demonstrate positive perceptions towards teaching and learning. Study also reveals that teachers and students are optimistic about incorporation of BL in Higher Education. Therefore, with the help of technology, Blended Learning can be used as an alternative approach in teaching and learning in order to motivate students. Results of the study revealed that the two learning modes, has an impact on teaching and learning. Incorporating technology in classrooms promotes student-centered learning. Learners' views had mixed well within the blended course as they were regarded as helpful and complementary to each other by making each other more interesting and more effective.

The purpose of this study was to describe teachers' and students' perceptions regarding the use of blended teaching-learning models in the classroom. The qualitative, exploratory study was conducted to explore the essence of teachers' and students' perceptions on the use of blended learning. It also explores the challenges they faced and approaches they used while adopting blended learning. This study is qualitative in nature study and used surveys and a semi structured interview. The study provided the researcher insight into What are teachers' and students' views on blended learning adoption and implementation at university level, How do applications and methods of blended learning influence teachers' and students' teaching-learning, What do teachers and students consider challenges of incorporating mix of online and offline methods into teaching and learning, What are the approaches and strategies for the successful implementation of blended learning for higher education. Surveys and semistructured interviews were collected and analyzed, to uncover relevant key terms and themes. The rest of this chapter discusses the study's findings and consequences, as well as recommendations for further research.

Summary and findings on teachers' perspectives

The common views of teachers that emerged from data pertaining to the understanding of blended learning teaching strategy for meeting the demands of a wide range of students. According to them NEP & UGC emphasis on blended mode highlights Uninterrupted teaching and learning and distribution in the course. Blended learning has an impact on instruction, curriculum, and opinions on instructional technology in the classroom, according to teachers. When expressing their own experience and looking at the future of education with the use of technology, teachers cited the terms personalised learning and utilising instructional materials as crucial terms. According to teachers it was reported that students were grasping the information better in that manner and expressed higher levels of interest. It was found that teachers highlighted that soon blended mode will be adopted and implemented to make an active learning process. Incorporating technology in the classroom enhances student-centered learning to build an effective, interesting and challenging learning for learners in the classroom. Blended learning has gained popularity because it strives to give students with these benefits, which contain numerous crucial features. When teachers are given numerous strategies to teach learning standards, instruction is more effective for students and learning become more meaningful.

Although using technology to teach and learn is beneficial, teachers believe that all teachers are not equally inclined to use technology freely in their workspaces or keen to understand how a particular gadget can be used in multiple ways or can be used to teach. They do not have proper professional development training and the time to hands-on experiment with different technology applications and the necessary resources access required for implementation. It's critical to give teachers time to understand how to use technology effectively in order to foster confidence and motivate them to teach using blended mode. According to the findings, teachers perceived a lack of Internet connectivity, assistance, and access in the classroom when employing technology. The participants were enthusiastic about attempting technology in a way to enhance student engagement and different learning experiences but felt disappointed or burdened when the Internet or the devices' systems malfunctioned. These are the most common issues and problems teachers faced while using technology in the classrooms. At present teachers at higher education institutions are not using a blended mode of teaching, rather it is either online or offline. Teachers use chalk and board methods and other offline techniques in face-to-face traditional classrooms before this pandemic and during the pandemic, they used online platforms like zoom, gmeet, google classroom. Teachers highlights the importance of both online and offline mode, we can't ignore the importance of traditional classrooms while adopting technology.

Summary and findings on Students perspectives

The present study adds the learners' perspectives also. The student's perception towards blended learning is positive. Students mentioned that blended learning is a great initiative and an amazing mode of learning provided both teachers and students develop the skills to use it and this will also equip students to be more comfortable using ICT later in life. The primary reason for learners to learn through online or blended mode is its flexibility towards learning, it saves time, energy, money, and a convenient mode of learning. For some student's dual tasks and job responsibilities make it difficult for them to continue higher education. Students include that adoption of blended learning makes learning more effective and engaging. It should be incorporated in all courses of higher education. Students feel monotonous and boring with a solo method of teaching and learning. The content taught through blended mode helps them to remember the information for long since multiple ways of learning and acquiring content is used. This helps them in independent learning since there are diverse learners, some are fast learners while some need time to accumulate things. It has great flexibility in terms of schedule because you can do the readings whenever you have time, you do not have to be connected at an exact time of class.

Blended learning is a complement to face to face learning and online learning. In particular, traditional face to face instruction allows learners to have access to peers and experts and online learning roles in presenting the learning content, designing learning activities, supplementing learning materials. Classroom activities like presentations, group discussions, role plays may make a topic more interesting and students can participate enthusiastically. Face to face learning, in contrast to online learning, caters to learners with specific learning preferences and satisfies learners' affective demands for face-to-face interactions. As a complement, it provides independent learning. For instance, students appreciate web based online exercises due to its greater variety in learning content and its unlimited resources. Moreover, online learning can provide a higher degree of learning autonomy.

The major challenges faced by students were technical issues and network connectivity while attending online classes. Attending only online classes makes it challenging. Some of the students are at places where network connectivity is poor. There is a need to fill the gap in access to digital technology. Students feel that it is difficult to monitor self progress and understand the practical concepts for which field experience and laboratories are essential. Students said that there will not be major issues once we get an opportunity to meet instructors and peers regularly in the classroom. Time management and organization is very important.

Conclusion

In this study, the researcher examined teachers and learners' perceptions not only of the blended learning environment as a whole but more importantly of the interdependencies between face to face and online learning as well as their respective roles. To the first objective of what teachers and students perceive of blended learning, findings indicate that both teachers and students prefer both traditional face-to -face and e-learning modes, as both modes of teaching-learning are equally important. Therefore it can be said that Blended learning is a methodology that emphasizes combining both online and face-to-face components.

Researcher found several benefits from teachers and students' perspectives. One assumption underlying the blended classroom is that the approach promotes active learning and can maximize students engagement during class time, it promotes effective and impactful learning, enhances benefits of in-class activities, and student participation and achievement. Blended mode makes the whole process of learning more challenging for learners that enhances critical thinking, independent and collaborative learning. It signifies the transition from passive to active learning. This process activates learners to read, think, listen and speak and make the process of learning challenging for learners. This way the classroom evolves from a presentational approach to active learning. Furthermore, because students typically have very varied learning styles, a mixed delivery system allows students to learn and access material at any time and in a different styles. Because teachers and students have more freedom and accessibility without compromising face-to-face contact, the approach gives best to the students.

However, study also put emphasis that even in the 21st century and everyone is using technology still there are many challenges that need to be addressed in order to realize the expected benefits. Most important is to create awareness amongst teachers, learners and parents. These challenges include a positive attitude towards incorporation of technology in education, internet and network connectivity, access to digital devices, infrastructure of the institutes, professional teacher training and development, facilities, proper platforms for students progress and assessments during exams and result, accessibility for differently- abled children and many changes that fill the gap of various hindrances in implementing and adopting higher education. Notwithstanding these limitations, it is becoming increasingly difficult to ignore the importance of blended learning programmes in widening access to, and improving the quality of education. The understanding of the technology is fairly narrow, that stems from many reasons

– training that doesn't prepare teachers for use of ICT in a comprehensive manner, rigid attitudes and opinions about technology use, lack of infrastructure support to use or even explore the use of blended mode within their subject areas, workload and work environment issues. Therefore there is a requirement to address the perceptions of the teachers and students regarding ICT and their uses.

Upon reflection, blended learning works best when students are slowly introduced to the format, and when professors are "on-board" with the technology. Practice sessions with students, professional development courses for faculty, and a good understanding of a good fit between the curriculum and the pedagogy are built. For teaching and learning, technology, pedagogy and content knowledge all three components are essential. Repetition of information, and making it readily available to students, may enhance learning and improve student outcomes.

Blended learning can be improved only through the combination of well-planned comprehensive training and requisite resources. In addition, What's more important is, in order to make Blended Teaching & Learning to be successful, Institutions, Teachers as well as Learners must take on new roles in the teaching-learning relationship and need to build innovative pedagogy and learning tools towards a blended mode. Only then, there will be fruition in education. Blended or hybrid learning is the future and the future is now!

Recommendations

The study findings revealed the perceptions of teachers' and students' opinions and views on the use of blended learning and the challenges they while adopting blended in higher education classrooms. The researcher explored how teachers use the mixed mode of learning including online and offline modes for teaching-learning settings. Teachers and students will improve their engagement in blended learning models in their classes and can create active learning if they are properly implemented the technology and pedagogy in their classrooms with appropriate debates and discussions, time management, motivation, and consistency in learning new technology and professional training and development. As a result, the following suggestions for future research are provided:

- Research can be done at the school level to know how schools are using two different modes of teaching-learning.
- Study and analysis on what type of technologies school and higher educational institutions are using.
- Exploration of parents' views on the use of blended learning in the classroom can be done.
- Research study incorporating TPACK (Technology, Pedagogy and Content Knowledge) model can be done
- More investigation and research on models for professional development of teachers
- More insights into the pedagogical framework to strengthen blended learning for teachers and students.

References

- Abdalhadi, K. (2016). Exploring the impact of ‘Schoology’ on academic achievement levels. Dubai: Lap Lambert Academic Publishing.
- Abdelaziz, H. A. (2012). A four dimensions instructional strategy for web-based and blended learning. *Turkish Online Journal of Distance Education*, Vol. 13(4), pp. 220- 235.
- Abrami, (2006). Implementing computer technologies: Teachers' perceptions and practices. *Journal of Technology and Teacher Education*, 14, 173-207. <http://www.editlib.org/j/JTATE/>
- Aguti, B., Wills, G. B., & Walters, R. J. (2014). An evaluation of the factors that impact on the effectiveness of blended e-learning within universities. In *International Conference on Information Society (i-Society)*,117–121.
- Alammery, A., Sheard, J. and Carbone, A., 2014. Blended learning in higher education: Three different design approaches. *Australasian Journal of Educational Technology*, 30(4), pp.440-454.
- Al-Ani, W. (2013). Blended learning approach using Moodle and student's achievement at Sultan Qaboos University in Oman. *Journal of Education and Learning*, 2(3), 96-110. doi:10.5539/jel.v2n3p96
- Alaniz, K., & Wilson, D. (2015). *Naturalizing digital immigrants*. London, UK: Rowman and Littlefield
- Alijani, G., Kwun, O., & Yu, Y. (2014). EFFECTIVENESS OF BLENDED LEARNING IN KIPP NEW ORLEANS’ SCHOOLS. *Academy of Educational Leadership Journal*, 18(2), 125–141.
- Ally, M. (2004). *Foundations of educational theory for online learning. Theory and practice of online learning*. Athabasca, Canada
- Amiel, T., & Orey, M. (2006). Do you have the time? Investigating online classroom workload. *Journal of Educational Technology Systems*, 35, 31-43.
- Anderson, M., & Jiang, J. (2018, May 31). *Teens, social media & technology*. Pew Research Center. <https://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/>
- Anthony, B., Kamaludin, A., Romli, A., Rafei, A. F. M., Abdullah, A., Ming, G. L., et al. (2019). Exploring the role of blended learning for teaching and learning effectiveness in institutions of higher learning: An empirical investigation. *Education and Information Technologies*, 24(6), 3433–3466.

- Ardi, P. (2017). Promoting learner autonomy through Schoology M-learning Platform in an EAP class at an Indonesian university. *Teaching English with Technology*, 17, 55–76. Retrieved from www.tewtjournal.org
- Aslan, S., Huh, Y., Lee, D., & Reigeluth, C. (2011). The role of personalized integrated educational systems in the information-age paradigm of education. *Contemporary Educational Technology*, 2(2), 95-117. Retrieved from <http://www.cedtech.net>
- Bansal, P. (2014). Blended Learning in Indian Higher Education: Challenges and Strategies. *International Journal of Applied Research and Studies (iJARS)*, 3(2), 1-13
- Baragash, R. S., & Al-Samarraie, H. (2018a). An empirical study of the impact of multiple modes of delivery on student learning in a blended course. *The Reference Librarian*, 59(3), 149–162.
- Bhattacharya, I. & Sharma, K. (2007). 'India in the knowledge economy – an electronic Choices for Higher Education Institutions; University of Surrey, UK (Unpublished
- Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, 32, 347-364. doi:10.1007/BF00138871
- Black, P., & William, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation & Accountability*, 21(1), 5-31. doi:10.1007/s11092-008-9068-5
- Blanco, M., & Ginovart, M. (2012). On how Moodle quizzes can contribute to the formative e-assessment of first-year engineering students in mathematics courses. *Universities and Knowledge Societies Journal*, 9(1), 354-370. Retrieved from <http://journals.uoc.edu/index.php/rusc/>
- Blended learning. (2009). Retrieved from http://edutechwiki.unige.ch/en/blended_learning
- Boelens, R., De Wever, B., & Voet, M. (2018). Four key challenges to the design of blended learning: a systematic literature review. *Educational Research Review*, 22, 1–18.
- Bogdan, R., & Biklen, S. K. (2006). *Qualitative research for education: An introduction to theories and methods* (5th ed.). Boston, MA: Allyn and Bacon.
- Boitshwarelo, B. (2009). Exploring blended learning for science teacher professional development in an African context. *International Review of Research in Open and Distance Learning*, Vol. 10(4), pp. 1-19.
- Bonk, C. J., & Graham, C. R. (2007). *The handbook of blended learning environments: Global perspectives, local designs*. San Francisco: Jossey-Bass/Pfeiffer.
- Bowyer, J., & Chambers, L. (2017). Evaluating blended learning: Bringing the elements together. *Research Matters: A Cambridge Assessment Publication*, 23, 17–26.
- Brandl, K. (2005, May). Are you ready to "Moodle"? *Language, Learning & Technology*, 9(2), 16-23. Retrieved from <http://lt.msu.edu/>

- Bransford, J., Brown, A., & Cocking, R. (2000). *How people learn: brain, mind, experience, and school* (Exp. ed.). National Academy Press.
- Brookhart, S. M. (2011). Tailoring feedback: Effective feedback should be adjusted depending on the needs of the learner. *Education Digest*, 76(9), 33-36. Retrieved from <http://www.eddigest.com/>
- Brooks, L. (2008). *An analysis of factors that affect faculty attitudes toward a blended learning environment* (Doctoral dissertation). Available from ProQuest Dissertations & Theses Global. (Accession No. 3346516)
- Buckley, D. P. (2002). In pursuit of the learning paradigm. *Coupling faculty transformation and institutional change. EDUCAUSE Review*, Vol. 37(1), pp. 29- 38.
- Burtch, R. (2005). Surveying education and technology: Who's zooming who? *Surveying and Land Information Science*, 65(3), 135-143.
- Carman, J. M. (2002). *Blended learning design: Five key ingredients*. Retrieved from <http://www.agilantlearning.com/pdf/Blended%20Learning%20Design.pdf>
- Cennamo, K. S., Ross, J. D., & Ertmer, P. A. (2009). *Technology integration for meaningful classroom use: A standards-based approach*. Belmont, California: Wadsworth.
- Chapman, C. & King, R. (2012). *Differentiated assessment strategies: One tool doesn't fit all*. Thousand Oaks, CA: Sage.
- Chickering, A., & Gamson, Z. F. (1987). Seven principles for good practice. *AAHE Bulletin*, 39, 3-7. Retrieved from <https://www.conahec.org/resource/aahe-bulletin>
- Comas-Quinn, A. (2011). Learning to teach online or learning to become an online teacher: An exploration of teachers' experiences in a blended learning 139 course. *ReCALL: The Journal of EUROCALL*, 23(3), 218-232. doi:10.1017/S0958344011000152
- Connelly, L. M. (2015). Research roundtable: Life-worlds in phenomenology. *MEDSURG Nursing*, 24, 119–120. Retrieved from www.medsurnursing.net
- Couros, G. (2015). *The innovators mindset empower learning, unleash talent, and lead a culture of creativity*. Dave Burgess Consulting, Inc.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (Laureate custom ed.). Boston, MA: Pearson Education, Inc
- Creswell, J.W. and Miller, D.L. (2000) *Determining Validity in Qualitative Inquiry*. *Theory into Practice*, 39, 124-130.
- Dakduk, S., Santalla-Banderali, Z., & van der Woude, D. (2018). Acceptance of blended learning in executive education. *SAGE Open*, 8(3), 1–16.

- De Zure, D. (2002). *Learning from Change, Landmarks In Teaching and Learning in Higher Education*. Sterling: Stylus Publishing.
- Delialioglu, O. (2012). Student engagement in blended learning environments with lecture-based and problem-based instructional approaches. *Journal of Educational Technology & Society*, 15(3), 310-n/a. Retrieved from <http://www.ifets.info>
- DePietro, P. (2013). Transforming education with new media: Participatory pedagogy, interactive learning and web 2.0. *International Journal of Technology, Knowledge & Society*, 8(5), 1-11. Retrieved from <http://techandsoc.com/journals>
- Despotović-Zrakić, M., Marković, A., Bogdanović, Z., Barać, D., & Krčo, S. (2012). 141 Providing adaptivity in Moodle LMS courses. *Educational Technology & Society*, 15(1), 326-338. Retrieved from <http://www.ifets.info>
- Dewey, J. (1938). *Experience and education*. New York: Simon & Schuster.
- Downing, C. E., Spears, J., & Holtz, M. (2014). Transforming a course to blended learning for student engagement. *Education Research International*, 2014. doi:10.1155/2014/430732
- Driscoll, M. (2002). Psychological foundations of instructional design. *Trends and Issues in Instructional Design and Technology*, pp. 57- 69.
- Drysdale, J. S., Graham, C. R., Spring, K. J., & Halverson, L. R. (2013). An analysis of research trends in dissertations and theses studying blended learning. *The Internet and Higher Education*, 17(1), 90–100. <https://doi.org/10.1016/j.iheduc.2012.11.003>
- Duhaney, D. C. (2004). Blended learning in education, training, and development. *Performance Improvement*, 43(8), 35-38. doi:10.1002/pfi.4140430810
- Edward, C. N., Asirvatham, D., & Johar, M. G. M. (2018). Effect of blended learning and learners' characteristics on students' competence: An empirical evidence in learning oriental music. *Education and Information Technologies*, 23, 2587–2606.
- Erlandson, D. L., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). *Doing naturalistic inquiry: a guide to methods*. Newbury Park, CA: Sage Publications.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42, 255- 284. doi:10.1080/15391523.2010.10782551
- Fassbender, W. J., Lucier, J. A., & Fink, L. (2014). Equalizing the teacher-to-student ratio through technology: A new perspective on the role of blended learning. *Voices from the Middle*, 22(2), 21-28.
- Francis, R. W. (2012). Engaged: Making large classes feel small through blended learning instructional strategies that promote increased student performance. *Journal of College Teaching*

& Learning (Online), 9(2), 147. Retrieved from <http://www.cluteinstitute.com/journals/journal-of-college-143-teaching-learning-tlc/>

- Frey, N., Fisher, D., & Pumpian, I. (2013). Quality in a blended learning classroom. *Principal Leadership*, 14(2), 60–63.
- García-Valcárcel, A., Basilotta, V., & López, C. (2014). ICT in collaborative learning in the classrooms of primary and secondary education. *Comunicar*, 21(42), 65-74. doi:10.3916/C42-2014-06
- Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice*. Book News, Inc., Portland, USA.
- Garrison, D. R., & Kanuka, H. (2004). Blended learning: Uncovering its transformative potential in higher education. *The Internet and Higher Education*, 7 (2), 95–105.
- Garrison, D. R., & Vaughan, N. D. (2011). *Blended learning in higher education: Framework, principles, and guidelines*. San Francisco: John Wiley & Sons.
- Gedik, N., Kiraz, E., & Ozden, M. Y. (2012). The optimum blend: Affordances and challenges of blended learning for students. *Turkish Online Journal of Qualitative Inquiry*, 3(3), 102-117. Retrieved from <http://dergipark.ulakbim.gov.tr/tojq>
- Graham, C. R. (2012). Blended learning systems: Definition, current trends, and future directions. In C. J. Bonk & C. R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 3-21). San Francisco, CA: John Wiley & Sons.
- Graham, C. R. (2013). Emerging practice and research in blended learning. *Handbook of Distance Education*, 3, 333–350.
- Graham, C. R., & Robison, R. (2006). Realizing the Transformational Potential of Blended Learning: Comparing Cases of Transforming Blends and Enhancing Blends in Higher Education. In the *Handbook of Blended Learning: Global Research Perspectives*, pp. 83-110. San Francisco.
- Greer, D., Rowland, A. L., & Smith, S. J. (2014). Critical considerations for teaching students with disabilities in online environments. *TEACHING Exceptional Children*, 46(5), 79–91. <https://doi.org/10.1177/0040059914528105>
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage Publications.
- Gullen, K., & Zimmerman, H. (2013). Saving time with technology. *Educational Leadership*, 70(6), 63-66. Retrieved from <http://www.ascd.org/publications/educational-leadership.aspx>
- Harasim, L. (2017). *Learning theory and online technologies* (2nd ed.). Taylor & Francis.
- Harriman, G. (2004). Blended learning. Retrieved from http://www.grayharriman.com/blended_learning.htm#1

- Hattie, J. (2012). *Visible learning for teachers: Maximizing impact on learning*. New York, NY: Routledge.
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81-112. doi:10.3102/003465430298487
- Heath, A. W. (1997). The proposal in qualitative research. *The Qualitative Report*, 3(1), 1–4. Retrieved from <https://nsuworks.nova.edu/tqr/vol3/iss1/1>
- Heritage, M. (2010). *Formative assessment and next-generation assessment systems: Are we losing an opportunity?* Prepared for the Council of Chief State School Officers, Washington, D.C. Retrieved from http://www.edpolicyinca.org/sites/default/files/Formative_Assessment_Next_Generation_2010.pdf
- Herrington, A., Schrape, J. & Singh, K. (Eds) (2012). *Engaging students with learning technologies*. Perth: Curtin University.
- Hofmann, J. (2006). Why blended learning hasn't (yet) fulfilled its promises. In C. J. Bonk & C. R. Graham (Eds.), *Handbook of blended learning: Global perspectives, local designs* (pp. 27-40). San Francisco, CA: Pfeiffer Publishing
- Hoic-Bozic, N., Mornar, V. & Boticki, I. (2009). A blended learning approach to course design and implementation. *IEEE Transactions on Education*, 52(1), 19-30. Retrieved from <http://dx.doi.org/10.1109/TE.2007.914945>
- Holmes, K. A., & Prieto-Rodriguez, E. (2018). Student and staff perceptions of a learning management system for blended learning in teacher education. *Australian Journal of Teacher Education*, 43 (3), 21–34.
- Horn, M. B. (2010). K-12 online education is increasingly hybrid learning. *Distance Learning*, 7(2), 18-20.
- Horn, M. B. (2012). *Classifying K-12 Blended Learning*. Retrieved from ERIC web site: <http://www.eric.ed.gov>
- Horn, M. B., & Fisher, J. F. (2017). New faces of blended learning. *Educational Leadership*, 74 (6), 59–63.
- Horn, M. B., & Staker, H. (2015). *Blended: Using disruptive innovation to improve schools*. Jossey-Bass.
- Horn, M. B., & Staker, H. (2015). *Shaping culture for blended learning*. Arlington, WV: American Association of School Administrators.

- Horn, M. B., Gu, A., & Evans, M. (2014, September). Knocking down barriers: How California superintendents are implementing blended learning. Lexington, MA: Christensen Institute. Retrieved from www.christenseninstitute.org
- Janzen, K. J., Perry, B., & Edwards, M. (2012). Viewing learning through a new lens: The quantum perspective of learning. *Creative Education*, 3(6), 712-720. doi:10.4236/ce.2012.36106
- Jeffries, R. B., (2013). Impact of trickster performances on the curriculum.
- Johnson, T. (2014). Snowball Sampling: Introduction. John Wiley & Sons, Ltd and republished in Wiley StatsRef: Statistics Reference Online.
- Kaleta, R. (2007). Discovering, designing, and delivering hybrid courses. *Blended learning research perspectives*, pp. 111-143.
- Kaleta, R., Garnham, C., & Aycok, A. (2005). Hybrid courses: Obstacles and solutions for faculty and students. Retrieved from http://www.uwex.edu/disted/conference/Resource_library/proceedings/03_72.pdf
- Kaur, M. (2013). Blended learning-its challenges and future. *Procedia-Social and Behavioral Sciences*, 93, 612–617.
- Kuzu, I. Y., & Demirkol, M. (2014). Effect of blended learning environment model on high school students' academic achievement. *Turkish Online Journal Of Educational Technology - TOJET*, 13(1), 78-87
- Kelly S. (2010) Qualitative interviewing techniques and styles. In: Bourgeault I, Dingwall R, de Vries R. (eds) *The Sage Handbook of Qualitative Methods in Health Research*, Thousand Oaks: Sage Publications.
- Kenney, J., & Newcombe, E. (2011). Adopting a blended learning approach: Challenges encountered and lessons learned in an action research study. *Journal Of Asynchronous Learning Networks*, 15(1), 45-57.
- Khan, A.I., Shaif, M.S., Qayyum, N., Ali, A. (2012). Study of Blended Learning Process in Education Context. *International Journal of Modern Education and Computer Science*. Retrieved from <http://www.mecs-press.org/ijmecs/ijmecs-v4-n9/IJMECS-V4-N9-3.pdf>
- Kieschnick, W. (2017). Bold school: Old school wisdom + new school technologies = blended learning that works. International Center for Leadership in Education, Inc.
- Klinger, D., & Pfeiffer, E. (2011). Engaging students in blended courses through increased technology. *Journal of Physical Therapy Education*, 25(1), 11-14. Retrieved from <http://www.aptaeducation.org/members/jopte/>

- Klobas, J. E., & McGill, T. J. (2010). The role of involvement in learning management system success. *Journal of Computing in Higher Education*, 22(2), 114-134. doi:10.1007/s12528-010-9032-5
- Koops, W.W. (2012). Jean Jacques Rousseau, modern developmental psychology, and education. *European Journal of Developmental Psychology*, 9 (sup1), 45- 56.
- Laster, S. G. (2005). Redefining blended learning.
- Laster, S., Otte, G., Picciano, A. G., & Sorg, S. (2005). Redefining blended learning. Paper presented at the Sloan-C workshop on blended learning, Chicago, IL.
- Lewis, T. I. (2012). From being willful to being more willing: A phenomenological critique of Rousseau's "On Education." *Journal of Contemporary Educational Studies/ Sodobna Pedagogika*, 63(4), 90-102.
- Littlejohn, A., & Pegler, C. (2007). *Preparing for blended e-learning*. Abingdon, Oxon: Taylor & Francis.
- Liu, Q., Peng, W., Zhang, F., Hu, R., Li, Y., & Yan, W. (2016). The Effectiveness of blended learning in health professions: Systematic review and meta-analysis. *Journal of Medical Internet Research*, 18 (1). doi:10.2196/jmir.4807
- Manwaring, K. C., Larsen, R., Graham, C. R., Henrie, C. R., & Halverson, L. R. (2017). Investigating student engagement in blended learning settings using experience sampling and structural equation modeling. *The Internet and Higher Education*, 35, 21–33.
- Margolis, A. R., Porter, A. L., & Pitterle, M. E. (2017). Best practices for use of blended learning. *American Journal of Pharmaceutical Education*, 81(3), 1–8. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5423065/>
- McCarthy, J. (2010). Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology*, 26, 729-740.
- McGee, E. and Poojary Y, P., 2020. Exploring Blended Learning Relationships in Higher Education using a System-based Framework. *Turkish Online Journal of Distance Education*, 21(4), pp.1-13.
- Means, B., Toyama, Y., Murphy, R. F., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record*, 115(3), 1-47. <https://eric.ed.gov/?id=EJ1018090>
- Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2010). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies center for technology in learning. United States Department of Education. www.ed.gov/about/offices/list/oeped/ppss/reports.html.

- Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco, CA: Jossey-Bass.
- Mertler, C. A. (2014). *Action Research: Improving Schools and Empowering Educators* (4th ed.). Los Angeles, CA: SAGE Publications, Inc.
- Miles M, Huberman A. (1994) *An expanded sourcebook: Qualitative data analysis*, 2nd ed. Thousand Oaks: Sage Publications.
- Ministry of Human Resource Development Annual Report, Government of India 2006-2007
- Moran, G. (2010, September 20). The rise of the virtual classroom. *Entrepreneur*, 38(10), 112. Retrieved from www.entrepreneur.com/magazine/entrepreneur
- Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea? *The Internet and Higher Education*, 18, 15–23.
- Newcombe, E. (2011, June). A work in progress: Refining the “blend” of face-to-face and online instruction. Paper presented at the World Conference on Educational Multimedia, Hypermedia and Telecommunications 2011, Lisbon, Portugal. Retrieved from <http://www.editlib.org/p/38304>
- Office of Educational Technology. (2017, January). *Reimagining the role of technology in education: 2017 national education technology plan update*. United States Department of Education. <https://tech.ed.gov/files/2017/01/NETP17.pdf>
- Oliver, M., & Trigwell, K. (2005). Can ‘blended learning’ be redeemed? *E-learning and Digital Media*, 2, 17-26.
- Onyema, O., & Daniil, P. (2017). Education the 21st century learners: Are educators using appropriate learning models for honing skills in the mobile age? *Journal of Entrepreneurship Education*, 20(2), 1-15.
- Osguthorpe, R. T., & Graham, C. R. (2003). Blended learning environments: definitions and directions. *Quarterly Review Of Distance Education*, 4(3), 227- 33.
- Paily, M. U. (2013). Creating constructivist learning environment: Role of "Web 2.0" 151 technology. *International Forum of Teaching and Studies*, 9(1), 39-50,52.
- Palinkas LA, Horwitz SM, Green CA, et al.(2015) Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health and Mental Health Services Research* 42(5): 533–544.
- Patrick, S., Kennedy, K., & Powell, A. (2013, October). Mean what you say: Defining and integrating personalized, blended and competency education. Aurora Institute. <https://aurora-institute.org/resource/mean-what-you-say-defining-and-integratingpersonalized-blended-and-competency-education>

- Patton, M. (2015). *Qualitative research and evaluation methods* (4th ed.). SAFE Publications, 169 Inc.
- Patton, M. (2015). *Qualitative research and evaluation methods* (4th ed.). SAFE Publications, Pew Research Center. (2017, May 25). A third of U.S. households have three or more smartphones. <https://www.pewresearch.org/fact-tank/2017/05/25/a-third-of-americans-live-in-a-household-with-three-or-more-smartphones/>
- Pew Research Center. (2017, May 25). A third of U.S. households have three or more smartphones. <https://www.pewresearch.org/fact-tank/2017/05/25/a-third-of-americans-live-in-a-household-with-three-or-more-smartphones>
- Picciano, A. G. & Dziuban, C. (2007). *Blended learning: research perspectives*. Needham, Mass: The Sloan Consortium.
- Pierce, D. (2017, January 11). What effective blended learning looks like. Retrieved from www.thejournal.com/articles/2017/01/11/what-effective-blended-learning-looks-like.aspx
- Powell, A., Watson, J., Staley, P., Patrick, S., Horn, M., Fetzer, L., Hibbard, L., Oglesby, J., & Verma, S. (2015). *Blending learning: The evolution of online and face-to-face education from 2008-2015*. International Association for K-12 Online Learning. <https://files.eric.ed.gov/fulltext/ED560788.pdf>
- Psycharis, S. (2013). MOODLE as a learning environment in promoting conceptual understanding. *Eurasia Journal of Mathematics, Science & Technology Education*, Vol. 9 (1), pp. 11-21.
- Psycharis, S., Chalatzoglidis, G., & Kalogiannakis, M. (2013). Moodle as a learning environment in promoting conceptual understanding for secondary school students. *Eurasia Journal of Mathematics, Science & Technology Education*, 9(1), 11-21. doi:10.12973/eurasia.2013.912a
- Ross, B., & Gage, K. (2006). Global perspectives on blending learning in higher education, *Handbook of blended learning: Global perspectives*, pp. 155- 168. San Francisco, CA: Pfeiffer Publishing.
- Sánchez, R. A., & Hueros, A. D. (2010). Motivational factors that influence the acceptance of Moodle using TAM. *Computers in Human Behavior*, 26(6), 1632- 1640. doi:10.1016/j.chb.2010.06.011
- Sethy, S.S. (2008). “Distance Education in the Age of Globalization: An Overwhelming Desire towards Blended Learning”. *Turkish Online Journal of Distance Education*, 9 (3).
- Sheninger, E. C., & Murray, T. C. (2017). *Learning Transformed: 8 Keys to Designing Tomorrow’s Schools, Today*. ASCD.

- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3-10.
- Silverwood, T. (2006). Blended Learning Made Easy. <http://www.chs.nihonu.ac.jp/institute/human/kiyou/74/10.pdf>
- Singh, S., & Liang, H. L. (2010). Perspectives on blended open distance education learning and teaching in a South African context. IGI Global. Retrieved from <https://www.researchgate.net/file.PostFileLoader.html?id=5811611c3d7f4b140d5cb332&assetKey=AS%3A421622227181569%401477533980392>
- Smith, M. L. (1987). Publishing qualitative research. *American Educational Research Journal*, 24, 173–183. doi:10.3102/00028312024002173
- Ssekakubo, G., Suleman, H., & Marsden, G. (2013). Designing mobile LMS interfaces: Learners' expectations and experiences. *Interactive Technology and Smart Education*, 10(2), 147-167. doi:10.1108/ITSE-12-2012-0031
- Staker, H., & Horn, M. B. (2012). Classifying k-12 blended learning. Christensen Institute. <https://www.christenseninstitute.org/wpcontent/uploads/2013/04/Classifying-K-12-blended-learning.pdf>
- Stephen, L. (2012). Model driven design: Systematically building integrated blended learning experiences. *Journal of Asynchronous Learning Networks*, Vol. 14(1), pp. 39-53.
- Strauss, V. (2012). Three fears about blended learning. Washington
- Strobl, J. (2007). Geographic learning. *Geoconnexion International Magazine*, 6(5). 46-47. Retrieved from <http://www.geoconnexion.com/publications/geo-international/>
- Sun, Z., & Qiu, X. (2017). Developing a blended learning model in an EFL class. *International Journal of Continuing Engineering Education and Life Long Learning*, 27(1–2), 4–21.
- Suprabha, K., & Subramonian, G. (2015). Blended learning approach for enhancing students' learning experiences in a knowledge society. *Journal of Educational Technology*, 11(4), 1– 7. <https://doi.org/10.26634/jet.11.4.3146>
- Thomas, G. (2011). Using self- and peer-assessment to enhance students' future-learning in higher education. *Journal of University Teaching & Learning Practice*, 8(1), 1-17. Retrieved from <http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1112&context=jutlp>
- Thurab-Nkhosi, D. (2018). Implementing a blended/online learning policy on a face-to-face campus: Perspectives of administrators and implications for change. *Journal of Learning for Development*, 5(2), 133–147.

- Tiantong, M., & Teemuangsai, S. (2013). Student team achievement divisions (STAD) technique through Moodle to enhance learning achievement. *International Education Studies*, 6(4), 85-92. doi:10.5539/ies.v6n4p85
- Trochim, W. M. (2002). *The research methods knowledge base* (2nd ed.). New York: Atomic Dog Publishing.
- Tucker, R. C., Wycoff, T., & Green, T. J. (2017). *Blended learning in action: A practical guide toward sustainable change*. Thousand Oaks, CA: Corwin.
- Tylor, M. L. (2012). Transition and technology-evaluation of blended learning. *British Journal of Educational Technology*, Vol. 43(3), pp. 398-410.
- U.S. Department of Education, Office of Planning, Evaluation and Policy Development, Policy and Program Studies Service. (2018, October). *Educator toolkit: Using educational technology—21st century supports for English learners*. Washington, DC: Author. Retrieved from www2.ed.gov/about/offices/list/opepd/ppss/reports.html
- UNESCO (2002). *EFA Global Monitoring Report: Is the World on Track?*
- Ursache, L., Herman, C., Poka, S., & Vaju, G. (2012). A transversal method of teaching using Moodle. In *Conference proceedings of "eLearning and Software for Education"(eLSE)*, 1, 187-194. doi: 10.5682/2066-026X-12-030
- Vander Ark, T. (2018). The problem is wasted time, not screen time. *Education Next*, 18(1), 1-7.
- Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on ELearning (IJEL)*, 6, 81. <http://www.editlib.org/j/IJEL/>
- Vaughan, N. D. (2007). Perspectives on blended learning in higher education. *International Journal on E- Learning*, Vol. 6(1), pp. 81-94
- Walters, B. (2008, August 12). *Blended learning-classroom with on-line*. The CALSCA Online Magazine. Retrieved from http://calsca.com/Writings/walters_blended_learning.htm
- Wang, M. J. (2010). "Online collaboration and offline interaction between students using asynchronous tools in blended learning". *Australasian Journal of Educational Technology*, 26(6), 830-846.
- Wang, T. H. (2011). Developing web-based assessment strategies for facilitating junior high school students to perform self-regulated learning in an e-Learning environment. *Computers & Education*, 57(2), 1801-1812. doi:10.1016/j.compedu.2011.01.003
- Wang, Y., Han, X., & Yang, J. (2015). Revisiting the blended learning literature: Using a complex adaptive systems framework. *Journal of Educational Technology & Society*, 18 (2), 380.

- Watson, F. F., Castano Bishop, M., & Ferdinand-James, D. (2017). Instructional strategies to help online students learn: Feedback from online students. *TechTrends*, 61, 420–427. doi:10.1007/s11528-017-0216-y
- Watson, J. (2008). *Blended learning: The convergence of online and face-to-face education*. Vienna, VA: North American Council for Online Learning.
- Watson, J. (2012). *Blending learning: The convergence of online and face-to-face education*. NACOL. America. Retrieved from <https://files.eric.ed.gov/fulltext/ED509636.pdf>
- Wills, N. D. (2015). *How people learn in k-8 blended learning catholic schools: Floating, failing, and filling tetris gaps*. (Publication No. 3741606) [Doctoral dissertation, University of Wisconsin]. ProQuest Dissertations and Theses Global.
- Wong, L., Tatnall, A., & Burgess, S. (2014). A framework for investigating blended learning effectiveness. *Education Training*, 56(2/3), 233–251.
- Yao, C. (2018). *How a blended learning environment in adult education promotes sustainable development in China*. *Australian Journal of Adult Learning*, 58, 480– 502. Retrieved from www.ajal.net.au
- Zuckerman, M. m. (2012). Rousseau, the enlightenment and early American education. *European Journal of Developmental Psychology*, 9(sup1), 18-31
- <http://dx.doi.org/10.1016/j.sbspro.2015.10.049>
- http://www.iiep.unesco.org/sites/default/files/nl_1998-2_en.pdf
- http://www.inacol.org/research/promisingpractices/NACOL_PP-BlendedLearning-Ir.pdf
- <https://en.unesco.org/news/unesco-rallies-international-organizations-civil-society-and-private-sector-partners-broad>
- <https://unesdoc.unesco.org/ark:/48223/pf0000141952>
- <https://unsdg.un.org/resources/policy-brief-education-during-covid-19-and-beyond>
- <https://www.edexlive.com/opinion/2021/jun/02/are-you-eager-to-adopt-blended-learning%20in-classrooms-not-so-fast-21294.html>
<https://timesofindia.indiatimes.com/home/education/news/54-of-indian-students-comfortable-with-online-learning%20survey/articleshow/82179145.cms>
- <https://www.edexlive.com/opinion/2021/jun/02/are-you-eager-to-adopt-blended-learning-in-classrooms-not-so-fast-21294.html>
- https://www.ugc.ac.in/pdfnews/6100340_Concept-Note-Blended-Mode-of-Teaching-and-Learning.pdf

Appendixes

Blended Learning Survey- Faculty

Respected Faculty members, I am Kajal Yadav, Research Scholar, doing Integrated M.Phil.- PhD. from National Institute of Educational Planning and Administration for that working on Blended Learning. Title of dissertation says Blended Learning in Higher Education: An Exploration of its Approaches and Challenges.

The purpose of this survey is to gather faculty responses that will help inform the ongoing development of blended learning. Data obtained from this study may be used by the researchers in presentations and academic publications. Kindly fill this form your responses are valuable for this research. I will be highly obliged.

I hope you are willing to fill this survey.

* Required

Background Information

1. Name *
2. Email ID *
3. Contact Number *
4. Designation *
5. Name and Place of Institution working *

Survey Questions

6. 1. According to you, what is Blended Learning? *
7. 2. Do you have any idea of NEP 2020 incorporating a blended mode of teaching and learning? Kindly share your views
8. 3. Kindly share your opinion on the current status of blended mode of teaching and learning?
9. 4. What instructional methodology or types of activities you are currently using teaching to enhance the interest and learning of students?
10. 5. How do you plan to incorporate asynchronous/offline discussions into synchronous/online learning activities to blend the course?
11. 6. What proactive steps you take for your students when they face technical and non-technical difficulties during online classes or later in the course?
12. 7. What specific technologies you use for both online learning and offline learning?

13. 8. Do you think blended learning improves the students level of participation in learning. Kindly comment.
14. 9. As per your experience, what is students attitude towards blended mode and how much time they take to adjust?
15. 10. There is an assumption that blended learning increases workload of both teachers and students as compare to traditional classroom setup. What are your views on this and how do you manage it?
16. 11. As per your experience, What are the difficulties or least effective aspect of blended/ integrated learning?
17. 12. As per your experience, what are the benefits or most effective aspect of blended or integrated learning?
18. 13. What technological or pedagogical steps we need to pay attention or need to do the most to take blended learning further?
19. Any feedback or suggestions you would like to give.

endorsed by Google.

Google Forms

Blended Learning Survey- Students

Dear all, I am Kajal Yadav, Research Scholar, persuing Integrated M.Phil.-PhD. from National Institute of Educational Planning and Administration for that working on Blended Learning. Title of dissertation is Blended Learning in Higher Education: An Exploration of its Approaches and Challenges.

The purpose of this survey is to gather students responses that will help inform the ongoing development of blended learning. The data will be confidential and your identity will not be revealed. Data obtained from this study may be used by the researchers in presentations and academic publications.

Kindly fill this form your responses are valuable for this research. I will be highly obliged.

*** Required**

Background Information

1. Email *
2. Name *
3. Gender *
4. Program *

Mark only one oval.

- Graduate
- Post graduate
- Other: _____

5. Year in graduation/ post-graduation *

Mark only one oval.

- First year
- Second ear
- Third Year
- Fourth Year

Survey

6. 1. According to you, what is blended learning? (Can select multiple options) *

Check all that apply.

- It is a combination of online learning and offline learning
- It is a practice of using digital learning tools in education
- It is online learning or e-learning
- It is offline or in classroom learning
- Other: _____

7. 2. What is your primary reason for learning through blended mode? (Can select multiple options)

Check all that apply.

- Convenience of not going to college/institute as often
- Flexibility to complete assignments at any place/anytime
- Saves travelling time, energy, money
- It is required/ only available option for course
- Job responsibilities makes difficult to attend offline classes
- Other: _____

8. 3. Did the content teach through blended mode help you to remember the information?

Mark only one oval.

- Yes
- No
- Other: _____

9. 4. As a learner what would you prefer for learning? *

Mark only one oval.

- only offline or classroom learning
- only online or electronic learning
- classroom learning along with e-learning

10. 5. Do you think blended learning increase the workload of your assignments and work?

Mark only one oval.

- Yes
- No
- Other: _____

11. 6. What is the most effective aspect of blended learning? *

Check all that apply.

- It makes learning more interesting and effective
- It allows self pace learning
- Study material is available at all
- timeIt helps with independent
- learning
- It introduces new technologies
- Other: _____

12. 7. What is the least effective aspect of the blended learning? *

Check all that apply.

- The access to digital gadgets
- Internet connection and network issues
- Understanding the concepts online
- Getting technical support
- Direct contact with teacher/ feedback

13. 8. How do you adapt to blended learning courses or How this is different from *classroom learning? Kindly share your views.

14. 9. What suggestions you would like to give to strengthen the blended mode of learning?
15. 10. Do you have any idea of National Educational Policy 2020 incorporating a *blended mode of teaching and learning? Kindly comment below.
16. Your feedback or overall experience with blended mode of learning.

This content is neither created nor endorsed by Google.

Google Forms

Interview Guide

The following bullets were elaborated and discussed

- Understanding of Blended Learning
- Discussion on NEP & UGC document
- Incorporation of Synchronous & asynchronous activities
- Workload
- Difficulties/ Least effective aspects
- Benefits/ Most effective aspects
- Technological and pedagogical steps
- Strategies and approaches
- Suggestions to strengthen
- Feedback on research study