

Blended Learning: A Necessity for Indian Education System

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Abstract:

Blended learning is an innovative concept that merges the advantages of conventional classroom teaching with technology-assisted learning, encompassing both online and offline modalities. It creates prospects for cooperative learning, hands-on learning, and computer-aided learning (CAL). For blended learning to be successfully implemented, there must be careful efforts, a good attitude, and substantial inexpensive, as well as highly motivated teachers and learners. It is complex and difficult to organize because it connects multiple approaches. The idea of blended learning, its major components, and the prerequisites for its successful implementation are explored in the present research. Furthermore, a cover-up is the implementation of blended learning in the Indian educational system. The current study is also designed to highlight how blended learning is a crucial method.

Keywords: Blended learning, Traditional classroom instruction, ICT-supported learning, Computer Assisted Learning (CAL), and web-based learning.

1. INTRODUCTION:

The educational platform is currently going through a transformation. It is attempting to incorporate new technology to face expansion challenges and respond to individual needs (Becker et al., 2017). While it is continuously looking for innovative approaches to achieving the objective of giving everyone access to top-notch educational opportunities, it is not yet fully prepared to abandon the conventional methods of knowledge transfer (Guskey, 2002) because of issues with inadequate budgets, inadequate facilities, and the benefits of face-to-face interaction (Philipsen et al., 2019). Even the students are experiencing a double personality. When asked which type of instruction they would prefer—traditional classroom instruction or ICT-supported instruction—teacher candidates are oftentimes almost evenly split between both options (Vaughan, 2010).

Aside from some small drawbacks, the conventional approach to education provides an essential personal element to the process of teaching and learning. The way teachers act and think has a direct impact on how pupils' personalities develop (Howard & Mozejko, 2015; Saunders, 2013). The effective aims, in addition to cognitive and psychomotor goals, are only met via face-to-face interaction. The conventional face-to-face approach aids in the formation of a solid value system. Traditional methods of instruction make it easier for students to develop social competencies such as collaboration, sharing, communication, and respect for others' opinions. Pupils acquire knowledge not solely from textbooks or educators in the traditional classroom setting, but also from their fellow students. Through interactions

with their peer groups, students gain a variety of skills on the playground and in small-group settings such as canteens and lounges. All these factors are crucial for healthy personality development.

As was previously said, the conventional technique offers advantages of its own but also has drawbacks. The following are its flaws:

- It is primarily failing to address each student's unique needs because of the inappropriate pupil-teacher ratio.
- The difficulty of teaching students who have physical difficulties is something it is not adjusting to.
- There is no integrated classroom training for teachers.
- Since attendance is essential and the examination process is based on the yearly examinations, it is inadequate to manage the challenges brought by the irregular pupils. Due to rigidity, irregular students are essentially expelled from the mainstream of the educational system if they don't show up for the exam, which wastes their entire school year.
- Similarly, children who leave school for any reason do not have the opportunity to re-enter the formal educational system since there are no professional counsellors, no teachers with the proper attitude, and very few follow-up activities in the schools.
- The objective of universal education is still far off because not all children can attend school.
- Students from underprivileged groups, those who live in remote locations, and those who are ill are unable to benefit from this formal, traditional style of instruction.
- Students suffer concurrently from a lack of teachers, and their learning is complicated by ineffective teachers.
- The present situation of our system of education leaves our students unfit to fulfil the demands of the modern-day job marketplace and professions. This is largely due to a lack of routine course updates, outdated books, and unmotivated professors who fail to develop their knowledge and professional skills.

Making their knowledge consistent with current technological development and globalization, reducing instructional errors, raising standards, and increasing student exposure (Philipsen et al., 2019) is imperative. The process of teaching and learning may be enabled by ICT. ICT-supported learning gives the teaching and learning process a new dimension (Gerbic, 2011), exposes students to a vast body of knowledge, and presents them with many possibilities to learn, unlearn, and relearn. This method of instruction can be beneficial for all learners, even those who are physically challenged or in the workforce. It facilitates reaching all students. By Swami Vivekanand's statement that "if people cannot reach school, schools should reach them," ICT-enabled learning is doing the same thing.

The proposed solution is a holistic approach that combines crucial elements of conventional and technology-assisted teaching methods. A thorough examination of both modes of teaching and learning indicates that each has its strengths and weaknesses and can meet different educational needs, demands, and goals. Today, a blended learning strategy—which combines the benefits of both delivery methods for the student's learning—is in high demand.

2. BLENDED LEARNING:

The following diagram explains blended learning:

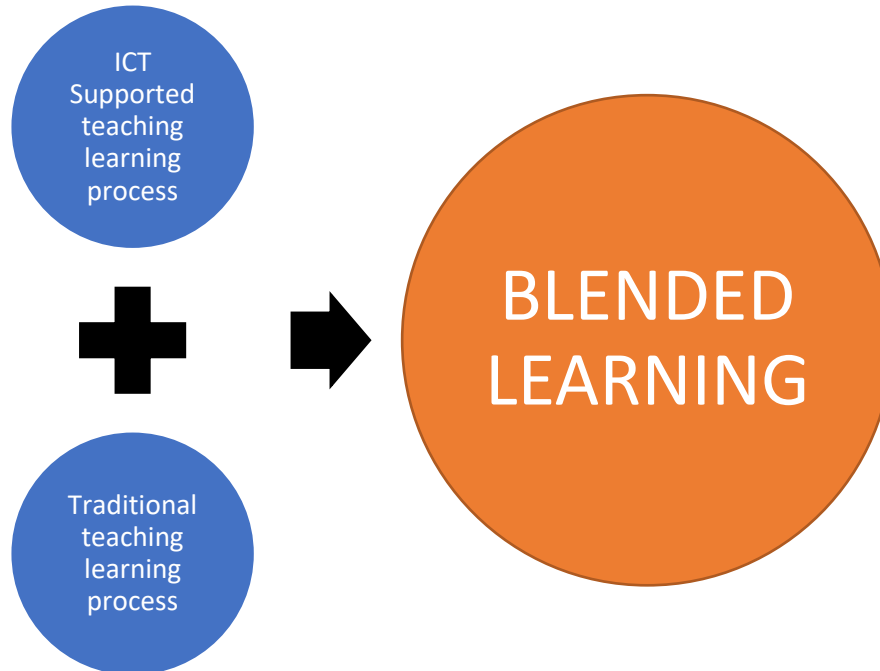


Figure 1. Blended Learning Model

The concept of blended learning involves designing the learning experience to incorporate a mix of traditional classroom teaching and ICT-supported learning. This approach incorporates various instructional methods, such as direct and indirect instruction, cooperative learning, and computer-based individualized learning. The figure demonstrates the different elements that comprise blended learning.

- A. Face-to-face instruction:** Blended learning provides conventional classroom education with the time it requires, providing students with many chances to engage with their instructors and therefore be influenced by their personalities, behaviours, and moral ideas. Face-to-face engagement facilitates synchronous communication. Teachers and students may get instant feedback, which enhances the teaching and learning process. Face-to-face interaction personalises the process and is very motivating for both instructors and students.
- B. The engagement of students with the course material:** Traditional teaching techniques and the school context enable students to connect directly to their course content via textbooks (Sher, 2009), while ICT-mediated learning provides students an opportunity to interact indirectly with their course material in a variety of engaging ways (Murray et al., 2013). Videos give the topic the necessary level of realism, and posting on blogs and browsing e-books give the content fresh, contemporary viewpoints.
- C. Peer group interaction:** On the campus of the school, students learn formally as well as informally through their interactions with their peer groups (Hussain et al., 2011). Through informal interactions with their peer groups, students will practice many important social ideals and life skills (Collier, 1980). The school campus provides various opportunities for this during recreation and during social interactions.

- D. Collaborative conversation and sharing of concepts among a team:** Classroom teaching not only allows students to interact with teachers, but well-designed strategies also allow students to engage in discussions with their classmates about various aspects of the course and exchange ideas (Wieser & Seeler, 2018). This aids in the development of confidence in students, the removal of hesitation, the development of effective communication skills, and the development of good listening skills.
- E. Gaining entry to an Electronic Library:** E-library access is a component of blended learning's ICT-supported teaching and learning. Students have restricted access to the school library in the traditional form, but a digital library allows them access to a variety of books on a variety of topics that are pertinent to their topic (Knight, 2013). This aids in achieving the cognitive objectives by broadening their horizons and enhancing their knowledge (Made et al., 2016).
- F. Virtual Classroom:** Students have the flexibility to learn from anyone, anytime, and anywhere in a virtual classroom (Wang & Newlin, 2001). Regardless of geographical limitations, a student can participate in a virtual classroom meeting with his fellow students and the teacher online (Ananthasayanam et al., 2009). To give the system more flexibility and benefit students who are unable to attend class regularly, schools can also make provisions for it. The learner can also connect with other professionals and broaden her knowledge. Because the globe has become a global village, students who use this method will be on level with their counterparts anywhere in the world and will also gain multicultural experience.
- G. Online assessment:** Which provides rapid feedback and is based on readiness principles, is essential for learning since it inspires learners. Online evaluation aids in improving the formative, transparent, and speed of the evaluation process (Joshi et al., 2020). It becomes more trustworthy and unbiased.
- H. E- tuitions:** Students at e-tuitions have various demands. Few students benefit from classroom instruction because they need constant one-on-one support and undivided attention. Such students may select the e-tuition option, which entails meeting a private tutor and receiving personalized learning via video conferencing online (Stewart, 2004).
- I. Educational Vlogs:** Traditional classroom settings often leave students with little time and opportunity to develop their creativity, given the tight schedules, heavy workloads, and exam pressure. However, educational vlogs present an alternative platform for students to express their ideas and receive constructive criticism. Additionally, these vlogs offer a suitable space for discussing critical topics that are not typically part of the curriculum, such as social problems, political issues, and other relevant concerns affecting the youth, including drug abuse, delinquency, and population education.
- J. Webinar:** One aspect of blended learning that leverages technology is the webinar. This involves students attending online seminars on topics that are pertinent to them. Participants use various computer software such as Skype or Google Talk, and interact with each other through video conferencing to present their papers and engage in discussions.
- K. YouTube Learning:** Blended learning provides students with the ability to obtain useful insights from the course material's knowledge. This is made feasible by simple access to a varied selection of lectures by top experts from many areas, which are easily accessible on YouTube. Additionally, schools may publish recordings of their own professors' lectures so that students who are unable to attend their particular universities can still benefit from the teachers' education. (Anisimova et al., 2020).
- L. Online Learning:** Online audio and video learning is accessible, with a choice of recordings and animated animations that simply and engagingly convey a variety of subjects (Amini et al., 2022). They are founded on the principles of realism and relevance to real-world experiences. Studying in an

experiential manner allows students to gain practical exposure, facilitating their comprehension of complex ideas and phenomena.

M. Virtual Laboratories: Virtual laboratories are an excellent tool for professional courses that place a high emphasis on laboratory work. In many cases, the cost of establishing well-equipped laboratories is prohibitively expensive, and certain experiments may pose safety risks that make it unsafe for students to handle the necessary equipment and materials. Virtual laboratories provide a safe and accessible alternative for students to gain essential skills and knowledge in such situations. (Chen, 2010; Goodwin et al., 2011).

Blended learning refers to the combination of all these features in one framework.

3. Major Characteristics of Blended Learning:

The major characteristics of Blended Learning are listed as follows-

- **Students can choose between two modes:** Blended learning students have the option to select either a conventional classroom approach that involves communication with their peers and teacher, or an information and communication technology (ICT) supported teaching method. The choice is mainly dependent on the subject matter and the desired learning outcomes (Graham, 2013). Sometimes course designers or teachers choose the appropriate mode for the topic at hand.
- **Students engage in both face-to-face and virtual interactions:** There are numerous chances for students to engage in discussions with their classmates who are enrolled in the same course. These interactions can take place both in-person on campus or online. This exchange of ideas amongst a diverse group of individuals enables students to broaden their knowledge and gain a deeper appreciation for other cultures and nations, ultimately fostering empathy, camaraderie, and a sense of global unity.
- **Students acquire a broad range of skills and knowledge in the use of modern technology:** The 21st century is the ICT era. Being ignorant nowadays entails not just not being able to read and write, but also not being conversant with new technology. Because ICT expertise is increasingly necessary for all occupations, blended learning allows students to have greater ICT experiences. Students that engage in blended learning learn how to completely use available technology to their advantage (Khan et al., 2012).
- **All round development of personality is targeted:** Blended learning offers students the opportunity to fully develop their personalities, encompassing the cognitive, physical, and emotional aspects. Traditional teaching methods or solely relying on ICT cannot achieve this level of holistic development. Through blended learning, online experiences facilitate the reflective level of learning, stimulating higher-order thinking skills. Moreover, social media sites and other internet-mediated social interactions help students gain technological awareness. Meanwhile, traditional classroom instruction supports the development of memory and understanding, promoting cognitive domain development (Owston, 2018). The emotional and physical aspects of a child's development are influenced by a combination of factors such as their teachers' conduct, interactions on the playground, and social connections with peers.
- **Teachers are proficient in both types of instruction:** One essential element in blended learning environments is the high level of enthusiasm, technological expertise, and effective training among teachers, enabling them to excel in both traditional classroom settings and ICT-supported formats.

They will be skilled at utilizing both conventional techniques and cutting-edge technology (Jeffrey et al., 2014).

- **Students gain extensive exposure to and fresh viewpoints on the content knowledge:** Students are exposed to a wide range of experiences, which enriches their knowledge of the subject matter and allows them to perceive different perspectives on it.
- **It has humankind:** Due to the teacher's physical presence and the conventional teaching method, students receive the human interactive guidance that is crucial for secondary-level success and balanced development of the student's emotional intelligence.
- **Makes the learning and teaching process student-centered:** The purpose of blended learning is to achieve student-centered education by giving pupils the most benefit possible.
- **It offers a multicultural and multidimensional approach to the teaching and learning process:** The approach of blended learning offers students the opportunity to engage with their peers from different parts of the globe, enabling them to express their thoughts and emotions. This enriches the teaching and learning process, providing a diverse and multicultural experience (Olivier, 2011). It also includes an interdisciplinary and multidimensional element (Pachisia, 2022).

4. Precondition of Blended Learning:

Implementing blended learning can be challenging and demands several crucial preparations concerning the teaching process, learning process, content design, and structure. The following are the prerequisites for successfully implementing blended learning.

- **Teachers who have received appropriate training:** Student-centric teachers are a key component of blended learning (Jonker et al., 2020). Instructors should be highly certified and competent to mix traditional and technology methodologies, and well-versed in the idea of blended learning. It is important to educate teachers on how to produce digital materials that can be easily accessed by their students on the internet. To achieve this, teachers must have a good grasp of internet terminology, usage and be familiar with various online resources that can aid their students in their learning journey. It is also vital that teachers acquire knowledge on how to use platforms such as blogs, YouTube, video conferencing tools like Skype and Google Talk, and social media for educational purposes.
- **Teachers who have a scientific mindset:** Teachers must have a scientific mindset (Becker et al., 2017). They should be able to make correct observations, as well as be enthusiastic about and capable of resolving problems. Teachers with a scientific mentality will be better equipped to cope with difficulties and realistically analyse the situation if they work on this unique concept of blended learning. This scientific mindset will naturally filter down from instructors to students.
- **Teachers who are open-minded and ready to accept change:** In the same way that a wider perspective and flexibility are necessary for creative ideas or method, inventive and dynamic teachers (Beijaard et al., 2004) are also required for the blended learning process.
- **Complete amenities including a computer lab with comfortable furniture, internet access, and video chatting capabilities:** Blended learning necessitates certain conditions to be met, and infrastructure is a key component of it. For this reason, educational institutions must not only ensure that their classrooms are up to par, but they must also have computer labs that are well-equipped and have sufficient computers to accommodate all students in a single session. In addition, it is beneficial to have internet access and, ideally, a campus-wide Wi-Fi network.

- **Students have internet connectivity through their personal computers:** Students require basic hardware support at home to facilitate both online and offline learning, in addition to having access to a fully ICT-friendly campus. This necessitates the government's positive attitude and good investment schemes.
- **Parents fully aware and agreed:** For the parents to support their children's transition to blended learning and be ready for it, they should be made fully aware of this novel teaching strategy. Only then will they be able to accept that their children will benefit from this departure from the traditional norm in terms of education.
- **Formative and continuous internal evaluation:** To facilitate effective evaluation in blended learning, educational institutions and governing bodies must prioritize the adoption of formative assessment tools like continuous internal assessment (CIA), as summative evaluation may not be feasible. To make the system more flexible, the online examination should be included.

These are a few fundamental prerequisites and essentials without which blended learning cannot be properly implemented.

Let us take a closer look at some of the innumerable advantages of Blended Learning.

5. Advantage of Blended Learning:

Blended Learning offers several benefits, including:

- Information and Communication Technology (ICT) plays a crucial role in enhancing the learning experience for students and teachers alike, both in online and offline modes. This enables them to utilize their time in the classroom more effectively, engaging in activities that encourage collaboration and creativity.
- Online learning and Computer-Aided Instruction (CAI) provide advantages to students while still maintaining the important human and social aspects of traditional teaching methods.
- The use of blended learning provides more opportunities for communication, allowing for the completion of the communication cycle, which is not possible with traditional teaching methods alone.
- One of the benefits of education is that it enhances students' technological literacy and proficiency in digital skills (Mann, 2009).
- The competency of students is significantly improved through the development of self-motivation, self-responsibility, and discipline, which are valuable qualities they acquire.
- The course material is updated, providing a renewed beginning for previously taught courses (Vaughan, 2010).

6. The Importance of Blended Learning in India:

The Indian education system faces numerous challenges, such as the inability to extend the system to offer free and mandatory education to every child, maintaining quality while increasing quantity, an education curriculum that fails to meet global market demands while preserving Indian values, uncommitted teachers, and teacher ineffectiveness. Addressing these challenges necessitates bold actions and significant reforms. Blended learning can partially aid in the resolution of these issues (Kundu, 2018).

- Blended learning provides a solution to the issue of unequal access to education. With its implementation, the range of educational opportunities can be expanded, and a greater number of students can be reached. This is particularly important given the significant population in our country

and the limitations of the traditional school system. By utilizing blended learning, we can ensure that all students have access to quality education regardless of their location or circumstances (Dey & Bandyopadhyay, 2019).

- To ensure students are equipped for the fast-paced and ever-changing job market, the educational system must keep up with the advancements in technology and science. As these fields are dynamic and constantly evolving, it is crucial that educational content is regularly updated to reflect the latest developments. Unfortunately, in India, courses are not frequently revised, which may leave students lagging behind. However, by embracing blended learning, teachers and students can easily update their knowledge and skills to keep up with the latest trends.
- Another significant problem is the lack of qualified teachers. Although there are fewer teachers, many elementary schools still do not have an adequate teacher-to-pupil ratio. This issue is present not just in the public sector but also in private institutions. Another big problem is that working teachers aren't all that committed to their jobs, thus blended learning is a viable alternative since online education may take the place of teachers.
- In general, indiscipline, irregular attendance, dropouts (Hughes, 2007), and other problems arise because our traditional form of delivery is unable to meet the specific needs of each student and does not engage them in the learning process. The present curriculum fails to instil a sense of assurance in students regarding their future, resulting in a lack of confidence and increased unease, which in turn leads to disciplinary problems. However, incorporating blended learning can offer a holistic remedy to these concerns. Blended learning presents a range of learning opportunities that cater to diverse learning styles, fostering engagement and active participation among students, thereby boosting their concentration and attentiveness. Students also become more disciplined because they are responsible for their learning. Also, learning becomes more purposeful since blended learning provides students with a more modern, high-quality education that is gathered from dynamic resources.
- The education of everyone remains a significant challenge. The Constitution demands that all children up to the age of 14 get free and compulsory education, yet our system is unable to achieve this objective as well. But, regardless of geographic limitations, our educational institutions can simply boost enrolment if they utilize blended learning.
- Despite having an education, many students face difficulties finding employment as they lack the necessary skills required by the global job market. However, as previously stated, incorporating blended learning into education can equip students with both theoretical and practical knowledge, enabling them to keep pace with current methodologies and real-life demands.
- Educating children with special needs can be difficult, but blended learning offers a variety of tools and approaches to cater to their specific requirements (Rivera, 2017). For example, in blended learning, intellectually gifted students can readily quench their thirst for knowledge while visually impaired students can receive the necessary technical support to learn. Furthermore, physically disabled students can seamlessly be included in regular education with great efficacy.
- Another significant problem is the quality of education, particularly in higher education (Vyas, 2021). Due to the lack of our higher education institutions' presence in the global ranking of top universities, it would be a prudent decision to embrace blended learning as a means of maintaining competitiveness and enhancing the quality of education. Students' knowledge will be enriched when they experience both kinds of modalities. Our students will acquire advanced skills through access to online experts

and materials that will make them competitive candidates for high-paying employment. The limitations of the methodology or syllabus design will undoubtedly be overcome by these exposures.

- Similar to the previous matter, blended learning incorporates both traditional classroom teaching and modern techniques, which can assist pupils in comprehending the fundamentals of Indian values. The current education system is not effectively instilling in students the appropriate value system and respect for Indian customs and traditions, as it embraces contemporary technologies.

7. Blended learning implementation in the Indian educational system:

Blended learning must have the full support of educational authorities and institution administration. It calls for a properly considered plan that takes into account everyone from the very top to the very lowest of the educational hierarchy. In order to make educational institutions ready for blended learning, we will need to increase educational spending. Working with NGOs, the commercial and industrial sectors, and these groups will help achieve this. Since they stand to benefit the most if graduates from these educational institutions are well prepared for the global job market, these sectors may be driven to give financial support for the integration of blended learning. It is also essential to focus on the growth of favourable attitudes towards this revolutionary idea among all those associated with the educational system. It is important to arrange awareness-raising initiatives for parents, the neighbourhood, teachers, and students, as well as seminars, discussion forums, and other events. They may be used to promote the right mentality for blended learning adoption and raise knowledge of its benefits. There's no doubt that using the media for this is acceptable. Both in-service and pre-service teacher training programmes need to undergo a fundamental change in order to prepare instructors for a blended learning environment. To guarantee that educators have the information and abilities needed to successfully use a blended learning approach, the present programmes must be changed. This change is essential to ensuring that teachers are well-equipped to handle the evolving requirements of today's students. The funds and efforts presently committed to different programmes to offer education for everyone should be used to prepare our primary schools for blended learning since it would solve numerous concerns at once and be a more efficient use of both. To sum up, it may be argued that blended learning is, in part, a reaction to problems with our educational system. If our educational system is implemented in a well-thought-out, methodical way with the right mentality, its future may be ensured. If blended learning is quickly implemented, everyone will benefit from it.

Bibliography:

1. Amini, M., Ravindran, L., & Lee, K.-F. (2022). A review of the challenges and merits of collaborative learning in online translation classes. *Journal of Research, Policy & Practice of Teachers and Teacher Education*, 12(1), Article 1. <https://doi.org/10.37134/jrppte.vol12.1.5.2022>
2. Ananthasayanam, R., Rajathi, T., & Tamilselvi, B. (2009). Virtual Classroom: A Boon to Learners. *Journal on School Educational Technology*, 4(3), 17–22.
3. Anisimova, O. V., Bobodzhanova, L. K., Kolobova, K. S., & Makarova, I. S. (2020). Integration of Internet Tools to Enhance Pronunciation Skills: Effectiveness of Educational Content on YouTube. In Z. Anikina (Ed.), *Integrating Engineering Education and Humanities for Global Intercultural Perspectives* (pp. 199–211). Springer International Publishing. https://doi.org/10.1007/978-3-030-47415-7_21

4. Becker, S. A., Cummins, M., Davis, A., Freeman, A., Hall, C. G., & Ananthanarayanan, V. (2017). *NMC horizon report: 2017 higher education edition*. The New Media Consortium.
5. Beijaard, D., Meijer, P. C., & Verloop, N. (2004). Reconsidering research on teachers' professional identity. *Teaching and Teacher Education*, 20(2), 107.
6. Chen, S. (2010). The view of scientific inquiry conveyed by simulation-based virtual laboratories. *Computers & Education*, 55(3), 1123–1130. <https://doi.org/10.1016/j.compedu.2010.05.009>
7. Collier, K. G. (1980). Peer-group learning in higher education: The development of higher order skills. *Studies in Higher Education*, 5(1), 55–62. <https://doi.org/10.1080/03075078012331377306>
8. Dey, P., & Bandyopadhyay, S. (2019). Blended learning to improve the quality of primary education among underprivileged school children in India. *Education and Information Technologies*, 24(3), 1995–2016. <https://doi.org/10.1007/s10639-018-9832-1>
9. Gerbic, P. (2011). Teaching using a blended approach – what does the literature tell us? *Educational Media International*, 48(3), 221–234. <https://doi.org/10.1080/09523987.2011.615159>
10. Goodwin, G. C., Medioli, A. M., Sher, W., Vlacic, L. B., & Welsh, J. S. (2011). Emulation-Based Virtual Laboratories: A Low-Cost Alternative to Physical Experiments in Control Engineering Education. *IEEE Transactions on Education*, 54(1), 48–55. <https://doi.org/10.1109/TE.2010.2043434>
11. Graham, C. R. (2013). Emerging practice and research in blended learning. In *Handbook of distance education* (pp. 351–368). Routledge.
12. Guskey, T. R. (2002). Professional Development and Teacher Change. *Teachers and Teaching*, 8(3), 381–391. <https://doi.org/10.1080/135406002100000512>
13. Howard, S., & Mozejko, A. (2015). *Teachers: Technology, change and resistance* (pp. 307–317). <https://doi.org/10.1017/CBO9781316091968.030>
14. Hughes, G. (2007). Using blended learning to increase learner support and improve retention. *Teaching in Higher Education*, 12(3), 349–363. <https://doi.org/10.1080/13562510701278690>
15. Hussain, S., Anwar, S., & Majoka, M. (2011). EFFECT OF PEER GROUP ACTIVITY-BASED LEARNING ON STUDENTS' ACADEMIC ACHIEVEMENT IN PHYSICS AT SECONDARY LEVEL. *INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH*, Vol. 3. No.1.
16. Jeffrey, L., Milne, J., Suddaby, G., & Higgins, A. (2014). Blended Learning: How Teachers Balance the Blend of Online and Classroom Components. *Journal of Information Technology Education: Research*, 13, 121–140. <https://doi.org/10.28945/1968>
17. Jonker, H., März, V., & Voogt, J. (2020). Curriculum flexibility in a blended curriculum. *Australasian Journal of Educational Technology*, 36, 68–84. <https://doi.org/10.14742/ajet.4926>
18. Joshi, A., Virk, A., Saiyad, S., Mahajan, R., & Singh, T. (2020). Online assessment: Concept and applications. *Journal of Research in Medical Education & Ethics*, 10(2), 49. <https://doi.org/10.5958/2231-6728.2020.00015.3>
19. Khan, A. I., Noor-ul-Qayyum, Shaik, M. S., Ali, A. M., & Bebi, C. V. (2012). Study of Blended Learning Process in Education Context. *International Journal of Modern Education and Computer Science*, 4(9), 23–29.
20. Knight, N. (2013). Enhancing access to library resources at Northern Caribbean University through an e-library initiative. *The Electronic Library*, 31(6), 753–769. <https://doi.org/10.1108/EL-01-2012-0001>
21. Kundu, A. (2018). Blended Learning in Indian Elementary Education: Problems and Prospects. *Journal of Online Learning Research*, 4(2), 199–227.

22. Made, I., Putu, I., & Gede, D. (2016). Development of Decision Support System to Selection of the Blended Learning Platforms for Mathematics and ICT Learning at SMK TI Udayana. *International Journal of Advanced Research in Artificial Intelligence*, 5(12). <https://doi.org/10.14569/IJARAI.2016.051203>
23. Mann, P. (2009). *Blended learning approach to include the innovative use of vodcasts (video-podcasts) to enrich students learning experience in structures laboratory*. Universidade de Santiago de Compostela, Servizo de Publicacions e Intercambio Cientifico. <https://centaur.reading.ac.uk/6169/>
24. Murray, M., Perez, J., Geist, D., & Hedrick, A. (2013). *Student Interaction with Content in Online and Hybrid Courses: Leading Horses to the Proverbial Water*. 99–115. <https://www.learntechlib.org/p/114688/>
25. Olivier, J. (2011). *Accommodating and promoting multilingualism through blended learning* [North-West University]. <https://www.learntechlib.org/p/37551/>
26. Owston, R. (2018). *Empowering Learners through Blended Learning*. 17(1), 65–83. <https://www.learntechlib.org/primary/p/177966/>
27. Pachisia, J. (2022). *The concept of blended learning mode*.
28. Philipsen, B., Tondeur, J., Pareja Roblin, N., Vanslambrouck, S., & Zhu, C. (2019). Improving Teacher Professional Development for Online and Blended Learning: A Systematic Meta-Aggregative Review. *Educational Technology Research and Development*, 67(5), 1145–1174. <https://doi.org/10.1007/s11423-019-09645-8>
29. Rivera, J. H. (2017). The Blended Learning Environment: A Viable Alternative for Special Needs Students. *Journal of Education and Training Studies*, 5(2), 79–84.
30. Saunders, R. (2013). The role of teacher emotions in change: Experiences, patterns and implications for professional development. *Journal of Educational Change*, 14(3), 303–333. <https://doi.org/10.1007/s10833-012-9195-0>
31. Sher, A. (2009). *Assessing the relationship of student-instructor and student-student interaction to student learning and satisfaction in Web-based Online Learning Environment*.
32. Stewart, B. L. (2004). Online learning: A strategy for social responsibility in educational access. *The Internet and Higher Education*, 7(4), 299–310. <https://doi.org/10.1016/j.iheduc.2004.09.003>
33. Vaughan, N. D. (2010). A Blended Community of Inquiry Approach: Linking Student Engagement and Course Redesign. *Internet and Higher Education*, 13, 60–65. <https://doi.org/10.1016/j.iheduc.2009.10.007>
34. Vyas, dipika. (2021). *The Reason Behind The Degrading Education Quality Of India | Journal of Constitutional Law and Jurisprudence, and significance*. <https://lawjournals.celnet.in/index.php/Jolj/article/view/61>
35. Wang, A. Y., & Newlin, M. H. (2001). Online Lectures: Benefits for the Virtual Classroom. *T.H.E. Journal*, 29(1), 17–18.
36. Wieser, D., & Seeler, J.-M. (2018). Online, Not Distance Education: The Merits of Collaborative Learning in Online Education. In A. Altmann, B. Ebersberger, C. Mössenlechner, & D. Wieser (Eds.), *The Disruptive Power of Online Education* (pp. 125–146). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-78754-325-620181008>