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Blended Learning as a Transformative Pedagogical Model in Contemporary Education

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ABSTRACT

Blended learning is a way of teaching that combines traditional classroom instruction with internet materials and discussion boards. The teacher and the student must be present in person, and the student must have some influence over the time and place. Technological advances like smart robots, digital automation, mobile supercomputing, and artificial intelligence are driving the present generation. The contemporary education system needs a very creative and skilled multinational environment. One technique is blended learning. This study examines the nature of blended learning, its operational mechanisms, the pedagogical strategies employed, its potential benefits for India's educational system, and the necessary resources for its implementation. Blended learning has the potential to change India's education system by encouraging flexibility, fairness, and quality in the classroom. This is only possible with the appropriate strategies and materials.

Keywords: *Blended Learning, Education, Technology, Teaching, Classroom.*

1. INTRODUCTION

Computers with its better visuals, audio, video, and interactivity have changed almost every element of our life. They helped eLearning become popular. Thanks to faster Internet speeds and better browsers, teachers, students, and schools may now readily exchange and access a wide range of learning materials and tests with just a click of a mouse. Blended learning is a novel idea that mixes traditional classroom teaching with more modern internet tools. Most people think that blended learning connects the past and the present by having an effect on policies and strategic objectives in higher education as a whole. So, blended learning is when students learn by doing both in-person and online instruction. It Theoretical content is provided online or through other electronic channels, whilst practical instruction and assessments occur in the classroom.

"Blended learning" is a mix of traditional teaching approaches, which assume that students would passively receive knowledge, and more current methods, which focus on active learning that is centered on the learner. In a Blended Learning setting, students can do both in-class and online activities to augment what they learn in class, utilizing resources like chat rooms and discussion boards. Students in a mixed learning environment have more freedom to select when and where they

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study than students in a traditional classroom. They are also more likely to interact with their teachers and peers.

Blended learning's flexible class schedules, chances to make connections, collaborate with peers, and technology-enhanced active and reflective learning all help students. It offers teachers the tools they need to connect with their students in a real way outside of class. Before schools officially adopted blended learning, instructors who were worried about their students' learning used it to improve their learning by blending online and traditional techniques. They made a conscious choice to provide Blended Learning courses. People also think that students would learn 21st-century skills through Blended Learning, such as how to use digital technology, be creative, find and use information, work together, and communicate well. Benefits of Blended Learning include, but are not limited to, improved learning skills, better access to pertinent information, higher levels of happiness and success in learning, and more opportunities to learn from and teach others.

The effectiveness of mixed Learning as a teaching approach to acquire essential skills, however, depends on how ready students are to learn in a mixed learning setting. Blended learning works if it makes it simpler for students and teachers to talk to each other and at the same time improves the quality and quantity of student work in the classroom. Also, students' thoughts on things like learning flexibility, technology, online learning, online engagement, and classroom learning might give us an idea of how ready they are for blended learning. Another reason why blended learning is so popular in the classroom is because it is linked to student achievement and makes things easier. Students will be more open to this method of teaching if they observe greater learning results and more classroom participation. In other words, the idea's flexibility allows schools and groups to work together to make it better for their students and the kids of the future. It may also provide academics more options for designing classrooms that students want to learn in. Learning happens in a lot of places than traditional classrooms, and it may make students think more deeply.

There are two main reasons why schools should stop using their old ways of teaching. To start, students can't be taught the most important skills of the 21st century using traditional techniques. They haven't been able to meet the needs of each student in the class since there aren't enough teachers for each student. They aren't adaptable enough to meet the demands of youngsters with physical disabilities. They can't meet the needs of the non-traditional students since they have to go to school every day and their grades are based on the yearly test. Second, these schools need to have backup plans for their regular, in-person teaching techniques, as the COVID-19 outbreak has proved over the past two years. They have had to change the way they teach and learn all across the world, and one way they do this is through Blended Learning.

2. REVIEW OF LITERATURE

Nolasco, Glen & Escoto, Graciela & Yamauchi et al., (2024) The COVID-19 epidemic has shifted the focus away from conventional classroom instruction and toward more innovative approaches. Blended learning was one of these shifts that occurred in the classroom. To overcome the difficulties brought on by the epidemic, one possible pedagogical strategy is blended learning, which mixes online and in-person learning. The strategy started to become more common in the Philippines after

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the epidemic. While the country was under lockdown, there was a push to employ technology to help with distant learning. When the number of confirmed cases of COVID-19 decreased and classes resumed, students were required to follow certain health procedures, including avoiding close contact with others. This is where the blended learning strategy came in handy, as it compensated for the class size and lack of exposure to the outside world. Therefore, in light of the worldwide and regional health issues, this review paper restates the pedagogical stance of blended learning within the educational system. This article provides a comprehensive overview of blended learning by analyzing its many theoretical and practical applications, with an emphasis on its pros and cons in elementary and secondary school settings. Among the many topics covered in this review article are studies that have examined blended learning in the context of the pandemic and similar initiatives. To sum up, blended learning adapts the conventional teaching methods to the post-pandemic world. A more efficient and interesting way to teach is created by using digital resources. Blended learning will undoubtedly expand in the education industry in light of these findings.

Aliyeva, Elnaz et al., (2024) Learners' increased fluency, critical thinking, and intercultural competency are the primary foci of this study's examination of the effects of transformational pedagogies on language instruction. Surveys, interviews, and classroom observations were all part of the mixed-methods strategy that was used to gather data. Students' critical thinking skills and language proficiency levels were both improved by 20% after being exposed to transformational pedagogies, according to the results. These pupils also felt more capable and confident while interacting with people from different ethnic backgrounds. These pedagogies can only be successfully implemented with the help of professional development opportunities and institutional backing, according to the research. To confirm these results and uncover the most effective methods of transformational pedagogy in language classrooms, future studies should use bigger sample sizes and follow students over longer periods of time.

Hanc, Jozef & Borovský, Dominik & Hancova, Martina et al., (2024) Blended learning is crucial in modern physics and STEM education in general, as the COVID-19 epidemic has shown. Our contribution here is a synopsis of the many pedagogical models of blended learning that are already in use. These models include both rigid and flexible non-rotational approaches, as well as flexible configurations of both virtual and physical learning environments. Blended learning relies heavily on digital technology, which puts educators in a unique position to do two things: get data more often and evaluate it to make course adjustments based on student performance. We thus go on to talk about data management and utilization, which is an important part of blended learning. In this light, data literacy for teaching—the capacity to convert different forms of data into useful information for teaching—emerges as a crucial competency for successful blended learning. What this means is that a scientific teacher who is also data literate will have greater success and be more successful in the classroom, according to recent studies in physics education.

Amaria, Fehaima et al., (2023) The supply and demand for education have changed due to the fast growth of Internet usage throughout the globe and the proliferation of technology. Higher education is facing problems with demand and supply for education due to demographic shifts that have increased populations, which is particularly problematic in light of the worldwide issues posed by

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COVID-19. In response to a number of issues, including the COVID-19 pandemic, universities are studying and implementing new pedagogical strategies to fulfill the evolving demands of education. One of these ways is via online education. The purpose of this study is to investigate, with a focus on third-year English language students, how well this novel approach (mixed education) works in English language departments. The article compares and contrasts traditional classroom instruction with online resources, drawing attention to the unique qualities and challenges faced by English as a foreign language (EFL) student. The research details the challenges that students observed that hamper course continuation. Blended learning, English as a foreign language (EFL) students, university, and student success.

Avazmatova, Marhabo et al., (2020) The term "blended learning" is an educational approach that combines in-person instruction with digital resources and online resources. This strategy has become more common in classrooms as of late. As a result, the centrality of blended learning to education is investigated in the study. This article's goal is to demonstrate the benefits of blended learning and the characteristics that make a blended course work. When online and in-person learning are combined, the result is a blended course that is higher in quality. Additional considerations for developing an effective hybrid course are detailed in the article. In sum, blended learning is a practical, accessible, and efficient method of instruction. In addition, it has the potential to boost both student enthusiasm and course completion rates.

Rahmani, Jahanbakhsh & Khalifesoltani et al., (2019) Being able to learn new things is a hallmark of being human, and as our collective understanding grows, so does the importance of studying how people learn. When traditional classroom education is supplemented with online resources, the result is blended learning. This method seeks to improve students' learning via the use of a variety of resources and tools, including multimedia software, simulation, conferences, DVDs, books, assignments, online laboratories, groups, and forums. These days, more and more people are opting to study online rather than in a classroom. However, several studies have shown that electronic learning does not replace conventional ways of instruction and instead has a number of drawbacks. Therefore, educational professionals have sought to integrate the two approaches, thinking that blended teaching may be a viable option, despite the benefits and limits of each. This innovative method of instruction seeks to improve learning via the use of a variety of resources. Information and communication technology tools are essential for supporting the infrastructures needed for mixed electronic learning approaches. In order to improve the physical environment of universities and encourage faculty members to participate in instructional planning, policies, laws, and regulations are needed.

Massoud, Ali & Iqbal, Umar & Stockley et al., (2011) with the arrival of a new technological age comes exciting new opportunities, but also a plethora of new difficulties for teachers. Innovative technologies, many of which are instructional tools, are undergoing profound changes in traditional approaches, such face-to-face education. You should familiarize yourself with the modern tools mainly based on computers, multimedia, the internet, and online interactive approaches in order to comprehend the complementary potential and problems. Two prominent modern approaches can be defined as follows: first, e-learning, which is an asynchronous method that relies solely on

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technological advancements and does not involve actual classroom instruction; and second, blended learning, which combines synchronous and asynchronous approaches by using a combination of offline, online, and face-to-face methods of instruction. Drawing on research in the field as well as our own experience with blended learning, this article provides a concise overview of the many phases of incorporating new instructional technologies. We will show the advantages and disadvantages of modern options, including e-learning and blended learning. Using design evaluation, financial, technological, and human requirements as starting points, this article proposes ways to combine new technology with more conventional approaches. The authors argue that long-standing methods should be preserved while using modern technological advancements to gain a competitive advantage. In addition, it's an attempt to get people thinking about ways to improve the learning experience for students by using a variety of strategies.

Bañados, Emerita et al., (2006) the unique Communicative English Program, comprised of four modules studied across four academic terms, was designed by the Univer-sidad de Concepción, Chile, in response to the need to teach English to a significant number of students. With an emphasis on learning to communicate in a realistic context, the English program seeks to develop integrated language abilities. The program has been designed to be used in a blended-learning (b-learning) setting, which consists of the following components: (a) students interacting with UdeC English Online, the program's foundational software; (b) online monitoring; (c) classroom instruction from native English speakers; and (d) conversation classes with students. All of the resources and information and communication technology tools that students require are housed in one single web platform by the online software, which is an interactive multimedia environment. Multimodal exposure to second language input, improved input, learner-fit content delivery, interaction (hu-man-computer, human-human, and intrapersonal) through computer-supported group and individual learning tasks, and a more human-like dimension for helpful and constructive criticism are all fundamental ideas behind its design. This article outlines the b-learning paradigm, discusses some of the challenges in implementing it, and presents the results from the pilot program for its first module.

3. FEATURES OF BLENDED LEARNING

Choice of Two Learning Modes

In a blended learning environment, students have the option to engage in more conventional classroom instruction with face-to-face interactions between instructors and peers, or they may choose to use technology to supplement their classroom experience. The topic and goals at hand will determine this to a significant extent. On occasion, the course designer or instructor will choose the most suitable mode based on the subject at hand.

Dual-Mode Teaching Proficiency

Teachers in blended learning programs are expected to be highly motivated, technically competent, and proficient in both the conventional classroom setting and the one that makes use of information and communication technologies. Both time-honored practices and cutting-edge tools will be at their disposal.

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Face-to-Face and Virtual Interaction

Plenty of opportunities are provided for students to network with others in their class. They can communicate with them both in real life and online while at university. As a result, the group grows in size and variety, which benefits the students in many ways: they learn more about the world and its peoples, and they form bonds of friendship, love, and peace with others from different backgrounds.

Technology-Enhanced Learning Experience

We are living in the Information and Communication Technology (ICT) century. These days, being technologically ignorant is just as much of a sign of being illiterate as being unable to read or write. Because of the widespread need for IT skills in today's workforce, blended learning provides students with a more comprehensive education in the field. Blended learning gives students the skills they need to make the most of the technology that is already accessible to them.

Life Skills Development

Life skills are those abilities that are essential for a fulfilling, trouble-free existence. Empathy, the capacity to make decisions, love, patience, communication, self-management, and critical thinking are the main life skills. Students are able to hone these abilities via the use of blended learning. Online encounters provide students to a variety of abilities, including self-management, decision-making, critical thinking, and communication, while classroom interactions introduce them to softer skills, such as love, empathy, and patience.

All-Round Personality Growth

All aspects of a student's character may flourish in a mixed learning environment. When compared to conventional methods or ICT approaches taken independently, blended learning is superior because it fosters development in all three domains of personality: cognitive, physical, and emotional. The cognitive domain is advanced through traditional classroom instruction, which aids in memorization and comprehension; the affective and physical domains are developed through interactions with peers and teachers; and the reflective level of learning occurs through online experiences, which aids in the development of higher-order cognitive abilities; and the right kind of value development occurs through online social interactions and networking sites.

On-Campus Physical Development

Online education and the use of information and communication technologies in the classroom are often criticized for allegedly failing to prioritize students' physical well-being. Blended learning gets around this restriction. Students are able to fit in physical activity, yoga, and playtime on campus since it is all part of the educational experience.

Wide Exposure to Course Concepts

Students benefit from a diverse range of experiences because it broadens their horizons and deepens their understanding of the material. They come to understand the subject in new ways and acquire practical, applicable information.

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Human-Centered Approach

pupils get the personal attention they need to maintain a healthy emotional quotient, which is crucial for their success in secondary school, all because of the physical prescience of their teachers via conventional methods.

Multicultural and Multidimensional Approach

The blended learning method allows students to connect with peers from all over the globe, broadening their perspectives and fostering a more multicultural teaching and learning process. The diverse range of experiences that students bring to the table also adds an interdisciplinary and multidimensional dimension.

Child-Centered Teaching–Learning Process

In order to achieve the aim of child-centered education, blended learning is structured to maximize student growth.

Teacher's Multifaceted Role

Blended learning requires teachers to go beyond of their conventional roles as classroom instructors and into that of facilitators, motivators, resource persons, organizers, and developers (when creating material to be delivered via ICT). Because of this, educators are able to break out of their typical positions and try their hands at new things, which is great for their career development.

Learning through Knowledge Construction

Included in blended learning is constructivism as well. In this approach, students take the initiative to build their own knowledge rather of relying on others to do it for them.

4. BLENDED LEARNING STRATEGIES

Reflection

Students' metacognitive abilities are enhanced via reflective thinking. An activity that supports successful learning is encouraging learners to reflect on their learning. Having kids keep a diary or put together a portfolio is one way to do this over time. In addition, students may engage in reflective activities within a single class period by writing a brief paragraph summarizing what they have learned, discussing it with their peers, and sharing what they have comprehended. At the conclusion of each unit, students may share what they've learned from the online resources with the rest of the class by presenting a reflection summary using a graphic organizer or presentation.

Case Study

The instructor may provide a case study, have the students work in small groups to discuss it, and then have everyone publish their findings online. The class may see the teacher's request for student feedback by having them post index cards on the classroom bulletin board and then discuss their choices. Based on the case study, the teacher may also have the class create a model of anything.

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Story Mapping

Using the ideas presented in the online lessons, the teacher should have the students create a graphic representation of a captivating tale. The students should form small groups and come up with a story with realistic characters, a realistic environment, and a realistic finale. One intriguing method for lower-level classrooms is story mapping.

Compare and Contrast

In class, students might work in small groups to discuss and draw comparisons between ideas introduced online and those they've learned about elsewhere. A more fascinating and engaging way to illustrate might be with the use of graphic organizers.

Concept Map/ Mind Map

The instructor may have the class draw up an idea or mind map based on the main points of the material and then share it. If the class size is too big for the instructor to personally go over each student's map, they may always have them submit theirs to the class LMS (Learning Management System).

Peer Evaluation

By taking on the position of the teacher in the evaluation process, students develop a feeling of agency over their own education. Students are able to learn from one another's achievements and shortcomings via peer review, according to research. The success of the endeavor depends on the teacher's ability to lay out specific instructions. Students may more easily assess one another's work when the teacher provides a checklist. In this activity, students work in small groups to evaluate one another.

Role-play or Interview

The use of role-plays in the classroom allows pupils to practice what they've learned in a realistic setting. After students have practiced with a partner, the teacher might have them act out the role-play or interview. They feel pride in their work when they film and record it, then post it on their teacher's learning management system.

Game

As a way to introduce students to the chosen material, teachers might play simple games with them. Students like playing games, which may greatly enhance their learning experience.

Problem Solving

One effective classroom exercise is to define a problem and then give students a certain amount of time to find a solution. The teacher has two options: either bring up the issues before the in-person meeting or bring them up suddenly during class.

Debates

Learners will have an opportunity to share their opinions with one another by choosing pertinent portions of the online material for class discussion, which may be either open or closed.

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a) Implications of Blended Learning in India

It is not easy to decide how to integrate online and in-person studying and teaching. There are numerous things to think about. In some cases, most of the teaching and interactions between students and teachers happen in a traditional classroom setting, even when online materials and maybe extra activities are available. In some cases, students largely interact online, with only a few in-person meetings to talk about problems and build community. Some hybrid approaches let students accomplish some of their work in a regular classroom and some of it online. Blends should be made to fit each kid so that they have one that is right for their age, where they live, and how they study best. People call these kinds of models "a la carte" possibilities.

When the design is done, students may choose to take certain classes completely online, others completely in person, or a mix of the two. In the mix, they can choose when to go to in-person classes and when to use online resources like videos, readings, and assignments. This amount of personalization isn't usually available. No matter what form of delivery is used—single-mode or blended—it's very important that students can learn well. This is true even if it's not their preferred or best choice. Both teachers and learning designers are responsible for giving students blended activities that fit the course material, the students' skills, and the curriculum's needs. Teachers are very important as coaches who help students learn in every setting. There isn't a single model that works for all unique and interesting BL designs.

India's education system has a number of problems. For instance, the country hasn't been able to fully fund universal free and compulsory education, the curriculum hasn't kept up with the needs of the global market while still failing to protect and spread Indian values, and teachers aren't fully committed to their jobs, which makes it harder for students to learn. To get over these problems, we need big changes inside the organization and completely new ways of doing things right away. Blended learning could help fix some of the problems that are hurting the Indian education system.

b) Supportive Resources for Blended Learning

OER: NMEICT, NPTEL, ePG, NDL

The United Nations (UN) uses the term "open educational resources" (OER) to talk about any form of teaching material that is either already in the public domain or has an open license. Open educational resources (OER) are a key part of open access and open knowledge because they make it easy to (a) copy, (b) use, (c) adapt, and (d) share educational materials. Textbooks, course syllabi, class notes, tests, movies, and animations are all examples of resources. There has been a lot of conversation about policies for sharing information and building skills in the global social and economic arena due of open educational resources (OER). OER can help people have access to blended learning, a good guide to it, and low-cost, effective education delivery.

It's not necessary to use open educational resources (OER) for blended learning to work well, but the combination of these two new ideas in education might make education far more accessible, affordable, and high-quality. Well-designed, publicly available OER may free up resources for making and delivering BL opportunities. Creative Commons is a global group effort to make assets

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that are free, available to everyone, and easy to use. This worldwide organization works for improved access and equality, and one of its goals is to make sure that everyone can get an education. People who work for and support Creative Commons feel that sharing and working on information is important for the Web to attain its full potential and, more importantly, for the people who will use it. Creative Commons offers a set of licenses that anybody may utilize to help the open-educational-resource (OER) movement. The licenses also let you designate the items using a machine-readable language, which is a tech approach to label them as OER. People who want to use Google Advanced Search may now employ a "usage rights" filter. You can get to and distribute open educational resources (OER) in a number of ways.

MOOCs

MOOCs, or massive open online courses, are a type of online education that tries to offer a lot of different courses to a lot of people in an open and participatory way over the internet. Massive open online courses (MOOCs) try to teach people in real time online while also trying to make it more efficient than real-time education in classrooms by getting rid of time and place limits. They do this by using tools like videos, study materials, quizzes, and online exams. Massive open online courses (MOOCs) also make it easier for students and professors to have participatory discussions through their easy-to-use discussion boards. This helps build community among both groups.

SWAYAM

The Government of India launched the SWAYAM initiative with the goal of achieving the three pillars of education policy: accessibility, equality, and quality. The greatest educational materials will be made available to everyone, including the most underprivileged, as part of this endeavor.

5. CONCLUSION

Thanks to developments in technology and learning analytics, blended learning is quickly becoming a popular pedagogical paradigm. Additional research on effective mix creation strategies for educators and school leaders is needed. enhanced student engagement with the use of a lent learning environment: Students in higher education are more likely to show enthusiasm, engagement, and attentiveness when technology is employed in the classroom. Students are able to maintain their attention for longer lengths of time while using these resources in comparison to books or paper materials, and they are also able to strengthen their learning skills via discovery and study. Aiming to teach students in a more creative and imaginative manner requires integrating constructivist and collaborative models into blended learning settings.

REFERENCES

1. Aliyeva, E. (2024). Transformative pedagogies: Innovations in 21st century education. *Global Spectrum of Research and Humanities, 1*(1), 57–70.
2. Amaria, F. (2023). Pedagogical implications of a blended learning model at Temouchent University. *Contemporary Educational Researches Journal, 13*(2), 172–182.
3. Avazmatova, M. (2020). Significance of blended learning in education system. *The American Journal of Social Science and Education Innovations, 2*(8), 507–511.

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International Journal of Advanced Multidisciplinary Scientific Research (IJAMSR) ISSN:2581-4281

4. Bañados, E. (2006). A blended-learning pedagogical model for teaching and learning EFL successfully through an online interactive multimedia environment. *CALICO Journal, 23*(3), 533–550.
5. Brown, B., Dressler, R., Eaton, S. E., & Jacobsen, M. (2015). Practicing what we teach: Using action research to learn about teaching action research. *Canadian Journal of Action Research, 16*(3), 61–78.
6. Cohen, L., Manion, L., & Morrison, K. (2000). Action research. In *Research methods in education* (5th ed., pp. 226–244). Routledge.
7. Cronjé, J. C. (2009). Qualitative assessment across language barriers: An action research study. *Educational Technology & Society, 12*(2), 69–85.
8. Don, H., M. S., & Rahman, H. A. (2013). Action research on blended learning transformative potential in higher education: Learners' perspectives. *Business and Management Research, 1*(2), 125–134.
9. Foreman-Peck, L., & Murray, J. (2008). Action research and policy. *Journal of Philosophy of Education, 42*(1), 145–163.
10. Halili, S. H., & Zainuddin, Z. (2015). Flipping the classroom: What we know and what we don't. *The Online Journal of Distance Education and E-Learning, 3*(1), 28–35.
11. Hanc, J., Borovský, D., & Hancová, M. (2024). Blended learning: A data-literate science teacher is a better teacher. *Journal of Physics: Conference Series, 2715*(1), 012012.
12. Hoic-Bozic, N., Dlab, M. H., & Mornar, V. (2016). Recommender system and Web 2.0 tools to enhance a blended learning model. *IEEE Transactions on Education, 59*(1), 39–44.
13. Jang, H., Kim, E. J., & Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. *Learning and Instruction, 43*, 27–38.
14. Jang, S. J. (2008). Innovations in science teacher education: Effects of integrating technology and team-teaching strategies. *Computers & Education, 51*(2), 646–659.
15. Kostka, R. B., & Lockwood, R. B. (2015). What's on the internet for flipping English language instruction? *The Electronic Journal for English as a Second Language, 19*, 1–12.
16. Massoud, A., Iqbal, U., Stockley, D., & Noureldin, A. (2011). Using blended learning to foster education in a contemporary classroom. *Transformative Dialogues: Teaching and Learning Journal, 5*(2), 1–11.
17. Mavropalias, T., & Anastasiou, D. (2016). What does the Greek model of parallel support have to say about co-teaching? *Teaching and Teacher Education, 60*, 224–233.
18. Niergarten, G. (2013). Supporting co-teaching teams in high schools: Twenty research-based practices. *American Secondary Education, 42*(1), 73–83.
19. Nolasco, G., Escoto, G., Yamauchi, F., Rosilla, M., & Arcilla, M. (2024). A pedagogical perspective on the reiteration of blended learning: A review paper vis-à-vis pre-post pandemic. *Advanced Journal of STEM Education, 2*(2), 1–16.
20. Noman, M., Hashim, R. A., & Shaik-Abdullah, S. (2017). Principal's coalition building and personal traits brings success to a struggling school in Malaysia. *The Qualitative Report, 22*(10), 2652–2672.
21. Rahmani, J., & Khalifesoltani, M. (2019). Blended learning (New approach in instruction). *World of Researches, 8*(1), 20–28.