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Exploring the Effectiveness of Blended Learning Models in Higher Education: A Case Study of Indonesian Universities

Sayida Khoiratun Nisak[a,1], Nur Latifah[b,2], Martin[c,3], S. Sumihatul Ummah[d,4], Muhammad Yusup[e,5]
[a] *Institut Islam Al-Mujaddid Sabak, Indonesia*
[b] *UIN Maulana Malik Ibrahim Malang, Indonesia*
[c] *PGRI University Pontianak, Indonesia*
[d] *IAIN Madura, Indonesia*
[e] *Batang Hari Islamic University, Indonesia*

[1] *sayidakhoiratunnisak@gmail.com;* [2] *ifalatifah2023@gmail.com;* [3] *thesikinrani@gmail.com;*
[4] *famixdefaru07@gmail.com;* [5] *yusup9253@gmail.com*

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ABSTRAK

The research aimed to test the blended learning model in Indonesian higher education. To this end, a qualitative approach was adopted, employing a case study method to collect data. This method included in-depth interviews, observations, and a thorough document analysis. This research found that blended learning improves flexibility, engagement, and effectiveness. However, this improvement depends on two key elements. First, a good tech infrastructure. Second, lecturers skilled in using tech tools. We must, however, recognize obstacles that limit this approach's full potential. Impediments include, but are not limited to, disparities in internet access and a lack of training for lecturers to use technology. This study's insights can guide effective blended learning in higher education.

1. Introduction

Blended learning is now a popular approach in higher education. It combines the benefits of in-person and online learning. This approach is more flexible for students. It lets them access learning materials anytime, anywhere, via digital platforms. Also, blended learning lets lecturers optimize learning (Nisak et al., 2024). They can use tech tools like videos, simulations, forums, and LMS. This approach combines traditional and modern learning methods. It should make education more accessible. It is for students with time or location constraints. It should also improve learning by supporting diverse styles (Susanto et al., 2024).

However, blended learning has many advantages. Its use in higher education has challenges. This approach requires students to be more independent. They must manage their time well and be digitally literate. Some students may struggle to adapt to this flexible learning (Hidayati et al., 2023). This is especially true if they are not familiar with tech-based learning. Lecturers face challenges in both environments. They must create and deliver effective, interactive materials for in-person and online classes. Also, blended learning's success depends on tech readiness. This includes stable internet, good hardware, and enough tech support from the institution (Sya'bana et al., 2024).

This research aims to explore blended learning in Indonesian higher education. It has a wide diversity in geography, society, and economy. It also seeks to find factors that help this approach succeed. These include institutional policies, lecturer skills, and tech readiness. It will also uncover barriers that may limit blended learning. These include: poor internet in remote areas, untrained lecturers, and low student engagement. This research aims to provide strategic recommendations for Indonesian universities. It hopes to optimize their use of blended learning as a future model. To do this, it will explore these aspects in depth.

2. Method

This research uses a qualitative approach with a case study design, which aims to explore and understand the phenomenon of blended learning in depth in the context of higher education in Indonesia (SUGIYONO, 2020). Case study was chosen because it allows researchers to explore the dynamics of blended learning implementation in real situations and its complexity in certain higher education institutions.

Data Collection

This research relies on three main data sources:

1. In-depth Interview
   Participants. Interviews were conducted with 10 lecturers from various faculties in Islamic University of Indonesia who had teaching experience using the blended learning model and 20 students who were actively involved in the blended learning class.

The interviews were semi-structured, allowing the researcher to use an interview guide with flexibility to explore the participants' answers in depth.

Topics of Discussion:

- For lecturers: challenges and opportunities in designing and implementing blended learning, use of technology, and personal experiences in the learning process.
- For students: their perceptions of blended learning, its impact on learning outcomes, and experiences of using learning technologies.

Each interview lasted 30-60 minutes and was recorded with the participants' permission to ensure accuracy of transcription.

2. Observation

Observation Focus:

The researcher conducted direct observation of the implementation of blended learning, both in the classroom (face-to-face sessions) and on online platforms (such as Learning Management System - LMS). Parameters Observed:

- Interaction between lecturers and students.
- Student engagement in online discussions.
- Technology utilization, such as the use of videos, interactive quizzes, and discussion forums.

Observations were conducted for 6 weeks on 3 courses from different faculties. Field notes were made to document interaction patterns, technology utilization, and the dynamics of the learning process.

3. Documentation

Source of Data Documents:

- Syllabus and semester learning plan (RPS) of courses that use blended learning model.
- Teaching materials used, both in digital and printed form.
- Learning evaluation results, such as assignments, quizzes, and exams.

Analysis: These documents are analyzed to evaluate the suitability between learning design, implementation, and learning outcomes.

Data Analysis Technique

The data analysis process is conducted through the following steps:

1. Data Reduction:
   Data obtained from interviews, observations, and documentation were summarized to identify the main themes relevant to the research, such as effectiveness, challenges, and opportunities in implementing blended learning.
2. Data Presentation:
   The reduced data were arranged in the form of narratives, tables, and diagrams to visualize the findings systematically.
3. Conclusion Drawing and Verification:
   Researchers drew conclusions based on patterns and themes that emerged from the data. These conclusions were continuously verified through data triangulation to ensure consistency.

Data Validity

To maintain data validity, this study applied the following strategies:

- Source Triangulation: Using various data sources (lecturers, students, and documents) to obtain diverse perspectives.
- Triangulation of Methods: Combining interviews, observations, and document analysis to increase the validity of the findings.
- Member Check: Interview results and preliminary findings were reconfirmed with participants to ensure that the researcher's interpretations were in line with their intentions.
- Audit Trail: The researcher documents the entire data collection and analysis process for transparency and replicability.

This comprehensive approach ensures that the research results are not only valid but also provide an in-depth picture of the effectiveness of blended learning in Indonesian higher education (Tanzeh, A., & Arikunto, 2020).

3. Result and Discussion

Effectiveness of Blended Learning

Blended learning has become one of the most attention-grabbing learning approaches in the digital era. Its strength is in blending traditional methods with digital tech. This gives students flexibility and new opportunities. This study tests blended learning's effectiveness in three areas: time, engagement, and outcomes (Arani et al., 2024).

Time Flexibility

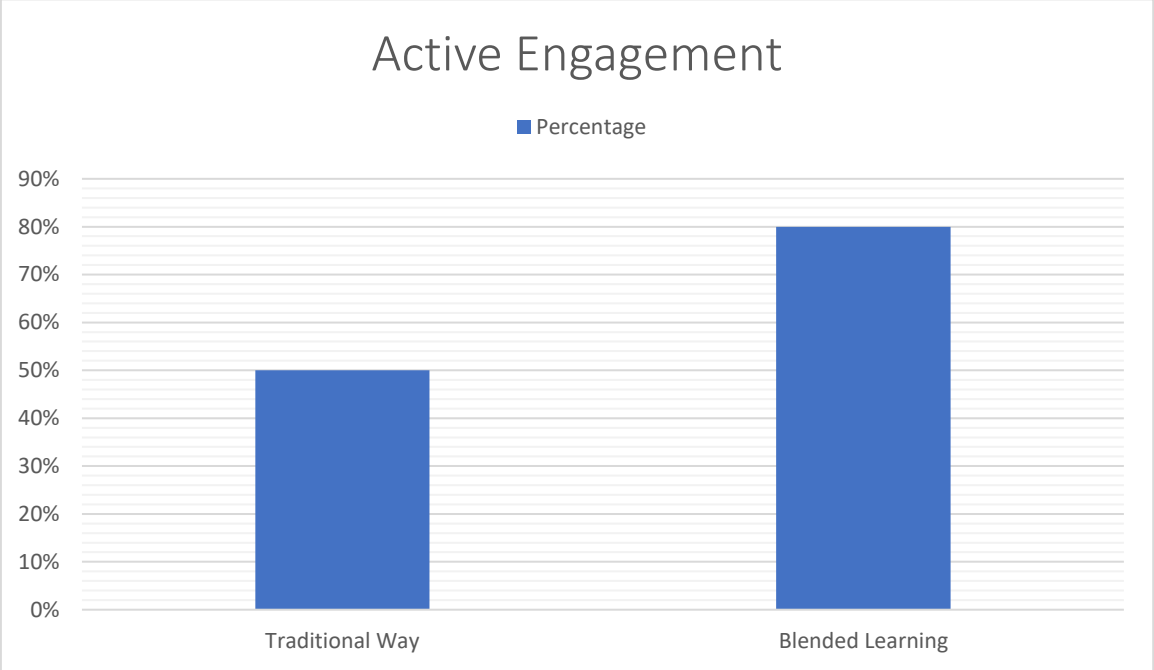
One of the main advantages of blended learning is time flexibility (Mollah, 2024). Students are no longer limited to a rigid face-to-face class schedule. The online learning platform has videos, presentations, and modules. You can access them anytime. In this study, 80% of students stated that this flexible access allows them to manage their study time according to their personal needs (Aravind, 2024). This is very helpful. It's great for students with busy schedules or other responsibilities (Sain et al., 2024).

Table 1. survey results regarding the benefits of time flexibility in blended learning

Benefits of Time Flexibility	Respondent Percentage
Improve concept understanding	60%
Reduce stress due to time pressure	25%
Simplify material revision	15%

Active Engagement

Student engagement in learning is a key indicator of blended learning's effectiveness (De Bruijn-Smolders & Prinsen, 2024). Interactive features like forums, quizzes, and group tasks boost student participation (Ennis, 2020). This study found that 70% of students felt more confident to contribute in online discussions than in face-to-face ones. The anonymity factor and more flexible time in preparing responses were the main reasons (Hanum, 2024).



Graphic 1. Active Engagement

Learning Outcomes

The effectiveness of blended learning is also reflected in better learning outcomes (Pratiwi et al., 2025). The formative assessment in this study showed a rise in students' average scores after using blended learning. Before implementation, the average quiz score was 65, increasing to 80 after the method was implemented (Dewanti et al., 2024). The following table summarizes the students' formative assessment results:

Table 2. Student formative assessment results

Assesment	Avg Score before	Avg Score After	Increase Percentage
Quiz	65	80	15%
Individual Learning	70	85	15%
Group Learning	75	90	15%

These results show that blended learning improves understanding. It also helps students develop collaboration and problem-solving skills (Edwar, 2025). Blended learning is effective. It shows in its time flexibility, engagement, and better learning outcomes (Khong & Tanner, 2024). With tech support and training, blended learning can solve digital-era learning challenges. However, schools must adapt to overcome challenges. These include gaps in tech access and a need to train lecturers (Mushtaq & Iqbal, 2024).

Supporting Factors in the Implementation of Blended Learning in University

The success of blended learning in higher education depends on many interrelated factors (Cartagena, 2024). The following is a detailed description of the three main factors that determine the success of blended learning (Abu Bakar et al., 2024).

Adequate Technology Infrastructure

Technology infrastructure is the key element for smooth blended learning (Marzuki, 2024). With a stable internet and modern devices, universities can deliver a great learning experience for students and lecturers (Tuomainen, 2024).

- Internet Access: High-bandwidth internet is essential. It is needed for synchronous activities, like webinars. It is also needed for accessing digital materials on learning platforms, like LMSs.
- Facilities and Infrastructure: a multimedia rooms, computer labs, and video conferencing can boost interactive learning for students.
- Data Security: It has a cybersecurity system to protect academic data and user privacy.

Table 3. Adequate Technology Infrastructure

Aspect	Percentage
Internet	85
Facilities & Infrastructure	75
Data Security	60

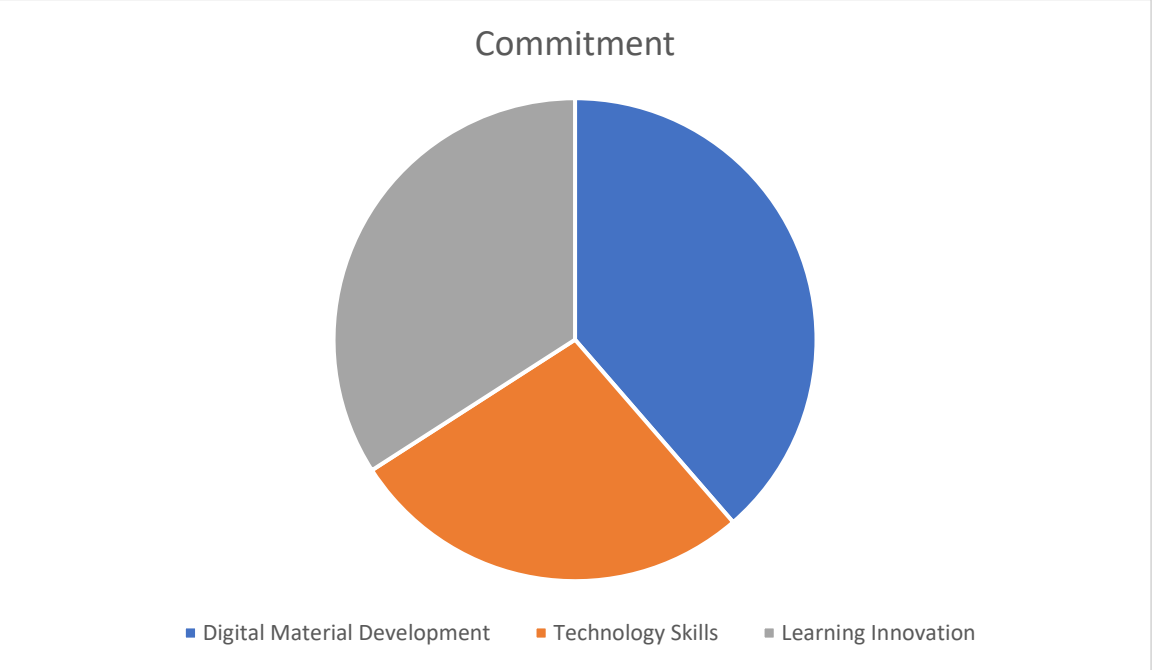
Lecturer Commitment in Developing Digital Materials

Lecturers have a key role in determining the quality of blended learning (Wisman Jaya et al., 2024). A key factor in this model's success is lecturers' commitment to using tech-based teaching methods (Syahsudarmi et al., 2024).

- Digital Material Development: Proactive lecturers can boost student participation. They should create interactive modules, learning videos, and online quizzes.
- Technology Skills: Lecturers skilled in Google Classroom, Moodle, or Microsoft Teams find it easier to use tech in learning.
- Learning Innovation: Lecturers' creative use of tech, like gamification and virtual simulations, can boost students' interest in learning.

Table 4. Lecturer Commitment in Developing Digital Materials

Aspect	Percentage
Digital Material Development	85%
Technology Skills	60%
Learning Innovation	75%



Graphic 2. Lecturer Commitment in Developing Digital Materials

Supportive Institutional Policies

Institutional policies are key. They provide a framework for implementing blended learning (Marchak et al., 2024).

- Invest in Infrastructure: Budget for tech upgrades and lecturer training. It will create a better learning environment.
- Strengthening Academic Policies: Flexible schedules and free online resources motivate students to engage. So do credits for online courses.
- Professional Development Programs: Institutions that train and workshop lecturers. They prepare them for tech challenges.

Table 5. Policies that Support Blended Learning

Policies	Implementation	Effectivity (%)
Lecturer Training	Educational technology workshop	85%
Provision of Free Internet Access	Wifi di seluruh area kampus	75%
Use of Learning Management System	Moodle, Google Classroom	80%

Discussion

This research highlights key points about blended learning in Indonesian universities. It shows benefits like more flexible time, better student involvement, and improved results. Yet, it also notes problems. These are: a lack of internet, teachers' tech issues, and students' time

management. So, blended learning needs tailored strategies and extra support (Sahiman & Arokiasamy, 2024).

Blended learning offers flexible timing. Students can learn at their own pace and schedule. This is especially important for those who work part-time or have other responsibilities outside of school. However, this flexibility can also be a double-edged sword. Some students say they procrastinate without a strict learning structure. This affects their learning outcomes. Previous research supports this. It shows that blended learning needs students to be very disciplined and motivated. Therefore, lecturers should give clear guidance. Setting deadlines and sending regular reminders can help keep students on track (Sain et al., 2024).

Student engagement has significantly increased, especially with online discussions and quizzes. Students said discussions help those who are shy in face-to-face classes. However, participation is uneven. Limited internet access is a major barrier. Students in remote areas struggle and feel left out. This shows the need for better, more inclusive technology in education (Susiyawati et al., 2024).

In terms of lecturers, the lack of technology training is a major obstacle in maximizing the potential of blended learning. Many lecturers struggle with Learning Management Systems (LMS) and creating engaging digital content. Without proper training, they can't use all the tech features available. This gap creates inconsistent learning experiences. Some classes are taught by tech-savvy lecturers, while others are not. This research recommends ongoing training. It should focus on technical skills and technology-based teaching methods. Doing so will help lecturers design effective and engaging learning experiences (Imanova et al., 2024).

Time management challenges loom large for both lecturers and students. Students often struggle to balance online assignments and in-person lectures. This conflict can leave them feeling overwhelmed and battling multiple deadlines. Instructors also face challenges, trying to align their schedules with students'. Each side grapples with the clock, striving for some semblance of order amid the chaos of academia. Lecturers also face challenges in balancing these two formats. This situation highlights the need for clearer guidelines in blended learning. Lesson planning should allocate time for online and in-person components (Esa et al., 2009).

This study shows that blended learning works best with readiness for new tech among institutions, students, and teachers. It offers flexibility and can improve learning quality. However, to implement it successfully, a comprehensive approach is needed. This includes enough infrastructure, training for teachers, and support for students with time management and tech access.

Indonesia's higher education needs a strategy that is inclusive and addresses local needs. The government and schools should work together. Blended learning must go beyond a temporary pandemic fix. It should become a lasting, effective approach to improving education. By solving challenges, blended learning can create a more flexible and inclusive environment. This would help all students, no matter where they live or their economic situation.

4. Conclusion

The blended learning model has significant potential to improve the effectiveness of learning in higher education, largely because of its ability to integrate the benefits of face-to-face and online-based learning. This approach offers students the flexibility to access materials according to their time and individual needs, allows for more in-depth interaction through online discussions, and opens up opportunities for instructors to use various digital tools to improve the quality of teaching. However, the successful implementation of blended learning cannot be separated from a number of supporting factors. Institutional policy support is also a key element

in ensuring the success of blended learning. Institutions need to provide guidance, technical support, and policies that encourage collaboration between faculty and students to make the best use of technology. In addition, institutions need to ensure that the learning strategies used are inclusive so that all students, including those with limited access or technology skills, can benefit from blended learning. Based on the findings of this study, recommendations include the development of technology infrastructure at all universities to ensure equal access for all students. In addition, faculty training focused on the use of learning technologies needs to be intensified to make them more confident and skilled in the use of various digital platforms. Finally, it is important to design learning strategies that are more inclusive and responsive to the needs of students from diverse backgrounds. By overcoming these obstacles, the blended learning model can be implemented more effectively and make a real contribution to improving the quality of education in Indonesian higher education.

5. Acknowledgement

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