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RESEARCH ARTICLE

What Works and What Challenges in Blended Learning: A Qualitative Case Study of University Lecturers' Perspectives at an Indonesian Public University

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Abstract

This qualitative case study was conducted at a public university in Indonesia. Blended learning is an instructional approach that combines face-to-face meetings with online learning activities. Its effectiveness depends significantly on the appropriate integration of digital technologies, particularly during synchronous and asynchronous online sessions. This study explores university lecturers' perspectives on the implementation of blended learning as experienced by students. Employing a qualitative research design, data were collected through open-ended questionnaires and focus group discussions (FGDs). The participants comprised 37 lecturers from Padang State University, with five of them participating in the FGDs. The findings revealed four dominant themes in lecturers' perceptions: (1) technical challenges, (2) diminished social interaction between students and lecturers as well as among students, (3) instructional effectiveness, and (4) lecturers' digital competence. A concise conceptual model shows that technical constraints directly reduce social interaction and instructional effectiveness, while lecturers' digital competence can mitigate these effects through purposeful design and facilitation. The implications emphasize the need for structured institutional support, including reliable campus connectivity and learning management system uptime, a sequenced and sustained program of pedagogical upskilling for lecturers, and clear integration guidelines that align online components with course learning outcomes, so that blended learning is scalable and effective in developing country contexts with similar conditions. This study provides context rich evidence from Indonesia and contributes to the international literature on blended learning implementation.

Keywords: Blended Learning, Digital Technology, Higher Education, Instructional Effectiveness, Lecturer Perception

INTRODUCTION

In recent years, higher education has experienced substantial shifts, particularly accelerated by the global COVID-19 pandemic. This transformation has been further reinforced by the rapid advancement of digital technologies, which have enabled more flexible and adaptive modes of instruction–most notably through the adoption of blended learning. Blended learning, which combines technology-enhanced and online instruction with traditional face-to-face teaching, is widely recognized as one of the most rapidly evolving pedagogical innovations (Parkhatova & Imramzieva, 2022). In this study, blended learning refers to a planned and coherent combination of face to face instruction and online learning activities within a single course, where online components are intentionally aligned with course outcomes. Lecturers serve as key change agents who translate institutional directions into course level practices through choices about task design, platform use, assessment, and feedback.

The pandemic served as a powerful catalyst for the global acceleration of blended learning adoption, positioning it as a long-term solution to the abrupt shift toward online education. Its potential for promoting flexibility and enhancing instructional effectiveness has made it particularly appealing (Salcedo, 2022; Yao et al., 2022). Nevertheless, the successful implementation of blended learning is contingent upon several critical factors, including institutional readiness, reliable technological infrastructure, faculty pedagogical competence, and sustainable strategies for technology integration (Becher Araujo Moraes, 2023).

As a pedagogical model, blended learning is inherently student-centered, offering flexibility regarding when,

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where, and how learners interact with instructional content (Dickinson et al., 2008). It is commonly defined as an instructional approach that systematically integrates online and in-person modalities to create a coherent and personalized learning experience. This model provides students with partial control over their learning pathways, such as time, location, pace, and instructional format (Tomej et al., 2022). Additionally, research has shown that blended learning enhances cognitive engagement, fosters more meaningful lecturer-student interaction, and enables timely feedback that supports continuous learning (Harb & Krish, 2020; Sapta Aji et al., 2022)Moreover, it facilitates the development of essential digital literacies aligned with 21st-century competencies (Wei, 2023).

In practical terms, blended learning offers numerous advantages for improving educational outcomes, such as greater access to learning resources, increased learner autonomy, and stronger student engagement (Anthony Jnr, 2024; Castro-Rodríguez et al., 2021; Khalaf et al., 2023). However, these benefits are not automatically realized. As Finlay et al. (2022)notes, they require careful and coherent integration of online and face-to-face components, supported by the effective use of educational technologies. Institutional support, including faculty training programs, policy alignment, and cross-departmental collaboration, also plays a critical role in ensuring the long-term success and scalability of blended learning (Azila-Gbettor et al., 2023; Aziz et al., 2022; Yao et al., 2022). Despite its potential, the implementation of blended learning continues to face several challenges. These include limited access to ongoing professional development, which diminishes lecturers' confidence in applying technology effectively and persistent difficulties in designing engaging and pedagogically meaningful online interactions (Rasheed et al., 2020). Furthermore, disparities in digital infrastructure across institutions exacerbate inequality in access to technology-mediated education (Guillén-Gámez & Mayorga-Fernández, 2020).

Although considerable attention has been given to student experiences and engagement in blended learning (Osgerby, 2013; Paul & Jefferson, 2019). Fewer studies have focused on university lecturers' perspectives. As central figures in the instructional process, lecturers play a critical role in designing, facilitating, and sustaining blended learning environments (Al-Kahtani et al., 2022). Understanding their views is therefore essential to gaining a comprehensive understanding of how blended learning is implemented and experienced within higher education institutions.

This study seeks to address the following research question: *What are university lecturers' perceptions regarding the implementation of blended learning?* Specifically, the study aims to explore how lecturers conceptualize, implement, and reflect on their experiences with blended learning in higher education contexts. It further aims to assess current practices in order to inform more effective, sustainable, and learner-centered designs for future blended learning initiatives.

In resource constrained environments, technical constraints can reduce students' social presence and participation, which then affects instructional effectiveness, while lecturers' digital competence can mitigate these pressures through purposeful design and facilitation.

This study offers context specific evidence from a public university in Indonesia that clarifies how these dynamics operate in practice. The analysis focuses on the post pandemic transition and the course level implementation of blended learning.

MATERIALS AND METHODS

Research Design and Participant Characteristics

Padang State University was selected as the study site because it is a large public university in Indonesia that adopted campus wide blended learning policies during the post pandemic transition. The site reflects common conditions of public universities in developing contexts, including uneven connectivity, varied faculty digital readiness, and evolving institutional guidance. This makes it suitable for capturing diverse lecturer perspectives on implementation. The study involved 37 lecturers from multiple faculties. To increase transparency, we summarize key characteristics as follows: faculty distribution, academic rank, age range, years of teaching, and experience with blended learning.

Table 1. Participant Demographics (n = 37)

Category	Subcategory	n	%
Faculty	Faculty of Psychology and Health	1	2.7
	Faculty of Engineering	8	21.6
	Faculty of Social Sciences	4	10.8
	Faculty of Mathematics and Natural Sciences	9	24.3
	Faculty of Education	6	16.2
	Faculty of Economics and Business	9	24.3
Gender	Women	29	78.4
	Men	8	21.6
Blended Learning experience	1 year	13	35.1
	2 years	7	18.9
	3 years	9	24.3
	4 years	8	21.6

The research team are lecturers in Indonesian higher education and therefore occupy an insider position. This positionality supported rapport during interviews and focus group discussions and informed the interpretation of context specific practices. To reduce bias, we used collaborative coding and reflexive memo writing and we conducted checks at the close of each session to verify provisional interpretations.

This study employed a qualitative research design to explore university lecturers' perspectives on the implementation of blended learning, with a particular focus on undergraduate programs at Universitas Negeri Padang. A qualitative approach was selected to capture the complex, context-specific experiences of lecturers directly involved in blended learning environments. Data collection was conducted from June to August during the 2022/2023 academic year. A total of 37 lecturers from diverse faculties participated in this study, including the Faculty of Psychology and Health, Faculty of Engineering, Faculty of Mathematics and Natural Sciences, Faculty of Education, Faculty of Social Sciences, and Faculty of Economics and Business. All participants had practical experience in implementing blended learning, including face-to-face instruction, synchronous online teaching via platforms such as Zoom and Google Meet, and the use of Learning Management Systems (LMS), particularly institutional e-learning platforms.

Sampling procedures

Purposive sampling was employed to recruit participants who met specific inclusion criteria: (1) current or former teaching experience in undergraduate programs,

and (2) at least two academic semesters of experience implementing blended learning methods. Recruitment was conducted through both online and offline channels. Online outreach utilized WhatsApp groups, institutional email lists, and other digital communication tools. In parallel, offline recruitment involved direct engagement by the research team, who encouraged eligible participants to complete the digital questionnaire, thereby eliminating the need for paper-based data collection.

Sample Size and Data Collection Procedures

A total of 37 lecturers completed the questionnaire. In addition, a focused group discussion (FGD) was conducted involving five lecturers. The FGD, conducted via Zoom, lasted approximately 120 minutes and was facilitated by a moderator, with assistance from a co-facilitator and two note-takers. The session followed a structured protocol comprising open-ended questions designed to elicit reflective insights on participants' experiences with blended learning. Participants were encouraged to provide both supportive and critical reflections. At the end of each discussion segment, the facilitator summarized the main points to ensure accurate representation and mutual understanding.

Instruments and Measures

The primary data collection instrument was an open-ended online questionnaire designed to explore various aspects of blended learning implementation and lecturer experiences. The questions encouraged detailed, narrative responses and were distributed digitally to allow participants flexibility in completing them. In addition to the questionnaire, data were gathered through observation and documentation during the FGD sessions to provide complementary insights and context.

Data analysis

In addition to triangulation across questionnaires, focus group discussions, and observation, we strengthened credibility through peer debriefing and an audit trail. Peer debriefing sessions with colleagues who were not part of data collection were used to challenge assumptions and review code decisions. The audit trail documented key steps in sampling, coding, theme development, and analytic decisions.

All qualitative data derived from the questionnaire responses and FGD transcripts were analyzed using NVivo software. Thematic analysis was conducted to identify recurring patterns, categories, and overarching themes. The coding process was iterative and collaborative, involving multiple researchers to ensure inter-coder reliability and analytical rigor. Member checking was carried out during the FGD to confirm the validity of the interpretations and minimize potential misrepresentation of participants' views.

Ethical procedures included informed consent, voluntary participation, and confidentiality protection. Institutional permission was obtained prior to data collection, and participants were informed that they could withdraw at any time without penalty.

RESULTS OF STUDY

Figure 1 summarizes how the four themes connect in this study. Technical constraints directly reduce social presence and participation, which then weakens instructional effectiveness. Lecturers' digital competence can mitigate these pressures through purposeful task design, orchestration of the platform, and timely feedback.

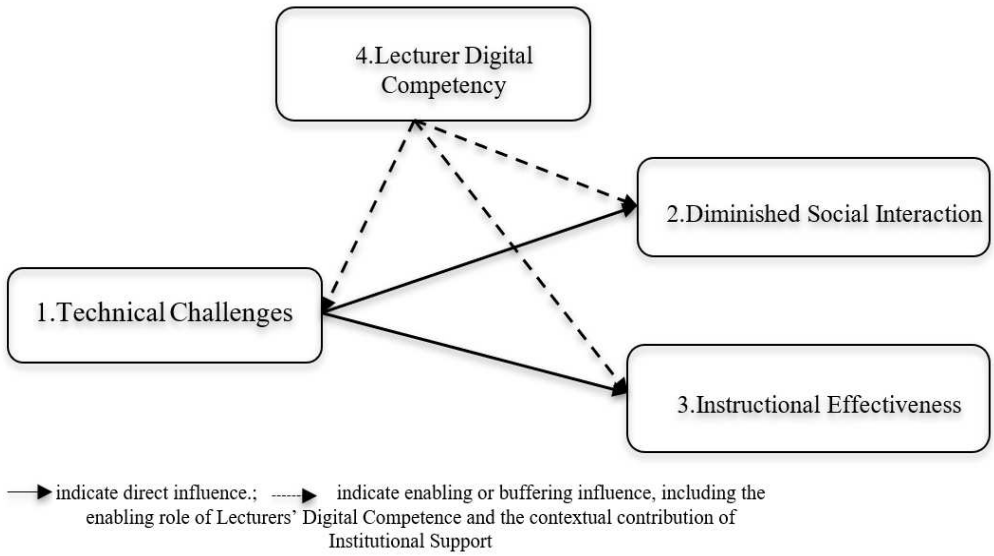

Figure 1. Conceptual model of the four themes

This study aims to explore university lecturers' perceptions regarding the implementation of blended learning in the context of higher education. This mode of instruction combines face-to-face (offline) learning with online components, including the use of learning management systems (LMS), Zoom, Google Meet, and various other educational applications. Based on the thematic analysis of the collected data, four key themes emerged concerning lecturers' perspectives on the implementation of blended learning at the university level.

These themes include: (1) technical challenges, (2) social interaction, (3) instructional effectiveness, and (4) lecturers' pedagogical competence. These thematic categories were identified through a systematic analysis of both the open-ended questionnaire responses and the focus group discussions conducted by the research team.

Technical Challenges

Technical and infrastructural limitations emerged as the most frequently cited challenges in the implementation of blended learning. Lecturers reported recurrent issues during both synchronous and asynchronous online instruction. Lecturers commonly reported unstable internet connectivity, especially for students residing in remote areas with limited access to reliable network providers. Additional challenges include inadequate access to proper digital devices and recurring failures in the learning management system (LMS), such as institutional e-learning platforms that are at times inaccessible or malfunctioning. These issues were found to disrupt the learning process and hinder student assessment procedures.

"...the signal is unstable, especially for students living in remote areas or boarding houses located far from city centers. They experience significant difficulties when engaging in Zoom classes or using e-learning platforms. Sometimes they cannot even log into the LMS just to mark their attendance, while their peers can access it without issues. When using Zoom, students are asked to turn on their cameras, but often they cite poor connectivity as the reason they cannot comply..." (AN, female, 43 years old, FGD participant).

"...especially when the e-learning platform crashed recently–every student submission just disappeared, and I hadn't even reviewed them yet. The LMS couldn't be restored. These types of issues are very disruptive and, in my opinion, quite detrimental..." (AD, female, 39 years old, FGD participant).

Moreover, technical disruptions were not limited to online sessions; offline (face-to-face) classes also encountered logistical issues. Common problems included malfunctioning projectors, broken or inactive air conditioners, external noise disturbances, and unexpected changes in classroom assignments all of which negatively impacted the continuity of instructional delivery.

"...not just online-offline classes also come with their own problems. Sometimes the AC doesn't work, or it's running but the room is still hot. The projector often shuts off with the slightest nudge and is difficult to restart. Sometimes I resort to sharing the PowerPoint slides via WhatsApp and asking students to read them on their phones..." (Female, Lecturer, Faculty of Engineering, survey response).

This theme highlights that technical barriers are not occasional but recurrent, constituting a major obstacle in the implementation of blended learning. The findings underscore that adequate and reliable technological infrastructure is a fundamental prerequisite for the successful and seamless operation of blended learning in higher education contexts.

Diminished Social Interaction (Student–Lecturer; Student–Student)

Reduced social engagement between students and lecturers, as well as among students themselves, emerged as a prominent theme in this study. Many lecturers reported that during online learning sessions, students tended to be passive often keeping their cameras turned off and showing minimal participation in discussions. This lack of engagement was seen as a barrier to effective learning, although some students remained enthusiastic and actively contributed.

"...especially when learning via Zoom meetings, they generally won't turn on their cameras unless explicitly instructed to do so. Sometimes I have to threaten them– 'If you don't activate your camera, I will mark you absent.' Only then do they comply." (AD, female, 39 years old, FGD participant)

"...what's amusing is that during the Q&A session, when I call on someone–usually those who've kept their camera off the entire session, they suddenly leave the meeting. Sometimes they type a message first, like 'Sorry Ma'am, the audio is breaking up. I can't hear you.' Then they exit Zoom and don't come back until the session ends." (AF, female, 37 years old, FGD participant)

Lecturers also noted that some students appeared disengaged even in offline settings, particularly those who had previously adapted to prolonged online learning environments. Motivation and focus were seen to decline during face-to-face sessions.

"After a long period of online classes, students returned to the classroom, but they seemed unfocused. They were physically present, but mentally absent." (female, lecturer, Faculty of Mathematics and Natural Sciences, survey response)

Another observation was that students rarely accessed learning materials uploaded to the e-learning platform unless the content was scheduled for in-class discussion or linked to assessment. Similarly, their willingness to comment in the LMS discussion forums remained low unless directly required.

"If there's no evaluation or real-time meeting, students almost never open the e-learning materials." (female, lecturer, Faculty of Mathematics and Natural Sciences, survey response)

These findings indicate that both online and offline sessions of blended learning may suffer from insufficient interaction. Reciprocal engagement, synergy, and active participation - particularly from students–are key determinants of the success of blended learning. Without these, the pedagogical potential of this modality remains limited.

Instructional Effectiveness

Blended learning is widely acknowledged for providing flexibility in course delivery. However, several lecturers expressed concerns about its effectiveness, particularly regarding the depth of students' comprehension. Asynchronous online instruction was perceived as inadequate in stimulating active student engagement,

especially in the absence of immediate feedback. Lecturers noted that students tend to multitask during online sessions, reducing their attention and impairing their understanding of course content. Consequently, many lecturers felt the need to repeat and clarify previously delivered material during face-to-face sessions to ensure comprehensive understanding.

"*I have to repeat the online material in the face-to-face class. This increases my workload and reduces time efficiency.*" (male, lecturer, Faculty of Economics, survey response)

Nevertheless, blended learning was also seen as an adaptive solution for maintaining instructional continuity when in-person teaching was disrupted. In cases of lecturer absence due to illness, administrative meetings, institutional activities, field visits, or inclement weather, sessions could be conducted online without requiring make-up classes or rescheduling.

"*...when there are sudden meetings or university-related activities, I just switch the session to online, especially via e-learning. It saves the trouble of rearranging class schedules. Even when it rains, students often request to move the session online.*" (AO, male, 36 years old, FGD participant)

"*Blended learning allows classes to continue even when the lecturer is unable to attend in person. This is a very helpful solution.*" (male, lecturer, Faculty of Economics, survey response)

Instructional effectiveness was also evaluated based on the nature of the course–whether theoretical or practical. Courses with learning objectives focused on theoretical or conceptual understanding were deemed more compatible with online delivery. Conversely, for courses requiring hands-on skills acquisition, lecturers emphasized the need for a higher proportion of in-person sessions compared to online ones.

"*For practical courses, offline learning is more appropriate. Even in blended models, the ratio should favor offline–say, 70% offline and 30% online. But for courses emphasizing conceptual understanding, the ratio can be more flexible.*" (female, lecturer, Faculty of Psychology and Health, survey response)

These findings suggest that while blended learning offers substantial advantages in terms of logistical flexibility, its instructional effectiveness depends heavily on clear, structured, and measurable instructional design. Particularly in adult learning contexts, aligning delivery modes with course objectives is essential to achieve optimal learning outcomes.

Lecturer Digital Competency

Lecturers' digital competency was identified as a key factor in the successful implementation of blended learning. Participants acknowledged that beyond basic technological literacy, effective blended instruction requires the ability to design and deliver engaging and meaningful learning experiences. This includes using interactive teaching media and navigating various digital platforms tailored to different instructional needs, such as quizzes, examinations, content summaries, and assignments while leveraging technology to foster students' critical thinking skills.

Many lecturers reported using diverse instructional strategies such as problem-based learning, case-based methods, video or film analysis, and project-based learning. These pedagogical designs were intended to stimulate active student engagement and enhance critical and analytical thinking.

"*Blended learning is not just about uploading files. We must be creative in designing strategies that challenge students and encourage critical thinking.*" (female, lecturer, Faculty of Sports Science, survey response)

"*Case- or video-based analysis tasks help students think more deeply. But they require thorough planning.*" (AK, female, 38 years old, FGD participant)

"*Today's students are more digitally savvy than we are. They create engaging presentations using a variety of features. If we don't upgrade ourselves, we'll just keep using PowerPoint and fall behind. It's time we transition to other platforms like Quizizz, SurveyMonkey, Educandy, Kahoot, and so on.*" (female, 38 years old, FGD participant)

Several lecturers also emphasized the importance of institutional support, such as routine training, access to digital learning design facilities, and dedicated time for lecturers to develop high-quality online content. They recognized that not all lecturers are equally prepared to meet these demands, underscoring the need for consistent and structured institutional facilitation. Such support enables lecturers to stay abreast of technological advancements and better align their competencies with students, who are generally more fluent in using digital tools.

This study's findings highlight that digital literacy and technological proficiency among lecturers must be accompanied by the development of innovative digital learning media. These elements are essential to delivering instructional content effectively and enhancing learning outcomes. Furthermore, digital competency plays a crucial role in supporting the success of the online component within blended learning environments.

Patterns varied across faculties and generations. Engineering and science lecturers reported more frequent issues with laboratory related connectivity and software integration, while education and social science lecturers emphasized challenges in sustaining social presence during discussion based activities. Younger lecturers described greater confidence with analytics informed feedback, whereas senior lecturers highlighted the need for clearer institutional guidelines for course redesign.

Taken together, the results indicate a chain in which infrastructural reliability shapes social interaction and instructional processes, while lecturers' digital competence enables more resilient design and facilitation under resource constraints. This articulation clarifies the mechanisms by which technical challenges influence learning processes and provides a basis for the policy implications that follow in the Discussion.

DISCUSSION

This study aimed to investigate university lecturers' perspectives on blended learning, based on their direct

teaching experiences. The findings revealed diverse viewpoints among lecturers regarding the implementation of blended learning, which were generally categorized into challenges and perceived benefits for both lecturers and students. The emergent themes are interconnected and reflect the broader transition toward digital technology-based instruction.

Taken together, the findings indicate a connected chain that links infrastructure to pedagogy and social processes. Technical constraints reduce students' social presence and participation, which in turn weakens instructional effectiveness. Lecturers' digital competence can partly buffer these pressures through purposeful task design, clear online pacing, orchestration of the platform, and timely feedback. This pattern explains why quality in blended learning depends on both reliable systems and the day to day expertise of lecturers.

University leaders should prioritize resilient connectivity and learning management system uptime targets, provide workload recognized time for course redesign, and integrate blended learning quality indicators into academic assurance. Staff development units or LP3M should offer sequenced and sustained programs on backward design for blended learning, assessment integrity in online settings, the use of analytics for feedback, and mentoring for lecturers with lower digital readiness. Lecturers should align online activities with measurable learning outcomes, use low bandwidth alternatives for essential tasks, and apply regular feedback cycles informed by platform data.

These dynamics are pronounced in developing country settings where campus resources and household connectivity vary widely. By showing how technical constraints, social interaction, instructional effectiveness, and lecturers' digital competence work together under these conditions, the study extends evidence from systems that are often the focus of international literature and makes the contribution of an Indonesian public university visible.

A critical impediment to the successful implementation of blended learning is rooted in technological limitations. Numerous lecturers report that insufficient technological infrastructure significantly disrupts the educational experience. Among the most frequently identified challenges are unreliable internet connectivity, restricted access to adequate hardware, and a reliance on digital platforms that are often either unfamiliar or lacking in reliability. These challenges disrupt both the delivery of instructional content and communication with students. On a broader scale, institutions in developing countries face a pronounced digital divide, leading to inequitable adoption and outcomes of blended learning across different regions (Alam et al., 2023; Aravind, 2024; Asadullah & Bhattacharjee, 2022; Khattak et al., 2022). Furthermore, the absence of systematic institutional support aggravates these perceptions, as individual lecturers often shoulder the burden of mastering technology and resolving technical difficulties on their own. Lecturers with limited digital proficiency report feeling marginalized and overburdened (Basilotta-Gómez-Pablos et al., 2022; Casanova et al., 2021; Koh & Daniel, 2022; Tejedor et al., 2020)Without systemic interventions to address technical issues, the risk of widening disparities in access and instructional quality among educators in implementing blended learning remains high.

Another salient theme is the decline in social interaction, which was a major concern for the lecturers. Traditional face-to-face education enables affective and pedagogical relationships to develop between instructors and students. In contrast, blended learning often erodes these connections. Many lecturers found it challenging to build emotional rapport or to assess non-verbal cues through digital platforms (Bedi, 2023; Gherghel et al., 2023; Li, 2022; Salas-Pilco et al., 2022; Toscu, 2023). This was further compounded by students' low participation during online sessions. The lack of social presence in virtual learning environments restricts meaningful engagement due to communication barriers and students' limited digital literacy (L. Chen, 2023; X. Chen & Feng, 2023; Presley et al., 2023). Majewska dan Zvobgo (2023) reported a significant reduction in student-to-student interaction during online learning, especially in collaborative tasks and group discussions. Lecturers in the current study observed similar trends, noting that students were often passive during online discussions, which hindered critical reflection and academic dialogue. Fan et al., (2024) echoed this concern, stating that the social dynamics in virtual classrooms tend to be mechanical and fail to foster deep emotional engagement. The findings emphasize the negative impact of reduced interaction by demonstrating that the development of knowledge within a social constructivist framework depends on sustained and purposeful learner engagement.

The next major finding centers on instructional effectiveness, which emerged as a crucial concern driving the success of blended learning. (Kallas & Pedaste, 2022) emphasized that technological readiness, student engagement, and institutional support are critical determinants of effective blended instruction. Several studies support the importance of lecturers' preparedness in managing holistic blended learning environments–not only in fostering students' motivation for self-directed learning in online settings, but also in employing effective content delivery strategies (Basilotta-Gómez-Pablos et al., 2022; Vo Thi & Hoang, 2024; Yang, 2024; Zhu et al., 2024)Students generally perceive blended learning as beneficial due to its flexibility and accessibility, enabling them to learn at their own pace and according to their preferred styles (Flores-González et al., 2024; Lu, 2021; Nikolopoulou & Zacharis, 2023).However, persistent challenges remain, such as insufficient infrastructure, lack of technological skills, and limited pedagogical-technical integration by instructors, all of which undermine instructional effectiveness.

Finally, the study found that digital competency among lecturers is a key factor determining the success of blended learning implementation. Lecturers lacking adequate digital skills struggle to utilize learning platforms, manage online interactions, and conduct technology-mediated assessments (Buinytska & Vasylenko, 2022; Smith et al., 2023).Digital competence extends beyond technical proficiency; it also includes digital pedagogy, instructional design, and awareness of ethical and data security concerns (Mamarajabov, 2022; Petrakova, 2023; Volkova et al., 2022). Age and prior teaching experience also influence digital readiness. Senior lecturers, in particular, often face difficulties adjusting to digital instruction, resulting in repeated content delivery during face-to-face sessions to ensure comprehension of previously covered online materials (Cao, 2024; Trypke et al., 2023). This repetition compromises instructional time efficiency. However, these challenges can be addressed through sufficient digital competence and institutional support in utilizing various tools in blended learning, especially in online sessions.

Despite the challenges, blended learning can still be conducted effectively. A limitation of this study lies in the

potential response bias in the open-ended questionnaire, where participants may not have fully elaborated their genuine opinions. Although this method enabled a wide range of perspectives, some responses lacked depth. Furthermore, the use of focus group discussions introduced dynamics where dominant participants might overshadow more passive ones, potentially skewing the discourse. Senior lecturers were perceived as more authoritative, which might have discouraged junior lecturers from expressing dissenting views. These limitations suggest that future research may benefit from integrating individual in depth interviews or mixed-method designs to enhance data richness and balance power dynamics among participants.

The study is limited to a single university, which constrains generalization across institutions. Findings should therefore be interpreted with caution and in relation to local conditions. Future research should compare public and private institutions within Indonesia, pursue longitudinal designs to track how institutional support and lecturers' digital competence co evolve with outcomes, and conduct quantitative tests of the relationships identified in this qualitative model.

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings presented, it can be concluded that university lecturers, as facilitators of blended learning, perceive this approach as offering adaptive flexibility in the learning process. The study identified four core themes that shape these perceptions: technical challenges, diminished social interaction (between lecturers and students, as well as among students), instructional effectiveness, and lecturers' digital competence. These interrelated dimensions reveal that although blended learning offers considerable flexibility and convenience, its success ultimately depends on the collaborative engagement between lecturers and students. The central take home message is that lecturers' digital competence is a key determinant of successful blended learning, especially when it is supported by reliable infrastructure and clear institutional guidance. Accordingly, universities should invest in continuous training programs for lecturers, strengthen campus connectivity and learning management system uptime, and provide course level integration guidelines that align online activities with intended learning outcomes. Such collaboration is essential to mitigating the limitations and barriers inherent in blended learning environments. This study recommends the development of targeted programs aimed at enhancing digital technology competencies among lecturers, which are crucial to ensuring the sustained effectiveness of blended learning in higher education.

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DECLARATION

Ethics approval and consent to participate

All participants were provided with an informed consent form prior to data collection. The form included information about the purpose of the study and the procedures involved. By signing the form, participants confirmed their voluntary participation, acknowledged that they had been adequately informed, gave their consent freely, and agreed to provide accurate information without any coercion. The study involved minimal risk and no invasive procedures, and participants were assured of the confidentiality and anonymity of their responses.

Consent for publication

Written informed consent for publication was obtained from all participants involved in this study.

Availability of data and materials

Not applicable

Conflicts of interest Statement

The authors declare that they have no competing interests.

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Artificial Intelligence-Assisted Technology

Not Applicable

Authors' contributions.

The first author **(IH)** was responsible for designing the study, conducting the interviews, analyzing the data, and drafting the manuscript. The second author **(AR)** supervised the research process and provided critical guidance throughout the study. The third author **(PSD)** contributed to the development of the conceptual and theoretical framework. The fourth author **(MS)** participated in the analysis of the research data. The fifth author **(YM)** reviewed the data analysis and contributed to refining the interpretation and implications of the findings. All authors have read and approved the final version of the manuscript.

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ADDITIONAL INFORMATION

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