Architecture
Image Studies

Vol.6, Issue 4, pp.764-777, 2025
DOI: https://doi.org/10.62754/ais.v6i4.679

https://journals.ap2.pt/index.php/ais/index

Sustainability Blended Learning, Space and Challenges in Private Higher Education; Case Study of Ueu, Umb, And Untar

Linda Purnamasari[1], Poltak Sinaga[2], Rudy Pramono[3]

Abstract

The sustainability of blended learning in private universities has become a critical concern following the Covid-19 pandemic, as this learning model combines face-to-face and online methods, offering flexibility and adaptability to technological developments. Case studies at Esa Unggul University (UEU), Mercu Buana University (UMB), and Tarumanagara University (UNTAR) provide a concrete overview of the scope of blended learning implementation and the challenges faced in maintaining its sustainability in private universities. This research aims to examine how the implementation of blended learning in private universities, especially at Esa Unggul University (UEU), Mercu Buana University (UMB), and Tarumanagara University (UNTAR). This research uses a case study approach with mixed methods to examine sustainability. Blended learning at three private universities in Jakarta: Esa Unggul University, Mercu Buana University, and Tarumanagara University. Data were collected through interviews with academic and administrative stakeholders and questionnaires with students in employee classes, supported by secondary data such as online learning documentation. Analysis was conducted thematically and quantitatively using SPSS, resulting in a comprehensive overview of the supporting factors and challenges in the implementation blended learning at the three universities. The research results show that implementing blended learning post-pandemic requires system support, digital skills, and institutional commitment to address challenges and maintain sustainability. Adaptation is carried out through development strategies, strengthening human resources, and optimizing learning methods. Sustainability prospects depend on technological readiness, teaching quality, and student engagement, although several aspects such as technical skills and feedback, need improvement.

Keywords: *Blended Learning, Sustainability, Private Universities, Case Studies, Technology*.

Introduction

In universities around the world, including in Indonesia, blended learning has become an increasingly popular learning model in recent years. According to Graham (2013), blended learning is a combination of face-to-face and online learning [1] that utilizes digital technology to make learning more flexible and affordable [2]. Blended learning is a combination of face-to-face learning and online learning, which increases the accessibility of education and the efficiency of the teaching and learning process [3].

Given their large number and wide reach, private universities (PTS) play a significant role in Indonesia's higher education system, particularly in areas where public universities (PTN) cannot reach. However, PTS face significant challenges in adopting and implementing blended learning consistently [4].

Based on the Kemala Bangsa Education Foundation which established Indonusa Esa Unggul University in 1993. In 2014, this university changed its name to Esa Unggul University (Number: 57/E/O/2014). Esa Unggul University (UEU) has a vision to become a world-class university based on intellectuality, creativity, and entrepreneurship that excels in the quality of management (process) and

[1] Doctoral Program in Management, Faculty of Economics and Business, Universitas Pelita Harapan, Jakarta, Indonesia, Email: 01627210013@student.uph.edu
[2] Doctoral Program in Management, Faculty of Economics and Business, Universitas Pelita Harapan, Jakarta, Indonesia, Email: poltak.sinaga@uph.edu
[3] Doctoral Program in Management, Faculty of Economics and Business, Universitas Pelita Harapan, Jakarta, Indonesia, Email: rudy.pramono@uph.edu

results (output) of the Tri Dharma Perguruan Tinggi activities. Mercu Buana University has carried out activities blended learning for special classes for employees since before the Covid-19 pandemic. This employee class offers a wide selection of majors to suit prospective students' interests and talents. Students can choose from majors that align with their current field of work or those seeking to advance their careers. This program is blended learning, where face-to-face lectures are held on Saturdays with details of meetings at the 2nd and 15th meetings, with optional times Saturday morning (07.00 – 14.30) and Saturday afternoon (14.30 – 22.00).

At Tarumanagara University, research was conducted that showed that students prefer the hands-on approach of blended learning, with some lectures delivered live and others online [5]. This is to avoid boredom and risks associated with face-to-face lectures because the ongoing pandemic. This study shows that students prefer a blended learning approach, with some lectures delivered in person and others online. This is to avoid the boredom and risks associated with face-to-face lectures due to the ongoing pandemic [6]. To meet the expectations of 67.1% of students, accounting departments must offer courses in a blended learning format. This could include seven face-to-face meetings on campus and seven online meetings from students' homes [7].

Based on Mercu Buana University's Strategic Plan (Renstra), reflected in the university's vision and mission, the university's primary goal is to become a higher education institution that produces graduates with an entrepreneurial spirit [8], proficient in information technology, ethical values, and the ability to interact internationally (www.mercubuana.ac.id). Therefore, technology- and information-based online learning is implemented to support these achievements. Research findings indicate that overall student learning outcomes from the Faculty of Engineering and the Faculty of Management do not differ significantly, but when analyzed per statement, students majoring in management obtain higher average scores, especially on statements related to the adoption of e-learning as a complement to traditional classroom instruction. However, there has been no comprehensive examination of the factors that cause differences in perceptions between management and engineering students regarding the use of e-learning as a supplementary learning tool. Therefore, to evaluate the effectiveness of e-learning in various contexts and subjects, comparisons are necessary with other universities or educational institutions [9].

Based on the Strategic Plan (Renstra) initiated by the leadership at Tarumanagara University, one of the main focuses is developing information technology in the implementation of education (www.untar.ac.id). Initially, online learning at this university was intended for employees in the afternoons using a blended learning system combined with RPL (Recognition of Prior Learning), which is the recognition of abilities that are equated with learning outcomes in courses. During the Covid-19 pandemic, students at the Faculty of Medicine, Tarumanagara University (FK UNTAR) implemented distance learning, which impacted various aspects of learning, including lectures, problem-based learning (PBL), and basic clinical skills that are usually conducted face-to-face, now conducted online. Online PBL discussions at FK UNTAR are clearly different from face-to-face discussions. This study aims to determine how online PBL tutors at FK UNTAR encourage students to learn actively, independently, contextually, and collaboratively, as well as the tutors' intrapersonal behavior [10].

Similarly, at Tarumanagara University, research was conducted on accounting students by collecting data from current students to measure their satisfaction levels, mastery of technology in learning, and the effectiveness of material delivery. This research used a descriptive and qualitative approach, supported by a literature review to strengthen the findings and draw valid conclusions. Through a survey of accounting students at Tarumanagara University, researchers aimed to understand students' experiences and responses to online lectures during the COVID-19 pandemic, to obtain a comprehensive picture of the effectiveness and challenges of online learning in the department [7].

After the pandemic ends, blended learning continues to be implemented with a primary focus on employee classes, prioritizing face-to-face interactions while utilizing technology as a means of innovation in the digital era. Blended learning it is the most effective choice in higher education because it combines the advantages of offline and online learning, resulting in a more meaningful learning process and encouraging student independence. This model also offers high flexibility, allowing access to learning anytime and anywhere. Furthermore, blended learning plays an important role in helping students develop 21st-century skills such as critical thinking, problem solving, and information literacy [11], [12].

This research aims to fill the gap regarding the sustainability of the implementation of blended learning in higher education after the Covid-19 pandemic, given the lack of in-depth understanding of

how to implement, adapt to constraints, and the prospects for sustainability in the real-world university context. This phenomenon demonstrates the need for a comprehensive evaluation of the implementation blended learning at three universities after the pandemic, including adaptation strategies used to overcome various emerging obstacles, as well as predictions or insights into the future sustainability and development of this learning method. Therefore, this study seeks to provide concrete solutions and recommendations to ensure its effectiveness and sustainability blended learning as a relevant and adaptive learning model in the future.

Method

This research uses a case study approach to identify the mechanisms that influence differences in service quality and institutional reform, as well as to understand how the challenges of implementing blended learning are faced in three private universities in Jakarta, namely Esa Unggul University, Mercu Buana University, and Tarumanagara University [13]. This case study allows for in-depth analysis by considering the institutional context, internal policies, and external factors that influence the sustainability of blended learning at each campus. The research approach uses a mixed methods approach (*mixed methods*) with design *sequential exploratory design*, which begins with the collection of qualitative data to formulate and answer research problems, then continues with the collection of quantitative data to strengthen and explain the findings descriptively, especially regarding students' views on online learning [14].

The data in this study comes from various sources, including primary data collected through interviews with academic and administrative stakeholders responsible for blended learning, as well as questionnaires given to employee class students who participated in blended learning activities at the three universities [15]. In addition, secondary data such as brochures for afternoon/parallel/executive class admissions and documentation of online learning before, during, and after the COVID-19 pandemic in 2024 were also used as supporting data. Data analysis was conducted using two main techniques: thematic analysis for qualitative data and qualitative analysis for qualitative data [16] and quantitative analysis of questionnaires processed using statistical software such as SPSS, so that the research results can provide a comprehensive picture of the sustainability of blended learning at the three universities [17], [18].

Results

Esa Unggul University

Esa Unggul University (UEU) was founded in 1993 by the Kemala Bangsa Education Foundation, initially named Indonusa Esa Unggul University, and changed its name to Esa Unggul University in 2014. UEU is one of the leading private universities in Indonesia with a vision to become a world-class university based on intellectualism, creativity, and entrepreneurship, as well as excelling in the quality of management and results of the Tri Dharma Perguruan Tinggi activities. UEU is also a pioneer in the establishment of the Medical Records Academy and the Applied Physiotherapy Undergraduate Program in Indonesia.

The subjects of this study were UEU parallel class students who participated in blended learning, with respondent characteristics including name, age, and gender.:

Table 1. Characteristics of Research Respondents in EUU

No.	Characteristics	Category	Amount	Percentage (%)
1.	Age	17–20 years	10	35,7
		21–24 years	11	39,3
		25–28 years	0	0,0
		29–34 years	7	25,0
	Total		**28**	**100**
2.	Gender	Man	19	67,0
		Woman	9	33,0
	Total		**28**	**100**

Based on respondent characteristics data, the majority of students were in the 21–24 age range (39.3%), followed by 17–20 age groups (35.7%) and 29–34 age groups (25%), while there were no respondents in the 25–28 age group. In terms of gender, the majority of respondents were male (67%),

while females accounted for 33%. This data indicates that the study respondents were predominantly young students and the majority were male.

The following presents the results of the statistical analysis related to the Technology Readiness variable at Esa Unggul University (UEU) which is part of the findings:

Table 2. SPSS Output of EU Technology Readiness Statistical Calculation

Statistics

Kesiapan Teknologi

N	Valid	28
	Missing	0
Mean		53.21
Std. Error of Mean		1.375
Median		53.50
Std. Deviation		7.274
Variance		52.915
Skewness		.431
Std. Error of Skewness		.441
Kurtosis		-.455
Std. Error of Kurtosis		.858
Range		27
Minimum		43
Maximum		70
Sum		1490
Percentiles	25	47.00
	50	53.50
	75	56.75

Statistical analysis shows that the technological readiness of parallel class students at Esa Unggul University is at a fairly good level, with an average score of 53.21 and a median of 53.50, indicating a relatively balanced distribution of data between respondents with scores above and below the mean. The standard deviation of 7.274 and variance of 52.915 indicate variations in the level of technological readiness among students, although not too extreme. The results of the normality test using the skewness ratio (0.991) and kurtosis (-0.530) which are in the range of -2 to +2 confirm that the data are normally distributed, so further analysis can be carried out assuming a normal distribution. The range of values of 27, with a minimum score of 43 and a maximum of 70, illustrates the existence of a fairly wide difference in the level of readiness among respondents. Percentiles indicate that a quarter of respondents have relatively low technological readiness (score ≤ 47), while three-quarters of respondents achieved scores up to 56.75, indicating potential for improving technological competence, especially for students in the lowest score group.

Furthermore, on the variable of Teaching Quality at Esa Unggul University, the results of statistical analysis are presented to provide an overview of the level of student perception.

Table 3. SPSS Output of EUU Teaching Quality Statistical Calculation

Statistics

Kualitas Pengajaran

N	Valid	28
	Missing	0
Mean		157.36
Std. Error of Mean		3.941
Median		157.50
Std. Deviation		20.856
Variance		434.979
Skewness		-.739
Std. Error of Skewness		.441
Kurtosis		.772
Std. Error of Kurtosis		.858
Range		86
Minimum		103
Maximum		189
Sum		4406
Percentiles	25	149.00
	50	157.50
	75	171.75

The SPSS output results for the Teaching Quality variable at Esa Unggul University show that out of 28 respondents, there is no missing data (missing = 0). The average value (mean) is 157.36 with a median of 157.50, a standard deviation of 20.856, and a variance of 434.879, indicating a fairly high variation in respondents' perceptions of teaching quality. The normality test shows a normal data distribution, indicated by a skewness ratio of -1.675 and a kurtosis ratio of 0.899 which is in the range of -2 to +2. The score range is 86, with a minimum value of 103 and a maximum of 189, and a total overall score of 4,406. Based on percentiles, 25% of respondents had scores ≤ 149, 50% ≤ 157.50, and 75% ≤ 171.75, which indicates that most students rated the quality of teaching as being in the moderate to high category.

After discussing the variables of Technology Readiness and Teaching Quality, this study then examines the aspect of Student Involvement in the blended learning process.

Table 4. SPSS Output of Student Engagement Statistical Calculations

Statistics

Keterlibatan Mahasiswa

N	Valid	28
	Missing	0
Mean		95.43
Std. Error of Mean		2.439
Median		96.50
Std. Deviation		12.905
Variance		166.550
Skewness		.161
Std. Error of Skewness		.441
Kurtosis		.680
Std. Error of Kurtosis		.858
Range		58
Minimum		67
Maximum		125
Sum		2672
Percentiles	25	86.50
	50	96.50
	75	100.00

The SPSS output results for the Student Engagement variable at Esa Unggul University show that out of 28 respondents, there was no missing data (missing = 0). The mean value of student engagement

was 95.43 with a median of 96.50, a standard deviation of 12.905, and a variance of 166.550, indicating moderate variation in the level of engagement among students. The data distribution was declared normal based on a skewness ratio of 0.365 and a kurtosis of 0.792, which ranged from -2 to +2. The score range was 58, with a minimum value of 67 and a maximum of 125, and a total overall score of 2,672. The percentiles show that 25% of students have engagement scores ≤ 86.50, 50% ≤ 96.50, and 75% ≤ 100, indicating that most students have a fairly good level of engagement in the blended learning process.

Mercu Buana University

Mercu Buana University was founded on October 22, 1985, on the initiative of the late H. Probosutedjo, following the four-year establishment of the Dewantara Entrepreneurship Academy (AWD). With the support of the Menara Bhakti Foundation, Mercu Buana University was successfully established, and Prof. Dr. (H.C.) Drs. H. Sutan Harun Al-Rasjid Zain was appointed as the first rector. The subjects of this study were evening class students at Mercu Buana University who participated in blended learning activities, with respondent characteristics including name, age, and gender as shown in the following table.:

Table 5. Characteristics of Research Respondents at UMB

No.	Characteristics	Category	Amount	Percentage (%)
1.	Age	17–20 years	0	0
		21–24 years	14	60
		25–28 years	5	20
		29–34 years	5	20
	Total		**24**	**100**
2.	Gender	Man	15	62,5
		Woman	9	37,5
	Total		**24**	100

Data on the characteristics of respondents to Mercu Buana University's afternoon class students shows that the majority are between 21 and 24 years old (60%), followed by the 25–28 and 29–34 age groups at 20% each. There were no respondents in the 17–20 age group. In terms of gender, the majority of respondents were male (62.5%), while females were 37.5%. This data illustrates the demographic profile of students participating in blended learning activities in UMB's afternoon classes.The following explanation presents the results of the analysis of technology readiness at UMB.

Table 6. SPSS Output of Technology Readiness Statistical Calculation

Statistics

Kesiapan Teknologi

N	Valid	24
	Missing	0
Mean		46.75
Std. Error of Mean		.725
Median		47.00
Std. Deviation		3.554
Variance		12.630
Skewness		-.676
Std. Error of Skewness		.472
Kurtosis		-.156
Std. Error of Kurtosis		.918
Range		13
Minimum		39
Maximum		52
Sum		1122
Percentiles	25	45.25
	50	47.00
	75	50.00

The results of the analysis of the technology readiness data of Mercu Buana University afternoon class students showed that out of 24 respondents there was no missing data (missing = 0). The average value (mean) of technology readiness was 46.75 with a median of 47.00, a standard deviation of 3.554, and a variance of 12.630, which illustrates relatively small variations between respondents. The data distribution was declared normal based on the skewness ratio of -1.432 and kurtosis of -0.169 which were in the range of -2 to +2. The score range was 13, with a minimum value of 39 and a maximum of 52, and a total overall score (sum) of 1,122. The percentiles showed that 25% of respondents had a technology readiness score ≤ 45.25, 50% ≤ 47.00, and 75% ≤ 50.00, which indicated that most students had technology readiness in the good enough category to support blended learning.

After discussing technological readiness, this study then examines the variables of teaching quality in blended learning at Mercu Buana University.

Table 7. SPSS Output of Statistical Calculation of Teaching Quality

Statistics

Kualitas Pengajaran

N	Valid	24
	Missing	0
Mean		72.71
Std. Error of Mean		.533
Median		72.00
Std. Deviation		2.612
Variance		6.824
Skewness		.396
Std. Error of Skewness		.472
Kurtosis		-.437
Std. Error of Kurtosis		.918
Range		10
Minimum		68
Maximum		78
Sum		1745
Percentiles	25	71.00
	50	72.00
	75	74.75

The results of statistical analysis of the teaching quality variable from 24 evening class students who participated in blended learning at Mercu Buana University showed an average value (mean) of 72.71 with a median of 72, a standard deviation of 2.612, and a variance of 6.824 indicating relatively small data variations. There was no missing data (missing = 0). The data distribution was considered normal based on the skewness ratio of 0.838 and kurtosis of -0.476 which were in the range of -2 to +2. The maximum and minimum values were 78 and 68, respectively, with a range of 10. The total overall score (sum) reached 1,745. The percentiles showed that 25% of respondents obtained a teaching quality score ≤ 71.00, 50% ≤ 72.00, and 75% ≤ 74.75, indicating that the majority of students assessed the teaching quality in the fairly good category.

Next, a discussion about the level of student involvement.

Table 8. SPSS Output for Student Engagement Statistical Calculations

Statistics

Keterlibatan Mahasiswa

N	Valid	24
	Missing	0
Mean		87.50
Std. Error of Mean		.651
Median		88.00
Std. Deviation		3.190
Variance		10.174
Skewness		-.491
Std. Error of Skewness		.472
Kurtosis		-.191
Std. Error of Kurtosis		.918
Range		12
Minimum		81
Maximum		93
Sum		2100
Percentiles	25	85.25
	50	88.00
	75	89.75

Statistical analysis of the student engagement variable in Mercu Buana University's evening classes following blended learning involved 24 respondents with no missing data. The mean value of student engagement was 87.50 with a median of 88, a standard deviation of 3.190, and a variance of 10.174, indicating moderate data variation. The data were normally distributed based on a skewness ratio of -1.040 and a kurtosis of -0.208, both of which were in the range of -2 to +2. The highest score reached 93 and the lowest was 81, so the range was 12. The total overall score (sum) for this variable was 2,100. Percentiles showed that 25% of respondents had engagement scores ≤ 85.25, 50% ≤ 88.00, and 75% ≤ 89.75, indicating a fairly high level of student engagement in the blended learning process.

Tarumanagara University

Tarumanagara College of Economics, specifically the Department of Corporate Economics, is located in the Candra Naya building on Jalan Gajah Mada number 188 with Dr. Kho Oen Bik as dean and Dr. Lo Kiem Tjing as vice dean. The Faculty of Engineering, which was originally established as the Vocational School of Architectural Engineering on October 1, 1962, later developed into the Faculty of Engineering Department of Architecture, making it one of the oldest private engineering faculties in Indonesia. The research subjects consisted of afternoon class students at Tarumanagara University who participated in blended learning activities, with respondent characteristics including name, age, and gender, which can be seen in the following table:

Table 9. Characteristics of Research Respondents at UMB

No.	Characteristics	Category	Amount	Percentage (%)
1.	Age	17–20 years	2	6,45
		21–24 years	11	35,48
		25–28 years	14	45,16
		29–34 years	4	12,90
	Total		**31**	**100**
1.	Gender	Man	13	41,90
		Woman	18	58,06
	Total		**31**	**100**

A total of 31 Tarumanagara University evening class students who participated in blended learning activities became respondents in this study. In terms of age, the majority of respondents were in the 25-28 age range (45.16%), followed by the 21-24 age group (35.48%). Other age groups, 17-20 years and 29-36 years, each with 6.45% and 12.90%, respectively. Meanwhile, based on gender, female respondents were more numerous at 58.06%, while males were 41.9%. This data shows that the majority of respondents were female and came from the young adult age range.

The analysis related to Technology Readiness is presented in the following table:

Table 10. SPSS Output of Technology Readiness Statistical Calculation

Kesiapan Teknologi		
N	Valid	31
	Missing	0
Mean		54.19
Std. Error of Mean		.429
Median		56.00
Std. Deviation		2.386
Variance		5.695
Skewness		-.796
Std. Error of Skewness		.421
Kurtosis		-.919
Std. Error of Kurtosis		.821
Range		8
Minimum		49
Maximum		57
Sum		1680
Percentiles	25	52.00
	50	56.00
	75	56.00

The analysis of technological readiness of 31 parallel class students who participated in blended learning showed a mean score of 54.19 with a median of 56.00. This data has no missing values and has a standard deviation of 2.386, which comes from a variance of 5.695, indicating a fairly low level of data variability. A skewness value of -0.796 with a ratio of -1.89 indicates that the data is normally and symmetrically distributed. Meanwhile, a kurtosis value of -0.919 with a ratio of -2.18 also indicates a data distribution that is close to normal. The score ranges from 49 to 57 with a range of 8, and the total score (sum) is 1680. The 25%, 50%, and 75% percentiles are at 52, 56, and 56, respectively, indicating that most respondents have technological readiness that is fairly consistent around the middle value.

The next analysis discusses the Quality of Teaching

Table 11. SPSS Output of Statistical Calculation of Teaching Quality

Statistics		
Kualitas Pengajaran		
N	Valid	31
	Missing	0
Mean		81.48
Std. Error of Mean		.661
Median		81.00
Mode		79
Std. Deviation		3.678
Variance		13.525
Skewness		1.134
Std. Error of Skewness		.421
Kurtosis		1.194
Std. Error of Kurtosis		.821
Range		16
Minimum		76
Maximum		92
Sum		2526
Percentiles	25	79.00
	50	81.00
	75	83.00

Teaching quality data analysis shows that out of 31 parallel class student respondents who participated in blended learning activities, there was no missing data. The average teaching quality score was 81.48 with a standard error of 0.661. The median or middle value was at 81.00. The standard deviation was recorded at 3.678, which is the square root of the variance of 13.525, indicating a relatively small level of data variability. A skewness of 1.134 with a skewness ratio of 2.69 indicates the data is skewed to the right and the distribution is not completely symmetrical. However, a kurtosis value of 1.194 with a ratio of 1.45 still indicates a normal data distribution. The teaching quality score ranges from 76 to 92 with a range of 16. The overall total score is 2526, and the percentiles show that 25% of respondents scored below 79, 50% below 81, and 75% below 83. Overall, the teaching quality data tend to be normal with moderate variations in scores.

The next analysis discusses student involvement.

Table 12. SPSS Output of Student Engagement Statistical Calculations

Keterlibatan Mahasiswa		
N	Valid	31
	Missing	0
Mean		96.68
Std. Error of Mean		.765
Median		96.00
Mode		96[a]
Std. Deviation		4.261
Variance		18.159
Skewness		.421
Std. Error of Skewness		.421
Kurtosis		.462
Std. Error of Kurtosis		.821
Range		19
Minimum		89
Maximum		108
Sum		2997
Percentiles	25	94.00
	50	96.00
	75	100.00

The table shows the results of statistical calculations of student engagement based on questionnaire data from 31 parallel class students who participated in blended learning activities, with no missing data. The average value of student engagement was 96.68 with a standard error of 0.765. The median score was 96.00, while the standard deviation was 4.261 derived from a variance of 18.159, indicating relatively small data variations between respondents. The data distribution was considered normal and symmetrical based on the skewness value of 0.421 (skewness ratio of 1) and kurtosis of 0.462 (kurtosis ratio of 0.56), both of which were in the range of -2 to +2. The score range ranges between a minimum of 89 and a maximum of 108, with a total score of 2997. Percentiles indicate that 25% of respondents scored below 94, 50% below 96, and 75% below 100. These data indicate a relatively high and consistent level of student engagement.

Discussion

Based on the analysis of data findings from the questionnaire, it can be seen that the results of respondents from the questionnaire regarding statements with the highest and lowest values were found to be:

Table 13. Highest Respondent Responses to the Technology Readiness Research Variable

No.	Answering	Highest Statement
1.	UEU	The delivery of material through digital media (e.g., videos, presentations) supported my understanding of the topics discussed. Score = 23.6
2.	UMB	The delivery of material through digital media (e.g. videos, presentations) supports my understanding of the topics discussed. Value = 22
3.	SPREAD	The quality of the software (e.g. LMS, gmeet, zoom) used by the university is stable and rarely experiences technical problems. Value = 25.2

At Esa Unggul University, the most common response from respondents was that delivering material through digital media, such as videos and presentations, significantly improved their understanding of the topics discussed. These digital media act as visual and interactive aids, making concepts clearer, explanations more effective, and the material more engaging and easier to follow. A similar finding was also found at Mercu Buana University, where the use of digital media in delivering lectures was considered to significantly support students' understanding of the topics, similar to that at Esa Unggul.

Meanwhile, at Tarumanagara University, respondents emphasized the quality of software such as the LMS, Google Meet, and Zoom used by the university. They assessed that the software was stable and rarely experienced technical issues, which supported the smooth running of online learning. In

conclusion, all three universities demonstrated good technological readiness, with a focus on digital media effectiveness in the first two and software stability in the third.

Table 14. Highest Respondents' Responses to the Teaching Quality Research Variable

No.	Resondens	Highest Statement
1.	UEU	I can concentrate well when taking online lessons. Value = 25
2.	UMB	Lecturers use appropriate technology to support the learning process in online classes. Value = 24
3.	SPREAD	I feel that the material presented by the lecturer is relevant to developments latest in my field of study. Value = 29

At Esa Unggul University, respondents reported being able to concentrate well during online learning. This reflects optimal concentration without many distractions, good mental preparedness, the ability to adapt to online learning, and a supportive learning environment, such as a quiet space and stable technology.

Meanwhile, at Mercu Buana University, the highest score was given to the statement that lecturers use appropriate technology to support online learning. This demonstrates students' appreciation for lecturers' ability to select and use technology effectively to enhance understanding and enhance the learning experience.

Meanwhile, at Tarumanagara University, respondents rated the material presented by lecturers as highly relevant to the latest developments in their fields of study. This indicates that lecturers successfully present cutting-edge learning content, which improves the quality of learning and prepares students with knowledge and skills appropriate to future needs.

Table 15. Highest Respondent Responses to Student Engagement Research Variables

No.	Answering	Statement
1.	UEU	I can concentrate well while following the lesson daring. Value = 25
2.	UMB	I try to study more when the learning material feels difficult. Score = 18.2
3.	SPREAD	I am able to manage enough time to complete learning tasks. Score = 29.4

At Esa Unggul University, respondents reported that they could concentrate well during online learning, indicating a conducive learning environment, engaging materials, effective teaching methods, and a willingness to actively participate in online learning. Meanwhile, at Mercu Buana University, the most common statement was that students tried harder to study when the material was difficult, indicating a strong potential for success with the support of lecturers and institutions that provided access to additional materials and flexible learning methods.

Meanwhile, at Tarumanagara University, respondents assessed that they were able to manage their time well to complete assignments, which reflects important time management skills as a basis for future academic and professional success.

In addition to the highest statements, the following is an analysis of the statements with the lowest scores from the respondents.

Table 16. Lowest Respondent Responses to the Technology Readiness Research Variable

No	Answering	Statement
1.	UEU	I have the ability to solve technical problems that arise when using technology for online lectures. Score = 11.8
2.	UMB	I quickly grasped the new features of the software used for online lectures. Value = 13.6
3.	SPREAD	The availability of software (applications, platforms) used by the university is easily accessible on my device. Score = 17.8

At Esa Unggul University, the lowest-scoring statement indicated that students felt a lack of confidence and inability to resolve technical issues that arose when using technology for online learning. This indicates difficulties in managing issues related to the devices or applications used. At Mercu Buana University, the lowest-scoring statement related to students' difficulties in understanding new features of online learning software. This difficulty could be caused by a lack of technological experience, minimal training, software complexity, technical limitations, or a lack of motivation to learn. Meanwhile, at Tarumanagara University, the lowest-scoring statement highlighted challenges in easy access to the software used, suggesting the university needs to ensure the availability of easily accessible applications and platforms for students to optimally support the learning process.

Table 17. Lowest Respondent Responses to the Teaching Quality Research Variable

No	Answering	Statement
1.	UEU	The structure of the material delivery in online lectures helps me understand the learning flow well. Value = 15
2.	UMB	I feel that the feedback given helped me in understanding my strengths and weaknesses. Value = 11
3.	SPREAD	Lecturers provide sufficient opportunities for students to ask if there is material you don't understand. Value = 21.6

At Esa Unggul University, the lowest score indicated that the online lecture delivery structure was ineffective in helping students understand the learning flow, necessitating improvements in the delivery method to improve student understanding. At Mercu Buana University, the lowest score related to the feedback received by students, which was deemed insufficient in helping them understand their strengths and weaknesses, necessitates improvements in the quality, frequency, and relevance of feedback to support learning development. Meanwhile, at Tarumanagara University, the lowest score related to the opportunity for lecturers to ask questions, which was deemed inadequate, indicating the need to improve lecturer-student interaction and communication to make online learning more inclusive and support understanding of the material.

Table 18. Lowest Respondent Responses to Student Engagement Research Variables

No.	Answering	Statement
1.	UEU	I consistently do my assignments given on time. Value = 17.4
2.	UMB	I have to share a device technology (laptop/computer) with family members, which influences my study schedule. Score = 14.4
3.	SPREAD	I allocate enough time every day week to study by online. Score = 18.2

At Esa Unggul University, many students struggle to complete assignments on time, necessitating university and faculty support to help manage their workload and improve time management skills. At Mercu Buana University, sharing technology devices with family members is not a major issue for most students, but for those affected, it can impact academic performance, making technological support and learning flexibility essential. Meanwhile, at Tarumanagara University, students face challenges in

consistently allocating time for online study, necessitating time management training, improving the quality of online learning, and providing technological support to assist students.

Conclusion

The results of the study, combining qualitative analysis and quantitative data, indicate that the implementation of blended learning at three universities post-COVID-19 pandemic was influenced by various factors, including institutional support, system adaptation, learning flexibility, digital skills, sustainability and creativity, and the quality of student learning outcomes. Quantitative data shows that the aspects that received the highest ratings included the effectiveness of digital media in supporting material understanding, stable software quality, the relevance of the material to current developments, and students' ability to manage their time. Conversely, several aspects that require improvement include the ability to resolve technical issues, understanding new software features, providing effective feedback, and students' consistency in completing assignments on time.

These findings imply the need to strengthen blended learning strategies with a focus on improving technology readiness, teaching quality, and student engagement, particularly for evening classes or employees who require flexible and workplace-relevant learning. It is recommended that learning materials be more directed at topics directly related to professional needs, e-learning be developed for easier access anytime and anywhere, and lecturers be provided with ongoing training to improve technology mastery and teaching quality. Through these steps, it is hoped that blended learning can be sustainable and adaptive in the future.

References

[1] F. A. A. Qasem and M. Alasmari, “Navigating educational models: Face-to-face, blended, or online in EMI contexts during crisis and recovery,” Educ Inf Technol (Dordr), pp. 1–25, 2025.

[2] J. Goodell, “Chapter Introduction: What is learning engineering?,” in Learning engineering toolkit, Taylor & Francis, 2023.

[3] S. Meeprom and P. Fakfare, “Blended learning: Examining must-have, hybrid, and value-added quality attributes of hospitality and tourism education,” Journal of Hospitality & Tourism Education, vol. 36, no. 4, pp. 281–295, 2024.

[4] B. Levy, “Micro-foundations of Socially Embedded Bureaucracies,” 2024.

[5] C. Li and J. Liu, “Collaborative virtual environment for distant and blended learning in the higher education setting: A systematic review,” in International conference on blended learning, Springer, 2022, pp. 135–146.

[6] E. L. E. Gandhi, V. Nguyen, and E. Lê Espiritu, The Routledge handbook of refugee narratives. Routledge London, 2023.

[7] A. Wijoyo and N. Cindy, “The Evaluation of Online Learning During the Covid-19 Pandemic Among the Accounting Students of Universitas Tarumanagara,” International Journal of Application on Economics and Business, vol. 1, no. 1, pp. 124–132, 2023.

[8] M. Jayamali, E. Ekanayake, K. M. C. Tharupath, K. D. N. Weerasinghe, H. L. Obeyesekara, and G. Y. Jayasinghe, “Fostering Sustainable University-Industry Techno-Entrepreneurial Collaborations and Innovations in Asian Universities,” in International Conference on Sustainable Development, Springer, 2024, pp. 41–54.

[9] Viciwati, “COMPARISON OF THE EFFECT OF E-LEARNING ON LEARNING OUTCOMES STUDENTS DEPARTMENT OF ENGINEERING AND MANAGEMENT MAJORING IN MERCU BUANA UNIVERSITY,” Dinasti International Journal of Management Science (DIJMS), 2021.

[10] P. M. Yolande and E. Irawaty, “Gambaran Efektivitas Tutor Problem-Based Learning (Pbl) Online Fakultas Kedokteran Universitas Tarumanagara,” Syntax Literate; Jurnal Ilmiah Indonesia, vol. 8, no. 5, pp. 3253–3271, 2023.

[11] M. Thahir, W. Widiawati, and N. Baitillah, “The post pandemic education: A blended learning approach for teaching and learning in higher education in new normal era,” International Journal of Ethno-Sciences and Education Research, vol. 3, no. 3, pp. 99–108, 2023.

[12] M. Mahmud and R. Koniyo, “Digitizing Education in Indonesia After,” in Proceedings of the Unima International Conference on Social Sciences and Humanities (UNICSSH 2022), Springer Nature, 2023, p. 265.

[13] J. Widner, M. Woolcock, and D. Nieto, “Using case studies to enhance the quality of explanation and implementation,” The case for case studies, pp. 1–26, 2022.

[14] F. Alele and B. Malau-Aduli, An introduction to research methods for undergraduate health profession students. James Cook University North Queensland, 2023.

[15] V.-M. Karhulahti, P. Branney, M. Siutila, and M. Syed, “A primer for choosing, designing and evaluating registered reports for qualitative methods,” Open Research Europe, vol. 3, p. 22, 2023.

[16] S. K. Ahmed et al., “Using thematic analysis in qualitative research,” Journal of Medicine, Surgery, and Public Health, vol. 6, p. 100198, 2025.

[17] J. Oranga, “Mixed methods research: application, advantages and challenges,” Journal of Accounting Research, Utility Finance and Digital Assets, vol. 3, no. 4, pp. 370–375, 2025.
[18] O. Ketsman, A. Droog, and S. Qazi, “Mapping the prevalence of mixed methods research in educational technology journals,” Comput Educ, vol. 226, p. 105207, 2025.