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What Drives Effective Teaching in Blended Learning? Evidence from Core Teaching Practices in Vietnamese Higher Education

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ABSTRACT: Blended learning has become an important mode of instruction in higher education, yet the teaching practices that most strongly shape overall teaching effectiveness in blended learning remain insufficiently understood. This study examines which dimensions of lecturer-reported teaching practices significantly predict overall teaching effectiveness in blended learning in Vietnamese higher education. Survey data were collected from 338 lecturers across four universities in Vietnam. The study investigated six dimensions of teaching practice: teaching objectives, teaching content, teaching methods, technology tools, instructional formats, and assessment practices. Descriptive statistics, reliability analysis, exploratory factor analysis, Pearson correlations, and multiple regression were employed. Most scales demonstrated acceptable to excellent internal consistency. The regression model was statistically significant and explained 66.9% of the variance in overall teaching effectiveness in blended learning. Assessment practices and teaching objectives emerged as the strongest predictors, followed by teaching content and teaching methods. In contrast, technology tools and instructional formats were not significant predictors in the full model. The findings suggest that overall teaching effectiveness in blended learning depends more on pedagogical design than on technology use alone.

Keywords: blended learning, teaching practices, overall teaching effectiveness, Vietnamese higher education.

ABSTRAK: *Pembelajaran bauran (*blended learning*) telah menjadi salah satu mode pembelajaran penting dalam pendidikan tinggi. Namun, praktik pengajaran yang paling kuat membentuk efektivitas pengajaran secara keseluruhan dalam pembelajaran bauran masih belum sepenuhnya dipahami. Penelitian ini mengkaji dimensi praktik pengajaran yang dilaporkan oleh dosen yang secara signifikan memprediksi efektivitas pengajaran secara keseluruhan dalam pembelajaran bauran di pendidikan tinggi Vietnam. Data survei dikumpulkan dari 338 dosen di empat universitas di Vietnam. Penelitian ini mengkaji enam dimensi praktik pengajaran, yaitu tujuan pembelajaran, konten pembelajaran, metode pengajaran, perangkat teknologi, format instruksional, dan praktik penilaian. Analisis yang digunakan meliputi statistik deskriptif, analisis reliabilitas, analisis faktor eksploratori, korelasi Pearson, dan regresi berganda. Sebagian besar skala menunjukkan konsistensi internal yang dapat diterima hingga sangat baik. Model regresi terbukti signifikan secara statistik dan mampu menjelaskan 66,9% varians efektivitas pengajaran secara keseluruhan dalam pembelajaran bauran. Praktik penilaian dan tujuan pembelajaran muncul sebagai prediktor terkuat, diikuti oleh konten pembelajaran dan metode pengajaran. Sebaliknya, perangkat teknologi dan format instruksional tidak menjadi prediktor yang signifikan dalam model penuh. Temuan ini menunjukkan bahwa efektivitas pengajaran secara keseluruhan dalam pembelajaran bauran lebih bergantung pada desain pedagogis daripada semata-mata pada penggunaan teknologi.*

Kata kunci: *efektivitas pengajaran secara keseluruhan, pembelajaran bauran, pendidikan tinggi Vietnam, praktik pengajaran.*

INTRODUCTION

Blended learning, commonly understood as the integration of face-to-face and online instruction, has become an increasingly prominent mode of teaching in higher education (Dziuban et al., 2018; Garrison & Vaughan, 2008; Graham, 2013). Its growing adoption reflects the appeal of a flexible, learner-centered model that extends classroom learning through digital tools and online environments, thereby creating greater opportunities for engagement, access, and competence development. At the same time, the expansion of blended learning has intensified a central pedagogical question: what actually shapes overall teaching effectiveness in blended learning environments?

The literature suggests that effective blended learning cannot be explained by technology alone. Meta-analytic evidence indicates that blended courses often show modest advantages over traditional face-to-face instruction, yet these gains are frequently confounded by additional instructional time, richer resources, and more interactive learning opportunities embedded within blended courses (Means et al., 2013). This implies that what matters is not merely the combination of online and face-to-face modes, but the pedagogical quality of the practices through which those modes are integrated. Garrison and Vaughan (2008) make this point explicitly in arguing that blended learning should be guided by sound pedagogy rather than by technology itself, particularly through the alignment of objectives, content, activities, and assessment. In a similar vein, Graham (2013) frames blended learning as an instructional design challenge rather than a purely technical arrangement.

This perspective is closely aligned with constructive alignment theory. Biggs and Tang (2011) argue that intended learning outcomes should guide the design of teaching and learning activities as well as assessment tasks, so that all course elements work together coherently. In blended learning settings, such alignment is especially important because teaching unfolds across multiple spaces, times, and media. Clear objectives establish the direction of learning; well-structured content supports coherence and accessibility; teaching methods shape how students engage with learning; technology tools and instructional formats mediate interaction and participation; and assessment practices provide evidence of learning while informing improvement through feedback. From this perspective, effective blended learning is best understood as a multidimensional pedagogical process rather than a technological add-on, a view that is consistent with systematic evidence showing that blended learning design must address challenges related to flexibility, interaction, learning processes, and affective climate (Boelens et al., 2017).

Prior research offers important guidance on why each of these dimensions may matter. Clear, competency-based objectives provide a basis for instructional alignment and help connect online and face-to-face components into a coherent learning experience (Biggs & Tang, 2011). Relevant, updated, band well-organized

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content supports coherence and accessibility across modes (Garrison & Vaughan, 2008), and blended courses that tailor content to learning outcomes have been associated with deeper student engagement (Means et al., 2013). Teaching methods such as active learning, collaboration, and problem-based approaches are likewise frequently recommended because they allow lecturers to use digital environments not only to deliver content but also to foster meaningful interaction (Garrison & Vaughan, 2008; Graham, 2013). Technology tools, including learning management systems and multimedia resources, can facilitate these processes, although Brown (2016) cautions that their educational value depends heavily on lecturers' beliefs, contextual conditions, and actual pedagogical use. Different instructional formats, such as synchronous face-to-face sessions and asynchronous online activities, may increase flexibility, but their value also depends on design rather than modality alone (Means et al., 2013). Assessment practices, finally, are especially critical in blended learning environments when they are aligned, transparent, and supportive of learning through feedback (Vaughan, 2015). Well-designed assessment not only engages students in goal-oriented learning but also provides lecturers with evidence of progress and areas needing improvement.

Despite this rich literature, an important gap remains. Much blended learning research focuses on technology use, institutional adoption, or student outcomes, while comparatively fewer studies isolate the teaching-practice dimensions that predict overall teaching effectiveness. Porter et al. (2014), for example, discuss institutional blended learning adoption in terms of awareness, adoption, and growth stages, but do not clarify which classroom practices are most consequential once blended learning has been implemented. Means et al. (2013) similarly suggest that course design matters because blended courses often involve more interaction and extended learning time, yet they do not identify the relative weight of specific pedagogical dimensions within a single explanatory model. As a result, although prior research clearly indicates that pedagogy matters, systematic evidence remains limited on which dimensions of teaching practice matter most when considered together.

This gap is particularly relevant in Vietnam. Recent studies in Vietnamese higher education highlight both the perceived benefits and the continuing challenges of blended learning. Dinh et al. (2024) show that university teachers generally perceive blended learning positively, yet also note that research on lecturers' practices remains limited. Le et al. (2022), focusing on English language lecturers at Vietnamese universities, identify substantial barriers and drawbacks in blended learning implementation, including inadequate technology and infrastructure, limited institutional support, insufficient technological competence, and workload-related constraints. Cao (2023) likewise reports that, although lecturers and students value the use of LMS in blended courses for organization, flexibility, and engagement, they also face challenges related to technical issues, digital skills, and the pedagogical use of e-learning tools. Together, these studies suggest that the quality of blenda learning in Vietnamese

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universities depends not simply on access to technology, but on how lecturers organize, align, and enact teaching practices in context.

Against this background, the present study asks which core teaching-practice dimensions most strongly predict overall teaching effectiveness in blended learning. More specifically, it examines the relative contribution of six dimensions – teaching objectives, content, methods, technology tools, instructional formats, and assessment practices – to lecturers' overall teaching effectiveness in blended learning. Building on this rationale, the study pursues four objectives. First, it measures lecturers' frequency of implementing these six teaching-practice dimensions in blended courses. Second, it examines overall teaching effectiveness in blended learning, as reported by lecturers. Third, it uses multiple regression to test which dimensions significantly predict overall effectiveness. Fourth, it compares the relative strength of these predictors in order to identify the dimensions that matter most.

To address this issue, the study analyzes survey data from Vietnamese university lecturers on their blended teaching practices and perceived effectiveness. Using regression modelling, it examines how frequently lecturers report implementing each of the six dimensions and tests the unique contribution of each dimension to overall teaching effectiveness in blended learning. In doing so, it shifts attention from technology adoption to pedagogical design, in line with calls to understand blended learning as a pedagogical model rather than merely a technological arrangement (Graham, 2013; Porter et al., 2014). Drawing on constructive alignment theory and empirical work on blended pedagogy (Biggs & Tang, 2011; Brown, 2016), the study proceeds from the expectation that pedagogical dimensions – particularly clearly articulated objectives and aligned assessment practices – will emerge as stronger predictors of effectiveness than purely technological or structural factors. Other dimensions, such as content and methods, are also expected to contribute, though perhaps more modestly, whereas the direct effects of technology tools and instructional formats may be weaker once pedagogical alignment is taken into account.

By focusing on lecturer-reported practices in a Vietnamese higher-education context, this study contributes empirical evidence on what most strongly drives effective teaching in blended learning. In doing so, it responds to calls to move beyond assumptions about technology and instead highlights the pedagogical core of blended learning. The findings are expected to contribute both to theory, by testing the explanatory value of key teaching-practice dimensions, and to practice, by helping guide lecturer development and course design toward the most impactful elements of blended teaching.

METHODs

Research Design

This study employed a quantitative cross-sectional survey design to examine which core teaching-practice dimensions significantly predict overall teaching effectiveness in blended learning. This design was considered appropriate because the study aimed to measure lecturers' reported teaching practices and to test their

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relative contribution to this outcome through statistical modelling. The study focused on six dimensions of teaching practice in blended learning: teaching objectives, teaching content, teaching methods, technology tools, instructional formats, and assessment practices. Each dimension was measured using two parallel five-point Likert scales: one assessing the frequency of implementation and the other assessing perceived effectiveness. For each effectiveness dimension, a composite score was first computed by averaging its corresponding items. Overall teaching effectiveness in blended learning was then calculated as the arithmetic mean of the six effectiveness dimension scores, namely teaching objectives, teaching content, teaching methods, technology tools, instructional formats, and assessment practices. No weighting procedure or latent factor score was applied. Equal weighting was used because all six dimensions were measured on the same five-point Likert scale and were conceptually derived from the same framework of blended teaching practice. The resulting overall teaching effectiveness score was used as the dependent variable in the regression model.

Participants and Data Source

The target population comprised university lecturers and academic managers involved in blended learning implementation in Vietnamese higher education. A purposive sampling strategy was used because the study specifically targeted respondents who had teaching or management experience related to blended learning. Participants were eligible if they were working at one of the four participating universities and had experience with or involvement in blended learning implementation. The final sample consisted of 338 valid responses from four universities in Vietnam. Data were collected in March 2025. To preserve institutional anonymity, the participating institutions are coded as University A, University B, University C, and University D. Because the questionnaire was distributed through institutional contact channels and the total number of invited lecturers could not be precisely verified, an exact response rate could not be calculated. The sample size was considered adequate for multiple regression with six predictors because it exceeded the recommended minimum of $N \geq 50 + 8m$, where m is the number of predictors (Green, 1991). Respondent characteristics are presented in Table 1.

Table 1. Respondent profile

Characteristic	Category	N (%)
Gender	Male	161 (47.6)
	Female	177 (52.4)
Academic degree	Doctoral degree	177 (52.4)
	Master's degree	161 (47.6)
Management role	Management staff	59 (17.5)
	Lecturer	279 (82.5)
University	University A	106 (31.4)
	University B	97 (28.7)

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Characteristic	Category	N (%)
	University C	100 (29.6)
	University D	35 (10.4)

Instrument and Data Collection

Data were collected using a structured questionnaire administered to lecturers and academic managers. For the purposes of the present study, the analysis focused on six process-related dimensions of blended teaching practice: teaching objectives, teaching content, teaching methods, technology tools, instructional formats, and assessment practices. Across the six dimensions, the instrument comprised 42 items measuring frequency of implementation and a parallel set of 42 items measuring reported effectiveness. Responses were recorded on five-point Likert scales. The six dimensions and their corresponding items were then aggregated into composite variables for statistical analysis.

Data Analysis

The data were analysed using IBM SPSS Statistics 27.0. The analytical procedure comprised five stages. First, descriptive statistics were used to summarize respondent characteristics and the distribution of the study variables. Second, the internal consistency reliability of the study scales was assessed using Cronbach's alpha. Rather than applying a rigid cut-off, alpha coefficients were interpreted in line with methodological guidance suggesting that values around .70 or above are generally desirable, while somewhat lower coefficients may still be acceptable in exploratory educational research or in broader constructs (Taber, 2018; Tavakol & Dennick, 2011). On this basis, the scales in the present study were interpreted as demonstrating acceptable to excellent internal consistency. The lowest coefficient was observed for the effectiveness scale of teaching methods (α = .677), which was slightly below .70 and is therefore acknowledged as a limitation.

Third, exploratory factor analysis was conducted separately for the frequency and effectiveness scales using Principal Component Analysis with Varimax rotation, following common EFA reporting guidance (Watkins, 2018). Components with eigenvalues greater than 1 were retained, and factor loadings below .40 were suppressed. The frequency scale showed good factorability, KMO = .877, Bartlett's test of sphericity, $\chi^2(861) = 11898.156$, $p < .001$. Eight components were extracted and explained 73.684% of the total variance. The effectiveness scale also showed good factorability, KMO = .888, Bartlett's test of sphericity, $\chi^2(861) = 10853.621$, $p < .001$. Eight components were extracted and explained 70.504% of the total variance. The rotated component matrices showed that most items loaded strongly on theoretically meaningful dimensions. Some teaching-method items formed smaller empirical subcomponents, suggesting that this dimension may include multiple pedagogical sub-practices. Because the six teaching-practice dimensions were theoretically defined and demonstrated acceptable reliability, the six composite variables were retained for the main regression analysis.

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Fourth, common method bias was examined because the study relied on self-reported data collected from the same respondents (Podsakoff et al., 2003). Harman's single-factor test was conducted using all 84 measurement items. The first unrotated factor accounted for 12.562% of the total variance, which was below the commonly used 50% threshold, suggesting that common method bias was unlikely to substantially affect the findings.

Finally, composite mean scores were computed for the six teaching-practice dimensions under both the frequency and effectiveness scales. Pearson correlation analysis was conducted to examine bivariate relationships among the variables, and multiple regression analysis was performed to test the unique contribution of each teaching-practice dimension to overall teaching effectiveness in blended learning. Prior to interpreting the regression model, multicollinearity, independence of errors, residual normality, homoscedasticity, and influential outliers were examined.

Table 2. Reliability and exploratory factor analysis results of the study scales

Scales	Dimensions	Items	Cronbach's α	KMO	Sig.	Extracted variance (%)
Frequency	Teaching objectives	6	.966	.877	< .001	73.684
	Teaching content	7	.841			
	Teaching methods	10	.770			
	Technology tools	9	.953			
	Instructional formats	4	.922			
	Assessment practices	6	.969			
Effectiveness	Teaching objectives	6	.965	.888	< .001	70.504
	Teaching content	7	.838			
	Teaching methods	10	.677			
	Technology tools	9	.957			
	Instructional formats	4	.916			
	Assessment practices	6	.967			

Note. *PCA with Varimax rotation was conducted separately for the frequency and effectiveness scales. Components with eigenvalues greater than 1 were retained, and factor loadings below .40 were suppressed. Based on this criterion, eight components were extracted for the frequency scale and eight components for the effectiveness scale, explaining 73.684% and 70.504% of the total variance, respectively. The six theoretically defined composite variables were retained for the main regression analysis.*

RESULTS AND DISCUSSION

Descriptive Results for Core Teaching Practices

Table 3 presents the descriptive statistics for the six core teaching dimensions in blended learning under the Frequency and Effectiveness scales. Under the Frequency scale, the highest mean was recorded for teaching content (M = 4.16, SD = 0.63), followed by instructional formats (M = 4.09, SD = 0.77) and technology tools (M = 4.05, SD = 0.74). By contrast, the lowest mean scores were found for teaching objectives (M = 3.08, SD = 1.24) and assessment practices (M = 3.14, SD = 1.26). A similar pattern appeared under the Effectiveness scale. The highest mean was again reported for teaching content (M = 4.14, SD = 0.62),

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followed by instructional formats (M = 4.11, SD = 0.75) and technology tools (M = 4.08, SD = 0.75), whereas teaching objectives (M = 3.06, SD = 1.25) and assessment practices (M = 3.14, SD = 1.25) received the lowest ratings. Overall, lecturers tended to report relatively high levels of both implementation frequency and reported effectiveness for content, instructional formats, and technology tools, while objectives and assessment were rated more moderately.

Table 3. Descriptive statistics of teaching dimensions

Scales	Dimensions	Mean (M)	Std. Deviation (SD)
Frequency	Teaching objectives	3.08	1.24
	Teaching content	4.16	0.63
	Teaching methods	3.83	0.41
	Technology tools	4.05	0.74
	Instructional formats	4.09	0.77
	Assessment practices	3.14	1.26
Effectiveness	Teaching objectives	3.06	1.25
	Teaching content	4.14	0.62
	Teaching methods	3.81	0.43
	Technology tools	4.08	0.75
	Instructional formats	4.11	0.75
	Assessment practices	3.14	1.25

Correlations Among Core Teaching Practices and Overall Teaching Effectiveness

Pearson correlation analysis was conducted to examine the relationships between the six frequency-based teaching dimensions and overall teaching effectiveness in blended learning. As shown in Table 4, overall teaching effectiveness in blended learning was positively and significantly correlated with assessment practices ($r = .567$, $p < .001$) and teaching objectives ($r = .554$, $p < .001$). A weaker but still statistically significant positive relationship was found for teaching content ($r = .236$, $p < .001$). By contrast, the correlations between overall teaching effectiveness and teaching methods ($r = .028$, $p = .610$), technology tools ($r = .031$, $p = .565$), and instructional formats ($r = -.094$, $p = .086$) were not statistically significant. The intercorrelations among the six frequency-based dimensions were generally small, suggesting that they represented relatively distinct aspects of blended teaching practice.

Table 4. Correlations between frequency-based teaching dimensions and overall teaching effectiveness in blended learning

Dimensions	1	2	3	4	5	6	7
1. Teaching objectives	1						
2. Teaching content	.050	1					
3. Teaching methods	-.015	-.044	1				
4. Technology tools	-.015	.029	-.081	1			
5. Instructional formats	-.034	-.015	.118*	.012	1		

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Dimensions	1	2	3	4	5	6	7
6. Assessment practices	.019	.002	-.056	.037	-.054	1	
7. Overall teaching effectiveness in blended learning	.554**	.236**	.028	.031	-.094	.567**	1

***Note**. The table reports the lower triangle of Pearson correlation coefficients. *p < .05; **p < .01. Overall teaching effectiveness in blended learning was computed from the mean of the six Effectiveness dimensions.*

Regression Results

Prior to interpreting the regression model, key assumptions were examined. Multicollinearity was not a concern, with tolerance values ranging from .975 to .996 and VIF values ranging from 1.004 to 1.025. The Durbin-Watson statistic was 2.045, indicating independence of errors. Visual inspection of the histogram, normal P-P plot, and standardized residual scatterplot indicated no substantial violations of residual normality or homoscedasticity. Outlier diagnostics also suggested no influential cases, as standardized residuals ranged from -2.827 to 2.458 and Cook's distance values were well below 1.0, with a maximum value of .035.

To determine which core teaching dimensions most strongly predict overall teaching effectiveness, a multiple regression analysis was performed with the six frequency-based teaching dimensions entered simultaneously as predictors of overall teaching effectiveness in blended learning. The model was statistically significant, $F(6, 331) = 111.281$, $p < .001$, and explained 66.9% of the variance in the dependent variable ($R^2 = .669$, adjusted $R^2 = .663$). As shown in Table 5, assessment practices emerged as the strongest predictor of overall teaching effectiveness in blended learning ($\beta = .557$, $t = 17.552$, $p < .001$), followed closely by teaching objectives ($\beta = .532$, $t = 16.785$, $p < .001$). Teaching content also made a significant positive contribution ($\beta = .211$, $t = 6.661$, $p < .001$), and teaching methods showed a smaller but still statistically significant effect ($\beta = .084$, $t = 2.624$, $p = .009$). In contrast, technology tools ($\beta = .020$, $t = 0.632$, $p = .528$) and instructional formats ($\beta = -.053$, $t = -1.649$, $p = .100$) did not significantly predict overall teaching effectiveness in blended learning in the full model. Taken together, these findings indicate that effective teaching in blended learning was driven primarily by assessment practices and teaching objectives, followed by teaching content and teaching methods, whereas technology tools and instructional formats did not make significant unique contributions once the pedagogical dimensions were considered simultaneously.

Table 5. Regression results for frequency-based teaching dimensions predicting overall teaching effectiveness in blended learning

Predictors	β	t	p
Teaching objectives	.532	16.785	< .001
Teaching content	.211	6.661	< .001
Teaching methods	.084	2.624	.009
Technology tools	.020	0.632	.528

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Predictors	β	t	p
Instructional formats	-.053	-1.649	.100
Assessment practices	.557	17.552	< .001

Note. *Dependent variable: overall teaching effectiveness in blended learning, computed from the mean of the six Effectiveness dimensions.*
Model fit: *$R^2 = .669$, adjusted $R^2 = .663$, $F(6, 331) = 111.281$, $p < .001$.*

Discussion

Pedagogical Alignment as the Core Explanatory Mechanism

The findings of this study indicate that effective teaching in blended learning is driven primarily by pedagogical alignment rather than by the mere use of technology or flexible delivery formats. Among the six frequency-based teaching dimensions examined, assessment practices and teaching objectives emerged as the two strongest predictors of overall teaching effectiveness in blended learning, followed by teaching content and teaching methods. In contrast, technology tools and instructional formats did not make significant unique contributions once the pedagogical dimensions were considered simultaneously. This pattern suggests that blended learning effectiveness is not determined simply by whether lecturers use digital platforms or combine online and face-to-face formats, but by whether the course is pedagogically coherent, goal-oriented, and assessment-supported.

This finding is consistent with the logic of constructive alignment, which emphasizes coherence among intended learning outcomes, teaching-learning activities, and assessment tasks (Biggs & Tang, 2011). In blended learning, such alignment is particularly important because students must navigate different learning spaces, technologies, schedules, and interaction modes. Without clearly articulated objectives and aligned assessment evidence, blended courses may become fragmented even when technological infrastructure is available. Recent blended-learning research similarly suggests that the effectiveness of blended learning depends on instructional design quality, meaningful integration of learning activities, and alignment between pedagogical intentions and digital affordances rather than on technological adoption alone (Anthony Jr et al., 2019; Bizami et al., 2023; Istenič, 2024).

The significant but smaller effects of teaching content and teaching methods further support this interpretation. Content and methods remain important, but their unique contribution appears more limited once objectives and assessment are included in the same model. One possible explanation is that content and methods become effective when they are selected, sequenced, and enacted in relation to clearly defined learning objectives and assessment criteria. In other words, what is taught and how it is taught matter most when they are embedded within a coherent instructional design. This interpretation is aligned with recent systematic reviews showing that effective blended-learning designs often involve structured engagement, active learning, learning communities, peer assessment, and repeated opportunities for feedback rather than isolated

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variation in teaching methods (De Bruijn-Smolders & Prinsen, 2024; Sareen & Mandal, 2024).

Assessment and teaching objectives as central drivers of effectiveness

The strongest role of assessment practices is theoretically and practically important. In contemporary higher education, assessment is no longer understood only as a mechanism for measuring learning at the end of a course. It is increasingly viewed as a central pedagogical process that clarifies standards, directs student attention, generates feedback, supports self-regulation, and shapes how students engage with learning tasks. Systematic reviews have shown that formative assessment and feedback can support learning when they are integrated into teaching processes and used to help students understand quality, monitor progress, and improve subsequent performance (Ibarra-Sáiz et al., 2021; Morris et al., 2021).

In the context of blended learning, the importance of assessment becomes even stronger. Students are required to move between classroom interaction, online resources, independent tasks, and digital communication. Assessment practices help connect these spaces by making learning expectations visible and by providing evidence of progress. Heil and Ifenthaler's (2023) systematic review of online assessment in higher education highlights the importance of assessment design, feedback, and learner monitoring in digital learning environments. Lu and Cutumisu (2022) further show that online formative assessment performance can mediate the relationship between engagement and academic performance in technology-enhanced courses. Therefore, the strong predictive role of assessment practices in the present study suggests that lecturers perceived blended teaching as more effective when assessment was not an isolated endpoint, but a recurring instructional mechanism that connected learning activities across online and face-to-face components.

Teaching objectives were almost equally influential. This finding is important because clear objectives provide the organizing logic for blended learning. In traditional classroom teaching, unclear objectives may already weaken teaching coherence; in blended learning, the problem becomes more serious because students must make sense of learning across multiple platforms, modalities, and learning sequences. Clear objectives help students understand what they are expected to achieve, why specific online and face-to-face activities are included, and how success will be evaluated. Recent research in Vietnam shows that imprecise learning outcomes can create ambiguity and weaken the alignment between teaching and assessment in higher education programs (Dang & Pham, 2024). At the broader program level, Charlton and Newsham-West (2024) also emphasize that assessment should be organized around coherent learning outcomes to support a more connected learning experience.

When considered together, the strong effects of assessment practices and teaching objectives suggest that these two dimensions form the central architecture of effective blended teaching. Objectives define the intended learning destination, while assessment provides evidence of whether and how

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students are progressing toward that destination. This finding contributes to blended-learning research by showing empirically that lecturers' reported overall teaching effectiveness in blended learning is most strongly associated with the frequency of goal clarification and assessment enactment, rather than with technology use alone. It also provides practical evidence that course design in blended learning should begin not with the question of which platform to use, but with what students should learn and how their learning will be assessed and supported.

Technology tools and instructional formats as enabling conditions rather than direct predictors

The non-significant effects of technology tools and instructional formats do not imply that these dimensions are unimportant. Rather, they suggest that technology and format may function as enabling conditions rather than direct drivers of effectiveness. Their contribution may operate indirectly through more proximal pedagogical mechanisms such as assessment quality, feedback, student engagement, teaching presence, learner autonomy, and the alignment between online and face-to-face activities. Future studies should therefore examine mediation models to test whether technology tools and instructional formats influence overall teaching effectiveness in blended learning through these pedagogical pathways.

This interpretation is consistent with recent research on technology-enhanced and blended learning. Bizami et al. (2023) argue that the educational value of digital tools depends on the alignment between technological affordances and pedagogical principles. Chiu (2021) similarly demonstrates that digital support contributes to student engagement when it supports autonomy, competence, and relatedness, rather than when it is used as a neutral technical add-on. Thus, digital tools become educationally meaningful only when they support clear objectives, interaction, formative feedback, and student regulation. This helps explain why technology tools were not a significant direct predictor in the present model: their effect may be mediated through more proximal pedagogical practices, especially assessment, feedback, and learning design.

The same logic applies to instructional formats. Online, face-to-face, synchronous, asynchronous, and hybrid formats can increase flexibility and access, but format alone does not determine learning quality. Recent reviews of hybrid and blended learning identify challenges such as passive learning, communication difficulties, limited interaction, assessment complexity, insufficient teacher training, and weak instructional design (Gudoniene et al., 2025; Sareen & Mandal, 2024). Therefore, the non-significant role of instructional formats in this study should not be read as a rejection of blended or hybrid formats. Instead, it suggests that formats are pedagogically productive only when they are used to support coherent learning sequences, meaningful activities, and assessment-feedback cycles.

This finding has an important implication for institutional reform. Universities should avoid evaluating blended learning quality mainly through

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visible indicators such as the number of online sessions, the presence of a learning management system, or the use of digital tools. These indicators may show that blended learning is being implemented, but they do not necessarily show that it is pedagogically effective. The results of this study suggest that quality assurance in blended learning should focus more strongly on whether technologies and formats are used to support learning objectives, content organization, active teaching methods, and assessment practices. This position is consistent with recent literature emphasizing that blended learning should be evaluated as a pedagogical design problem rather than a technological delivery problem (Anthony Jr et al., 2019; De Bruijn-Smolders & Prinsen, 2024; Istenič, 2024).

Implications for Blended-Learning Design in Vietnamese Higher Education

One important implication concerns lecturer professional development. Training for blended learning should move beyond technical instruction on how to operate learning management systems, video-conferencing platforms, or digital assessment tools. Although such technical training remains necessary, the results suggest that professional development should prioritize constructive alignment, assessment literacy, feedback design, and outcome-based course planning. This is particularly important because assessment practices and teaching objectives were the strongest predictors of overall teaching effectiveness. Similar concerns have been raised in recent blended-learning reviews, which show that weak pedagogical design and insufficient teacher preparation remain major barriers to effective blended and hybrid learning implementation (Gudoniene et al., 2025; Sareen & Mandal, 2024).

At the course-design level, blended learning should begin with clear and measurable teaching objectives. These objectives should guide the selection of content, teaching methods, learning activities, and assessment tasks. This is especially relevant in Vietnamese higher education, where outcome-based education, quality assurance, and digital transformation have increasingly shaped institutional expectations. Dang and Pham's (2024) study in a Vietnamese university shows that unclear or imprecise learning outcomes may weaken assessment alignment. The present study extends this concern by showing that teaching objectives are not merely formal curriculum statements; they are empirically linked to overall teaching effectiveness in blended learning, as reported by lecturers.

Assessment design is another central implication. Rather than treating assessment as a final evaluative event, lecturers should integrate low-stakes quizzes, rubric-based assignments, peer assessment, draft feedback, reflective checkpoints, and formative tasks across both online and face-to-face components. Recent research on technology-supported peer assessment suggests that peer evaluation, rubrics, and required feedback comments can support students' self-regulated learning in digital learning environments (Ortega-Ruipérez & Correa-Gorospe, 2024). Such practices are especially suitable for blended learning because they help connect learning activities across different spaces and times.

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At the institutional level, quality assurance should focus more on pedagogical coherence than on technology adoption alone. Universities should examine whether course objectives are explicit, assessment tasks are aligned, feedback is timely, and online activities contribute meaningfully to learning outcomes. This approach is consistent with Charlton and Newsham-West's (2024) argument that assessment should be designed coherently across learning experiences rather than treated as isolated course tasks. It also responds to recent reviews showing that blended and hybrid learning often face challenges not because of technology itself, but because of weak pedagogical design, insufficient training, and limited institutional support (Gudoniene et al., 2025; Sareen & Mandal, 2024).

Collectively, these implications suggest that Vietnamese universities should invest not only in digital infrastructure but also in instructional design support. Technology investment is necessary, but its impact may remain limited if lecturers are not supported in designing coherent blended courses. Institutional support teams should include expertise in assessment design, learning outcomes, digital pedagogy, and course evaluation. This would help shift blended-learning implementation from a tool-centered model toward a learning-centered model.

Limitations and Future Research

Several limitations should be acknowledged. The first concerns the study design. Because this study used a cross-sectional survey design, causal claims cannot be made. Although frequency-based teaching dimensions significantly predicted overall teaching effectiveness in blended learning, the results should be interpreted as associations rather than as evidence of direct causality. Future longitudinal or experimental studies could examine whether improvements in assessment design or teaching-objective clarity lead to measurable gains in overall teaching effectiveness in blended learning over time.

A further limitation is the reliance on lecturer-reported data. Although Harman's single-factor test suggested that common method bias was unlikely to be severe, the use of self-reported data from the same respondent group remains a methodological limitation and may not fully capture students' experiences or actual learning outcomes. The findings should therefore be understood as evidence of how lecturers' reported teaching practices are associated with their reported overall teaching effectiveness in blended learning, rather than as direct evidence of observed classroom quality or student achievement. Future research should combine lecturer surveys with student feedback, interviews, classroom observations, learning management system analytics, and student performance data to provide a more comprehensive assessment of overall teaching effectiveness in blended learning.

Although most scales demonstrated acceptable to excellent reliability, the effectiveness scale for teaching methods had a Cronbach's α of .677, slightly below the commonly preferred .70 threshold. This may reflect the broad and heterogeneous nature of teaching methods in blended learning. Therefore, findings related to this dimension should be interpreted with some caution.

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Another issue concerns the distinction between frequency and quality. This study measured how frequently lecturers reported implementing core teaching practices, but it did not directly measure the quality of enactment. A teaching practice may be implemented frequently but still be pedagogically weak. This limitation is especially relevant for technology tools and instructional formats, whose non-significant effects may reflect the distinction between frequency of use and quality of integration. Future studies should therefore distinguish between how often a practice is used and how well it is designed and implemented.

The dependent variable also deserves further refinement. Overall teaching effectiveness in blended learning was measured as a broad lecturer-reported outcome. Although this is appropriate for examining lecturer perceptions, future research should test more specific outcomes such as student engagement, self-regulated learning, academic achievement, retention, and competency development. Recent systematic reviews suggest that blended learning can support multiple dimensions of engagement and learning outcomes, but these effects depend strongly on design quality, assessment integration, and contextual conditions (De Bruijn-Smolders & Prinsen, 2024; Istenič, 2024).

Future studies should also examine indirect and interaction effects. Technology tools and instructional formats may not directly predict overall teaching effectiveness in blended learning, but they may influence effectiveness through mediators such as engagement, feedback quality, teaching presence, learner autonomy, or assessment participation. For example, digital tools may support effectiveness when they strengthen formative assessment or improve communication, rather than when they are used merely as delivery mechanisms. Testing such mediation models would provide a more nuanced understanding of how blended learning works in Vietnamese higher education and comparable contexts. Such work would also extend current blended-learning research by moving beyond whether technology is used toward how technology becomes pedagogically meaningful through design, assessment, and interaction (Bizami et al., 2023; Chiu, 2021; Heil & Ifenthaler, 2023).

CONCLUSION

This study examined which dimensions of lecturer-reported teaching practices most strongly predict overall teaching effectiveness in blended learning in Vietnamese higher education. In line with the research objectives, the study measured lecturers' frequency of implementing six core teaching-practice dimensions, examined overall teaching effectiveness in blended learning as reported by lecturers, and tested the relative contribution of these dimensions through correlation and multiple regression analyses. The results showed that the regression model was statistically significant and explained a substantial proportion of the variance in overall teaching effectiveness in blended learning. Among the six dimensions, assessment practices and teaching objectives emerged as the strongest predictors, followed by teaching content and teaching methods.

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By contrast, technology tools and instructional formats were not significant predictors in the full model.

The findings point to a central conclusion: instructional effectiveness in blended learning is driven more by pedagogical design and alignment than by technology use or delivery format alone. Although digital tools and flexible formats are important conditions for implementation, they do not automatically produce effective teaching. What appears to matter more is whether lecturers clearly define learning objectives, organize meaningful content, apply appropriate teaching methods, and integrate assessment practices that make learning progress visible. In this sense, blended learning should not be understood merely as a technological or structural arrangement, but as a pedagogical model that requires coherent alignment among objectives, content, methods, tools, formats, and assessment.

A key contribution of this study is its empirical evidence from Vietnamese higher education showing that assessment practices and teaching objectives form the core architecture of effective blended teaching. Assessment practices help connect online and face-to-face learning spaces by clarifying standards, generating feedback, and supporting students' monitoring of learning progress. Teaching objectives, in turn, provide direction for course design and help students understand the purpose of learning activities and assessment tasks. Together, these two dimensions appear to play a stronger role than technology-related or format-related factors in shaping overall teaching effectiveness in blended learning.

The study also offers important implications for universities and lecturers. Professional development for blended learning should move beyond technical training on platforms and digital tools. Greater attention should be given to constructive alignment, assessment literacy, feedback design, and outcome-based course planning. At the institutional level, quality assurance should not rely only on indicators such as the use of learning management systems or the number of online sessions. Instead, it should examine whether blended courses are designed around clear objectives, aligned assessment tasks, coherent content, meaningful teaching methods, and timely feedback.

Overall, this study contributes to the growing literature on blended learning by shifting attention from technology adoption to the pedagogical practices that most strongly shape overall teaching effectiveness in blended learning. Its findings are particularly relevant for higher education systems seeking to improve blended learning beyond emergency or surface-level digitalization. Future research should build on these findings by using longitudinal, mixed-method, or multi-source designs to examine how the quality, not only the frequency, of teaching practices affects student engagement, learning outcomes, and competency development in blended learning environments.

DECLARATIONS

Conflicts of Interest

The authors declare no conflict of interest.

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