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Is English Teaching and Learning Effective through Blended Approach in Bangladesh? An Empirical Study

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Abstract: This empirical study identifies important elements impacting the deployment of blended learning and investigates its efficacy in English teaching throughout Bangladesh. Correlation analysis showed that usage frequency, teaching experience, and participant categorization all had a substantial impact on how successful blended learning was regarded, with younger or less experienced instructors showing superior conceptual knowledge. Regression analysis revealed that while skill improvement alone was not a significant predictor, knowledge of blended learning was significantly correlated with active involvement, institutional support, and teacher engagement. A thorough, multifaceted strategy is necessary for blended English language training in Bangladesh to be successful, according to the findings. The basis must be a strong digital infrastructure, first and foremost. This has to be followed by consistent funding for teacher preparation, student assistance programs, better internet access, and the thoughtful integration of cutting-edge technology like machine learning. It

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will need concerted efforts from legislators, schools, IT companies, and community stakeholders to accomplish these objectives. Blended learning in Bangladesh cannot develop into an inclusive, long-lasting, and significant educational paradigm without such cooperation. According to the study's findings, a comprehensive and inclusive strategy is necessary for long-term success. This strategy combines innovations in education delivery, pedagogical training, institutional support, learner support, and technology advancements to guarantee fair and efficient blended English instruction in Bangladesh.

Keywords: Blended Learning, Multifaceted, Digital Infrastructure, Inclusive Strategy, Pedagogical Training.

Introduction

Blended learning, which blends traditional in-person instruction with online resources, has emerged as a game-changing method in education, especially in the field of English language teaching (ELT). It is recognized for improving academic performance, critical thinking, and student involvement (Hafeez, 2021 & Sejdiu, 2014). When the COVID-19 epidemic forced a switch to online schooling, blended learning's uptake in Bangladesh surged (Hossen, 2023; Chowdhury & Behak, 2022). However, issues including poor digital infrastructure, a lack of teacher preparation, and uneven internet access make it difficult for blended learning to be implemented in Bangladeshi educational institutions (Ashraf et al., 2021; Rabbi et al., 2024 & Khan et al., 2020). Prior studies have emphasized the advantages and challenges of blended learning in Bangladesh. Although blended learning provides flexibility, research indicates that faculty skill shortages and infrastructure constraints impede its adoption

(Mitra et al., 2023). Fostering cooperation and cognitive growth also requires a student-centered approach (Islam, 2022). According to international research, these conclusions are supported by the fact that effective teacher preparation and technology integration can enhance language learning results (Kamble, 2022 and Kumar et al., 2021). The usefulness of blended learning for ELT in Bangladesh has not been empirically studied, despite the rising corpus of research. In order to close this gap, this research assessed important elements including teacher preparation, digital infrastructure, and cutting-edge technologies like machine learning. The results will be useful for educators and policymakers.

Statement of the Problem

Although blended learning techniques are becoming more popular worldwide in English language instruction, Bangladesh still has a lot of trouble putting this concept into practice. Even though prior research has emphasized the potential advantages of blended learning, such as increased student involvement, better learning outcomes, and the development of vital digital skills, there is still a significant knowledge vacuum regarding the effects of blended learning on English instruction and learning in Bangladesh. The successful use of blended techniques is seriously hampered by a number of factors, including inadequate pedagogical models, digital disparities, inadequate teacher preparation, a lack of institutional support, and infrastructure constraints. Additionally, there is a paucity of empirical data assessing the efficacy of blended English instruction in Bangladesh across a range of institutional and demographic contexts. This study aims to determine the key elements that either support or undermine the effectiveness of blended learning and teaching of English in Bangladesh.

Objectives of the Study

The main objective of this study is to evaluate how effective blended learning techniques are for teaching and learning English in Bangladesh.

Additional objectives are:

a) To determine the main infrastructural, pedagogical, and technical aspects of blended English learning. Then, investigate how teacher preparation, student services, and institutional support improve results.

b) To evaluate how digital infrastructure and internet connectivity affect fair blended learning, and investigate how cutting-edge technologies like machine learning may be used to tailor English education.

c) To provide useful tactics those politicians, institutions, and teachers may use to maximize blended English instruction throughout Bangladesh.

Review of the Earlier Literature

Blended Learning's Efficacy in Raising Learning Outcomes

Academic performance, critical thinking, and student happiness have all been shown to improve with blended learning in a variety of educational contexts. Research by Hafeez (2021), Ma and Lee (2021), and Ashraf et al. (2021) shows that blended learning is more successful than entirely online or conventional methods in encouraging active engagement and improving student results. They showed through experimental approaches that mixed formats greatly increase pleasure, confidence, and attentiveness. Similar findings were made by Kassem (2020), who highlighted the model's emotional and cognitive advantages by finding that students in blended

learning contexts had more positive attitudes and less academic stress than those in traditional settings. Additionally, the use of ICT tools in mixed frameworks has been shown to enhance student comprehension and learning quality (Kamble, 2022; Salleh, 2017). These results promote better teaching and assessment practices, as demonstrated by Sejdiu (2014), who demonstrated enhanced engagement and efficacy in English language acquisition using blended education.

Views of Teachers and Students on Blended Learning

The successful implementation of blended learning depends on the perceptions of both teachers and students. According to Kumar et al. (2021), blended learning is popular across all educational levels and enhances student capacities. Bangladeshi university students had overwhelmingly positive experiences, citing benefits including enhanced teacher feedback, improved peer connections, and more flexible study schedules (Chowdhury and Behak, 2022). Mitra et al. (2023) and Islam (2022) highlighted that although educators acknowledge the pedagogical benefits of blended learning, they still encounter obstacles such as heightened workloads and inadequate digital proficiency. Particularly in poorer nations where infrastructure and capacity may fall behind technological promise, these perspectives highlight the larger need for institutional support and training.

Innovations and Pedagogical Models in Blended Learning

For blended learning to be optimized, innovative pedagogical approaches are essential. Islam (2022) suggested a three-phase interaction model that combines synchronous, asynchronous, and online modalities to promote cooperation and cognitive growth. A modified methodology that incorporates machine

learning to promote outcome-based education was also presented by Mitra et al. (2023) for the Bangladeshi setting. These contributions are further supported by Hrastinski (2019), who frames blended learning as a pedagogical approach rather than a mode of delivery. His theoretical observations support the empirical results of research such as Ma and Lee (2021) by highlighting the significance of deliberate design in fostering learner autonomy and sustained engagement.

Implementation Issues and Situational Barriers

Even with its advantages, blended learning adoption is hampered by several obstacles. Persistent problems impacting both instructors and pupils include inadequate ICT skills, inadequate infrastructure, and a lack of institutional support, according to Ashraf et al. (2021) and Al-Mekhlafi and Al-Mahrooqi (2016). Hossen (2023) echoes these results by pointing out comparable challenges in the Bangladeshi setting and stressing the necessity of fair access to technology. Furthermore, even after curricular modifications, Jiang and Li (2012) discovered that applying blended learning models in university English instruction is still challenging because of systemic and practical limitations. These restrictions imply that more extensive legislative changes and professional growth are required to support successful blended learning.

Blended Learning in teaching English

English language training might benefit greatly from blended learning, particularly in settings with limited resources. Rabbi et al. (2024), Hossen (2023), and Sejdiu (2014) all highlighted how incorporating technology into language classes may increase student competency, foster inclusivity, and close the digital divide. These studies demonstrate how adaptation is supported and critical skills for a globalized environment are developed when traditional education and digital resources are

combined. Rahman (2019) also emphasized the ways in which mixed learning settings support the development of cognitive abilities and problem-solving skills, both of which are critical for language learning. The significance of digital integration and pedagogical preparedness is emphasized, which is consistent with more general conclusions from theoretical and practical research.

Rational of the Study

This study is noteworthy because it provides empirical data on the efficacy of blended learning (BL) in Bangladeshi English teaching, therefore addressing a crucial research vacuum. It highlights the digital gap that prevents equal access while identifying critical success elements, such as digital infrastructure, teacher readiness, and institutional support. This research emphasizes the necessity for scalable, context-specific BL models appropriate for Bangladesh's socioeconomic reality, in contrast to the majority of studies conducted in wealthy nations. In order to create blended learning techniques that are sustainable and guarantee that students have the digital and lifetime learning skills necessary for global competitiveness, it advocates for inclusive tactics and long-term, mixed-method research.

Research Questions

a) To what extent does blended learning enhance English education, and what barriers prevent its successful implementation?

b) How does the efficacy of mixed English education depend on programs for student assistance and teacher preparation?

c) How do machine learning and internet access improve flexibility and equity in blended English courses?

d) How do understanding, involvement, and support affect the adoption of blended learning, and what changes are suggested?

Theoretical Framework

This study utilizes the Community of Inquiry (CoI) Framework (Garrison, Anderson, & Archer, 2000) and Constructivist Learning Theory (Vygotsky, 1978). Learner-centered, experiential learning through interaction is emphasized by constructivism, which is consistent with blended learning, which combines online and in-person instruction. This is supported by the CoI paradigm, which identifies social, cognitive, and instructional presence as critical components of meaningful learning in mixed and online settings. Moreover, the Technology Acceptance Model (TAM) (Davis, 1989) describes how perceived utility and usability affect the adoption of educational technology. Together, these frameworks complement the study's emphasis on infrastructure readiness, institutional support, and teacher preparation. Designing inclusive and successful blended English education initiatives in Bangladesh requires modifying these ideas to account for regional difficulties and digital inequalities.

Research Methods

The study used an empirical and qualitative research approach in order to gather data that could result in useful conclusions on the application of blended learning in English instruction. To examine participant replies, both descriptive and inferential statistical techniques were applied.

Data Collection

Data on participant demographics, experiences, attitudes, and blended learning issues were gathered through the use of 22 (twenty two) structured questionnaires. Among other things, the

questionnaire asked about knowledge, experience, and efficacy of blended learning**.**

Sample size

Respondents are one hundred people. Participants were university teachers, higher secondary college teachers, undergraduate students, and higher secondary students. Purposive sampling was used in order to record a wide variety of blended learning experiences.

Variables

The study uses these variables depending on the answer of the participants i) understanding the concept of blended learning, which combines online and in-person instruction, ii) having any experience using a mixed method to teach or study English, iii) frequency of using blended learning, iv) platform of blended learning, v) the helping trends of blended learning improve the teaching and learning of English. vi) best enhanced abilities done by blended learning, vii) effective engagement students and teachers through mixed learning, vii) engagement of blended learning in contrast to traditional classroom instruction, ix) offer of advantages through mixed learning, x) enhancement of evaluation and assessment procedures by blended learning, xi) digital gap in education get lessened with blended, xii) difficulties of blended learning, xiii) blended learning causes digital gap among pupils, xiv) process to be implemented through blended learning which will be more effective in English education, xv) encouragement of blended learning in Bangladeshi English Language Instruction, and xvi) educational establishments to facilitate blended learning. But among them only seven variables are taken into consideration which are closely related to dependent variables, ‘understanding

the concept of blended learning, which combines online and in-person instruction' and have no multi-collinearity effect.

Data Analysis Methods

Examination of Frequency Distribution: Table 01 and 02 exhibit the results of frequency distributions that were used to describe the demographics and blended learning experiences of the participants. They emphasized important factors such age, gender, title, blended learning experience, and opinions on how beneficial it is. A collinearity diagnostic was used to evaluate the stability and dependability of the variables that were selected. Correlation coefficients were computed to investigate the links between variables (Table-03 (i) and Table-03 (ii)). As shown in Tables No. 4 and No. 5, Multiple Regression Analysis was performed to determine the impact of the selected variables. We have chosen the regression model shown below to test our hypothesis in light of the variables:

$$D_{it} = \alpha_{it} + \beta_1 i_{it} + \beta_2 ii_{it} + \beta_3 iii_{it} + \beta_4 iv_{it} + \beta_5 v_{it} + \beta_6 vi_{it} + \varepsilon_{it}.$$

where i) indicates best enhanced abilities done by blended learning ii) Engagement of Blended Learning, iii) Improvement in teaching and learning, iv) difficulties of blended learning, v) encouragement of blended learning in Bangladeshi English Language Instruction, and vi) educational establishments to facilitate blended learning and D means understanding the concept of blended learning, which combines online and in-person instruction. $\boldsymbol{\alpha}_{it=1,2,3,4,5,}$ and $_6$ = Coefficients to be estimated; and ε = Error component for the variables.

Tools and Software

MS-Excel and Statistical software SPSS, version 2024 were used for data processing**.**

Reliability Test

In Collinearity Diagnostics of the selected variables, it is found that higher eigenvalue (6.055) indicates stable components, while smaller eigenvalues (like 0.021) hint at potential collinearity issues. When Condition Index >10 signals moderate multi-collinearity and Condition Index >30 would indicate serious multi-collinearity. However, in this case, the highest Condition Index is 16.872, suggesting moderate multi-collinearity, but not critical. This collinearity diagnostic suggests that while multi-collinearity exists moderately among some predictors, it is manageable and does not critically threaten the validity of the regression results.

Results, Discussions and Findings of the Research

Discussion

Table-01

Frequency Distribution Analyses

		i	ii	iii	iv	v	vi	vii	viii	ix
N	Valid	100	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0	0
Mean		2.50	1.24	2.43	2.12	1.25	1.25	2.90	2.69	4.15
Median		2.50	1.00	2.50	2.00	1.00	1.00	3.00	2.00	4.00
Std. Deviation		1.12	0.43	1.06	0.78	0.44	0.44	1.38	1.34	0.85

		i	ii	iii	iv	v	vi	vii	viii	ix
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00
Maximum		4.00	2.00	4.00	3.00	2.00	2.00	5.00	4.00	5.00
Sum		250.00	124.00	243.00	212.00	125.00	125.00	290.00	269.00	415.00

Source: Data collected from the respondents of the structured questionnaire and assessed using SPSS, version-2024.

Here i) means designation of the participants, ii) gender, iii) age, iv) years of teaching or learning, v) understanding the concept of blended learning, which combines online and in-person instruction, vi) having any experience using a mixed method to teach or study English, vii) frequency of using blended learning, viii) platform of blended learning, ix) the helping trends of blended learning improve the teaching and learning of English.

Table-02

Frequency Distribution Analyses

		x	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx
N	Valid	100	100	100	100	100	100	100	100	100	100	100
	Missing	0	0	0	0	0	0	0	0	0	0	0
Mean		3.61	1.18	2.10	4.86	1.32	1.00	5.66	2.00	4.04	1.20	1.86
Median		3.00	1.00	2.00	6.00	1.00	1.00	7.00	2.00	5.00	1.00	1.00

Std. Deviation		1.45	0.52	0.70	1.76	0.74	0.00	2.63	0.00	1.33	0.60	1.36
Minimum		1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00	1.00
Maximum		5.00	3.00	3.00	6.00	3.00	1.00	8.00	2.00	5.00	3.00	5.00
Sum		361.00	118.00	210.00	486.00	132.00	100.00	566.00	200.00	404.00	120.00	186.00

Here x) indicates best enhanced abilities done by blended learning, xi) effective engagement students and teachers through mixed learning, xii) engagement of blended learning in contrast to traditional classroom instruction, xii) offer of advantages through mixed learning, xiv) enhancement of evaluation and assessment procedures by blended learning, xv) digital gap in education get lessened with blended, xvi) difficulties of blended learning, xvii) blended learning causes digital gap among pupils, xviii) process to be implemented through blended learning which will be more effective in English education, xix) encouragement of blended learning in Bangladeshi English Language Instruction, and xx) educational establishments to facilitate blended learning.

Source: Data collected from the respondents of the structured questionnaire and assessed using SPSS, version-2024.

Participants' demographics, experiences, and opinions about the use of blended learning in English instruction are thoroughly revealed by the frequency distribution analyses shown in Tables 01 and 02. A comprehensive and trustworthy dataset for analysis was ensured by the 100 valid replies and the absence of missing values for each variable (i-xx). A varied and representative sample of participants from a range of age groups, genders, professional backgrounds, and degrees of English teaching or learning experience is revealed by the study's findings. The mean designation (2.50) and age (2.43), as shown in Table 1,

indicate that the sample mostly consists of reasonably young, professionally varied people. While there is a little bias toward one gender group, overall, the gender distribution (mean = 1.24) is balanced.

According to the findings, most participants had some past experience teaching or learning English using a mixed approach (mean = 1.25), and they are familiar with the ideas of blended learning (mean = 1.25). Even though blended learning is not widely used, a significant percentage of participants have found it to be meaningfully acceptable, as seen by the frequency of usage (mean = 2.90) and platform utilization (mean = 2.69), which show a moderate degree of adoption. Primarily, the high mean score (4.15) in enhancing English instruction and learning for the efficacy of blended learning suggests that respondents had overwhelmingly positive opinions.

In-depth topics including the perceived effects, difficulties, and potential of blended learning are examined in Table 2. Overall, participants had a favorable opinion, with improvement in English language proficiency receiving a mean score of 3.61 and acknowledgment of the benefits of blended learning receiving an even higher score of 4.86. There was a strong belief among participants (mean = 4.04) that improved usage of mixed approaches may result in more effective English instruction. But the results also point to important difficulties. The average score of 5.66 highlights the significant level of concern on challenges related to blended learning, including infrastructural issues, digital literacy gaps, and technological issues. Significantly, participants strongly disagreed (mean = 1.00) with the idea that blended learning has closed the digital divide, indicating that equity and access concerns still pose major obstacles.

When considering the background characteristics, cumulative percentages show a balanced spread across respondent types:

undergraduate students, higher secondary students, university teachers, and college teachers. Age distribution shows the largest group (32%) falls in the thirty to forty ranges, indicating a strong representation of early-to-mid career teachers. Meanwhile, younger groups (under twenty and twenty to thirty years) collectively form half of the sample, maintaining a balanced inclusion of both students and early-career educators. Regarding English learning or teaching experience, 63% have less than 20 years of experience, while 37% have more than 20 years. For familiarity with blended learning concepts, 75% of participants indicated they understood the concept, and a similar percentage had first-hand experience using blended methods. Of those that participated, 59% said they used blended learning at least "sometimes," 29% "often," and 12% "always." Widespread use of numerous platforms (such as Zoom and Google Classroom) indicates a desire for a mixed toolset that uses a range of digital resources to accommodate different learning demands. A remarkable 87% of respondents agreed or strongly agreed that blended learning enhances English instruction when asked about its efficacy. A significant 47% of respondents said that blended learning improved all language abilities (reading, writing, speaking, and listening) in terms of skill development. The two individual abilities that were found to have improved the most were speaking (29%) and reading (12%). According to most responses, blended learning fosters improved communication between teachers and students. Thirty percent (37%) said blended learning was more engaging than regular classrooms, while fifty percent thought both were equally engaging. With most choosing "All" as the best description, the extensive advantages of blended learning—flexibility, availability, increased engagement; extra learning resources, and customized instruction—were resoundingly confirmed. Positive effects were also observed in assessment procedures: according

to 84% of respondents, blended learning enhances evaluation techniques by providing more flexible evaluations and better feedback systems. A small percentage (16%), however, was still unclear, which would suggest that experiences vary depending on institutional assistance. It's interesting to note that although participants saw the potential of blended learning, most also acknowledged significant obstacles. 37% of respondents reported many issues at once, such as internet connectivity, technical issues, inadequate teacher preparation, and an increase in workload. Other significant problems included teacher workload (12%) and computer literacy gaps (18%). Other issues expressed by some respondents included difficulties in administering evaluations and decreased student involvement. In response to these issues, 57% of participants suggested a complete strategy that would increase the efficacy of blended learning and include accessible internet access, reasonably priced connection, robust institutional support, and government assistance. Lastly, a resounding 90% of respondents said that blended learning ought to be promoted more broadly in Bangladeshi English language instruction, indicating a high level of hope for the practice's future if the present obstacles are taken down.

Table No. 3 (i)

Correlations of coefficients of the selected variables

	i	ii	iii	iv	v	vi	vii	viii	ix	x
i	1	0.000	.685**	.494**	-.258**	-.258**	.527**	-0.003	0.080	-.320**
		1.000	0.000	0.000	0.009	0.009	0.000	0.974	0.430	0.001
ii	0.000	1	0.171	-0.087	0.000	0.000	-0.010	-0.186	-.323**	-0.043
	1.000		0.089	0.391	1.000	1.000	0.920	0.064	0.001	0.672
iii	.685**	0.171	1	.805**	-.785**	-.785**	.867**	.395**	.312**	-0.074
	0.000	0.089		0.000	0.000	0.000	0.000	0.000	0.002	0.464
iv	.494**	-0.087	.805**	1	-.831**	-.831**	.909**	.605**	.599**	-.217*
	0.000	0.391	0.000		0.000	0.000	0.000	0.000	0.000	0.030

	i	ii	iii	iv	v	vi	vii	viii	ix	x
v	-.258**	0.000	-.785**	-.831**	1	1.000**	-.798**	-.507**	-.570**	0.076
	0.009	1.000	0.000	0.000		0.000	0.000	0.000	0.000	0.452
vi	-.258**	0.000	-.785**	-.831**	1.000**	1	-.798**	-.507**	-.570**	0.076
	0.009	1.000	0.000	0.000	0.000		0.000	0.000	0.000	0.452
vii	.527**	-0.010	.867**	.909**	-.798**	-.798**	1	.606**	.454**	-0.116
	0.000	0.920	0.000	0.000	0.000	0.000		0.000	0.000	0.252
viii	-0.003	-0.186	.395**	.605**	-.507**	-.507**	.606**	1	.443**	0.104
	0.974	0.064	0.000	0.000	0.000	0.000	0.000		0.000	0.305
ix	0.080	-.323**	.312**	.599**	-.570**	-.570**	.454**	.443**	1	-0.018
	0.430	0.001	0.002	0.000	0.000	0.000	0.000	0.000		0.861
x	-.320**	-0.043	-0.074	-.217*	0.076	0.076	-0.116	0.104	-0.018	1
	0.001	0.672	0.464	0.030	0.452	0.452	0.252	0.305	0.861	
	100	100	100	100	100	100	100	100	100	100

Source: Data collected from the respondents of the structured questionnaire and assessed using SPSS, version-2024.

Table No. 3 (ii)

Correlations of coefficients

	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx
i	0.052	-.294**	-0.056	0.000	.b	0.110	.b	-0.182	0.089	.211*
	0.608	0.003	0.580	1.000		0.278		0.070	0.376	0.035
ii	0.076	.321**	-0.009	.777**	.b	-0.142	.b	-.282**	0.047	-0.149
	0.452	0.001	0.933	0.000		0.159		0.005	0.644	0.139
iii	-0.032	-.344**	0.109	0.133	.b	0.144	.b	-0.156	0.054	0.014
	0.752	0.000	0.283	0.188		0.152		0.122	0.594	0.889
iv	0.095	-.591**	-0.061	-0.067	.b	-0.019	.b	-0.150	0.034	0.120
	0.345	0.000	0.547	0.506		0.849		0.136	0.735	0.234
v	0.067	.544**	-.230*	0.000	.b	-0.031	.b	0.122	-0.038	0.094
	0.508	0.000	0.021	1.000		0.760		0.227	0.704	0.354
vi	0.067	.544**	-.230*	0.000	.b	-0.031	.b	0.122	-0.038	0.094
	0.508	0.000	0.021	1.000		0.760		0.227	0.704	0.354

	xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx
vii	0.025	-.488**	0.023	0.052	.b	0.063	.b	-0.075	0.073	0.078
	0.803	0.000	0.819	0.610		0.534		0.461	0.472	0.439
viii	0.168	-.256*	-.245*	-0.144	.b	-0.134	.b	-0.050	-0.023	0.164
	0.095	0.010	0.014	0.152		0.185		0.624	0.824	0.103
ix	0.099	-.365**	0.150	-.272**	.b	0.073	.b	0.004	-.218*	0.045
	0.328	0.000	0.137	0.006		0.469		0.972	0.029	0.659
x	-.201*	.514**	0.038	-0.109	.b	.570**	.b	0.097	-0.049	-0.146
	0.045	0.000	0.710	0.280		0.000		0.337	0.631	0.149
	100	100	100	100	100	100	100	100	100	100

Here i) means designation of the participants and they are Undergraduate Student / Higher Secondary Student / University Teacher/Higher Secondary College teacher, ii) gender, iii) age, iv)years of teaching or learning, v) understanding the concept of blended learning, which combines online and in-person instruction, vi) having any experience using a mixed method to teach or study English, vii) frequency of using blended learning ,viii) platform of blended learning , ix)the helping trends of blended learning improve the teaching and learning of English, x) best enhanced abilities done by blended learning, xi) effective engagement students and teachers through mixed learning, xii) engagement of blended learning in contrast to traditional classroom instruction, xii) offer of advantages through mixed learning, xiv) enhancement of evaluation and assessment procedures by blended learning, xv) digital gap in education get lessened with blended, xvi) difficulties of blended learning, xvii) blended learning causes digital gap among pupils, xviii) process to be implemented through blended learning which will be more effective in English education, xix) encouragement of blended learning in Bangladeshi English Language Instruction, and xx) educational establishments to facilitate blended learning.

Source: Data collected from the respondents of the structured questionnaire and assessed using SPSS, version-2024.

The characteristics associated with blended learning in English education are correlated, as shown in tables 3 (i) and 3 (ii). Important conclusions emphasize both favorable and unfavorable connections. As seen by the substantial positive correlation (.685) between participants' age and classification, older participants—such as university instructors—are more likely to use blended learning. The modest association between

age and gender is indicated by the somewhat positive correlation (.171) between the two variables. Gender has little to no impact on experience with mixed approaches, as seen by a very weak negative correlation (-.010). It is evident that older individuals have more experience because of the substantial positive correlation (.805) between age and years of teaching or learning. Understanding of blended learning is strongly correlated negatively (-.785) with age, indicating that older individuals may find blended learning more difficult. The usage of blended learning is more common among older participants, according to a high positive correlation (.867). Undergraduate and secondary students may have a weaker understanding of blended learning than instructors, as evidenced by a modest negative correlation (-.258) between the participants' categorization and the frequency of using it. Traditional practices may make it difficult for more seasoned instructors to adjust to blended learning, according to a substantial negative correlation (-.831). A substantial positive correlation (.909), however, indicates that blended learning is still widely used among seasoned educators. Notably, blended learning comprehension and usage may not necessarily correspond (-.798), perhaps as a result of institutional or technological constraints. The usage of blended learning is also not predicted by familiarity with mixed approaches (-.798). Frequent usage of blended learning is associated with better English language proficiency; its function in boosting engagement is highlighted by a substantial positive correlation (.443). It's interesting to note that there is a moderately negative connection (-.323) to the perceived benefits of blended learning, indicating that regular users might not always benefit from all of it, possibly because of the additional work required. Finally, a substantial positive connection (.514) highlights the need for improved digital access and demonstrates that lowering the digital gap improves the quality of blended learning.

Regression Analyses

Regression Analyses are done considering the relationship of the selected variables. Here the variables are not taken into consideration which have multi-collinearity effect and comparatively not reliable. Only seven (7) variables are taken into consideration for regression analyses and they are: i) Understanding of blended learning ii) best enhanced abilities done by blended learning, iii) Engagement of Blended Learning, iv) Improvement in teaching and learning, v) difficulties of blended learning, vi) encouragement of blended learning in Bangladeshi English Language Instruction, and vii) educational establishments to facilitate blended learning.

Table No. 4

Multiple Regressions Analyses

ANOVA when dependent variable: Understanding of blended learning

	SS	***DF***	***MS***	***F***	***Significance F***
Regression	8.918	6	1.486	14.060	.000[b]
Residual	9.832	93	.106		
Total	18.750	99			
Dependent variable : Understanding of blended learning, and predictors(constant) are i) best enhanced abilities done by blended learning ii) Engagement of Blended Learning, iii) Improvement in teaching and learning, iv) difficulties of blended learning, v) encouragement of blended learning in Bangladeshi English Language Instruction, and vi) educational establishments to facilitate blended learning.					

Source: Data collected from the respondents of the structured questionnaire and assessed using SPSS, version-2024.

Understanding of blended learning is the dependent variable in the multiple regression analysis, and the results of the ANOVA test are shown in Table 4. Six predictors are included in the model: i) the best enhanced abilities attained through blended learning; ii) participation in blended learning; iii) improvements in teaching and learning; iv) challenges encountered during blended

learning; v) promotion of blended learning in Bangladeshi English language instruction; and vi) institution support for blended learning. With 93 degrees of freedom, the residual SS is 9.832, which is the variance that cannot be explained. The total SS for all 99 instances is 18.750. To determine if the regression model as a whole fits the data well, the computed F-statistic is 14.060. An F-value that is high in relation to the crucial F-value indicates that the model accounts for a substantial portion of the variation in the dependent variable. Additionally, the p-value (significance factor) is 0.000, which is below the conventional alpha threshold of 0.05. This suggests that the whole model is statistically significant and that the observed link between the dependent variable and the predictors is unlikely to be the result of chance.

Table No. 5

Coefficient Statistics of the selected data when dependent variable: Understanding of blended learning.

	Unstandardized Coefficients		**Standardized Coefficients**			**Collinearity Statistics**	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	.260	.196		1.330	.187		
i	-.116	.033	-.385	-3.510	.001	.467	2.139
ii	.521	.060	.842	8.746	.000	.609	1.643
iii	-.108	.049	-.182	-2.199	.030	.819	1.221
iv	.006	.016	.037	.399	.691	.643	1.554
v	.070	.026	.216	2.707	.008	.889	1.125
vi	.074	.025	.231	2.936	.004	.915	1.093
Multiple R: 0.69, R Square: 0.48, Adjusted R Square: 0.44, Standard Error: 0.33, Observations: 99 where degree of freedom (6, 93). Dependent variable : Understanding of blended learning, and predictors(constant) are i) best enhanced abilities done by blended learning ii) Engagement of Blended Learning, iii) Improvement in teaching and learning, iv) difficulties of blended learning, v) encouragement of blended learning in Bangladeshi English Language Instruction, and vi) educational establishments to facilitate blended learning.							

Source: Data collected from the respondents of the structured questionnaire and assessed using SPSS, version-2024.

A multiple regression study looking at determinants of comprehending blended learning is shown in Table 5. “Blended learning comprehension” is the dependent variable. Since the intercept (B = 0.260, p =.187) is not significant, there is no difference between zero and the baseline comprehension. Among the variables, “best enhanced abilities done by blended learning” exhibited a significant negative effect (B = -0.116, p =.001), indicating that poorer conceptual comprehension is linked to greater perceived skill gain. ‘Participation in blended learning’ was the most powerful positive predictor (B = 0.521, p <.001), suggesting that more involvement greatly increases comprehension. ‘Improvement in teaching and learning’ revealed a negative but significant correlation (B = -0.108, p =.030), suggesting that changes in perceived results may not provide a deeper comprehension of concepts. ‘Difficulties of blended learning’ did not significantly affect understanding, as evidenced by its non-significant effect (B = 0.006, p =.691). Support from educational institutions is crucial, as seen by the strong positive impacts of two predictors: promotion of blended learning in Bangladeshi English instruction (B = 0.070, p =.008) and facilitation by educational institutions (B = 0.074, p =.004). Multiple R = 0.69, R2 = 0.48, and Adjusted R2 = 0.44 indicate that the model is moderately strong, explaining 48% of the variation in knowledge. VIF < 2.5 indicates that multi-collinearity is not an issue, and the standard error is 0.33. Apart from the surprising results regarding skill development and challenges, the findings generally imply that institutional support and participation are essential for promoting comprehension of blended learning.

Result and Findings

According to the study, a number of important aspects affect how well blended learning works in Bangladeshi English classes. Better digital infrastructure was cited by a resounding 65% of respondents as the most crucial prerequisite for effective implementation out of all the criteria. According to this overwhelming majority, the success of blended learning is largely dependent on the availability of dependable internet, contemporary technology, up-to-date software, and robust digital platforms, according to educators, learners, and other stakeholders. Attempts to combine in-person and virtual learning run the danger of being unsuccessful or even detrimental in the absence of the required technology support. This outcome emphasizes how urgently the government and educational institutions must make significant investments in modernizing digital infrastructure in both urban and rural locations. In addition to infrastructure, 9% of participants highlighted the necessity of teacher training in blended learning. This research highlights the crucial role that teacher readiness plays in guaranteeing the success of blended methods, even if it accounts for a lesser percentage than infrastructural problems. Having the appropriate technologies is not enough to ensure successful blended learning; educators must also be able to manage virtual classrooms, integrate digital materials imaginatively, and use technology to promote active learning.

It is imperative that teacher training programs emphasize digital pedagogy, online engagement tactics, and blended assessment in order to optimize the advantages of this educational approach. The importance of student support services, as recognized by 11% of the respondents, is another noteworthy conclusion. This shows that the need to provide

students with sufficient assistance to succeed in a mixed learning setting is clearly understood. Numerous students may have difficulties with time management, learning platform navigation, and maintaining motivation in the absence of continuous in-person supervision. Students who get support services including academic advising, online mentorship, technical assistance, and digital literacy training can overcome these challenges and improve their learning results.

One important aspect mentioned by five percent of the respondents was increased internet connectivity. Even while this proportion is low, it is a genuine obstacle that many people, particularly those living in rural and semi-urban regions, must overcome. Without reliable and reasonably priced internet connectivity, blended learning turns into a premium option available primarily to kids from wealthier families. To provide fair educational opportunities for all students in Bangladesh, it is imperative to address the digital gap. It's interesting to note that 10% of participants are in favor of using machine learning to provide individualized education. This innovative and relatively new method points to a rising interest in using technology to adjust educational experiences to meet the requirements of specific students as well as to provide material. In addition to predicting areas of difficulty, machine learning can examine student performance trends and provide personalized learning courses. Accepting such innovations might greatly improve learning results and efficiency in the future, even if most Bangladeshi institutions are still in the early stages of growth.

According to the correlations in this table, a number of variables, such as the participant's title, level of expertise, and usage frequency, affect how well blended learning enhances English language skills. The associations also show that the conceptual parts of blended learning may be better understood by

younger or less experienced participants, even though some more seasoned instructors may utilize it more frequently. The digital divide and institutional support are also essential for maximizing blended learning's advantages. Based on regression analyses, the study discovered that while reported gains in teaching and learning and greatest boosted abilities showed substantial but unfavorable associations, participation in blended learning is the biggest positive predictor of comprehending blended learning. The promotion and institutional support of blended learning had a beneficial impact on comprehension. There was no discernible effect of the challenges encountered during integrated learning. There were no problems with multi-collinearity found, and the model accounted for 48% of the variation in comprehending blended learning. Although skill gains by themselves may not always result in deeper knowledge, involvement, encouragement, and institutional support are crucial in boosting understanding overall.

In conclusion, the results of the study show that a multifaceted strategy is crucial to the success of blended English teaching in Bangladesh. The nation's digital infrastructure has to be strengthened initially in order to provide a solid basis. After that, it's critical to provide thorough teacher training, student support systems, better internet access, and the thoughtful incorporation of cutting-edge technology like machine learning. Policymakers, technological companies, and educational institutions must collaborate to address these important issues. Blended learning cannot become a truly inclusive, sustainable, and successful educational approach in Bangladesh without a concerted and planned effort.

Recommendations

Bangladesh has to spend heavily in improving digital gadgets, online platforms, and internet connection, particularly in rural

and semi-urban regions, in order to boost blended learning. Digital classroom management, assessment techniques, and mixed pedagogical methodologies ought to be the main topics of teacher preparation programs. Digital literacy, mentorship, technical help, and online advising are all essential components of student support. Bridging the digital gap and guaranteeing equal access regardless of socioeconomic background requires the expansion of reasonably priced high-speed internet. Educational institutions ought to investigate adaptive technologies and machine learning in order to customize their teaching. For more in-depth understanding, future studies should include qualitative techniques like case studies and interviews with larger, more varied sample sizes. To evaluate blended learning's long-term effects on teacher development and student outcomes, longitudinal research is crucial. It is necessary to do further research on psychological and socioeconomic hurdles and compare various blended models (such as flipped and hybrid classrooms) in order to determine the most effective methods for teaching English.

Conclusion

The study found that the most crucial element for blended English teaching and learning in Bangladesh is digital infrastructure, which requires a holistic approach. The importance of trained teachers, student support systems, improved internet accessibility, and innovative AI applications cannot be overstated, even while technology forms the foundation. The correlation and regression analyses also show that user engagement and institutional support are critical to enhancing the understanding and effectiveness of blended learning. Without more comprehensive institutional support, however, skill development alone is insufficient. For blended learning to be implemented in Bangladesh in a way that is equitable, sustainable, and meaningful, policymakers,

educational leaders, IT businesses, and the general public must collaborate. Although the study provided insightful information, its small sample size, reliance on self-reported data, and neglect of psychological and socioeconomic factors point to the need for more research with a variety of samples and mixed methodologies, such as focus groups or interviews, to better understand blended learning in a range of Bangladeshi contexts.

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