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Perceptions among Teachers for Blended Learning in English Classrooms: Insights from a Pilot Study

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ABSTRACT

Blended learning has emerged within the Malaysian education system as an alternative approach that offers flexible, accessible and personalized learning opportunities, particularly in English language education. However, limited research has examined how key factors such as social factors, affect, complexity, long-term consequences, job fit, facilitating conditions and experience in technology use influence the implementation of blended learning in rural secondary schools, where contextual challenges such as limited resources and infrastructure are more pronounced. This study reports preliminary work from a pilot study, which provides an initial overview of rural secondary school English teachers perception of blended learning and evaluates the reliability and suitability of the adapted survey instrument. Data were collected using an online questionnaire via Google Forms and analyzed through descriptive statistics,

graphical representations, and reliability testing with Cronbach's alpha. The findings indicate that the instrument demonstrated acceptable reliability and that teachers generally expressed positive perceptions of acceptance and readiness toward blended learning. Insights from this pilot study provide valuable guidance for refining the research instrument and methodological approach before proceeding to the main study. The combination of high mean scores and negative skewness further reinforces this trend, showing consistency between central tendency and distribution and highlighting the value of descriptive statistics in identifying reliable patterns within pilot study data.

Keywords: blended learning, Cronbach's alpha, histogram, pilot study, reliability analysis, skewness

INTRODUCTION

Education is pivotal for personal growth and is often used as a benchmark to measure the development of a society, as it equips individuals with knowledge, skills and values that enable contribution to the community. Globally, the Covid 19 pandemic accelerated the shift towards online and blended learning, making digital tools an essential component of education systems. In Malaysia, this transition has highlighted both opportunities and challenges, particularly in ensuring equitable access for students in rural contexts. More recently, the rise of artificial intelligence (AI) has further transformed education, offering new opportunities for personalized learning while also raising concerns about teacher readiness and unequal access. In rural secondary schools, these developments make it even more important to understand how teachers perceive and prepare for blended learning. In response to these changes, the Malaysian Education Blueprint 2013–2025 (MEB) was introduced as the first comprehensive strategy addressing education from early childhood to post-secondary levels. The Blueprint emphasizes five aspirations for the education system of efficiency, unity, equity, quality and accessibility (Ministry of Education Malaysia, 2013). Blended learning is aligned with these aspirations by offering more flexible, inclusive and engaging approaches to teaching and learning (Zumrah et al., 2023). Henceforth, considering that teachers are key figures in the classroom, it is vital to consider their perceptions and opinion regarding any new shift in educational practices. During the Covid 19 pandemic, online platform has been used as a main platform for learning (Kumar et al., 2021). As a result, the impact from digital resources used in Malaysian education system has created new opportunities to enhance student engagement, particularly when it comes to language learning. This prompted the use of a blended learning approach in language learning (Amini et al., 2024).

Blended learning (BL) integrates digital platforms with face-to-face instruction, enabling personalized and interactive learning experiences while accommodating diverse learning styles (Soon Tan et al., 2022). In Malaysia, BL is increasingly recognized as a collaborative effort involving teachers, students, parents and institutional management (Hashim & Hamidon, 2022). This approach is particularly relevant to English language education in rural secondary schools, where limited resources and infrastructure constrain traditional classroom practices. Although blended learning has been increasingly emphasized in Malaysia, limited research has examined how rural secondary school English teachers perceive its implementation. Existing studies often

focus broadly on general attitudes toward digital learning, without detailing specific aspects of perception that influence adoption. In rural contexts, teachers face distinctive challenges such as limited resources, infrastructure constraints and diverse student needs. These conditions make it essential to understand perceptions among teachers in terms of usefulness, feasibility, complexity, job fit, facilitating conditions, experience with technology and long-term applicability (Antonietti et al., 2022). Focusing on English language teachers is particularly important, as English proficiency is a national priority and rural learners often have fewer opportunities for language exposure outside the classroom. Investigating these perceptions provides critical insights into whether blended learning can realistically address the aspirations of the Malaysian Education Blueprint and support equitable access to quality education in rural settings.

Previous research indicates that adoption of new teaching methods is influenced by perceived benefits, practicality and access to resources (Karmini et al., 2023). If BL is viewed as an additional burden rather than a supportive tool, teachers may be reluctant to invest time in creating digital resources (Picciano, 2009). In contrast, when BL is perceived as enhancing instruction and improving student learning outcomes, adoption is more likely, particularly with adequate training, infrastructure and supportive policy from government (Muhuro & Kang'ethe, 2021). Examining perceptions of BL among rural secondary school English teachers is therefore essential to identify the factors that influence implementation and to ensure alignment with the aspirations of the Malaysian Education Blueprint. Given the importance of ensuring reliable and valid instruments prior to a full-scale investigation, the aim of this pilot study is to test the reliability of a questionnaire designed to explore perceptions among teachers of blended learning in English classrooms.

Pilot studies are essential in educational research as these preliminary investigations enable the testing of instruments, the refinement of methodologies, and the identification of potential challenges prior to full-scale data collection (Connelly, 2021). In this study, the refinement process focused on assessing the feasibility of reaching rural English teachers, ensuring the clarity and appropriate length of questionnaire items, evaluating the practicality of data collection via Google Forms and identifying possible technical barriers such as internet limitations. Pilot studies are especially useful for ensuring clarity and reliability of adapted instruments, often assessed through statistical measures such as Cronbach's alpha (Johanson & Brooks, 2010). By serving this function, pilot studies increase confidence that research tools are suitable for the intended context. Without such validation, findings risk being inconsistent or misleading.

In the Malaysian context, strong instrument validation is particularly urgent, especially in this study involving rural secondary schools where infrastructure barriers are inevitably present. While the Covid 19 pandemic accelerated digital adoption, new global developments such as the integration of AI in education also reshaping expectations for teacher preparedness. The growing use of AI in online learning highlights the need for teachers to strengthen their digital competencies to integrate AI effectively in teaching and to develop AI-related skills among students (Ng et al., 2023). Pilot studies, therefore, provide a structured way to ensure that instruments are not only statistically reliable but also contextually meaningful for teachers navigating these shifts.

METHODOLOGY

This study employed a cross-sectional survey design and quantitative approach to explore the perceptions of English language teachers in rural secondary schools regarding the integration of BL in their teaching practices. A pilot study was conducted involving 40 English language teachers with data collected via an online questionnaire distributed through Google Forms. As the pilot study was intended to assess the reliability of the instrument rather than to generate generalizable findings. Participants were recruited using purposive sampling, specifically English teachers from rural schools. An invitation link to the questionnaire was distributed through Google Forms along with an information sheet explaining the purpose of the pilot study and assuring confidentiality. Participation was voluntary and consent was obtained before respondents proceeded with the questionnaire. Descriptive statistics were used to examine the central tendency and distribution of responses. Specifically, mean, standard deviation and skewness values were calculated for each variable to assess the overall response trends. These measures provided a preliminary understanding on the perceptions among respondents and helped identify any irregularities in the data distribution.

The questionnaire used in this study was adapted from previously validated instruments (Foley & Curtin, 2022; Haftador et al., 2023; Hashim & Hamidon, 2022; Redner et al., 2024; Sharma et al., 2022). Minor modifications were made to ensure contextual relevance for rural school English teachers, including adjustments to item wording. The adapted version was then subjected to a pilot test to examine its clarity and reliability before being employed in the main study. This study employed a five-point Likert scale to measure the perceptions of respondents. For variable consisting of multiple items, the individual item means were collectively analyzed to evaluate the overall level of agreement. Mean values close to or above 4, particularly values approaching 5 were interpreted as indicating a high level of agreement among the respondents. Similarly, this interpretation is supported by the skewness values. In the context of this study, negative skewness was expected to indicate a high level of agreement among the respondents.

To complement the descriptive statistics, histograms were generated for each variable to visually illustrate the distribution of responses. These graphical representations supported the interpretation of mean and skewness values by providing a clearer understanding of response patterns. In the context of this study, left-skewed distributions specifically indicated a general tendency among respondents to demonstrate agreement with the statements provided, as the majority of responses clustered toward the higher end of the Likert scale. Conversely, right-skewed distributions reflected a tendency toward disagreement with responses leaning toward the lower scale points. The use of histograms thus enhanced the analysis by reinforcing the descriptive findings and offering visual confirmation of the underlying trends in the data.

To evaluate the internal consistency of the questionnaire, Cronbach's alpha was computed for each variable. Reliability coefficients exceeding 0.70 were considered acceptable indicating that the items within each construct consistently measured the same underlying concept. The reliability analysis confirmed that the questionnaire items were suitable for use in the full-scale study with minor adjustments made to enhance item clarity and wording based on feedback from the pilot study.

Traditionally, frequency analysis for each item under the respective variables is commonly used to observe response patterns. While such an approach provides a basic overview, this study adopted a more comprehensive method. The combination of descriptive, graphical and reliability analyses ensured both the validity and dependability of the research instrument. Descriptive statistics provided insights into central tendencies and distribution patterns, graphical analysis offered visual confirmation of response trends and reliability testing verified internal consistency across the questionnaire items. Collectively, these analyses affirmed that the instrument was suitable for further use with only minor adjustments. Moreover, the findings highlighted the critical role of conducting a pilot study in identifying potential issues, refining measurement tools and enhancing the overall quality of data collection prior to large-scale implementation.

RESULT AND DISCUSSION

Conventionally, frequency analysis for each item under the respective variables is commonly used to observe response patterns. However, this section used a more comprehensive approach by presenting the descriptive analysis, graphical analysis and reliability analysis in sequence. These methods provide a clearer understanding of response distributions, consistency across items and the overall reliability of the instrument. Although inferential analyses such as correlation analysis and multivariate techniques were not applied in this study, such methods remain important for future research and will be included in the next publication following full-scale data collection.

Descriptive Statistics

Table 1 presents the descriptive statistics, including mean, standard deviation and skewness for each variable used in this study. The mean scores for all variables range between 4.04 and 4.33, indicating a generally high level of agreement among respondents across all items given that the scale used is a five-point Likert scale. This suggests that respondents tended to agree with the statements related to social factors, affect, complexity, long-term consequences, job fit, facilitating conditions, experience in technology use towards the implementation of blended learning.

The standard deviation values ranging from 0.48 to 0.78, indicate a moderate to low level of variability in responses. This implies that most respondents provided similar ratings that indicates the consistency of perceptions within each variable. Regarding skewness, all variables show negative skewness with values ranging from –0.10 to –1.51. Negative skewness indicates that the distribution of responses is skewed to the left, meaning the majority of responses are concentrated toward the higher end of the scale. This further supports the observation that respondents generally expressed agreement with the items. Notably, facilitating conditions (–1.51), social factors (–1.35), job fit (–1.31) and implementation of BL (–1.14) exhibited relatively higher negative skewness suggesting particularly strong agreement in these areas. The results suggest that teachers in rural secondary schools hold generally favorable perceptions toward factors related to the implementation of blended learning.

Table 1. Descriptive statistics

Variable	Mean	Standard Deviation	Skewness
Social Factors (X_1)	4.18	0.58	–1.35
Affect (X_2)	4.04	0.62	–0.27
Complexity (X_3)	4.33	0.52	–0.78
Long Term Consequences (X_4)	4.28	0.60	–0.10
Job Fit (X_5)	4.31	0.70	–1.31
Facilitating Conditions (X_6)	4.28	0.78	–1.51
Experience in Technology Use (X_7)	4.09	0.48	–0.21
Implementation of Blended Learning (Y)	4.32	0.66	–1.14

Furthermore, the consistently high mean scores observed across the independent variables and the dependent variable of implementation of blended learning suggest a possible positive association between these constructs. Although this preliminary observation is based solely on descriptive statistics, it indicates that respondents who reported stronger agreement with the influencing factors also tended to show higher agreement with the implementation of blended learning. Additional inferential analyses including correlation analysis and multivariate techniques such as Partial Least Squares Structural Equation Modeling (PLS-SEM) and multiple regression analysis are required to determine the strength and direction of these relationships with greater statistical precision.

Graphical Analysis

Figures 1 to 8 illustrate the distribution of responses for the variables social factors, affect, complexity, long-term consequences, job fit, facilitating conditions, experience in technology use and implementation of BL respectively. As reported in the previous section, facilitating conditions, social factors, job fit and implementation of BL exhibited relatively higher negative skewness. This pattern is clearly reflected in the corresponding histograms which indicate a strong concentration of responses at the higher end of the scale, suggesting particularly strong agreement among respondents for these independent variables.

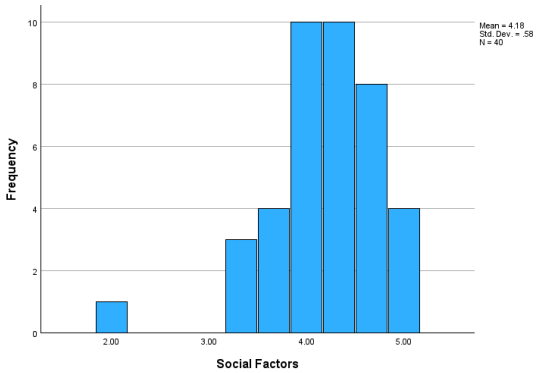

Figure 1. Distribution of responses for the social factors variable

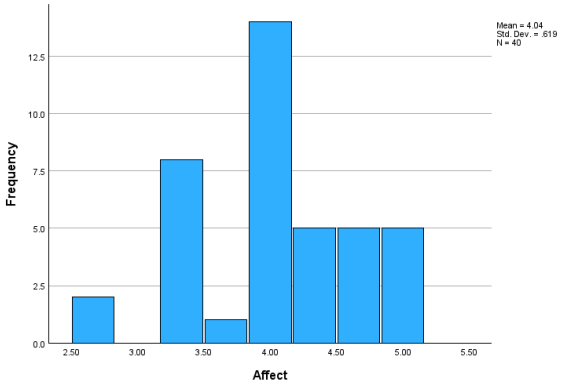

Figure 2. Distribution of responses for the affect variable

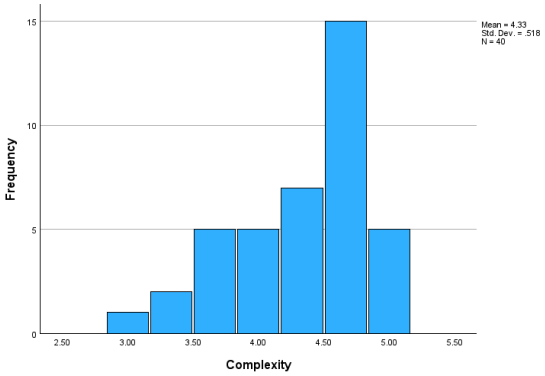

Figure 3. Distribution of responses for the complexity variable

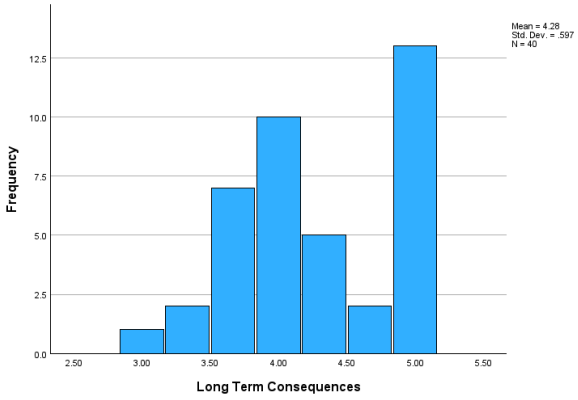

Figure 4. Distribution of responses for the long term consequences variable

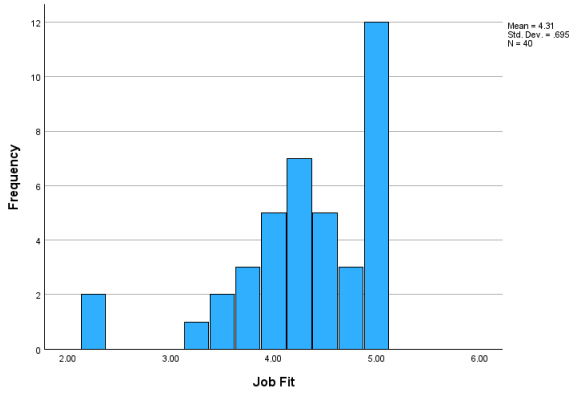

Figure 5. Distribution of responses for the job fit variable

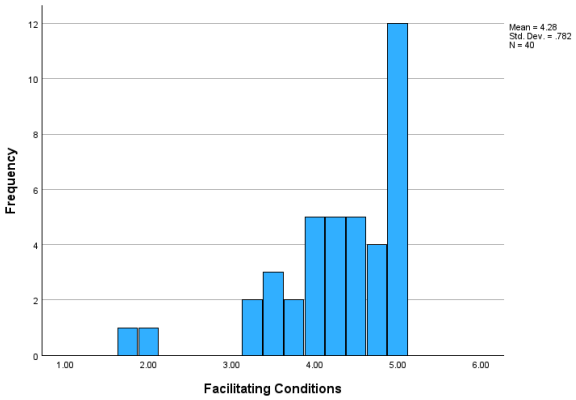

Figure 6. Distribution of responses for the facilitating conditions variable

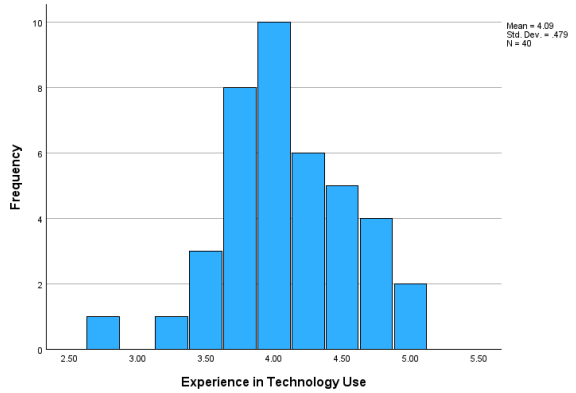

Figure 7. Distribution of responses for the ETU variable

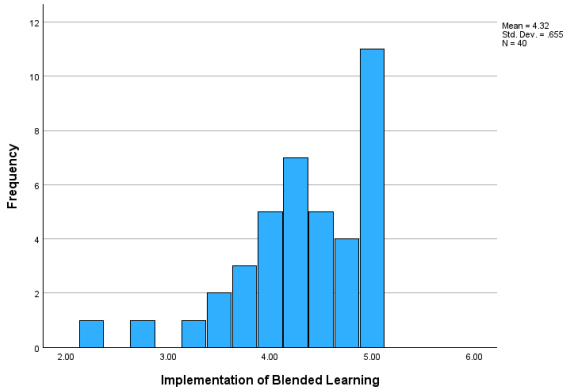

Figure 8. Distribution of responses for the implementation of BL variable

Following the descriptive, graphical, and reliability analyses, this section discusses the findings in relation to each factor examined. The discussion highlights patterns observed in the data and interprets them against prior studies to provide insights into teacher perceptions of blended learning. Research demonstrates that the implementation of blended learning can yield positive impacts for both students and teachers, strengthening teaching effectiveness and enriching learning experiences (Purnama et al., 2023). To understand how blended learning can be effectively adopted, it is necessary to examine key factors that shape acceptance and use of technology in practice among teachers. One important consideration is the role of social factors. Previous studies highlight that social influence and peer norms are central to technology adoption in schools, with encouragement from colleagues and leadership shown to enhance teacher confidence and alleviate anxiety during change (Amar & Eleyan, 2022). Teachers often report that support from administrators and personal learning networks plays a critical role in shaping their teaching practices. Indeed, findings consistently indicate that social influence is a significant determinant of user behaviour in the implementation of blended learning (Yeop et al., 2019).

Equally important is affect or emotional orientation toward technology. Positive affect has been linked to higher levels of confidence and stronger performance in online environments, with organizational support and TPACK emerging as important antecedents of effective technology integration (Maipita et al., 2023). Training and guidelines are therefore essential to help teachers build expertise and reduce uncertainty when adopting new tools (Spiteri & Chang Rundgren, 2020). This is consistent with earlier work showing that institutional and peer support strongly shape teacher attitudes toward technology use (Ertmer et al., 2012).

The perceived complexity of digital tools also influences implementation. Research indicates that complexity often acts as a barrier to technology use (Jones et al., 2009), whereas perceived ease of use facilitates acceptance blended approaches (Iqbal & Arisman, 2018). Teachers who find platforms manageable and workflows clear are more likely to integrate blended approaches consistently. In rural settings, simplicity of tools and streamlined procedures are particularly important due to limited onsite technical support (Kormos & Wisdom, 2021).

Beyond immediate usability, attention must also be given to the long-term consequences of technology adoption. Literature on instructional technology highlights that blended learning is expected to yield long-term benefits such as improved student outcomes (Kumar et al., 2021).

However, clarifying realistic timelines for when these benefits can be realized is important to sustain teacher motivation and commitment (Vo et al., 2017).

The concept of job fit provides further insight into adoption. Research shows that when digital tools align with instructional tasks, teachers are more likely to perceive positive performance impacts and sustain use (Goodhue & Thompson, 1995). Blended learning activities that integrate smoothly with existing pedagogical routines have been shown to encourage adoption, particularly when combined with supportive social and infrastructural conditions (Zhou et al., 2010). Consistency is reinforced when teaching objectives are clearly matched with platform capabilities (Isaac et al., 2017).

Another critical factor is facilitating conditions, which encompass infrastructure and access to resources. Studies emphasize that adequate technological infrastructure, such as stable internet and functional devices, is a prerequisite for effective blended learning implementation (Min & Yu, 2023). Finally, experience in technology use shapes how readily teachers adopt blended practices. Teachers with broader exposure to educational technologies tend to integrate blended components more naturally into their routines.

Taken together, the literature suggests that effective implementation of blended learning requires more than just access to technology. It involves the interplay of social support, affective orientation, perceived complexity, job fit and facilitating conditions. Best practices highlight the importance of sequencing online and face-to-face activities clearly, providing timely feedback, and fostering learner autonomy to maximize outcomes.

Reliability Analysis

Table 2 presents the internal consistency reliability of the measurement items for each variable assessed using Cronbach's alpha (α). A commonly accepted threshold for Cronbach's alpha is 0.70 or higher indicating acceptable internal consistency, although values above 0.60 may be considered acceptable in exploratory research.

The overall Cronbach's alpha value for the entire instrument is 0.914 suggesting excellent reliability across all constructs. At the variable level, most variables demonstrate satisfactory internal consistency. Notably, facilitating conditions (α = 0.914) and job fit (α = 0.910) show very high reliability, while implementation of blended learning (α = 0.887) and long-term consequences (α = 0.804) also exceed the recommended threshold. Affect (α = 0.795) shows acceptable reliability, while social factors (α = 0.669), complexity (α = 0.667) and experience in technology use (α = 0.632) are slightly below the conventional threshold. However, these values are still within a reasonable range for a pilot study and the items were retained for further analysis with minor revisions to improve clarity.

Table 2. Descriptive statistics

Variable	n	α	Overall α
Social Factors (X_1)	3	0.669	
Affect (X_2)	3	0.795	0.914
Complexity (X_3)	3	0.667	

Long Term Consequences (X_4)	3	0.804
Job Fit (X_5)	4	0.910
Facilitating Conditions (X_6)	4	0.914
Experience in Technology Use (X_7)	4	0.632
Implementation of Blended Learning (Y)	4	0.887

Overall, the results indicate initial trends in how rural secondary school English teachers perceive blended learning across factors such as social factors, affect, complexity, long term consequence, job fit, facilitating conditions and experience in technology use. While interpretation must remain cautious given the pilot nature of this work, the results point toward areas for refinement in the full study and highlight the need to examine in greater depth how rural resource limitations shape the practical implementation of blended learning.

CONCLUSION AND RECOMMENDATION

This pilot study aimed to test the reliability and feasibility of a questionnaire designed to examine teacher perceptions of blended learning in rural secondary schools in Malaysia. The instrument demonstrated acceptable reliability and proved suitable for use in a larger-scale study. Beyond methodological validation, the findings provide early insights into the factors that influence blended learning adoption in these contexts.

The results indicate that effective adoption depends not only on infrastructure but also on teacher confidence, attitude and the alignment of digital tools with classroom needs. Social support and affect emerged as important drivers, with encouragement from colleagues and administrators reducing anxiety and strengthening confidence in technology use. Teachers with higher self-efficacy and positive attitudes were more likely to integrate blended learning, underscoring the importance of supportive school cultures and professional networks in rural secondary schools.

Perceived complexity, job-fit alignment and prior technology experience also shaped teacher readiness. Simple and intuitive platforms aligned with instructional objectives facilitated greater adoption, particularly in schools with limited technical support. Although the study was limited by its sample size and descriptive scope, it establishes a strong foundation for future research and highlights practical priorities for strengthening blended learning implementation in rural Malaysian secondary schools.

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Declaration of Generative AI and AI-assisted Technologies in the Writing Process

This manuscript was prepared with limited assistance from ChatGPT (OpenAI) solely for language refinement and editorial improvement. The tool was not used for data collection, analysis or interpretation. The author(s) conducted all research and data analysis independently and take full responsibility for the content and conclusions of the final submitted version.

Conflict of Interest

The authors declare that there are no conflicts of interest related to the findings or publication of this study. No professional relationships were present that could have influenced the design, data collection, data analysis or reporting of the research. The study was conducted independently accordance with academic and ethical standards.

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Authors' Contributions

The first author was primarily responsible for the conceptualization, research design, data collection and preparation of the initial manuscript draft. The second author contributed to the developed the literature review, undertook substantial revisions of the manuscript and provide critical feedback throughout the research process. The third author contributed to the data analysis and interpretation of the data, provided methodological guidance, as well as overseeing the final approval of the manuscript. All authors reviewed and approved the final version.