A Quantitative Study on the Influence of Readiness and Perceived Usefulness on Malaysian Primary ESL Teachers' Intention to Integrate AI in Language Learning and Teaching

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ABSTRACT

Artificial Intelligence (AI) is increasingly transforming English Language Teaching (ELT), yet limited empirical evidence exists on how Malaysian primary ESL teachers perceive and intend to use AI tools in classroom practice. This study investigates teachers' readiness, perceived usefulness and behavioural intention to integrate AI, addressing a gap in empirical research within the Malaysian primary school context. A quantitative survey design was employed, involving 80 primary ESL teachers who completed a structured questionnaire adapted from the Technology Acceptance Model (TAM). Descriptive statistics indicated moderately high levels of readiness, strong perceptions of usefulness and high intention to adopt AI. Pearson correlation analysis revealed strong, positive and statistically significant relationships among the three constructs. Multiple regression results further showed that perceived usefulness was the strongest predictor of intention, followed by teacher readiness. Open-ended responses provided supplementary insights, highlighting teachers' need for hands-on training, practical examples and continuous professional development. Overall, the study offers timely empirical evidence on AI adoption in Malaysian primary ESL classrooms and underscores the importance of enhancing teachers' digital competence and pedagogical capacity for sustainable and meaningful AI integration.

Keywords — Artificial Intelligence (AI), teacher readiness, perceived usefulness, Technology Acceptance Model (TAM), English Language Teaching (ELT)

INTRODUCTION

The integration of Artificial Intelligence (AI) into education has become one of the most significant developments shaping teaching and learning in the twenty-first century. In the field of English Language Teaching (ELT), AI applications such as ChatGPT, Grammarly, ELSA Speak and Mondly AR have redefined how teachers plan lessons, deliver instruction and assess learning outcomes. These intelligent tools provide personalized feedback, adaptive content and interactive learning environments that align with the global demand for digital competence and 21st-century learning. In Malaysia, the Ministry of Education has taken progressive steps to encourage technology adoption through the Digital Education Policy (2024–2030) (Ministry of Education Malaysia, 2024), which aims to promote innovation, creativity and digital literacy among educators and students alike. This initiative complements the aspirations of the Malaysia Education Blueprint (2013–2025) (Ministry of Education Malaysia, 2013), which emphasizes leveraging technology to enhance teaching quality and student engagement.

Despite these policy efforts, the successful implementation of AI in English language classrooms depends largely on teachers' readiness and perceived usefulness of such technologies. Teacher readiness reflects the degree to which educators feel prepared, confident and equipped with the necessary technological skills and resources to incorporate AI tools in their teaching practice (Chan & Tang, 2024). Perceived usefulness, on the other hand, represents teachers' beliefs about the extent to which AI can improve teaching efficiency, foster meaningful learning and enhance students' language acquisition (Guan et al., 2025). Together, these two constructs determine teachers' behavioural intention to integrate AI in their pedagogical activities. Research suggests that even when teachers have access to digital tools, their adoption is often limited if they do not perceive them as useful or if they lack the readiness to utilize them effectively (Wulandari & Purnamaningwulan, 2024).

However, while global studies have explored these factors conceptually, there remains limited empirical evidence within the Malaysian English as a Second Language (ESL) context. Most previous research has focused broadly on teachers' attitudes toward educational technology or general digital readiness, without isolating the influence of AI-specific readiness and perceived usefulness on teachers' behavioural intention to use AI in language education (Metwally & Bin-Hady, 2025; An et al., 2023). In addition, much of the existing literature has been conducted in higher education or in developed countries where digital infrastructure and professional training are more established (Kohnke & Ulla, 2024). In contrast, Malaysian ESL teachers—particularly those in primary and secondary schools—operate within diverse linguistic environments and resource constraints, which may influence how they perceive and adopt AI tools in classroom practice. As a result, the integration of AI in language learning and teaching in Malaysia remains uneven and largely exploratory. This study therefore addresses a clear research gap by providing quantitative, context-specific evidence on how readiness and perceived usefulness predict ESL teachers' intention to integrate AI into their pedagogical practices—an area that has not been empirically examined in the Malaysian school context.

Although AI integration is gaining momentum, there remains limited empirical evidence on how teacher readiness and perceived usefulness predict Malaysian ESL teachers' intention to adopt AI. Recognising this gap, the present study examines the influence of these two constructs on teachers' intention to integrate AI in language learning and teaching. Specifically, it seeks to identify teachers' levels of readiness, their perceptions of AI's usefulness, and the extent to which these factors predict their intention to use AI in instructional contexts. To fulfil this aim, the objectives of the study are as follows:

1. to examine the levels of ESL teachers' readiness, perceived usefulness and intention to integrate AI in language learning and teaching
2. to determine the relationship between readiness, perceived usefulness and intention

By examining these relationships, this study contributes to a deeper understanding of the psychological and pedagogical factors that shape teachers' adoption of AI in English language education. The findings are expected to provide valuable insights for policymakers, school leaders and teacher educators in promoting effective and sustainable AI integration. Furthermore, the study offers empirical evidence to support Malaysia's Digital Education Policy (2024–2030) by highlighting the importance of teacher preparedness and attitudes in driving technological innovation in schools. It also extends the theoretical foundation of the Technology Acceptance Model (TAM) by validating how readiness and perceived usefulness influence behavioural intention within the Malaysian ESL context (An et al., 2023; Runge et al., 2025). Ultimately, this study seeks to promote a balanced and human-centred approach to AI adoption, positioning technology as a collaborative pedagogical tool that empowers both teachers and learners in the English language classroom.

LITERATURE REVIEW

Teacher Perceptions of AI-Enhanced Language Teaching

The integration of Artificial Intelligence (AI) into English Language Teaching (ELT) has influenced teachers' professional beliefs and classroom practices, shaping their perceptions across both pedagogical and psychological dimensions. Pedagogically, teachers increasingly recognise AI as a valuable instructional tool that enhances lesson delivery, supports differentiated instruction and streamlines assessment processes. Empirical studies show that tools such as ChatGPT, Grammarly, ELSA Speak and Mondly AR provide instant feedback, personalise learning pathways and reduce teachers' workload in preparing materials and assessing student work (Mustroph & Steinbock, 2024; Xiaofan & Annamalai, 2025). Similar findings were reported in a recent study, where EFL teachers perceived AI-powered grading tools such as CoGrader as useful for enhancing feedback quality and supporting writing assessment (Alsalem, 2024). In the Malaysian context, ESL teachers similarly report that AI promotes student engagement and creativity, particularly when learners require varying levels of linguistic scaffolding (Zainuddin et al., 2024). Recent Malaysian findings also echo this pattern, where teachers reported generally positive perceptions of ChatGPT for enhancing lesson preparation, feedback quality and student engagement (Tan et al., 2025; Sivanganam et al., 2025). Similarly, primary ESL teachers recognise its usefulness for planning and personalised tasks despite ongoing challenges with infrastructure, training and the adaptation of AI-generated content for younger learners (Hisham & Yunus, 2025). These findings explain why teachers generally hold favourable pedagogical perceptions of AI integration.

However, teachers' attitudes are also shaped by psychological considerations, which influence how they evaluate AI's role in language teaching. While educators acknowledge AI's instructional benefits, many remain cautious about its limitations in offering human-like interaction, cultural sensitivity and emotional support—elements considered essential for effective language learning (Tafazoli, 2024; Metwally & Bin-Hady, 2025). Concerns about the reliability, neutrality and contextual appropriateness of AI-generated responses reflect deeper psychological constructs such as trust, perceived risk and anxiety toward automation. These reservations align with sociocultural and constructivist theories, which emphasise the importance of human mediation and guided interaction in learning processes (Vygotsky, 1978; Piaget, 1970). Consequently, although teachers value AI as a pedagogical aid, psychological uncertainties contribute to cautious and selective adoption.

Perceived Usefulness and Teacher Readiness

Perceived usefulness (PU) and teacher readiness are central constructs influencing teachers' acceptance of AI and can be understood through intertwined pedagogical and psychological dimensions. PU, a core construct of the Technology Acceptance Model, refers to teachers' belief that AI enhances their instructional effectiveness and professional performance (Davis, 1989). Teachers who perceive AI as improving feedback accuracy, increasing teaching efficiency or promoting learner autonomy are more likely to integrate it into their practice (Granström & Oppi, 2025; Guan et al., 2025). PU therefore represents a psychologically grounded judgement of AI's value, framed within teachers' pedagogical goals.

Teacher readiness further shapes acceptance by encompassing both psychological confidence and pedagogical competence. Psychologically, readiness refers to teachers' digital self-efficacy, openness to innovation and comfort with technological change (Chan & Tang, 2024; Wulandari & Purnamaningwulan, 2024). Teachers who feel competent using digital tools tend to view AI more positively. Pedagogically, readiness involves the ability to integrate AI meaningfully with curriculum demands, instructional strategies and diverse learner needs. Research indicates that insufficient training or institutional support can lead teachers to perceive AI as burdensome or disruptive, whereas teachers with strong readiness are more likely to see AI as a pedagogically advantageous resource (Jackman et al., 2025; Riggs, 2025).

Recent studies demonstrate a reciprocal relationship between readiness and PU: higher readiness enhances teachers' perceptions of AI's usefulness and stronger perceptions of usefulness further strengthen intention to adopt AI tools (Granström & Oppi, 2025). This synergy highlights the need to address both psychological preparedness and pedagogical capacity when examining ESL teachers' acceptance of AI.

Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) provides a coherent framework for understanding teachers' behavioural intentions to integrate AI into language classrooms, capturing both psychological factors and pedagogical considerations. TAM posits that two key psychological constructs—perceived usefulness (PU) and perceived ease of use (PEOU)—shape individuals' evaluations of technology and influence adoption decisions (Davis, 1989). In educational contexts, TAM has been expanded to incorporate variables such as teacher readiness, digital competence and training experience, providing a more comprehensive understanding of how educators respond to AI technologies (Kavitha & Joshith, 2024; Runge et al., 2025).

Within the ELT context, TAM assumes relevance across both dimensions. Psychologically, teachers assess AI based on their confidence in using technology and their beliefs about its practicality and compatibility with their teaching capabilities. Pedagogically, teachers evaluate AI according to how well it supports instructional objectives, promotes student engagement and enhances language-learning processes. Empirical evidence shows that teacher readiness serves as an antecedent to both PU and behavioural intention as teachers with stronger digital self-efficacy and pedagogical understanding of AI demonstrate higher acceptance (Jackman et al., 2025; Wulandari & Purnamaningwulan, 2024).

Drawing on these insights, the present study therefore adopts an extended TAM framework in which teacher readiness influences PU, and both constructs collectively predict ESL teachers' intention to integrate AI into teaching and learning. This model maintains coherence by linking psychological beliefs with pedagogical considerations, offering a comprehensive explanation of teachers' acceptance of AI within Malaysian ESL classrooms.

Collectively, the reviewed studies highlight the importance of examining both psychological and pedagogical factors that influence teachers' acceptance of AI. While international research has demonstrated the roles of readiness and perceived usefulness, evidence within the Malaysian primary ESL context remains limited. This underscores the need for a context-specific investigation into how these constructs shape teachers' behavioural intention, which the present study addresses through an extended TAM framework.

METHODOLOGY

Research Design

The study employed a quantitative survey design to examine primary school ESL teachers' readiness, perceived usefulness and intention to integrate Artificial Intelligence (AI) in language learning and teaching. The survey method was selected as it allows systematic collection of numerical data and provides an efficient means of capturing participants' beliefs and perceptions, making it appropriate for investigating teachers' views on AI integration (Creswell, 2012). Although primarily quantitative, the instrument incorporated four open-ended questions to obtain supplementary qualitative insights. The study was underpinned by the Technology Acceptance Model (TAM) (Davis, 1989), which posits that users' perceptions of a technology, particularly its usefulness, influence behavioural intention to adopt it.

Sampling Method and Participants

Convenience sampling was employed to obtain participants for the study. In convenience sampling, individuals are selected based on ease of access and willingness to participate (Noor et al., 2022; Wang & Cheng, 2020). In this research, the questionnaire link was disseminated through WhatsApp and Telegram teacher groups as well as selected Facebook communities, which facilitated voluntary participation from practising primary ESL teachers across different regions in Malaysia. To enhance visibility and improve response rates, the Google Form link was uploaded three times across these platforms, resulting in 80 respondents in the main study. Prior to this, a pilot study involving 21 primary ESL teachers was conducted to examine the clarity, relevance and reliability of the instrument. The main data collection period was subsequently carried out over one month.

Research Instrument

Data were gathered using a structured Google Forms questionnaire comprising five sections. Section A elicited demographic information while Sections B, C and D consisted of five-point Likert-scale items measuring Teacher Readiness, Perceived Usefulness and Intention to Integrate AI respectively. All Likert-scale items were rated on a five-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), allowing respondents to indicate the extent of their agreement with each statement. Section E included four open-ended questions designed to capture teachers' reflections on readiness, usefulness perceptions, integration decisions and support needs.

The questionnaire was developed by adapting established constructs from the Technology Acceptance Model and recent empirical studies on AI integration in education. The Perceived Usefulness and Intention constructs were adapted from TAM (Davis, 1989; Venkatesh & Davis, 2000), with items recontextualised for AI use in English language teaching. The Teacher Readiness construct was informed by recent empirical studies (Chan & Tang, 2024; Kavitha & Joshith, 2024; Guan et al., 2025), which conceptualise readiness in terms of digital competence, technical confidence, infrastructure support, institutional encouragement and teacher preparedness. Although these sources provide the conceptual foundation, all questionnaire items were newly written and contextualised for the Malaysian primary ESL environment. The four open-ended items were self-developed to enrich the quantitative findings by eliciting respondents' deeper perspectives on AI integration.

Instrument validity was ensured through expert review. The questionnaire was reviewed by three experts in English, comprising the Head of Panel for English and two experienced English teachers, who evaluated the clarity, content appropriateness and suitability of the items for Malaysian primary ESL classroom contexts. Their feedback informed minor revisions to the wording and structure of several items.

A pilot study was subsequently conducted with 21 primary ESL teachers to assess the internal consistency of the instrument. Cronbach's alpha values for all constructs exceeded .80, indicating good to very good internal consistency. This interpretation is consistent with established reliability benchmarks, which hold that values above .80 demonstrate very good reliability (Daud et al., 2018), values between .80 and .89 indicate good

reliability (Ahmad et al., 2024), and coefficients of .80 or higher are recommended for instruments used in applied educational research (Nunnally & Bernstein, 1994). The pilot study results are presented in Table 1.

Table 1: Internal Consistency in the Questionnaire for Pilot Study

Construct	Cronbach's Alpha	Cronbach's Alpha (Standardised)	Number of items
Teacher Readiness	.915	.917	10
Perceived Usefulness	.936	.942	10
Intention to Integrate AI	.905	.909	8
Total scales	.960	.965	28

Following the pilot test, the instrument was administered to the full sample (N = 80). A subsequent reliability analysis using the main study dataset yielded a Cronbach's alpha of .961 for all 28 items combined, indicating excellent overall reliability. The main-study reliability results are summarised in Table 2.

Table 2: Overall Reliability Statistics for the Main Study

Cronbach's Alpha	Cronbach's Alpha (Standardised)	Number of items
.961	.964	28

Data Analysis

After establishing the reliability of the instrument, the data were analysed using SPSS Version 31.0. Descriptive statistics (frequencies, percentages, means and standard deviations) were generated to summarise the demographic characteristics of the respondents and to determine the levels of teacher readiness, perceived usefulness and intention to integrate AI. Pearson correlation analysis was conducted to examine the strength and direction of the relationships among these continuous variables, while multiple regression analysis was employed to identify the predictive effects of teacher readiness and perceived usefulness on teachers' intention. These analytical procedures were selected because they correspond directly to the research questions and are theoretically aligned with the assumptions of the Technology Acceptance Model (TAM), which posits that users' perceptions and readiness influence behavioural intention. Although the questionnaire contained four open-ended items, the responses were summarised briefly to support the quantitative results rather than subjected to qualitative analysis.

RESULTS

Demographic Information

A total of 80 Malaysian primary ESL teachers participated in this study, representing a broad and diverse range of professional and personal backgrounds. The respondents varied in age from 21 years old to above 50 and possessed differing academic qualifications, with the majority holding a Bachelor's degree, followed by teachers with Master's degrees, Diplomas and a small number with doctoral qualifications. Their teaching experience ranged from 1–5 years to more than 15 years, providing a balanced distribution of novice, mid-career and highly experienced educators. Participants were drawn from both urban and rural school contexts across several states, including Selangor, Johor, Perak, Kedah and Sabah, offering representation from varied educational environments. In addition, their exposure to technology and AI-related professional development differed, as some had attended AI-focused training while others had not. This diversity in demographic characteristics contributes to a comprehensive and representative understanding of Malaysian primary ESL teachers, offering meaningful context for interpreting the study's findings. A summary of the respondents' demographic characteristics is presented in Table 3.

Table 3: Demographic Characteristics of Respondents (N =80)

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Female	60	75.0
	Male	20	25.0
Age	21-30 years	44	55.0
	31-40 years	27	33.8

	41-50 years	6	7.5
	Above 50 years	3	3.7
Highest Qualification	Diploma	4	5.0
	Bachelor's Degree	62	77.5
	Master's Degree	13	16.3
	PhD	1	1.2
Teaching Experience	1-5 years	46	57.5
	6-10 years	20	25.0
	11-15 years	6	7.5
	More than 15 years	8	10.0
School Location	Urban	50	12.5
	Semi-urban	20	55.0
	Rural	10	18.8
State of Teaching	Selangor	44	55.0
	Sarawak	15	18.8
	Johor	5	6.3
	Sabah	4	5.0
	Negeri Sembilan	2	2.5
	Penang	2	2.5
	Pahang	1	1.2
	Kedah	1	1.2
	Perlis	1	1.2
	Perak	1	1.2
	Federal Territories (KL/Labuan/Putrajaya)	1	1.2
AI-Related Training Attended	Yes	57	71.3
	No	23	28.7

Level of Readiness, Perceived Usefulness and Intention

Descriptive statistics were computed to examine the overall levels of readiness, perceived usefulness and intention to integrate AI. As shown in Table 4, the results revealed that teachers reported moderately high levels for all three constructs. Teacher readiness recorded a mean of $M = 3.85$ ($SD = .59$), suggesting that teachers generally felt confident and capable of using AI tools to support instructional delivery. Although readiness was slightly lower than the other constructs, the score still indicates a positive orientation toward adopting AI.

Perceived usefulness showed a higher mean of $M = 4.21$ ($SD = .54$), indicating strong agreement that AI tools can support English language teaching by enhancing feedback quality, facilitating personalised learning and improving instructional efficiency. This finding suggests that teachers recognise the pedagogical benefits of integrating AI into language learning contexts. Intention to integrate AI recorded the highest mean, $M = 4.28$ ($SD = .51$), reflecting a strong willingness among teachers to adopt AI tools in future teaching practices. Taken together, these results demonstrate that Malaysian primary ESL teachers perceive AI as valuable and are highly inclined to implement it in their instructional routines, supported by their perceived readiness and positive pedagogical attitudes.

Table 4: Descriptive Statistics for Readiness, Perceived Usefulness and Intention

Variable	*N*	Minimum	Maximum	*M*	*SD*
Readiness	80	2.30	5.00	3.85	.59
Perceived Usefulness	80	2.90	5.00	4.21	.54
Intention to Integrate AI	80	3.25	5.00	4.28	.51

Following the construct-level results, item-level descriptive statistics were examined to obtain a more detailed understanding of teachers' perceptions. Table 5 presents the distribution of scores for each readiness item. Overall, teachers showed moderately high readiness, with the highest-rated item being access to reliable internet and devices (M = 4.21), followed by mental preparedness to adopt AI (M = 4.04). Teachers also reported

confidence in selecting appropriate AI tools (M = 4.01) and using them in instructional design (M = 3.86). However, readiness was lower for aspects related to technical support (M = 3.46) and troubleshooting (M = 3.48), indicating that while teachers themselves felt generally prepared, institutional and technical support were comparatively weaker.

Table 5: Descriptive Statistics for Teacher Readiness Items (N=80)

No	Item	Mean	Degree	SD	Rank
1	I am confident in using AI tools for English language teaching.	3.99	High	0.738	3
2	I possess sufficient digital skills to integrate AI in my lessons.	3.83	High	0.776	6
3	I can troubleshoot technical issues that may arise when using AI tools.	3.48	Moderate	0.954	9
4	I can select appropriate AI tools that suit my lesson objectives and student needs.	4.01	High	0.684	4
5	I can design lesson activities that incorporate AI effectively.	3.86	High	0.742	5
6	My school provides adequate technical support for AI-based teaching.	3.46	Moderate	0.980	10
7	I receive sufficient professional development opportunities related to AI integration.	3.63	High	0.848	8
8	I feel mentally prepared to adopt new AI technologies in my teaching practice.	4.04	High	0.737	2
9	I believe my students are ready to use AI-based tools for learning.	3.95	High	0.855	7
10	I have access to reliable internet and devices for AI-based instruction.	4.21	High	0.650	1

To further explore teachers' perceptions of AI's instructional value, Table 6 summarises the item-level results for perceived usefulness. All items scored in the high range, consistent with the overall construct mean. The highest-rated item indicated that AI improves lesson preparation efficiency (M = 4.39), followed by AI's contribution to students' language achievement (M = 4.28) and enhanced teaching performance (M = 4.29). Teachers also perceived strong benefits in terms of workload reduction, feedback quality and supporting student comprehension. Even the lowest-scoring item—AI's role in formative assessment (M = 4.13)—remained within the high category, demonstrating uniformly positive perceptions of AI's value across instructional domains.

Table 6: Descriptive Statistics for Perceived Usefulness Items (N=80)

No	Item	Mean	Degree	SD	Rank
1	AI tools improve the quality of feedback I provide to students.	4.19	High	0.658	5
2	AI applications make lesson preparation more efficient.	4.39	High	0.626	1
3	Using AI tools helps me personalize learning for students.	4.18	High	0.652	6
4	AI enhances student engagement in English lessons.	4.19	High	0.638	5
5	AI supports effective formative assessment and progress tracking.	4.13	High	0.700	9
6	Integrating AI improves my overall teaching performance.	4.29	High	0.578	3
7	AI helps students understand language concepts more effectively.	4.19	High	0.644	5
8	AI allows me to focus more on interactive classroom activities.	4.16	High	0.679	8
9	AI reduces my workload related to marking and assessment.	4.22	High	0.694	4
10	AI contributes positively to students' language achievement.	4.28	High	0.610	2

Finally, Table 7 presents the item-level descriptive statistics for intention to integrate AI. The intention construct recorded the highest overall mean among the three constructs and this pattern was consistent at the item level. Teachers expressed the strongest intention to explore more AI tools (M = 4.41), followed by motivation to learn more about AI in pedagogy (M = 4.36). High intentions were also reflected in teachers' willingness to attend future AI-related workshops (M = 4.28) and to incorporate AI into their regular teaching routines (M = 4.28).

Even the lowest-ranking item—intending to use AI for assessing student outcomes (M = 4.18)—remained high, signifying broad and consistent enthusiasm for long-term AI adoption.

Table 7: Descriptive Statistics for Intention to Integrate AI Items (N=80)

No	Item	Mean	Degree	SD	Rank
1	I plan to integrate AI tools into my English lessons in the near future.	4.20	High	0.625	2
2	I am willing to explore more AI tools for teaching English.	4.41	High	0.568	1
3	I intend to use AI for assessing students' learning outcomes.	4.18	High	0.661	7
4	I will recommend AI tools to my colleagues for language teaching.	4.26	High	0.611	5
5	I am motivated to learn more about integrating AI into pedagogy.	4.36	High	0.601	3
6	I will attend future workshops or courses related to AI in education.	4.28	High	0.573	4
7	I intend to make AI a regular part of my teaching routine.	4.28	High	0.693	4
8	I am confident that I will continue using AI tools in the long term.	4.24	High	0.641	6

Relationship Between Readiness, Perceived Usefulness and Intention

Pearson correlation analysis was conducted to examine the relationships among readiness, perceived usefulness and intention. As shown in Table 8, all correlations were positive, strong and statistically significant. Readiness was strongly correlated with perceived usefulness (r = .75, p < .001), indicating that teachers who felt more prepared to use AI were also more likely to view AI as beneficial for teaching and learning. Readiness was also strongly correlated with intention (r = .68, p < .001), suggesting that teachers who felt more confident and equipped to use AI expressed higher intention to integrate it into their instructional practices. Perceived usefulness similarly showed a strong correlation with intention (r = .71, p < .001), reinforcing the idea that teachers who believe AI can improve teaching outcomes are more inclined to adopt it.

Table 8: Pearson Correlations Among Readiness, Perceived Usefulness and Intention

Variable	n	M	SD	1	2	3
Readiness	80	3.85	.59	-		
Perceived Usefulness	80	4.21	.54	.75***	-	
Intention	80	4.28	.51	.68***	.71***	-

A multiple regression analysis was conducted to determine whether readiness and perceived usefulness significantly predicted intention to integrate AI. The regression model was statistically significant, $F(2, 77) = 48.66$, $p < .001$, and accounted for 55.8% of the variance in intention ($R^2 = .558$), indicating that the two predictors together substantially explain teachers' intention to integrate AI. As presented in Table 9, both predictors contributed significantly to the model. Perceived usefulness emerged as the strongest predictor ($\beta = .45$, $p < .001$), suggesting that teachers who perceive AI as beneficial are more likely to intend to use it. Readiness was also a significant predictor ($\beta = .31$, $p = .003$), indicating that teachers who feel confident and prepared to use AI demonstrate stronger intention to adopt AI tools. These findings highlight the influential roles of both perceived usefulness and readiness, aligning with the Technology Acceptance Model, which emphasises the importance of users' beliefs and preparedness in shaping AI adoption behaviours.

Table 9: Multiple Regression Analysis Predicting Intention to Integrate AI

Predictor	*B*	*SE B*	β	*t*	*p*
Constant	1.34	0.31	-	4.38	< .001
Readiness	0.30	0.10	.31	3.05	.003
Perceived Usefulness	0.43	0.11	.45	3.98	< .001

Note. $R = .747$, $R^2 = .558$, Adjusted $R^2 = .547$, $F(2, 77) = 48.66$, $p < .001$.

Supporting Teacher Insights

The open-ended responses provided additional descriptive insights that complemented the quantitative findings. Teachers described their readiness using terms such as "*Mid*," "*Intermediate*," and "*High*," alongside expanded statements indicating developing confidence, for example, "*I am quite ready to use AI tools in my English lessons*," and "*I am still learning how to use AI tools*." Responses regarding usefulness were consistently positive, with teachers describing AI tools as "*very useful*," "*highly effective*," and "*helpful because they make lessons more engaging*," along with brief comments such as "*High*" and "*Strongly effective*." For factors influencing intention, teachers referred to usefulness, reliability and relevance, represented by responses such as "*Usefulness of AI tools*" and "*My decision to use AI depends on how useful and effective the tools are.*" Some teachers also mentioned practical considerations such as the ease of using AI tools and the availability of technical support, indicating that intention is shaped not only by perceived usefulness but also by the practicality of implementation. Regarding support needs, teachers requested "*Hands-on training,*" "*Workshop*s," "*Practical training*," and "*Tutorials*," with several providing elaborated responses such as "*I would like practical training and clear guidelines*," and "*Workshops and examples of AI use in class would help*." These responses collectively describe the range of views expressed in the dataset and serve to support the quantitative results.

DISCUSSION

Level of Readiness, Perceived Usefulness and Intention

The findings of this study show that Malaysian primary ESL teachers demonstrate moderately high levels of readiness, strong perceptions of usefulness and high intention to integrate AI in language learning and teaching. From a psychological perspective, the readiness mean (M = 3.85) reflects teachers' developing confidence and digital self-efficacy. This psychological readiness is echoed in the teacher insights, where respondents described themselves as "*mid*," "*intermediate*," "*still learning*," and "*quite ready*." Such responses reveal an awareness of AI's relevance, accompanied by lingering uncertainty regarding technical mastery. These patterns are consistent with Chan and Tang (2024), who found that teachers' psychological readiness is often shaped by prior exposure, perceived competence and levels of digital anxiety.

From a pedagogical standpoint, readiness also reflects teachers' understanding of how AI can fit meaningfully into lesson planning and classroom practice. Several teachers indicated that they were exploring AI tools for generating teaching ideas, personalising worksheets or supporting pronunciation practice. These responses indicate that readiness extends beyond technical familiarity and increasingly involves teachers' ability to integrate AI into CEFR-aligned tasks and curriculum requirements. These insights suggest that teachers are beginning to see AI not only as a technological tool but as a pedagogical asset. However, the responses also imply that teachers' pedagogical readiness remains emergent, with many still uncertain about integrating AI within curriculum requirements and CEFR-aligned learning outcomes.

Perceived usefulness recorded the highest levels in the study (M = 4.21), supported strongly by teachers' qualitative responses such as "*AI is very useful*," "*highly effective*," "*strongly effective*," and "*helpful because it makes lessons more engaging*." Psychologically, these responses indicate strong positive beliefs about AI's value, which TAM identifies as the most influential determinant of behavioural intention (Davis, 1989; Venkatesh & Davis, 2000). Pedagogically, teachers emphasised AI's ability to enhance feedback quality, support speaking tasks, generate personalised materials and streamline lesson preparation. These pedagogical benefits align with findings by Guan et al. (2025), who argue that AI improves linguistic scaffolding, enhances immediate feedback and supports differentiated instruction—which are central pedagogical concerns in primary ESL classrooms.

Intention to integrate AI was the highest among the three constructs (M = 4.28), indicating strong willingness to adopt AI. Teachers expressed eagerness in comments such as "*I would use AI when it is useful*" and "*AI improves teaching efficiency*." Psychologically, this reflects positive attitudes and future-oriented motivation. Pedagogically, it suggests that teachers see AI as compatible with instructional goals and capable of enriching classroom practice. The relatively small standard deviations across all constructs (readiness SD = 0.59; perceived usefulness SD = 0.54; intention SD = 0.51) indicate that these positive perceptions were consistently shared across respondents, further reinforcing the stability of these findings. Collectively, the results in this section

suggest that teachers are favourably positioned for AI adoption, provided that their psychological confidence and pedagogical competence continue to be developed.

In addition to the construct-level findings, the item-level results further reinforce these interpretations. Teachers rated themselves particularly high in areas related to device and internet access, mental preparedness and the ability to identify suitable AI tools, while lower ratings on troubleshooting and institutional technical support suggest that personal readiness exceeds infrastructural readiness. Likewise, perceived usefulness scores were uniformly high across all items, especially for efficiency, improved teaching performance and positive effects on student learning. Intention items also showed strong and consistent willingness to explore, learn and adopt AI tools on a long-term basis. These item-level trends support the conclusion that teachers hold broadly positive perceptions across all constructs, providing strong empirical support for Research Question 1.

Relationship Between Readiness, Perceived Usefulness and Intention

The results demonstrated strong and significant relationships among readiness, perceived usefulness and intention, confirming the relevance of TAM in explaining AI adoption in Malaysian ESL contexts. Psychologically, the strong correlations between readiness and usefulness ($r = .75$, $p < .001$) and between readiness and intention ($r = .68$, $p < .001$) indicate that teachers who feel competent and confident are more likely to perceive AI positively and intend to use it. The teacher insights support this, with respondents noting comments such as "*I am still learning*," "*I need more confidence and skills*," indicating that psychological readiness is a meaningful factor influencing intention. These patterns are consistent with TAM's proposition that internal beliefs, particularly confidence and perceived capability, shape teachers' cognitive evaluations of new technologies (Venkatesh & Davis, 2000).

Pedagogically, readiness shapes teachers' ability to envision how AI can be incorporated into classroom activities. Teachers expressing that they are "*still learning*" or "*not fully confident*" reflect pedagogical uncertainty about aligning AI use with teaching strategies, curriculum demands or assessment requirements. Such pedagogical readiness is essential because AI integration requires teachers to make instructional decisions, scaffold student interaction with technology and manage AI-supported learning activities—skills that teachers may still be developing. This supports prior studies suggesting that pedagogical readiness directly influences how effectively teachers can translate digital tools into meaningful learning experiences (Wulandari & Purnamaningwulan, 2024).

Perceived usefulness emerged as the strongest predictor of intention in the regression analysis ($\beta = .45$, $p < .001$), indicating that teachers' belief in AI's pedagogical value is the most influential factor shaping their adoption decisions. Teacher statements such as "*My decision to use AI depends on how useful and effective the tools are*" directly reflect TAM's assertion that perceived usefulness has the greatest impact on intention (Davis, 1989). From a psychological angle, teachers demonstrate strong task-related beliefs and positive attitudes toward AI's potential. Pedagogically, teachers indicated that AI enhances lesson engagement, feedback provision and linguistic practice, demonstrating that usefulness is framed within concrete instructional benefits. These findings reinforce the idea that teachers' perceptions of usefulness are grounded not only in general attitudes but in observable improvements in instructional processes and learner outcomes.

The findings also highlight the influence of contextual and institutional factors on readiness and intention. Teachers frequently expressed a need for "*hands-on training*," "*practical workshops*," "*tutorials*," and "*examples of AI use in English lessons*." Psychologically, such training would enhance confidence, reduce anxiety and strengthen digital self-efficacy. Pedagogically, practical, example-based training would help teachers understand how AI can be meaningfully integrated into planning, delivery and assessment within CEFR-aligned classroom contexts. This aligns with research highlighting that institutional support, structured training and ongoing professional development are essential for promoting sustainable classroom technology use (Jackman et al., 2025; Riggs, 2025). These requests align with studies indicating that meaningful AI adoption requires both psychological preparedness and pedagogical capability supported by institutional structures (Metwally & Bin-Hady, 2025; Riggs, 2025).

Overall, the findings demonstrate that readiness and perceived usefulness are not only statistically significant predictors of intention but are also supported by clear psychological and pedagogical explanations. Teachers intend to integrate AI because they believe it is valuable and because they feel increasingly competent in navigating it. Nevertheless, continuous and well-structured professional support is necessary to ensure that these

intentions translate into sustained, effective and pedagogically sound AI integration in classroom practice. The findings clearly address Research Question 2 by demonstrating that both teacher readiness and perceived usefulness significantly influence ESL teachers' intention to integrate AI in language learning and teaching.

CONCLUSION

The study examined Malaysian primary ESL teachers' readiness, perceived usefulness and intention to integrate AI in language teaching. The findings showed moderately high readiness, strong perceptions of usefulness and high intention to adopt AI, with perceived usefulness emerging as the strongest predictor of intention. These results indicate that teachers recognise AI's value in enhancing feedback, personalising learning and supporting instructional efficiency. Although teachers demonstrated positive attitudes toward AI, their responses also highlight the need for continued professional development to strengthen both digital competence and pedagogical application. Overall, the study provides timely empirical evidence on AI adoption in Malaysian primary ESL education and underscores the importance of supporting teachers to ensure meaningful and sustainable integration.

In practice, these findings suggest that strengthening teachers' digital readiness, improving infrastructural support and expanding access to AI-focused professional development are essential for effective implementation. Future efforts should prioritise clearer guidelines, targeted training and more robust infrastructure to ensure sustainable and meaningful AI integration in schools. At the same time, the study's limited timeframe, reliance on convenience sampling and brief qualitative responses constrain the generalisability and depth of the findings, indicating the need for further research that explores classroom practices, contextual factors and long-term adoption patterns.

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