



Tech Takeover? Examining Technology Acceptance Among Malaysian SJKC ESL Teachers at Kota Tinggi District After the COVID-19 Pandemic

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Abstract

The COVID-19 pandemic forced a rapid shift towards technology adoption in education worldwide, prompting educators to adapt and ensure learning continuity. As most countries return to normalcy, understanding teachers' evolving technology acceptance levels becomes crucial, especially in the context of emergency remote teaching experiences. This study investigated the technology acceptance and behavioural intentions of English as a Second Language (ESL) teachers in Chinese national-type primary schools (SJKC) at Kota Tinggi District, Johor, Malaysia. 30 ESL teachers participated in this cross-sectional survey, in which they answered an online survey questionnaire which was devised with the reference of past studies. Descriptive, Pearson's correlation, and multiple regression analysis were used to analyse the gathered data. The findings depicted that they hold a high level of technology acceptance level ($\mu=4.20$) after the pandemic. Also, their behavioural intention are positively correlated with the factors of performance expectancy, effort expectancy, social influence and facilitating conditions. Nevertheless, their behavioural intention had a significant relationship with only two factors, namely performance expectancy ($r=.907$) and social influence ($r=.906$). Performance expectancy was identified as the most significant factor that

influenced their behavioural intention towards technology use after COVID-19 pandemic [$\beta=0.439$, $t(29)=2.965$, $p<0.05$]. This study shed light on the patterns of behaviour that ESL teachers in Kota Tinggi intend to use when integrating technology in the wake of the COVID-19 outbreak. Addressing these factors through training programmes and supportive school environments will enable technology to continue playing a meaningful role in enhancing ESL education, thereby fulfilling the aspirations of the Sustainable Development Goals.

Keywords: Technology acceptance, SJKC ESL teachers, post-pandemic education, performance expectancy, effort expectancy, social influence, facilitating conditions

Introduction

The increasing significance of technology persists as a valuable tool for assisting ESL educators in facilitating language learning for their students (Amin, 2019). As pedagogical practices of ESL teachers continue to evolve globally, the integration of technology, such as instructional videos, courseware, and digital teaching aids, has become a customary practice. This utilization ensures that ESL teaching and learning sessions align with the intended learning objectives set forth by The Common European Framework of References for Languages (CEFR).

The sudden transition to online delivery of ESL lessons, prompted by the onset of the COVID-19 pandemic, has presented widespread challenges to the accessibility of quality education, as articulated in the fourth Sustainable Development Goal (SDG) (Rafiq et al., 2022). Consequently, nations affected by COVID-19 were compelled to shift from traditional teaching methods to fully online instruction (Haug et al., 2020). This necessitated a substantial reconfiguration of the role of technology, with a heavy reliance on it for emergency remote teaching during the pandemic. ESL educators, in particular, endeavoured to acquire proficiency in utilizing various online applications and tools to deliver lessons and engage students, aiming to prevent any adverse impact on learning outcomes.

In the Malaysian context, ESL teachers were mandated to implement home-based learning (PdPR), relying extensively on technological tools as a temporary adjustment to instructional delivery due to the COVID-19 pandemic (Hodges et al., 2020). Following the Ministry of Education's (MoE) recommendations, Malaysian ESL teachers adopted three approaches for English PdPR: online, offline, and offsite (MoE, 2021). This mode of instruction persisted from March 2020 until Malaysian ESL learners gradually returned to physical classrooms with a 50% class capacity, eventually transitioning to full attendance when Malaysia shifted from a pandemic to a more manageable endemic mode after approximately 25 months (Teoh, 2022).

Throughout the implementation of PdPR, Malaysian ESL teachers quickly embraced technology to deliver lessons, irrespective of their initial technology competency and acceptance levels, ensuring the continuity of students' learning. Educational researchers, such as Choi et al. (2021), observed that the COVID-19 pandemic compelled teachers to showcase their proficiency in utilizing technologically equipped infrastructure provided by MoE to maximize the benefits of technology-based education. Consequently, the technology acceptance levels of Malaysian ESL teachers may have undergone changes, either positively or negatively, potentially impacting the quality of ESL lessons in post-COVID-19 settings.

Despite these developments, research on ESL teachers' shifts in technology acceptance levels post-COVID-19 remains insufficient, creating a notable gap in the literature. Therefore, investigating ESL teachers' acceptance of technology during the COVID-19

pandemic becomes crucial for predicting future educational trends and understanding their intentions to integrate technology in post-COVID-19 teaching and learning sessions, aligning with Sustainable Development Goals (Sung et al., 2021). Accordingly, this study aims to address Malaysian ESL teachers' technology acceptance levels and explore the factors influencing their behavioural intentions toward technology use in ESL classrooms, addressing the following research questions:

1. What is the technology acceptance level of Malaysian SJKC ESL Teachers at Kota Tinggi District after COVID-19 pandemic?
2. To what extent is there a relationship between the factors (PE, EE, SI, and FC) and the behavioural intentions of Malaysian SJKC ESL teachers at Kota Tinggi District towards technology use after the COVID-19 pandemic?
3. What is the most significant factor that influences behavioural intentions of Malaysian SJKC ESL teachers at Kota Tinggi District to use technology after COVID-19 pandemic?

Literature Review

Technology in the ESL Classroom

Wahab et al. (2012) characterised technology as the systematic application of scientific knowledge to accomplish specific tasks. In the educational context, technology is conceptualized as an instructional system comprising interconnected elements that efficiently operate within a specified framework, facilitating teaching activities to achieve defined learning objectives (Heinich et al., 2012). Educational technology plays a crucial role in enhancing ESL learners' acquisition of knowledge, improvement of verbal skills, and problem-solving abilities (Cheng et al., 2022). This perspective finds support in Warner et al.'s (2018) assertion that technology encompasses a diverse range of tools aimed at engaging ESL learners in authentic problem-solving, concept development, and critical thinking. Costley (2014) reinforced the positive impact of educational technology on learners, emphasizing its role in increasing motivation, engagement, collaboration, and technological proficiency, providing enhanced opportunities for hands-on learning.

In the contemporary era of globalization and modernization, the roles of ESL learners have evolved alongside the advancements in educational technology, as interactive and multimedia educational materials offer advantages surpassing conventional teaching and learning methods (Stošić, 2015). The global reliance on educational technology became particularly pronounced during the COVID-19 pandemic, with ESL teachers worldwide adopting various technological tools such as video conferencing applications, social media, Learning Management Systems (LMS), and game-based learning tools to ensure continued learning and sustained motivation despite the shift to remote teaching (Wen & Tan, 2020).

Wen and Tan (2020) argued that the COVID-19 pandemic served as a catalyst for the widespread adoption of technology in emergency remote teaching, compelling ESL teachers to acquire essential skills regardless of their initial technological competency levels. This rapid adaptation to technology during the pandemic, as suggested by Choi et al. (2021), may have altered ESL teachers' acceptance levels, potentially influencing the quality of ESL lessons in post-COVID-19 settings. However, there remains a dearth of research on the post-pandemic shift in ESL teachers' technology acceptance levels, necessitating investigation to anticipate future educational trends and understand their intentions to integrate technology sustainably (Sung et al., 2021).

Technology Acceptance

Technology acceptance is defined as the extent to which a user is willing to adopt technology for its intended purposes (Cheng et al., 2022). The technology acceptance level of ESL teachers becomes a critical factor in determining the success or failure of technology integration in their classrooms after the pandemic. Samaradiwakara and Gunawardena (2014) emphasized that technology's value is contingent on its acceptance by users who demonstrate a willingness to employ it.

As countries transitioned to an endemic phase, researchers began assessing ESL teachers' technology acceptance levels post-COVID-19 school closures. Bajaj et al.'s (2021) study identified a high level of behavioural intention among teachers to continue using online teaching tools post-pandemic. Similar positive acceptance trends were observed in studies by Sari et al. (2021), Li (2021), and Dindar (2021). Conversely, Saidu dan Mamun (2022) reported a moderate level of technology acceptance among teachers in Bangladesh and Nigeria, citing challenges in adapting to emergency remote teaching during the pandemic. Factors such as inadequate facilities and training in developing countries were also identified as potential contributors to negative perceptions towards technology, impacting technology acceptance levels (Aina & Opeyemi, 2020; Udosen & Adie, 2019; Akar, 2019).

To comprehend the shift in ESL teachers' technology acceptance levels, various theories and models have been proposed, including TAM, UTAUT, and TPB. This study adopts the UTAUT model, considering it a prominent theory in technology acceptance, especially in the context of ESL teaching (Momani, 2020).

Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT, developed by Venkatesh et al. in 2003, as illustrated in Figure 1, integrates elements from eight existing theories of technology acceptance, including TAM, TPB, Combined TAM and TPB, TRA, MPCU, SCT, and IDT. The model incorporates four key factors, namely performance expectancy (PE), effort expectancy (EE), social influence (SI), and facilitating conditions (FC) that influence technology users' behavioural intentions and use behaviour (Venkatesh et al., 2003).

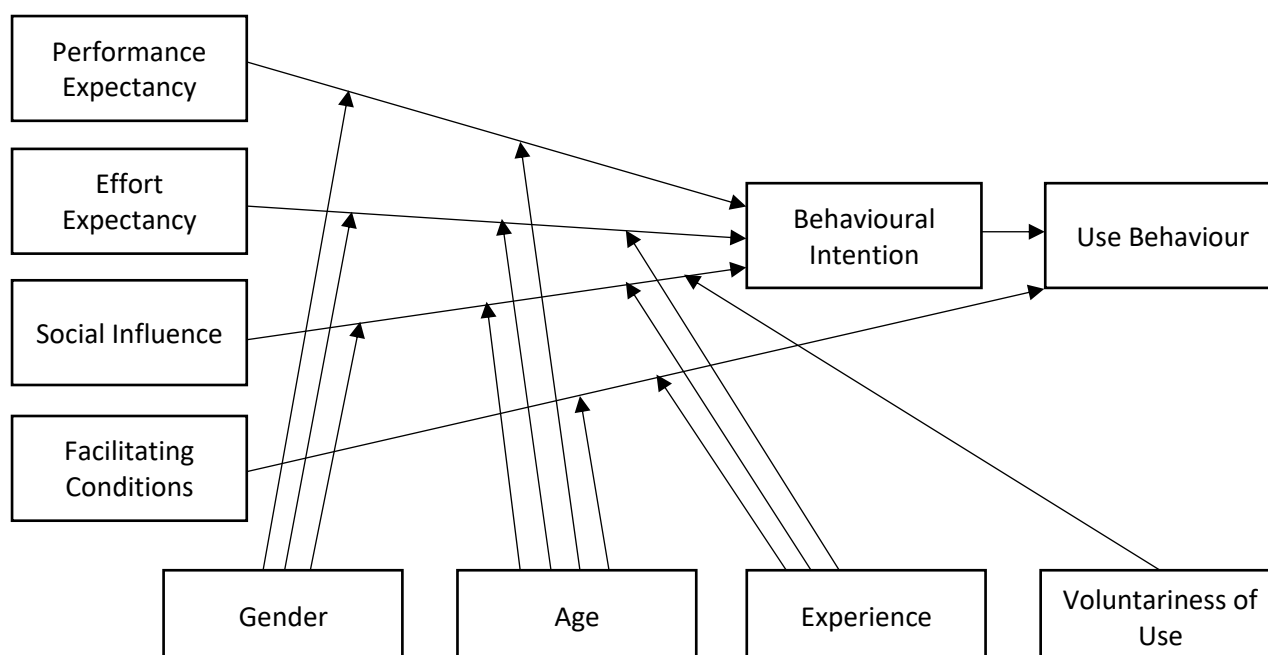


Figure 1: The UTAUT model (Venkatesh et al., 2003)

Performance expectancy (PE), reflecting the perceived usefulness of technology, has been found to significantly impact teachers' behavioural intentions to adopt technology (Ateş & Garzón, 2022; Bajaj et al., 2021; Huang et al., 2021; Khlaif et al., 2022; Mukminin et al., 2022; Rashid et al., 2021). ESL teachers, in alignment with these findings, are more inclined to use technology for emergency remote teaching if they perceive it as beneficial for instructional delivery (Al-Anezi & Alajmi, 2021; Mohammad-Salehi et al., 2021; Ting & Aziz, 2021). However, studies (Sharma & Saini, 2022; Utami et al., 2022) suggest that PE may not necessarily influence teachers in accepting technology during obligatory situations like the COVID-19 outbreak.

Effort expectancy (EE), representing the ease of use of technology, has shown a consistent impact on teachers' intentions to accept and use technology (Asghar et al., 2021; Dindar et al., 2022; Luik & Taimalu, 2021; Menabò et al., 2021; Rashid et al., 2021; Saidu & Mamun, 2022; Sharma & Saini, 2022). ESL teachers are more likely to accept technology for educational purposes during the pandemic if they find it easy to use, contributing to positive perceptions of its benefits for both learners and teachers (Venkatesh et al., 2016). Studies specifically in ESL settings support these findings, emphasizing the role of EE in influencing teachers' positive attitudes and intentions towards technology acceptance (Abdullah & Toykan, 2018; Kwok & Yang, 2017).

Social influence (SI), the impact of peers and the community on technology acceptance, has been a significant factor affecting ESL teachers' intentions to use technology for emergency remote teaching (Asghar et al., 2021; Jalil et al., 2022; Rahman et al., 2021; Utami et al., 2022). The support and influence of colleagues, friends, students, and teachers contribute to ESL teachers' positive correlation between SI and their intentions to use online tools (Ting and Aziz, 2021). Unified communities of practice have been identified as influential in affecting ESL teachers' intentions through knowledge-sharing for effective technology integration (Mohammad-Salehi et al., 2021).

Facilitating conditions (FC), although not directly influencing behavioural intention but affecting usage behavior, has been a crucial factor during the COVID-19 pandemic (Dindar et

al., 2022; Gurer, 2021; Jalil et al., 2022; Sharma & Saini, 2022). FC, defined by Venkatesh et al. (2016), includes an individual's experience and age, impacting usage behavior, especially among experienced individuals. While UTAUT suggests FC doesn't directly affect behavioural intention, studies have identified FC as a significant factor influencing ESL teachers' intentions to accept technology (Dindar et al., 2022; Mohtar & Yunus, 2022; Ting & Aziz, 2021). Adequate resources, training, and assistance during the COVID-19 outbreak increased ESL teachers' willingness to accept technology, while poor facilitating conditions acted as barriers to effective technology integration (Gurer, 2021; Ng & Yunus, 2021; Luik and Taimalu, 2021).

Despite the abundance of UTAUT studies in the ESL context, a notable gap exists regarding the relationship between UTAUT and ESL teachers' behavioural intention towards technology use in post-COVID-19 settings. This knowledge gap underscores the importance of investigating the technology acceptance level of Malaysian ESL teachers in SJKCs and the factors influencing their behavioural intentions post-pandemic, contributing to the assurance of quality ESL education aligned with the fourth Sustainable Development Goal.

Methods

Research Design

This study employed a quantitative approach, specifically adopting a cross-sectional survey design to assess the technology acceptance level among Malaysian SJKC ESL teachers in the Kota Tinggi District and to investigate the factors influencing their behavioural intentions toward the adoption of technology in their ESL classrooms. The theoretical framework underpinning this study was the Unified Theory of Acceptance and Use of Technology (UTAUT) proposed by Venkatesh et al. (2003).

Research Sample

A total of 30 ESL teachers from national-type Chinese primary schools (SJKCs) in Kota Tinggi, Johor, were recruited through the convenience sampling method. The participants, who had experience in emergency remote teaching (PdPR) during the COVID-19 pandemic, included 10 males (33.3%) and 20 females (66.7%). The majority of participants fell within the age range of 24 to 30 years (56.7%), held a bachelor's degree (86.7%), and possessed up to 3 years of English teaching experience (50%).

Research Instrument

The study utilized a cross-sectional survey method for data collection, employing a questionnaire consisting of 20 items derived from the UTAUT model, adapted from relevant literature sources (Chun & Yunus, 2023; Ateş & Garzón, 2022; Huang et al., 2021; Mohammad-Salehi et al., 2021; Thompson et al., 1991; Yunus et al., 2021). To ensure the face and content validity of the instrument, three experts with expertise in the field reviewed the questionnaire. The items in the questionnaire exhibited high reliability, with Cronbach's alpha values ranging between 0.74 and 0.96, as recommended by Sekaran and Bougie (2017).

Data Collection and Analysis Procedures

The survey questionnaire was distributed through a Telegram group comprising English teachers in SJKCs of Kota Tinggi District, with prior consent obtained from the administrators of the social media platform. Teachers were informed about the survey's purpose, and those willing to participate accessed the Google Forms questionnaire via a provided link. Data

collection concluded upon the receipt of a sufficient number of valid responses. The collected data, obtained through Google Forms, was transferred to Microsoft Excel and analysed using SPSS version 26.0 for both descriptive and inferential statistics.

Descriptive analysis was employed to address the study's first objective, which aimed to identify ESL teachers' technology acceptance levels. Pearson correlation analysis was then applied to examine the relationships between factors in the UTAUT model and their behavioural intentions in post-COVID-19 settings. Multiple regression analysis was conducted to test the research hypotheses and determine the most influential factor affecting ESL teachers' behavioural intention to use technology post-COVID-19 pandemic.

Results and Discussion

Research Question 1: What is the technology acceptance level of Malaysian SJKC ESL Teachers at Kota Tinggi District after COVID-19 pandemic?

Table 1

Technology acceptance level of Malaysian SJKC ESL Teachers at Kota Tinggi District after COVID-19 pandemic

Variables	Mean	Std. Deviation	Interpretation
Performance Expectancy (PE)	4.358	0.540	High
Effort Expectancy (EE)	4.050	0.635	High
Social Influence (SI)	4.058	0.756	High
Facilitating Conditions (FC)	3.592	0.724	Moderate
Behavioural Intention (BI)	4.200	0.693	High

Based on the findings tabulated in Table 1, it indicates that SJKC ESL Teachers at Kota Tinggi District demonstrate a high behavioural intention (BI) for using technology in their teaching practices after the COVID-19 pandemic. This is evidenced by the mean BI score of 4.20, which falls within the high-level range. This high BI directly translates into actual technology use, as supported by previous studies (Mohammad-Salehi et al., 2021; Kim & Lee, 2022; Sharma & Saini, 2022).

However, it is important to acknowledge that this high BI did not exist before the pandemic. At the beginning, most ESL teachers were unprepared to incorporate Educational Resource Technologies (ERT) into their teaching due to the sudden disruption of regular classroom instruction. This indicates that the pandemic acted as a catalyst for the adoption of technology, highlighting the role of external factors in influencing teachers' technology use.

Despite initial challenges, the study reveals a positive shift in attitude towards technology integration. Most ESL teachers are now willing to adopt technology for various tasks that enhance their productivity and, ultimately, improve the learning experience for their students. This willingness reflects a growing awareness of the potential benefits of technology in education.

Research Question 2: To what extent is there a relationship between the factors (PE, EE, SI, and FC) and the behavioural intentions of Malaysian SJKC ESL teachers at Kota Tinggi District towards technology use after the COVID-19 pandemic?

Table 2

Correlation between the factors and the respondents' behavioural intention to use technology after the COVID-19 pandemic

		Performance Expectancy (PE)	Effort Expectancy (EE)	Social Influence (SI)	Facilitating Conditions (FC)
Behavioural Intention (BI)	Pearson Correlation	0.907	0.668	0.906	0.525
	Interpretation	Very positive	highModerate positive	Very positive	highModerate positive
	Sig. (2-tailed)	0.000	0.000	0.000	0.003

******. Correlation is significant at the 0.01 level (2-tailed).

According to Table 2, the findings reveal significant positive correlations between all factors of the UTAUT model (PE, EE, SI, and FC) and the behavioural intentions (BI) of Malaysian ESL teachers in SJKCs at Kota Tinggi to use technology after the COVID-19 pandemic.

Performance expectancy (PE) demonstrates the strongest relationship with BI, with a very high positive correlation coefficient of 0.907. This suggests that ESL teachers are more likely to adopt technology if they believe it will improve their teaching performance and effectiveness. Their primary concern lies in enhancing the efficiency and quality of their work through technology integration (Yang et al., 2023). On top of that, social influence (SI) exhibits a very high positive correlation with BI ($r=0.906$). This highlights the powerful impact of social factors on technology adoption. ESL teachers are highly influenced by the perceptions and actions of their peers and colleagues. If others see technology as beneficial and are using it in their teaching, it increases the likelihood of individual adoption (Chun & Yunus, 2023).

On the other hand, effort expectancy (EE) shows a moderate positive correlation with BI ($r=0.668$), indicating that ease of use plays a significant role in influencing teachers' technology adoption. They are more likely to integrate technology if they find it user-friendly and requires minimal effort to learn and implement (Sharma & Saini, 2022). Also, facilitating conditions (FC) demonstrates a moderate positive correlation with BI ($r=0.525$). This suggests that access to resources and technical support plays a moderate role in influencing technology adoption. Teachers are more likely to use technology if they have access to the necessary hardware, software, and technical support to overcome any challenges they may encounter (Wah & Hashim, 2021).

Research Question 3: What is the most significant factor that influences behavioural intentions of Malaysian SJKC ESL teachers at Kota Tinggi District to use technology after COVID-19 pandemic?

Table 3

Regression of factors on the respondents' behavioural intention (BI)

	Standardized Coefficients (β)	t-value	Sig.	R ²
Performance Expectancy (PE)	0.439	2.965	0.007	0.564
Effort Expectancy (EE)	0.069	0.755	0.457	0.076
Social Influence (SI)	0.432	2.972	0.006	0.396
Facilitating Conditions (FC)	0.095	1.211	0.237	0.091

The results of the multiple regression analysis reveal that, among the four UTAUT factors, Performance Expectancy (PE) is the only factor that has a significant relationship with the behavioural intentions (BI) of ESL teachers in SJKC to use technology after the pandemic. This indicates that PE plays the most crucial role in influencing their technology adoption decisions.

The standardized coefficient (β) for PE is 0.439, and the t-value is 2.965, which is significant at the 0.05 level. This statistically significant relationship confirms that ESL teachers are more likely to integrate technology if they believe it will improve their performance and enhance the effectiveness of their teaching. This finding is consistent with previous research suggesting that the perceived effectiveness of technology is a key driver of its adoption among educators (Al-Anezi & Alajmi, 2021; Mohammad-Salehi et al., 2021; Ting & Aziz, 2021). Given the COVID-19 pandemic's disruptions to traditional classroom instruction, it is highly probable that SJKC ESL teachers witnessed first-hand the potential of technology in delivering lessons effectively. This positive experience likely contributed to their increased BI towards integrating technology for future teaching endeavours.

While the other three UTAUT factors (EE, SI, and FC) were not statistically significant in this study, they still warrant consideration. Effort expectancy (EE) reflects the ease of use of technology, with a β of 0.069. This suggests that although it does not have a strong direct impact on BI, user-friendly technology may still play a role in encouraging adoption. Social influence (SI) and facilitating conditions (FC) each have β values of 0.432 and 0.095, respectively. This indicates that while they do not directly influence BI, they might indirectly contribute to it through their interaction with other factors, particularly PE. For example, if teachers perceive positive social influence towards technology adoption, it may strengthen their belief in its effectiveness (PE). Similarly, access to resources and technical support (FC) could facilitate the successful implementation of technology and thereby reinforce its perceived effectiveness.

Conclusion

This study aimed to investigate the technology acceptance level among Malaysian SJKC ESL teachers in Kota Tinggi District, along with the factors influencing their behavioural intention toward the adoption of technology in ESL classrooms. The key findings indicate a notably high level of acceptance toward technology usage post-COVID-19 pandemic. This inclination suggests a willingness among teachers to incorporate technology in their upcoming ESL classrooms, following their experience with emergency remote teaching for nearly a year. Another noteworthy discovery is that all variables in the UTAUT model exhibited either very high (PE and SI) or moderately positive (EE and FC) correlations with Malaysian ESL teachers' behavioural intention to use technology after the pandemic. These variables demonstrated

significant relationships with each other. Among these factors, performance expectancy emerged as the most significant influencer on ESL teachers' behavioural intention to implement technology, emphasizing their concern regarding technology's potential to enhance job performance efficiency.

This study contributes significantly to the literature by unveiling the technology acceptance level of Malaysian ESL teachers and the factors influencing their behavioural intentions post-COVID-19. It illuminates the extent to which ESL teachers' intentions toward technology use are affected by UTAUT model factors, particularly highlighting changes in technology acceptance levels resulting from emergency remote teaching during the COVID-19 crisis. Notably, recognizing ESL teachers' high acceptance of technology for ESL teaching and learning, curriculum planners are urged to integrate cutting-edge tools, such as Artificial Intelligence (AI), in the ESL curriculum. This effort aims to leverage the quality of ESL teaching and aligns with the aspirations of the fourth Sustainable Development Goal (SDG). Furthermore, the study's findings underscore the importance of incorporating adequate educational technological tools, resources, and facilities to facilitate the teaching and learning process for ESL teachers. Educational stakeholders are encouraged to investigate and implement measures to enhance technology acceptance and utilization among Malaysian ESL teachers.

For future research, it is recommended to conduct longitudinal studies to address the limitations of cross-sectional designs. Researchers should consider expanding the range of explanatory variables and exploring additional moderating or intervening variables from UTAUT and other acceptance models like Technology Acceptance Model (TAM) and Theory of Planned Behaviour (TPB). Additionally, comparative studies on technology acceptance models among different demographic backgrounds could be beneficial. Analysing data with a focus on demographic factors such as gender, age, years of teaching experience, and school location may yield distinct findings on Malaysian ESL teachers' technology acceptance from diverse perspectives.

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