



JOURNAL OF TECHNOLOGY AND OPERATIONS MANAGEMENT

<https://e-journal.uum.edu.my/index.php/jtom>

How to cite this article:

Ismail, M.H., Talib, N.A.A., Masri, M. & Yong, S.W. (2026). Understanding the acceptance and use of generative AI tools among Malaysian learners of Korean as a foreign language. *Journal of Technology and Operations Management*, 21 (2), 82-85. <https://doi.org/10.32890/jtom2026.21.2.6>

UNDERSTANDING THE ACCEPTANCE AND USE OF GENERATIVE AI TOOLS AMONG MALAYSIAN LEARNERS OF KOREAN AS A FOREIGN LANGUAGE

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Received: 8/5/2026

Revised: 12/6/2026

Accepted: 30/6/2026

Published: 30/7/2026

ABSTRACT

The increasing adoption of generative artificial intelligence or GenAI has transformed foreign language learning by providing learners with personalised, interactive, and adaptive learning experiences. Despite its growing use in higher education, limited empirical research has examined the factors influencing the acceptance and actual use of GenAI tools among Malaysian learners of Korean as a foreign language. This study investigates the determinants of GenAI adoption by applying the Unified Theory of Acceptance and Use of Technology. A quantitative research design was employed, and data were collected from 177 Malaysian university students enrolled in Korean language courses using a structured questionnaire. The data were analysed using partial least squares structural equation modelling with SmartPLS 4.0. The findings reveal that performance expectancy, effort expectancy, and social influence significantly influence learners' behavioural intention to use GenAI tools, while behavioural intention and facilitating conditions significantly affect actual use. The structural model demonstrated satisfactory explanatory and predictive power, confirming the suitability of the proposed research model. These findings suggest that learners are more likely to adopt GenAI tools when they perceive them as useful, easy to use, socially supported, and adequately facilitated by institutional resources. The study contributes to a better understanding of technology acceptance in AI-assisted foreign language learning and provides empirical evidence on GenAI adoption among Malaysian Korean language learners, offering valuable insights into learners' behavioural intention and actual use of AI-supported language learning technologies.

Keywords: Generative artificial intelligence, Korean language, UTAUT, technology adoption.

INTRODUCTION

In recent years, the rapid advancement of Generative Artificial Intelligence (GenAI) has transformed the landscape of language education worldwide. Tools such as ChatGPT, Microsoft Copilot, Naver's CLOVA, and Duolingo Max have introduced new possibilities for personalised, interactive, and self-directed learning. These technologies not only assist learners in improving their grammar, vocabulary, and pronunciation but also generate adaptive content that mirrors authentic communication scenarios (Kim & Su, 2024). As such, the integration of GenAI into language learning contexts has attracted growing attention from educators and researchers seeking to understand its pedagogical potential and long-term impact.

In Malaysia, the growing popularity of Korean as a Foreign Language (KFL) has created fertile ground for the exploration of technology-assisted learning. Universities such as Universiti Malaya (UM), Universiti Kuala Lumpur (UniKL), Tunku Abdul Rahman University College (TARUC), and Multimedia University (MMU) have incorporated Korean language courses into their curricula, driven by students' increasing interest in Korean culture, global mobility, and career opportunities in South Korea (Ismail et al., 2024). However, despite institutional progress, many learners still face challenges such as limited exposure to native speakers, a shortage of qualified instructors, and insufficient practice opportunities. Against this backdrop, GenAI tools offer a promising avenue for enhancing language acquisition by providing instant feedback, context-based translation, and interactive conversational support that can complement formal instruction (Law, 2024).

While GenAI tools present clear pedagogical advantages, their integration into language learning also raises critical questions regarding learners' acceptance, perceptions, and actual use of such technologies (Aldreabi et al., 2025; Rana et al., 2024). Although many students welcome GenAI as a convenient, efficient, and motivating supplement to traditional instruction, others remain cautious due to concerns about overreliance, the authenticity of AI-generated output, and potential ethical implications, including academic integrity and data privacy (Law, 2024). Despite a growing body of global research on AI-assisted language learning, scholarly attention to the adoption of GenAI among Malaysian learners of KFL remains limited. Existing studies predominantly focus on the English language context, leaving significant gaps in understanding how GenAI tools function within the unique multilingual and multicultural environment of Malaysia, particularly for less commonly taught languages like Korean (Kim & Su, 2024; Kohnke et al., 2025).

This study aims to examine the factors influencing Malaysian learners' acceptance and actual use of GenAI tools in learning KFL using the Unified Theory of Acceptance and Use of Technology (UTAUT). Specifically, the study investigates the effects of performance expectancy, effort expectancy, social influence, and facilitating conditions on learners' behavioural intention to use GenAI tools, as well as the influence of behavioural intention and facilitating conditions on their actual use. In addition, the study seeks to determine the relative importance of these factors in explaining learners' technology adoption behaviour and to provide empirical evidence on the acceptance of GenAI tools within the Malaysian higher education context. The findings are expected to enhance understanding of learners' perceptions and usage behaviour toward GenAI-supported language learning in KFL education.

This research is expected to offer significant implications for language educators, policymakers, and curriculum designers, helping them understand how to effectively integrate GenAI into Korean language instruction while maintaining learners' intrinsic motivation and communicative competence. Ultimately,

the study aims to bridge the gap between technological innovation and sustainable pedagogical practice in the evolving field of foreign language education.

LITERATURE REVIEW

The integration of AI and, more recently, GenAI in education has revolutionised the way languages are taught and learned. AI-driven systems are increasingly employed to facilitate adaptive learning experiences, automated assessment, and personalised feedback, enabling instruction that responds dynamically to each learner's proficiency level and learning style (Law, 2024). GenAI, a subset of AI, refers to advanced systems capable of producing original, human-like content, including text, speech, and visuals, based on prompts and extensive training data (Toscano et al., 2024). Unlike traditional AI applications that rely primarily on recognition or classification tasks, GenAI models such as ChatGPT, Google Bard, and Naver's CLOVA generate meaningful linguistic output, allowing for contextualised interaction and creative language use (Xiao et al., 2026).

Extensive research has demonstrated that AI-assisted language learning can significantly enhance linguistic competence, learner autonomy, and engagement, particularly when such technologies are strategically integrated into pedagogical practices (Almusharraf & Bailey, 2025; Law, 2024). By providing adaptive feedback and individualised learning pathways, AI tools enable learners to progress at their own pace while receiving targeted support that reinforces specific linguistic skills. In this context, GenAI applications such as ChatGPT and Google Bard have gained prominence for their capacity to facilitate grammar correction, vocabulary expansion, discourse organisation, and conversational fluency (Kavak et al., 2024; Kohnke et al., 2025). These tools simulate human-like interaction and offer learners authentic opportunities to practice communication beyond traditional classroom boundaries. Moreover, by generating contextually relevant examples and explanations, GenAI promotes active engagement and deeper cognitive processing, allowing learners to construct meaning and apply linguistic knowledge in realistic communicative scenarios (Kavak et al., 2024). Consequently, GenAI serves not only as a supplementary learning aid but also as a transformative pedagogical partner that supports more personalised, interactive, and autonomous language learning experiences.

Despite the optimistic outlook on the pedagogical potential of AI and GenAI, existing literature also highlights a range of challenges and pedagogical concerns associated with their adoption in language education. One of the most frequently cited issues is overreliance on AI-generated responses, which can inadvertently impede the development of authentic communicative competence and learners' ability to produce original linguistic output (Law, 2024). When students depend heavily on automated translation or content generation, they may engage less in critical thinking and creative language construction, skills essential for meaningful communication in a foreign language context. Additionally, concerns regarding academic integrity, data privacy, and ethical use have emerged as critical topics in educational discourse, particularly as GenAI tools blur the boundaries between independent learning and automated assistance (Law, 2024). Scholars also warn that without proper pedagogical guidance, the integration of GenAI could reinforce passive learning behaviours rather than fostering reflective, self-regulated learning (Bubaš & Čižmešija, 2023; Zheng et al., 2024). Hence, while AI technologies hold immense potential to enhance language learning outcomes, their effective implementation requires careful instructional design, ethical awareness, and critical digital literacy to ensure that technology serves as an enabler of learning rather than a substitute for cognitive engagement.

Within the field of second and foreign language education, several studies have examined how AI influences learner motivation and learning behaviour (Ni & Cheung, 2023; Zheng et al., 2024). AI tools not only improve language proficiency but also foster self-directed learning, where students actively manage their learning pace and strategies. Studies suggest that when learners perceive AI tools as useful, enjoyable, and easy to use, their likelihood of continued engagement increases (Kohnke et al., 2025). To make sense of these patterns, researchers have frequently turned to the UTAUT as an explanatory lens (Ke et al., 2025; Nikolic et al., 2024; Rana et al., 2024). The model brings together several dimensions, including perceived usefulness, ease of use, social pressures, and support availability, to account for both intention and actual usage. When applied to GenAI in language learning, UTAUT offers a structured way of thinking about why some learners embrace these tools quite readily, while others remain hesitant or selective in their use (Koteczki & Balassa, 2025).

Although previous studies have demonstrated the educational benefits of GenAI and examined technology acceptance using UTAUT or TAM, several important limitations remain. First, most studies have concentrated on English language learning, leaving less commonly taught foreign languages such as Korean relatively underexplored (Kohnke et al., 2025; Xiao et al., 2026). Second, existing studies primarily examine learners from single-country or single-language contexts, limiting the generalisability of findings to multilingual environments such as Malaysia (Nikolic et al., 2024). Third, many investigations focus on learners' perceptions of AI rather than simultaneously examining behavioural intention and actual use through a validated structural model (Xiao et al., 2026). Furthermore, limited attention has been given to institutional support and social influence within AI-assisted foreign language learning despite their importance in educational technology adoption.

The UTAUT, developed by Venkatesh (2003), is a comprehensive model that explains how individuals adopt and use new technologies by integrating key elements from eight earlier acceptance theories. It identifies four core determinants, performance expectancy, effort expectancy, social influence, and facilitating conditions, that shape users' behavioural intention and actual technology use. UTAUT is widely recognised for its strong predictive validity in educational technology research, making it especially relevant for examining emerging tools such as GenAI (Nikolic et al., 2024). In the context of Korean language learning, the adoption of GenAI tools is influenced not only by perceptions of usefulness and ease of use but also by social expectations within Malaysian university environments, as well as the availability of institutional support (Law, 2024). Given that UTAUT has been successfully applied in diverse multicultural and Asian settings, it provides an appropriate and robust framework for understanding how Malaysian learners of KFL accept and utilise GenAI tools. Therefore, UTAUT is chosen for this study because it captures multiple dimensions of learner behaviour and offers practical insights for improving technology integration in KFL education.

Performance expectancy can be understood as the extent to which learners are convinced that the use of GenAI tools will meaningfully support and improve their Korean language learning outcomes. Within the context of KFL, applications such as ChatGPT and other AI-powered writing assistants offer practical support by enabling learners to experiment with sentence formation, obtain immediate grammatical feedback, expand their vocabulary repertoire, and engage in simulated conversational exchanges. These features can make the learning process more efficient and interactive. When learners perceive that such tools genuinely contribute to their language development and help them achieve better results with less effort, they are generally more inclined to incorporate them into their regular study routines (Ke et al., 2025; Koteczki & Balassa, 2025). Thus, higher perceived usefulness should strengthen their intention to adopt GenAI tools for Korean learning.

H1: Performance expectancy positively influences learners' behavioural intention to use GenAI tools for learning KFL

Effort Expectancy is the degree of ease associated with using GenAI tools. Because many GenAI applications operate through intuitive conversational interfaces, learners often find them easy to navigate, even without advanced technological skills (Aldreabi et al., 2025). For KFL learners, the simplicity of generating sample dialogues, asking grammar clarifications, or receiving vocabulary explanations lowers cognitive barriers and encourages continued use. When students perceive GenAI tools as easy to use, their acceptance of the technology is likely to increase.

H2: Effort Expectancy has a positive effect on learners' behavioural intention to use GenAI tools for learning KFL.

Social influence describes the degree to which learners feel that people who matter to them, such as classmates, lecturers, or the broader institutional environment, encourage or expect the use of GenAI tools. In many Malaysian university settings, where digital learning practices are becoming more embedded, lecturers often recommend AI-based tools as supplementary learning aids, while peers may actively use them for completing assignments, revising course materials, or practicing Korean conversation. Over time, these shared practices and expectations can subtly shape learners' attitudes, making the use of GenAI appear both acceptable and desirable. In this way, social and academic environments may play a meaningful role in influencing learners' decisions to adopt such technologies (Rana et al., 2024; Zheng et al., 2024).

H3: Social Influence positively influences learners' behavioural intention to use GenAI tools for learning KFL.

Facilitating Conditions refer to the availability of institutional and technical support that enables learners to use GenAI effectively. This includes access to stable internet, appropriate devices, training, and institutional acceptance of GenAI use (Ke et al., 2025). For KFL learners, adequate technological resources and clear guidelines on ethical and effective use can support smoother integration of GenAI into their study routines. When support structures are present, learners are more likely to adopt and use the technology.

H4: Facilitating Conditions have a positive effect on learners' actual use of GenAI tools for learning KFL.

Behavioural Intention represents a learner's motivation and readiness to use GenAI tools, whereas Actual Use reflects the real frequency and extent of their usage. In technology acceptance research, higher behavioral intention generally predicts higher actual use (Liu et al., 2025; Rana et al., 2024). In the context of KFL, learners who intend to use GenAI for tasks such as translation support, grammar explanation, vocabulary enrichment, or writing practice are expected to engage with these tools more regularly.

H5: Behavioural Intention has a positive effect on the actual use of GenAI tools for learning KFL.

By synthesizing insights from the UTAUT, this study extends prior research by examining how Malaysian learners adopt GenAI tools for learning KFL and identifying the key factors that influence their intention and actual use of these technologies. This literature review provides a solid conceptual foundation for understanding the perceptions, motivations, and behavioural patterns of Malaysian learners in integrating AI-supported tools into their KFL learning experiences. Based on the reviewed literature, the proposed research framework illustrating these relationships is presented in Figure 1.

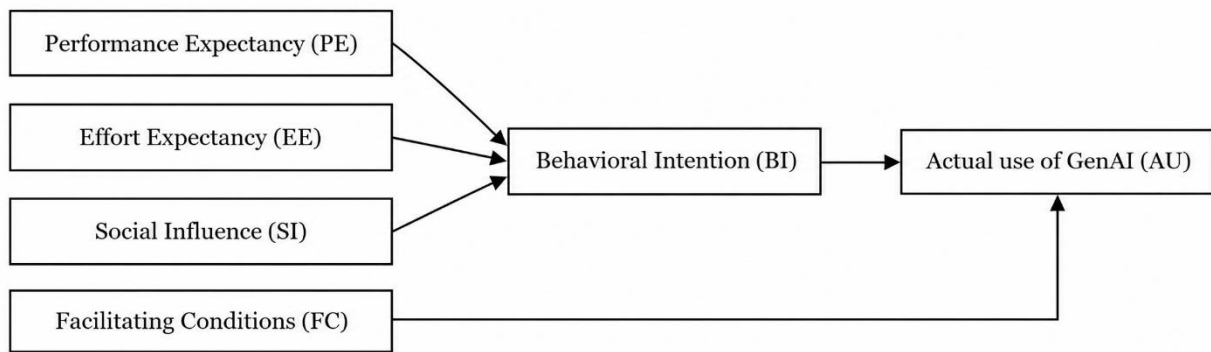


Figure 1
Research Framework

RESEARCH METHODOLOGY

This study adopts a quantitative approach, using a survey design to explore the factors that shape Malaysian learners' use and acceptance of GenAI tools in the context of KFL. The investigation is guided by the UTAUT, which informs both the research model and the formulation of hypotheses. To ensure relevance to the research context, purposive sampling was employed. Only students who were currently enrolled in KFL courses were invited to participate, as they were more likely to have encountered or experimented with GenAI tools in their learning. In total, 177 usable responses were obtained from students across several Malaysian higher learning institutions, representing a range of proficiency levels from beginner to intermediate.

The questionnaire items were adapted from validated UTAUT instruments developed by Venkatesh et al. (2003) and subsequently modified by recent studies examining AI adoption in higher education (Ke et al., 2025; Rana et al., 2024). Minor wording modifications were made to replace general technology references with "Generative AI tools for Korean language learning." The questionnaire was structured around six core constructs: performance expectancy, effort expectancy, social influence, facilitating conditions, behavioural intention, and actual use. Respondents indicated their level of agreement using a five-point Likert scale, ranging from strongly disagree to strongly agree. This format allowed for a relatively nuanced capture of learners' perceptions and attitudes related to GenAI adoption in Korean language learning while maintaining consistency across responses.

For data analysis, Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed using SmartPLS software. This technique was considered suitable given the exploratory nature of the study and the presence of multiple latent constructs within the model. Both the measurement and structural models were evaluated, including checks for reliability, convergent validity, discriminant validity, and the significance of path relationships. In addition, PLS-SEM is generally regarded as robust when working with modest sample sizes and data that may not fully meet normality assumptions, making it a practical choice for the present analysis (Hair et al., 2019).

RESULTS

Measurement Model Assessment

The measurement model was assessed through several established criteria, including indicator reliability, internal consistency, convergent validity, and discriminant validity. The results, presented in Table 1, suggest that all constructs exhibit satisfactory levels of reliability. Cronbach's alpha coefficients fall between 0.864 and 0.935, while composite reliability values range from 0.873 to 0.956, both comfortably exceeding the commonly accepted threshold of 0.700. In terms of convergent validity, the Average Variance Extracted (AVE) values for all constructs surpass the minimum requirement of 0.500, with scores ranging from 0.697 to 0.828. This indicates that each latent construct accounts for a substantial proportion of variance in its respective indicators. Taken together, these findings provide reasonable assurance that the measurement model demonstrates adequate reliability and convergent validity for subsequent structural analysis.

Table 1
Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability	AVE
AU	.903	.932	.775
BI	.935	.954	.838
EE	.902	.931	.773
FC	.852	.911	.773
PE	.888	.923	.749
SI	.864	.907	.710

The discriminant validity was further assessed using the Heterotrait–Monotrait Ratio (HTMT). As presented in Table 2, all HTMT values ranged from 0.671 to 0.841, which are below the recommended threshold of 0.85 (Henseler et al., 2015). The highest HTMT value was observed between Facilitating Conditions and Social Influence (HTMT = 0.841), while the lowest was between Actual Use and Social Influence (HTMT = 0.671). Since none of the HTMT values exceeded the recommended cut-off, the results provide strong evidence that the constructs are empirically distinct from one another. Therefore, the measurement model demonstrates satisfactory discriminant validity, confirming that each latent construct measures a unique concept within the proposed UTAUT model.

Table 2
HTMT Ratio

	AU	BI	EE	FC	PE
BI	.809				
EE	.706	.748			
FC	.739	.781	.813		
PE	.780	.800	.826	.791	
SI	.671	.752	.715	.841	.737

Structural Model Assessment

The structural model was evaluated using the bootstrapping procedure with a one-tailed significance test to examine the proposed hypotheses. As shown in Table 3, all hypothesised relationships were positive and statistically significant, providing support for all five hypotheses. Behavioural Intention had the strongest positive influence on Actual Use ($\beta = 0.569$, $t = 6.722$, $p < 0.001$), indicating that learners with stronger intentions to use GenAI tools are more likely to incorporate them into their Korean language learning activities. Facilitating Conditions also exerted a significant positive effect on Actual Use ($\beta = 0.253$, $t = 3.009$, $p = 0.001$), suggesting that the availability of adequate technological infrastructure, institutional support, and learning resources facilitates the effective use of GenAI tools. Regarding the determinants of Behavioural Intention, Performance Expectancy emerged as the strongest predictor ($\beta = 0.372$, $t = 4.253$, $p < 0.001$), followed by Social Influence ($\beta = 0.295$, $t = 3.426$, $p < 0.001$) and Effort Expectancy ($\beta = 0.225$, $t = 2.464$, $p = 0.007$). These findings indicate that learners are more inclined to adopt GenAI tools when they perceive them as useful, easy to use, and socially encouraged by peers and instructors. Overall, the results provide strong empirical support for the proposed UTAUT model, confirming that all hypothesised relationships are significant and positively influence Malaysian learners' acceptance and use of GenAI tools for learning KFL.

Table 3
Hypotheses Testing

Relationship	β -Coefficient	Sample Mean	T-Statistics	P-Value	Decision
BI	.569	.563	6.722	<.001	Supported
EE	.225	.223	2.464	.007	Supported
FC	.253	.259	3.009	.001	Supported
PE	.372	.370	4.253	<.001	Supported
SI	.295	.300	3.426	<.001	Supported

The explanatory power of the structural model was assessed using the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). The results indicate that the model explains 62.7% of the variance in Behavioural Intention and 58.9% of the variance in Actual Use, suggesting a moderate to substantial level of explanatory power (Figure 2). According to Cohen's (1988) guidelines, Behavioural Intention exhibited a large effect on Actual Use ($f^2 = 0.406$), while Performance Expectancy had a medium effect on Behavioural Intention ($f^2 = 0.149$). Social Influence ($f^2 = 0.122$), Facilitating Conditions ($f^2 = 0.081$), and Effort Expectancy ($f^2 = 0.056$) demonstrated small effect sizes, indicating that although their contributions are statistically significant, their individual impacts on the endogenous constructs are relatively modest. Furthermore, the blindfolding procedure revealed Q^2 values of 0.606 for Behavioural Intention and 0.522 for Actual Use, both exceeding zero, thereby confirming that the structural model possesses satisfactory predictive relevance. Overall, these findings demonstrate that the proposed UTAUT model has good explanatory and predictive capability in explaining Malaysian learners' acceptance and use of GenAI tools for learning KFL.

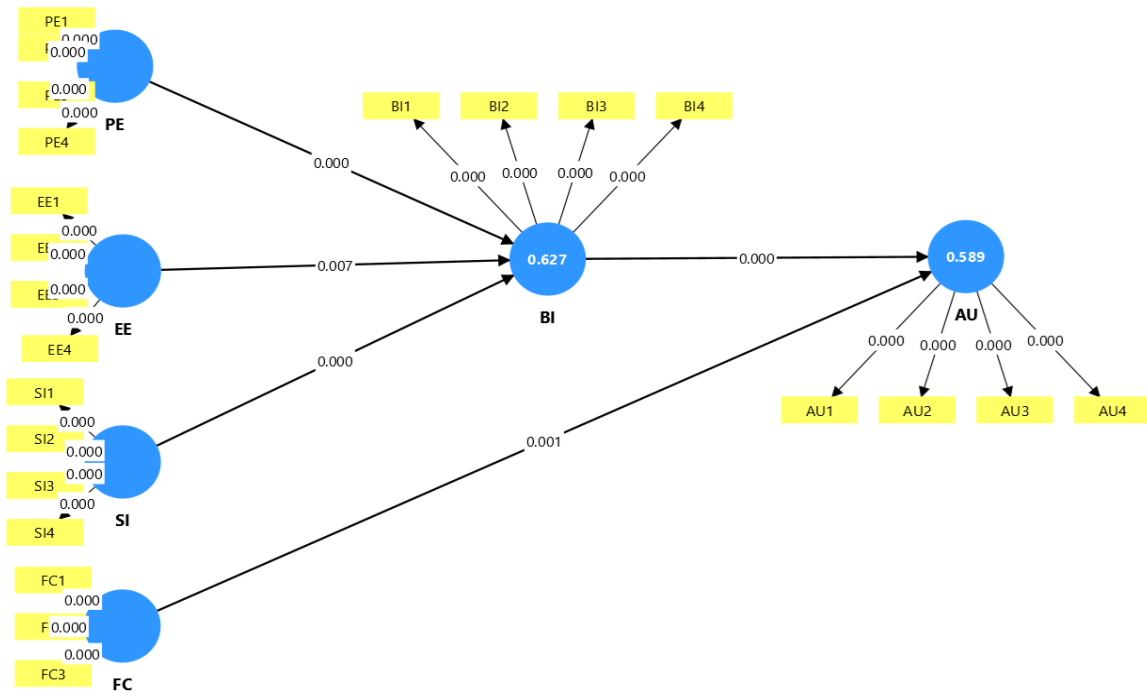


Figure 2
PLS-SEM Structural Model Results

DISCUSSIONS AND CONCLUSIONS

The results offer a nuanced view of how Malaysian learners engage with GenAI tools in the context of KFL. When interpreted through the lens of the UTAUT framework, several patterns begin to emerge. Perceptions of usefulness and ease of use appear to matter quite substantially, but they do not operate in isolation. Social expectations and the availability of institutional support also seem to play a meaningful role in shaping how learners decide whether, and how often, to incorporate these tools into their study routines. What is perhaps more interesting is how these factors interact. A tool may be seen as useful, for instance, yet remain underutilised if learners feel uncertain about its appropriateness or lack guidance from instructors. Conversely, even moderately useful tools may gain traction when supported by peers or embedded within classroom practices. Taken together, the findings suggest that adoption is less about any single factor and more about a combination of perceptions, context, and support structures working in tandem.

The strong relationship between behavioural intention and actual use indicates that learners' intention remains the most critical determinant of their engagement with GenAI applications. This finding is consistent with prior research emphasising behavioural intention as a direct predictor of technology adoption in educational contexts (Aldreabi et al., 2025; Liu et al., 2025). The significant influence of performance expectancy further suggests that learners are more motivated to use GenAI tools when they perceive them as effective in enhancing their Korean language learning outcomes, particularly in improving grammar accuracy, expanding vocabulary, and refining sentence construction, as highlighted by Liu et al. (2025). Likewise, effort expectancy was found to positively influence behavioural intention, indicating that when GenAI tools are designed to be intuitive, accessible, and easy to navigate, learners are more inclined to adopt and sustain their use. This aligns with findings from Aldreabi et al. (2025), who emphasised that user-friendly interfaces reduce cognitive load and encourage consistent engagement with AI-assisted learning technologies.

Social influence emerged as another key determinant, underscoring the vital role of peer and instructor encouragement in shaping learners' perceptions and acceptance of GenAI tools. This finding aligns with the collectivist tendencies prevalent in many Asian educational contexts, where social validation, group norms, and the opinions of significant others play a crucial role in technology adoption. These results are consistent with the observations of Rana et al. (2024), who emphasised that students are more likely to adopt emerging learning technologies when their academic peers and instructors demonstrate positive attitudes toward their use. Furthermore, facilitating conditions were found to have a significant impact on actual use, highlighting the importance of institutional support, technological infrastructure, and access to relevant training in sustaining effective use of AI-based learning tools. This outcome corroborates the findings of Liu et al. (2025) and Rana et al. (2024), suggesting that when learners are provided with sufficient resources and technical assistance, their likelihood of integrating GenAI tools into their KFL practices substantially increases.

This study offers a deeper account of how Malaysian learners engage with GenAI tools in the context of KFL. The findings suggest that learners' intentions are not shaped by a single factor, but rather emerge from a combination of perceived usefulness, ease of interaction, social encouragement, and the availability of institutional and technical support. When these elements align, GenAI tools appear to function as more than supplementary aids; they may, in some cases, foster greater learner autonomy, sustain engagement, and support incremental gains in linguistic competence. However, it also requires careful management to avoid overreliance and ensure ethical use. From a theoretical perspective, this study extends the application of the UTAUT framework into the domain of AI-enhanced foreign language education, specifically KFL. Practically, the findings highlight the importance for educators and policymakers to design supportive environments that enhance learners' confidence and intention to use GenAI responsibly. Training programs, infrastructure improvements, and clear usage guidelines can further strengthen learners' readiness for AI-supported language learning.

Future research should extend the current analytical framework by incorporating additional psychological and motivational constructs, such as self-efficacy, perceived enjoyment, and intrinsic motivation, to provide a more in-depth and holistic understanding of GenAI adoption in educational settings. These constructs are likely to capture learners' internal cognitive and affective processes more effectively, thereby offering deeper explanatory power regarding their engagement, persistence, and continuance intention. In particular, self-efficacy may influence learners' confidence in interacting with GenAI tools, while perceived enjoyment and intrinsic motivation can illuminate the extent to which learning with GenAI is experienced as inherently satisfying rather than purely utilitarian. Furthermore, future studies are encouraged to adopt longitudinal or mixed-method research designs to trace the dynamic evolution of learners' perceptions, attitudes, and usage behaviours over time as GenAI technologies become more deeply embedded in pedagogical practices. Such approaches would enable researchers to move beyond static, cross-sectional insights and uncover temporal patterns, contextual influences, and potential shifts in user acceptance, thereby contributing to a more robust and context-sensitive understanding of sustainable GenAI integration in education.

ACKNOWLEDGMENT

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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