Learner Engagement & Motivation in EFL Higher Education: The Pedagogical Role of Generative AI Tools in Educational Ecosystems

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Abstract

This thesis examines how university-level English as a Foreign Language (EFL) learners perceive the pedagogical role of generative artificial intelligence (GenAI) tools within higher education learning ecosystems. Informed by the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) and Self-Determination Theory (SDT), the study examines an intervention that investigates how these tools shape learners' engagement, motivation, and perceived language development. A descriptive case study design was adopted involving 167 undergraduate learners enrolled in a foundational English programme, drawing on open-ended survey responses using reflexive thematic analysis.

Findings indicate that students perceived notable improvements in areas such as writing, vocabulary development, and grammatical awareness, reporting a shift from passive reception of corrective feedback to more autonomous, iterative interaction with GenAI tools. Learners described heightened intrinsic motivation and self-regulation, often engaging with AI tools beyond formal course requirements. The data also highlight influential socio-institutional dynamics, including peer norms, uncertainties surrounding institutional policy, and varying levels of AI and prompt literacy. Students emphasised the need for structured institutional support, explicit usage guidelines, and ethical clarity regarding GenAI adoption.

Drawing together UTAUT-2 and SDT, the thesis develops the Generative AI Engagement and Motivation (GAIEM) Framework that captures four interrelated dimensions, Enabling Environment, Mediated Engagement, Internalisation Mechanisms, and Learner Agency, illustrating how GenAI use is embedded within broader educational ecosystems. The study contributes to technology-enhanced language learning by offering empirically grounded insights and actionable recommendations for the ethical, balanced, and pedagogically sound integration of GenAI into EFL curricula. While the research is situated within a single institutional context, it identifies avenues for future work, including longitudinal studies, cross-institutional comparisons, and investigations incorporating teacher perspectives.

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Finally, I dedicate this work to the memory of my late father, Dr Abdulkarim Alhitty, who passed away in 2009. Though he is no longer with us, his legacy lives on in me. It was he who first instilled in me a love for learning, a commitment to academia, and a sense of responsibility to serve our communities through education. His example continues to guide me as I seek to contribute meaningfully to a more informed and just society. May his soul rest in peace.

Author's Declaration

I declare that this thesis titled *"Learner Engagement & Motivation in EFL Higher Education: The Pedagogical Role of Generative AI Tools in Educational Ecosystems"* is my own original work. It has not been submitted in substantially the same form for the award of a higher degree at this or any other academic institution.

I have received ethical approval for the research from the Faculty of Arts and Social Sciences and Lancaster University Management School's Research Ethics Committee. Generative AI tools (e.g., ChatGPT) were used to support language refinement and idea development.

Chapter 1: Introduction

This thesis contributes to the growing body of literature exploring the pedagogical applications of generative artificial intelligence (GenAI) tools within English as a Foreign Language (EFL) instruction in higher education. While interest in AI tools integration is rapidly expanding, there remains a notable gap concerning its pedagogical implications for EFL learners at university level. By focusing on learner engagement and motivation, this research offers a situated contribution to understanding how generative AI tools are shaping language education practices in higher education contexts. These constructs are particularly salient in EFL foundation programmes, where sustaining learner engagement and motivation is frequently challenging due to linguistic demands, transitional academic expectations, and the requirement for early development of learner autonomy.

The evolution of generative artificial intelligence tools instigates profound transformations across various sectors, with education standing out as a particularly notable area of impact. Among the forerunners of this technological advancement is OpenAI[1], Microsoft[2] and Google DeepMind[3], which pioneer the development of sophisticated generative AI tools, notably large language models (LLMs) such as ChatGPT[4], Microsoft Copilot[5] and Gemini[6]. Generative AI tools are software applications or systems that use advanced large language models to create original content rather than simply analyzing or recognizing existing data. This content can take many forms, including text, images, audio, videos, or even code. By learning patterns from large amounts of training data, generative AI tools can produce novel outputs that resemble human-created work (Goodfellow et al., 2014).

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[1] https://openai.com/

[2] https://www.microsoft.com/

[3] https://deepmind.google/

[4] https://chatgpt.com/

[5] https://www.copilot.microsoft.com/

[6] https://gemini.google.com/

Generative Pretrained Transformers (GPTs) are a class of language models introduced by OpenAI that use the Transformer Architecture to understand and generate human-like text (Vaswani et al., 2017; Radford et al., 2018; Brown et al., 2020). They are called "generative" because they produce new text given a prompt, such as completing a sentence or writing an article, while "pretrained" indicates that they learn language patterns from massive text corpora before being fine-tuned on specific tasks (Brown et al., 2020).

GPT models adopt the Transformer framework (Vaswani et al., 2017), which relies on self-attention mechanisms to weigh the importance of different words in a sentence when making predictions. These models undergo an extensive pretraining phase, learning general language patterns by predicting missing or subsequent words across vast text corpora (Radford et al., 2018). They are then fine-tuned to excel at specific tasks, such as answering questions or summarizing text, without requiring comprehensive retraining for each new use case.

GPTs generate text one token (or word) at a time, using previously generated tokens to inform the next. This autoregressive property allows for coherent and contextually relevant text production, making GPTs versatile across various language-related tasks (Brown et al., 2020). The models demonstrate in-context learning, meaning they adapt to different tasks by reading examples rather than requiring explicit retraining. Their capacity to perform a wide range of language tasks with minimal modifications often places them at human like performance, broadening the scope of AI applications in domains such as education.

This study explores the relationship between the use of generative AI tools and their impact on higher education English as a foreign language (EFL) learners' engagement and motivation, areas that remain relatively underexplored in existing literature. Through empirical insights into how these tools affect learning outcomes in English language courses in higher education, this research contributes to the current body of knowledge by highlighting how real-time, personalised feedback may influence students' sustained

participation in language studies. Yet, few studies have examined how learners engage with generative AI tools in real higher education EFL contexts. It investigates student engagement in EFL higher education through the integration of generative AI technologies such as ChatGPT, Microsoft Copilot and Gemini, defining engagement as the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught (Song & Song, 2023). It examines how generative AI tools contribute to EFL learners' engagement and uncovers how these technologies can improve language learning, drawing attention to features like adaptive learning paths and on-demand guidance. By researching the dynamics of how generative AI tools enrich EFL learners' engagement, the study finds the potential of these technologies to transform language learning and aspires to contribute to the refinement and innovation of teaching practices in the field of language education, providing actionable insights and evidence-based strategies that educators can leverage to foster a more engaging, responsive, and effective learning environment.

The study also explores EFL learners' motivation, seeking to understand how elements of engagement enhance student motivation, defined as the process that initiates, guides, and maintains goal-oriented behaviours. There is limited empirical evidence on how generative AI tools influence learner motivation in language learning. Motivation is what causes students to act, whether that is engaging in a learning activity, using a new technology, or applying effort to learn a language (Oluwafemi Ayotunde et al., 2023).

ChatGPT, a model from OpenAI, exemplifies this trend by employing advanced deep learning algorithms to deliver contextually relevant responses. Yet the scope of generative AI tools extends beyond ChatGPT, so this work examines a broader spectrum of such technologies, including Microsoft Copilot and Gemini, which similarly leverage large language models to enhance user interactions and service offerings. Through these varied platforms, students may experience diversified forms of AI-driven feedback that potentially reinforce or challenge their motivation.

In the context of English as a Foreign Language (EFL) learning, these integrated technologies facilitate more dynamic and personalised learning experiences. By

centering this study on generative AI tools, the intention is to study how such technologies redefine pedagogical strategies and learning engagements within the realm of higher education English language learning. This investigation also considers the shift in teaching roles from knowledge transmitters to facilitators of AI-enhanced activities, reflecting a broader paradigm change in language education that emphasises learner autonomy and immediate digital assistance (Eke, 2023).

The Unified Theory of Acceptance and Use of Technology UTAUT (Venkatesh et al., 2003) has undergone significant evolution since its initial formulation, leading to the development of UTAUT-2 (Venkatesh et al., 2012) and UTAUT-3 (Farooq et al., 2017). UTAUT builds directly on earlier technology acceptance models, particularly the Technology Acceptance Model (TAM), by incorporating TAM's core constructs of perceived usefulness and perceived ease of use within a broader unified framework that also accounts for social influence and facilitating conditions shaping technology adoption (Davis, 1989; Venkatesh et al., 2003). While UTAUT-2 introduced key constructs such as hedonic motivation, price value, and habit to enhance its predictive power in voluntary technology adoption, UTAUT-3 further expanded the model to include professional compliance and regulatory structures, making it more applicable to mandatory adoption contexts such as healthcare.

The selection of UTAUT-2 for this study, over the original UTAUT and other technology acceptance models, is grounded in both theoretical and contextual considerations. UTAUT-2 extends the original framework by incorporating constructs such as hedonic motivation, price value, and habit, thereby enhancing its predictive power in non-organisational and consumer-use settings (Venkatesh et al., 2012). This adaptation makes UTAUT-2 particularly relevant to contexts such as the present study, where students' use of generative AI tools is voluntary rather than institutionally mandated. For this work, the core motivation is to understand how learners independently accept, adopt, and sustain engagement with generative AI tools when their use is driven by personal interest, perceived value, and self-regulated learning needs rather than external requirements. The model's emphasis on enjoyment, perceived value, and habitual engagement therefore aligns closely with the motivational dynamics observed in self-

directed EFL learning environments (Noels et al., 2000), allowing for a more nuanced examination of learners' ongoing engagement with generative AI technologies.

Alternative frameworks were also considered in the design of this study. While UTAUT-3 further extends UTAUT-2 by incorporating professional compliance and regulatory structures to explain technology use in mandatory or highly regulated contexts (Farooq et al., 2017), these features were not aligned with the voluntary and exploratory nature of students' generative AI use in the present case. Earlier technology acceptance models, including the Technology Acceptance Model (TAM), were likewise considered; however, their more limited focus on perceived usefulness and perceived ease of use (Davis, 1989) was insufficient to capture the motivational, habitual, and experiential dimensions central to voluntary generative AI adoption. The theoretical rationale for these selections, and the integration of UTAUT-2 with complementary motivational perspectives, is examined in greater detail in Chapter 3.

Although UTAUT-2 incorporates hedonic motivation as a factor influencing technology adoption, it primarily addresses extrinsic motivation, focusing on external drivers such as perceived ease of use and social influence. However, in language learning, intrinsic motivation plays a crucial role in long-term engagement and skill development. To address this, Self-Determination Theory (SDT) (Deci & Ryan, 2000) is integrated into this study's framework to complement UTAUT-2 by examining the psychological aspects of motivation. SDT emphasises the fulfilment of three fundamental psychological needs, autonomy, competence, and relatedness, which contribute to deeper, sustained learning.

By combining UTAUT-2 and SDT, this study offers a comprehensive perspective on how generative AI tools influence learner engagement and motivation in EFL education. UTAUT-2 provides a structured approach to understanding technology acceptance, which is critical for voluntary engagement with generative AI tools. Meanwhile, SDT expands this framework by explaining how these tools foster intrinsic motivation, ensuring that engagement is not solely driven by external factors but also by learners' internal drive to improve their language skills. This dual-theory approach allows for a more nuanced

analysis of generative AI integration in EFL classrooms, highlighting the interplay between technology adoption and learner motivation in digital learning environments.

The critical nature of this study extends beyond the mere potential of these tools to enrich educational methodologies. It addresses pressing concerns surrounding academic integrity and the ethical dimensions of generative AI tool usage within educational settings. Generative AI tools, through their capacity to offer personalised learning experiences, writing and brainstorming support, and research and analysis assistance, represent a significant benefit to education. However, these advancements also pose challenges related to plagiarism risks, overreliance on automated feedback, and erosion of critical thinking if not integrated thoughtfully (Chan & Hu, 2023). The study therefore considers how to implement these technologies responsibly, ensuring that they complement, rather than undermine, the pedagogical process.

This research looks into whether generative AI tool use in EFL learning is effective in facilitating a more dynamic approach to language learning and overcoming common barriers, with “effectiveness” referring to the extent to which generative AI tools achieve the desired outcomes in improving engagement and motivation. Such effectiveness is assessed through outcomes that include higher engagement levels and positive user feedback.

Although the role in this study is that of an external researcher, ten years of experience coordinating this programme provides in-depth insights into contextual factors, teaching methodologies, and student dynamics. Currently seconded to a different institution, the researcher maintains a reflective stance, acknowledging how this background might shape the analysis while striving for objectivity in examining generative AI tools’ integration and outcomes within higher education EFL learning.

The risk of plagiarism and the erosion of academic integrity are pressing challenges that educators must address when incorporating the use of generative AI tools into the curriculum. To mitigate these risks, this study incorporates ethical guidelines into the instructional design, ensuring that students understand the appropriate use of generative

AI tools. The goal is to encourage students to see generative AI tools as a supplementary tool that can enhance their learning, rather than as a means of bypassing the learning process altogether. By setting clear expectations about how and when generative AI tools should be used, and by incorporating reflective tasks that require students to critically engage with the feedback they receive from the generative AI tool, this study aims to promote a responsible and ethical approach to AI integration in language learning.

In aligning with this stance, the adoption of a case study methodology is both intentional and methodical. This approach enables exploration of the nuanced interactions between students, the educational technologies at hand, and the broader instructional environment. It is particularly suited to research that requires intensive examination of the real-world context in which English is taught and learned, acknowledging that the environment can influence pedagogical success and student engagement. By anchoring the inquiry in authentic educational settings, the case study methodology supports a thorough investigation of the dynamic interplay among learner engagement, motivational factors, and technological interventions. This approach highlights the importance of contextually grounded analysis for understanding how generative AI tools align with or disrupt traditional language-learning paradigms, thus contributing to the discourse on how generative AI tools can be effectively integrated into higher education EFL learning.

This study conceptualises the learning environment as an educational ecosystem, an interconnected network of learners, educators, institutional structures, technologies, and sociocultural contexts that collectively shape learning processes and outcomes. It encompasses not only tools and platforms but also the institutional and interpersonal dynamics that influence how learners engage with generative AI tools (OECD, 2023). In the context of this study, it includes the in-class and out of class learning environments, peer groups, instructors, digital tools, and institutional policies, which influence how generative AI tools are used and understood by EFL learners. References to “digital tools” therefore serve as an overarching category that encompasses generative AI applications as its most recent and dynamic subset.

1.1 Context of the Study

This study was conducted in the Kingdom of Bahrain, an island nation in the Arabian Gulf region. In recent years, Bahrain has invested substantially in the integration of digital technologies within education as part of its broader national agenda for innovation and digital transformation. This has included the expansion of technology-enhanced learning initiatives across universities and training institutes, reflecting a growing emphasis on digital and AI-supported learning environments. Bahrain's commitment to educational innovation is further reflected internationally through its support of the UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of Information and Communication Technologies (ICTs) in Education, named after His Majesty the King of Bahrain, which recognises global initiatives that leverage technology to enhance learning and teaching. Notably, the 2025 edition of the Prize focuses on preparing learners and teachers for the ethical and responsible use of artificial intelligence, underscoring Bahrain's alignment with contemporary global priorities related to AI integration and digital literacy in education (UNESCO, 2025).

The research was conducted at a public university, established in 1986, which offers a wide range of undergraduate and postgraduate degree programmes across multiple academic disciplines. To protect institutional confidentiality, the name of the university is not disclosed in this thesis. The institution serves a large student population and delivers instruction through a bilingual model, with English as the primary language of instruction in its foundation programme. The university adopts an outcome-based learning approach, with an emphasis on skills development, academic progression, and graduate employability. Over several years, the institution has actively incorporated educational technologies into its pedagogical practices, including the sustained use of a learning management system, and the expansion of digital assessment tools. At the institutional level, guidance on generative artificial intelligence remains minimal, focusing primarily on academic integrity considerations and acceptable thresholds for AI use in relation to plagiarism. As a result, the pedagogical use of generative AI is largely left to instructor discretion, with no formal mandate or systematic integration across programmes.

The research took place within the university's Foundation Programme, which was restructured in 2018 and enrols approximately 2000 students annually as a preparatory stage for undergraduate study. The programme focuses primarily on academic English (EFL) and study skills, supporting students' transition from secondary education to English-medium university learning. The Foundation Programme has made sustained use of educational technologies for several years, including learning management systems, online learning resources, and digital tasks, reflecting a longer-term engagement with technology-enhanced learning prior to the emergence of generative AI tools. Generative AI tools have begun to feature in students' learning practices; however, their use remains informal and discussed rather than systematically embedded within the curriculum. Accordingly, this study aims to explore students' perceptions of generative AI use within an English as a Foreign Language (EFL) foundation programme context, where issues of language development, learner autonomy, and digital literacy intersect. As such, examining learner perceptions within this specific educational and cultural context can provide valuable insights into how generative AI tools are shaping new forms of engagement and motivation among EFL learners in Bahrain. Some further details about the institutional setting, participants, and data collection procedures are discussed in Chapter 4 (Methodology).

Within this foundation programme context, learner engagement and motivation represent persistent pedagogical concerns. The introduction of GenAI may have further complicated these issues, as educators now face additional questions about whether AI-supported learning enhances genuine engagement or risks promoting dependency and surface-level interaction with language content. particularly given students' early stage of academic development, varying levels of English proficiency, and the demands of transitioning to independent, English-medium study. Maintaining sustained engagement and motivation in EFL learning at this level is therefore critical, as these factors directly influence students' participation, persistence, and readiness for progression to undergraduate programmes. Against this backdrop, the emergence of generative AI tools introduces new possibilities for supporting engagement and motivation, making this setting especially relevant for examining how such technologies are perceived and used by EFL learners.

This study investigates learner perceptions within the context of a teaching intervention designed to encourage structured engagement with generative AI tools for language learning. While students had informal familiarity with such tools, the intervention provided scaffolded opportunities for their pedagogical use within the foundation programme. The nature and design of this teaching intervention are described in detail in Chapter 4 (Section 4.5).

1.2 Research Question

Building on the insights drawn from the review of existing literature, the following research question and sub questions, were developed to guide the empirical investigation. These questions reflect the key gaps identified in prior studies and frame the study's focus on how generative AI tools influence engagement and motivation in EFL learning.

How do English as a Foreign Language learners in higher education perceive the impact of generative AI tools on their engagement and motivation to learn?

1. *In what ways do generative AI tools shape the engagement and motivation of higher education students in English as a Foreign Language learning?*

2. *How do students' experiences with the usability and accessibility of generative AI tools influence their engagement and motivation in learning English as a Foreign Language?*

3. *How do peer and instructor attitudes toward generative AI tools impact students' engagement and motivation in English as a Foreign Language learning?*

4. *What conditions support the effective integration of generative AI tools in higher education English as a Foreign Language learning, and how do they shape student engagement and motivation?*

These research questions aim to explore the functional dimensions of generative AI in English as a Foreign Language (EFL) learning and the deeper pedagogical, motivational, and institutional contexts within which these tools are adopted and adapted. The study recognises that language learning is a socially mediated and contextually situated process. Knowledge in this context is understood as constructed through interaction, reflection, and the negotiation of meaning, rather than passively received. The study engages with generative AI as pedagogical agents that interact with learner agency, motivation, and institutional structures. Within the EFL context, this perspective acknowledges that learner engagement with generative AI is shaped by both cognitive and affective dimensions, as well as by broader socio-institutional factors. The research is informed by an interpretive tradition that values learners' perspectives, reflective practices, and the evolving nature of identity and motivation in digitally mediated language learning environments.

1.3 Structure of the Thesis

This thesis is organised into seven chapters, each contributing to answering the central research questions on how generative AI tools influence EFL learners' engagement and motivation. Chapter 1 introduces the research context, rationale, aims, and theoretical positioning, concluding with the research questions. Chapter 2 presents a critical review of the literature on technology integration in EFL learning, organised around five thematic strands: engagement, motivation, reflection and metacognition, integration as a process, and social influences, identifying the gaps that the present study seeks to address. Chapter 3 outlines the theoretical framework underpinning the study, drawing on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) and Self-Determination Theory (SDT) to establish a dual-lens approach for examining both technology acceptance and motivational processes. Chapter 4 details the research methodology, including the descriptive case study design, the teaching intervention, data collection instruments, the reflexive thematic analysis approach, and ethical considerations. Chapter 5 presents the qualitative findings, organised thematically and grounded in participants' experiences and reflections, accompanied by an integrative discussion aligned with the four research questions. Chapter 6 engages in an interpretive

discussion of these findings in light of the literature and theoretical framework, examining how UTAUT-2 and SDT together illuminate the behavioural, motivational, and contextual dimensions of learners' engagement with generative AI tools. Finally, Chapter 7 offers a conclusion, discussing the theoretical and practical implications of the study, reflecting on its limitations and proposing directions for future research. Collectively, the chapters build a comprehensive understanding of how generative AI tools shape motivation and engagement in higher education EFL contexts.

Chapter 2: Literature Review

The purpose of this chapter is to present a critical review of the literature that frames this study and to establish its theoretical, conceptual, and empirical foundation. Beyond synthesising existing knowledge, this review critically evaluates the strengths and limitations of current research in order to identify where the present study can make an original contribution. The review examines how motivation, engagement, and reflection have been conceptualised within technology-enhanced language learning (TELL), with a particular focus on the emerging integration of Generative Artificial Intelligence (GenAI) tools in English as a Foreign Language (EFL) context. This exploration situates the study within existing scholarship while identifying gaps that the present research seeks to address.

The scope of this literature review is defined as the literature on technology integration in EFL learning. This scope was chosen over narrower alternatives (such as focusing exclusively on GenAI studies) because generative AI tools represent the most recent development within a longer trajectory of technology-enhanced language learning research. By situating GenAI within this broader field, the review can draw on established theoretical insights while identifying what is genuinely novel about current developments. Alternative scopes, such as general AI in education or technology acceptance studies outside language learning, were excluded because they would not adequately address the specific pedagogical and linguistic dimensions central to this study.

2.1 Introduction

This literature review examines the literature on technology integration in EFL learning, with particular attention to how generative AI tools are positioned within this broader field. This scope encompasses established research on technology-enhanced language learning (TELL) while foregrounding recent developments in AI-mediated instruction.

As outlined in Chapter 1, this study aims to investigate how EFL learners engage with Generative Artificial Intelligence (GenAI) tools and how these interactions influence their

motivation and engagement. While a growing body of research explores the pedagogical use of artificial intelligence in education, much of this work remains experimental or tool-oriented, often giving limited attention to the motivational, sociocultural, and reflective dimensions that shape learners' lived experiences. This literature review addresses these limitations by examining evidence across five interconnected strands within research on technology integration in EFL learning.

The field is characterised by empirical limitations, as many studies rely on short-term interventions or self-reported outcomes, offering limited insight into how learner engagement and motivation are sustained over time. Accordingly, this literature review substantiates the rationale for the present study by evaluating how existing research has conceptualised and investigated motivation, engagement, and reflective practice in GenAI-mediated EFL contexts, and by identifying areas where further investigation is required. To achieve this, the chapter proceeds as follows. Section 2.2 outlines how the scope of the review was determined and details the search strategy and selection criteria used to identify relevant studies. Sections 2.3 to 2.7 then synthesise five interconnected strands of literature that structure the remainder of the chapter.

During the initial reading of this literature, a range of topics and concerns emerged as potentially relevant to the present study. However, through iterative engagement with the sources, five thematic strands were identified as particularly salient. These strands were not predetermined; rather, they emerged from the process of reading and re-reading the literature, noting recurring patterns, and considering which themes held the greatest potential for the present study to make an original contribution.

Several factors guided the selection of these themes. First, they reflect challenges that have been documented in the practice context described in Chapter 1 (Section 1.1), including concerns about sustaining engagement and motivation among foundation-level EFL learners. Second, they represent areas where the existing literature exhibits gaps or limitations that the present study is positioned to address. For instance, while engagement is widely discussed, its operationalisation remains inconsistent; while motivation is theorised through multiple frameworks, longitudinal and qualitative

investigations remain scarce. By focusing on these five themes, the review establishes both what is known and where the present study can add something new.

The chapter is organised around five thematic strands, within the literature on technology integration in EFL learning:

1. Engagement (Section 2.3)
2. Motivation (Section 2.4)
3. Reflection and metacognition (Section 2.5)
4. Integration as a process (Section 2.6)
5. Social influences (Section 2.7)

Within each strand, the chapter synthesises the main findings of existing studies, evaluates their conceptual and methodological strengths and weaknesses, and highlights unresolved tensions and research gaps. Taken together, these strands clarify how motivation, engagement, reflection, and social influence are addressed in the existing literature on technology integration in EFL learning, and how the limitations of this literature directly inform the focus of the present study.

It is important to note that these five strands do not represent separate literature reviews of distinct fields. Rather, they are interconnected themes that arise from reading the literature on technology integration in EFL learning as a unified body of work. Each theme represents a different lens through which this literature can be examined and critiqued.

2.2 Scoping the Review

This section outlines how the scope of the literature review was defined and the procedures used to identify, select, and organise studies for analysis. In line with the objectives of Chapter 2, the review examines research on technology integration in English as a Foreign Language (EFL) learning with a specific focus on five interconnected areas that emerged as significant during the process of reading and analysing this

literature: engagement, motivation, reflection and metacognition, integration processes, and social influences. These represent recurring patterns and concerns that became apparent through sustained engagement with the sources.

The scope of this literature review was developed through an iterative process of reading, reflection, and revision. The review was initially situated within the broader field of technology-enhanced language learning (TELL), encompassing Computer-Assisted Language Learning (CALL), Mobile-Assisted Language Learning (MALL), and blended or online learning. To sharpen the focus, the scope was narrowed to studies that conceptualise technology integration as an embedded pedagogical process rather than as isolated tool use or short-term experimentation. This shift reflects a growing emphasis in the literature on how technologies mediate learning processes over time. This process of reading led to a focus on technology integration in EFL learning as the scope determined for this review.

Although Generative Artificial Intelligence (GenAI) now dominates recent publications, the scope of the review aims to include a wider range of integrated technologies, adaptive platforms, mobile applications, immersive tools, and AI-supported feedback systems. This broader inclusion situates GenAI research within the longer trajectory of technology integration scholarship and allows earlier theoretical insights to inform interpretations of newer developments.

A structured search strategy was adopted, combining systematic database searches across Scopus, Lancaster OneSearch, Google Scholar, and ResearchGate with forward–backward citation tracking. Search terms were constructed around technology integration and EFL learning, supplemented with other terms such as, GenAI, engagement, motivation, reflection, higher education, and social influence.

Studies were included if they:

(a) reported empirical research in peer-reviewed journals

(b) focused on technology integration in EFL/ESL contexts in higher education;

(c) examined learner-centred dimensions such as engagement, motivation, reflection, metacognition, feedback use, or social influence; and

(d) provided methodological transparency sufficient for evaluating validity and transferability.

Studies that examined technological development without learner processes were excluded.

A staged screening process, title/abstract review followed by full-text analysis, resulted in a final dataset of studies (Table 1). These spans applied linguistics, educational technology, and related interdisciplinary fields, reflecting the breadth of research contributing to this topic. Through iterative analysis, five recurrent thematic strands were identified, forming the organising structure for Sections 2.3–2.7.

A total of 51 studies published between 2021 and 2025 met the inclusion criteria, with a pronounced surge in research from 2023 onwards. Of these, 43 were published in 2024–2025, demonstrating the unprecedented acceleration of GenAI-related EFL scholarship. The corpus includes experimental and quasi-experimental studies, mixed-methods research, qualitative case studies, meta-analyses, bibliometric analyses, and systematic reviews, together offering a methodologically rich foundation from which to synthesise convergent findings and identify unresolved tensions in the field.

Table 1 summarises the included studies and their alignment with the five thematic strands: E = Engagement; M = Motivation; R = Reflection and Metacognition; I = Integration as a Process; S = Social Influence

No.	Author(s)	Year	Title	Context/Sample	E	M	R	I	S
1	Abdelhalim, S. M., & Almaneea, M. O.	2025	Generative AI-supported project-based learning in EFL: Impacts on student engagement and learner agency	EFL students	✓	✓	✓	✓	
2	Al-Obaydi, L. H., Pikhart, M., & Shakki, F.	2025	ChatGPT and the development of core language skills: An exploratory study of EFL college students	EFL college students	✓			✓	
3	Alkolaly, M., Zeid, F., Al-Shamali, N., Khasawneh, M., & Tashtoush, M.	2025	Comparing Lecturers and Students Attitude towards the Role of Generative AI Systems in Foreign Language Teaching and Learning	Lecturers and students		✓		✓	✓
4	Alnemrat, A., Aldamen, H., Almashour, M., Al-Deaibes, M., & AlSharefeen, R.	2025	AI vs. teacher feedback on EFL argumentative writing: A quantitative study	EFL writing students	✓		✓		✓
5	Alrayes, A., Henari, T. F., & Ahmed, D. A.	2024	ChatGPT in education: Understanding the Bahraini academics' perspective	Bahraini academics			✓	✓	
6	Al-Smadi, O. A., Ab Rashid, R., Awad Al-Ramahi, R., Harb Alqaryouti, M., Ugli, H. S. Z., & Vokhidovich, A. N.	2025	Jordanian English language learners' engagement with AI-supported self-regulated learning	Jordanian EFL learners	✓		✓	✓	
7	Altwijri, L., & Alghizzi, T.	2024	Investigating the integration of AI in EFL classes for enhancing learners' affective factors: A systematic review	EFL learners		✓	✓	✓	
8	An, Z., Wang, C., Li, S., Gan, Z., & Li, H.	2021	Technology-assisted self-regulated English language learning: Associations with English language self-efficacy, English enjoyment, and learning outcomes	English learners	✓	✓	✓	✓	
9	Annishah, L., Amalia, L. N. R., Widiati, U., & Wulyani, A. N.	2025	The interplay between technology and motivation in EFL L2 classrooms: A systematic review of 2019–2024 research	EFL L2 classrooms		✓		✓	
10	Baby, K. T.	2025	Motivating EFL students through digital application technology	EFL students		✓		✓	

No.	Author(s)	Year	Title	Context/Sample	E	M	R	I	S
11	Balcı, Ö.	2024	The Role of ChatGPT in English as a Foreign Language (EFL) Learning and Teaching: A Systematic Review	EFL contexts	✓	✓		✓	
12	Bear, E., Chen, X., Verratti Souto, D., Ribeiro-Flucht, L., Rudzewitz, B., & Meurers, D.	2024	Designing a task-based conversational agent for EFL in German schools: Student needs, actions, and perceptions	German school students	✓			✓	✓
13	Bin-Hady, W. R. A., Ali, J. K. M., & Al-humari, M. A.	2024	The effect of ChatGPT on EFL students' social and emotional learning	EFL students		✓	✓		✓
14	Cai, Q., Lin, Y., & Yu, Z.	2024	Factors Influencing Learner Attitudes Towards ChatGPT-Assisted Language Learning in Higher Education	Higher education learners		✓		✓	✓
15	Fang, S., & Han, Z.	2025	On the nascency of ChatGPT in foreign language teaching and learning	FL contexts		✓		✓	
16	Guan, L., Li, S., & Gu, M. M.	2024	AI in informal digital English learning: A meta-analysis of its effectiveness on proficiency, motivation, and self-regulation	Informal English learning		✓	✓	✓	
17	Guo, K., & Li, D. L.	2024	Understanding EFL students' use of self-made AI chatbots as personalized writing assistance tools: A mixed methods study	EFL writing students	✓		✓	✓	
18	Hasumi, T., & Chiu, M. S.	2024	Technology-enhanced language learning in English language education: Performance analysis, core publications, and emerging trends	ELE contexts	✓			✓	
19	Huang, J., & Teng, M. F.	2025	Comparing peer feedback and generative AI feedback in Japanese EFL speaking context: Impacts on motivation, engagement, and writing self-efficacy	Japanese EFL students	✓	✓			✓
20	Juhana, J.	2025	Shaping the Future of English Language Teaching: Leveraging Adaptive Pedagogy and Technology for Revolutionary Learning	ELT contexts				✓	

No.	Author(s)	Year	Title	Context/Sample	E	M	R	I	S
21	Lee, Y.-J., Davis, R. O., & Choi, J.-I.	2025	Integrating generative AI into EFL writing: University students' strategies	University EFL students	✓		✓	✓	
22	Li, Y., Zhou, X., & Chiu, T. K. F.	2025	Systematic review on AI chatbots and ChatGPT for language learning and research from self-determination theory (SDT): What are the roles of teachers?	Language learning		✓	✓	✓	✓
23	Li, B., Tan, Y. L., Wang, C., & Lowell, V.	2025	Two years of innovation: A systematic review of empirical generative AI research in language learning and teaching	Language learning	✓	✓	✓	✓	
24	Liu, G., Darvin, R., & Ma, C.	2024	Exploring AI-mediated informal digital learning of English (AI-IDLE): A mixed-method investigation	Chinese EFL learners	✓	✓		✓	✓
25	Mekheimer, M. A.	2024	The affective landscape of generative AI in EFL: A mixed-methods study on college students' motivation and attitudes	College EFL students		✓	✓	✓	
26	Metwally, A. A.	2025	Digital Technology in EFL Education: Students' Emotional and Cognitive Reflections from Blackboard Discussions	EFL students			✓	✓	✓
27	Ngo, K. T.	2024	The Use of ChatGPT for Vocabulary Acquisition: A Literature Review	Vocabulary learning	✓	✓		✓	
28	Nhan, L. K.	2024	Investigating EFL English-Majored Students' Perceptions towards the Use of Technology in Language Teaching	English-majored students		✓		✓	✓
29	Pan, M., Lai, C., & Guo, K.	2025	Effects of GenAI-empowered interactive support on university EFL students' self-regulated strategy use and engagement in reading	University EFL students	✓		✓	✓	
30	Panagiotidis, P., Krystalli, P., & Arvanitis, P.	2023	Technology as a motivational factor in foreign language learning	FL learners		✓		✓	
31	Pérez-Jorge, D., Olmos-Raya, E., González-Contreras, A. I., & Pérez-Pérez, I.	2025	Technologies applied to education in the learning of English as a second language	ESL contexts		✓		✓	

No.	Author(s)	Year	Title	Context/Sample	E	M	R	I	S
32	Peungcharoenkun, T., & Waluyo, B.	2023	Implementing process-genre approach, feedback, and technology in L2 writing in higher education	L2 writing students	✓		✓	✓	
33	Rintaningrum, R.	2023	Technology integration in English language teaching and learning: Benefits and challenges	ELT contexts	✓			✓	
34	Song, C., & Song, Y.	2023	Enhancing academic writing skills and motivation: Assessing the efficacy of ChatGPT in AI-assisted language learning for EFL students	EFL writing students	✓	✓		✓	
35	Teng, M. F.	2024	ChatGPT is the companion, not enemies: EFL learners' perceptions and experiences in using ChatGPT for feedback in writing	EFL writing students	✓	✓	✓		✓
36	Waluyo, B., & Kusumastuti, S.	2024	Generative AI in student English learning in Thai higher education: More engagement, better outcomes?	Thai university students	✓	✓		✓	
37	Wang, Y., & Kabilan, M. K.	2024	Integrating technology into English learning in higher education: A bibliometric analysis	Higher education				✓	
38	Wang, T., & Xue, B.	2024	The role of GenAI in EFL: Impact on learning motivation and outcome	EFL learners		✓		✓	
39	Wang, X., Gao, Y., Wang, Q., & Zhang, P.	2024	Fostering engagement in AI-mediated Chinese EFL classrooms: The role of classroom climate, AI literacy, and resilience	Chinese EFL classrooms	✓		✓	✓	✓
40	Wang, Q., Amini, M., & Fu, Z.	2025	AI acceptance and Chinese EFL learners' behavioural engagement with mediating effects of motivation	Chinese EFL learners	✓	✓		✓	
41	Wang, F., Cheung, A. C. K., Neitzel, A. J., & Chai, C. S.	2025	Does chatting with chatbots improve language learning performance? A meta-analysis of chatbot-assisted language learning	Language learning	✓			✓	
42	Wei, Y.	2022	Toward technology-based education and English as a foreign language motivation: A review of literature	EFL contexts		✓		✓	

No.	Author(s)	Year	Title	Context/Sample	E	M	R	I	S
43	Wei, L.	2023	Artificial intelligence in language instruction: Impact on English learning achievement, L2 motivation, and self-regulated learning	English learners		✓	✓	✓	
44	Wu, Z., & Zhao, J.	2025	Exploring learners' engagement with GenAI-generated feedback in EFL writing: A Chinese middle school case study	Chinese middle school	✓		✓	✓	
45	Wu, J., Li, Y., Zhou, J., & Chen, S.	2024	The impact of intelligent personal assistants on Mandarin second language learners: interaction process, acquisition of listening and speaking ability	Mandarin L2 learners	✓			✓	
46	Xin, Z., & Derakhshan, A.	2025	From excitement to anxiety: Exploring EFL learners' emotional experiences in the AI-powered classrooms	EFL learners		✓	✓		✓
47	Xu, T., & Jumaat, N. F.	2024	ChatGPT-empowered writing strategies in EFL students' academic writing: Calibre, challenges, and chances	EFL academic writing	✓		✓	✓	
48	Xu, J., & Li, J.	2024	Effects of AI affordances on student engagement in EFL classrooms: A structural equation modelling and latent profile analysis	EFL classroom students	✓			✓	
49	Zaim, M., Arsyad, S., Waluyo, B., Ardi, H., Al Hafizh, M., Zakiyah, M., Syafitri, W., Nusi, A., & Hardiah, M.	2024	AI-powered EFL pedagogy: Integrating generative AI into university teaching preparation through UTAUT and activity theory	University teachers			✓	✓	
50	Zhang, Y.	2025	Enhancing EFL learners' engagement and motivation through immersive technologies: The role of AI, AR, VR, and mobile applications	EFL learners	✓	✓		✓	
51	Zhang, R., Zou, D., & Cheng, G.	2024	Chatbot-based learning of logical fallacies in EFL writing: perceived effectiveness in improving target knowledge and learner motivation	EFL writing students	✓	✓		✓	

Table 1: Overview of Key References and Research Context

2.3 Engagement

This section reviews work concerned with engagement within the literature on technology integration in EFL learning. Engagement is widely recognised as a central mechanism through which technology influences learning outcomes in EFL contexts. The construct is typically theorised in this literature as multidimensional, encompassing behavioural, cognitive, and emotional components that interact dynamically throughout the learning process (Rintaningrum, 2023; Wei, 2022). Recent bibliometric analyses and systematic reviews confirm that engagement serves as a critical mediator between technology use and language learning outcomes (Hasumi & Chiu, 2024; Wang & Kabilan, 2024). Behavioural engagement refers to observable participation in learning activities, such as time on task, frequency of interaction with digital tools, and completion of technology-mediated assignments. Cognitive engagement denotes the depth of mental processing, including strategy use, self-regulation, and metacognitive monitoring. Emotional engagement encompasses affective responses such as interest, enjoyment, anxiety, and sense of connection to the learning task or community (Altwijri & Alghizzi, 2024; Wei, 2022).

Despite broad consensus on engagement's centrality, the literature reveals considerable variability in how the construct is operationalised and measured. Some studies treat engagement as a unitary construct inferred from self-reported survey items, while others distinguish among its behavioural, cognitive, and emotional dimensions through triangulated data sources (Rintaningrum, 2023; Xu & Li, 2024). This inconsistency complicates cross-study comparison and limits the field's capacity to make robust claims about which dimensions of engagement are most strongly influenced by specific technological affordances or pedagogical designs.

Within technology acceptance and adoption frameworks, engagement is positioned as an explanatory construct linking technology use to learning outcomes. Studies applying the Unified Theory of Acceptance and Use of Technology (UTAUT) to EFL contexts demonstrate that performance expectancy, effort expectancy, social influence, and facilitating conditions all significantly predict behavioural intention to use AI tools, with behavioural engagement serving as a key mediator between acceptance and learning

outcomes (Wang et al., 2025; Zaim et al., 2024). These models foreground learners' perceptions of usefulness, ease of use, and social endorsement as determinants of initial adoption, with engagement serving as the mechanism through which sustained use translates into skill development (Cai et al., 2024; Wang et al., 2025).

However, acceptance-oriented models tend to under-specify the cognitive and emotional dimensions of engagement, focusing primarily on frequency or duration of tool use rather than the quality of learners' interactions with technology. Notably, Zaim et al. (2024) found that effort expectancy had no significant effect on behavioural intention among Indonesian EFL lecturers adopting generative AI, while facilitating conditions unexpectedly negatively impacted behavioural intention findings that challenge conventional UTAUT assumptions and suggest that context-specific factors may override general technology acceptance patterns. This limitation becomes particularly evident in studies of GenAI tools, where learners may engage extensively with a platform yet interact with its outputs in superficial or uncritical ways (Waluyo & Kusumastuti, 2024). Research documenting an "engagement-outcome disconnect" in Thai EFL contexts reveals that high levels of behavioural engagement with ChatGPT do not automatically translate into improved writing performance, particularly when learners adopt surface-level revision strategies or fail to critically evaluate AI-generated suggestions (Waluyo & Kusumastuti, 2024).

Pedagogically oriented frameworks conceptualise engagement not merely as a mediator but as a lens for evaluating the quality and sustainability of technology integration. From this perspective, effective technology integration is characterised by learner interactions that are cognitively demanding, emotionally positive, and aligned with meaningful learning goals (Rintaningrum, 2023; Wei, 2022). A systematic review examining ChatGPT in foreign language teaching confirms that while students acknowledge ChatGPT's effectiveness in facilitating writing processes, concerns persist about reduced critical thinking and overreliance on AI-generated content (Fang & Han, 2025). Studies adopting this lens often employ process-oriented methods, such as think-aloud protocols, screen recordings, or learning analytics, to examine how learners allocate attention, regulate effort, and respond affectively during technology-mediated tasks (An et al., 2021; Al-Smadi et al., 2025).

Research comparing high- and low-achieving EFL students' use of AI-supported self-regulated learning reveals that high-achieving students demonstrate significantly greater cognitive and metacognitive engagement with AI tools, using them strategically for planning, monitoring, and evaluating their writing, whereas low-achieving students tend to rely on AI outputs more passively (Al-Smadi et al., 2025). Such evidence underscores that technology's impact on engagement is not uniform but contingent on learners' prior regulatory skills and their capacity to integrate digital tools within self-directed learning processes.

The reviewed literature reveals substantial variability in how engagement is measured, raising questions about the comparability and cumulative value of findings. Self-report instruments remain the dominant measurement approach, typically operationalising engagement through Likert-scale items assessing perceived interest, effort, or enjoyment (Altwijri & Alghizzi, 2024; Cai et al., 2024). While such measures are efficient and scalable, they are vulnerable to social desirability bias and provide limited insight into moment-to-moment fluctuations in engagement during technology-mediated tasks.

Studies employing more fine-grained process indicators, such as log data, interaction traces, or revision histories, offer richer accounts of how engagement unfolds over time. For example, research on AI-mediated informal digital learning of English found that Chinese EFL learners demonstrated varied patterns of AI adoption, with engagement levels influenced by perceived usefulness and prior digital learning experiences (Liu et al. 2025). Similarly, research using process-oriented methods demonstrates that learners' overt behaviours (e.g., clicking, scrolling) may not align with their cognitive engagement, as evidenced by shallow processing or distraction (An et al., 2021).

Emerging research on immersive technologies provides additional evidence of engagement's multidimensional nature. A review of technologies applied to ESL education found that immersive environments, including virtual and augmented reality applications, can enhance emotional engagement through increased presence and enjoyment, while

also supporting cognitive engagement by contextualising language use in authentic scenarios (Pérez-Jorge et al., 2025).

Methodologically, the strongest evidence comes from studies that triangulate self-reported engagement with observable indicators of cognitive processing, task performance, or affective response. For instance, Zhang, Zou and Cheng (2024) demonstrated that chatbot-based learning of logical fallacies in EFL writing significantly improved both target knowledge and learner motivation, with high perceived effectiveness across behavioural, cognitive, and emotional engagement dimensions. Such approaches move beyond static snapshots of engagement to capture its dynamic and situated character, providing a more nuanced basis for evaluating technology's role in sustaining learner involvement over time.

Engagement with this literature has importantly shaped the design and focus of the present study. The recognition that engagement operates across behavioural, cognitive, and emotional dimensions informed the decision to collect data that could capture these multiple facets. Similarly, the emphasis on technology acceptance factors highlighted the importance of understanding why learners choose to use GenAI tools, not just whether they do so. These insights from the literature directly influenced the theoretical framework and methodological approach adopted in this study.

Taken together, the literature on engagement in technology-integrated EFL learning highlights both the construct's centrality and the challenges associated with its conceptualisation and measurement. While there is broad agreement that engagement mediates the relationship between technology use and learning outcomes, inconsistencies in how engagement is defined and assessed limit the field's capacity to make robust, generalisable claims. Acceptance-oriented models effectively account for initial adoption but underspecify the cognitive and emotional dimensions that determine the quality of technology-mediated learning. Pedagogical frameworks offer richer accounts of engagement as a multidimensional process but remain underutilised in empirical research, particularly in longitudinal or naturalistic designs that trace engagement's evolution over extended timeframes.

The present study addresses these gaps by adopting a multidimensional conceptualisation of engagement and triangulating self-reported data with process-level indicators of cognitive and emotional involvement. By examining how engagement unfolds across an extended EFL programme, this study advances understanding of the conditions under which technology integration sustains meaningful learner involvement beyond short-term interventions.

2.4 Motivation

This section reviews work concerned with motivation within the literature on technology integration in EFL learning. Motivation is widely recognised as a critical determinant of success in foreign language learning, influencing the effort learners invest, the strategies they employ, and the persistence they demonstrate in the face of difficulty (Wei, 2022; Altwijri & Alghizzi, 2024). In technology-integrated EFL contexts, motivation is theorised, in this literature, both as an antecedent that shapes learners' initial willingness to engage with digital tools and as an outcome that may be enhanced or diminished through technology-mediated learning experiences (Rintaningrum, 2023; Annishah et al., 2025). A systematic review of research published between 2019 and 2024 found that technology tools, particularly visual-based tools such as AR/VR, social media platforms, and game-based applications, generally have a positive impact on EFL motivation, enhancing task engagement, curiosity, and enjoyment (Annishah et al., 2025).

The literature on motivation in technology-integrated EFL learning draws on multiple theoretical traditions, including Self-Determination Theory (SDT), Expectancy-Value Theory, Achievement Goal Theory, and sociocultural perspectives on situated motivation. Wei's (2022) comprehensive review of technology-based education and EFL motivation synthesises these frameworks, demonstrating that interactive technology tools enhance intrinsic motivation by fostering autonomy, competence, and relatedness, the three psychological needs central to SDT. While these frameworks offer valuable lenses for understanding motivation's role in technology adoption and sustained use, they are not always clearly distinguished in empirical studies, leading to conceptual ambiguity and inconsistent operationalisation across research contexts.

Self-Determination Theory (SDT) provides a widely adopted framework for analysing motivation in technology-integrated EFL learning, distinguishing between intrinsic motivation (engagement driven by inherent interest or enjoyment) and extrinsic motivation (engagement driven by external rewards or pressures). Research demonstrates that technology tools supporting learner autonomy, providing competence-affirming feedback, and facilitating social connection tend to enhance intrinsic motivation, whereas tools perceived as controlling or overly directive may undermine it (Wei, 2022; Altwijri & Alghizzi, 2024).

Studies on AI-powered chatbots illustrate this dynamic. Zhang, Zou and Cheng (2024) found that chatbot-based learning environments promoting personalised feedback and interactive practice significantly increased EFL students' enthusiasm and confidence, key indicators of intrinsic motivation. However, when AI tools are introduced primarily to increase efficiency or reduce instructor workload, without attention to how they support learner autonomy or meaningful interaction, motivational benefits may be limited or short-lived (Waluyo & Kusumastuti, 2024).

Gamification represents another area where intrinsic and extrinsic motivations intersect. While gamified applications can increase task engagement through reward systems and competitive elements, research indicates that these motivational gains depend on careful design; poorly implemented gamification may prioritise extrinsic rewards over genuine learning interest, potentially undermining long-term motivation (Annishah et al., 2025; Wei, 2022).

Expectancy-Value Theory foregrounds learners' beliefs about their capacity to succeed (expectancy) and the perceived importance or utility of the learning task (value) as joint determinants of motivated engagement. In technology-integrated EFL contexts, expectancy beliefs are shaped by learners' prior experiences with digital tools, their self-efficacy for language learning, and the perceived ease or difficulty of technology-mediated tasks (Cai et al., 2024; Wang et al., 2025). Value beliefs, in turn, are influenced by the perceived relevance of technology-enhanced activities to learners' academic or

professional goals, as well as by the intrinsic interest generated through interactive or immersive features (Rintaningrum, 2023). While EVT provides a useful lens for understanding the belief structures underlying adoption decisions, its application in GenAI-specific research has rarely examined how expectancy and value beliefs interact or change over time, limiting understanding of whether motivational dynamics around GenAI differ qualitatively from those observed with earlier educational technologies.

Research applying expectancy-value frameworks to GenAI tools demonstrates that perceived usefulness and ease of use significantly predict learners' intentions to adopt and sustain use of AI-powered platforms (Cai et al., 2024; Wang et al., 2025). However, these perceptions are not static; they evolve as learners gain experience with the technology and as they observe its impact on their learning outcomes. Studies tracking motivation over time reveal that initial enthusiasm for GenAI tools may wane if learners perceive the tools as providing generic or inaccurate feedback, or if they experience frustration with technical limitations (Wang & Xue, 2024; Fang & Han, 2025).

Achievement Goal Theory distinguishes between mastery goals (focused on developing competence and understanding) and performance goals (focused on demonstrating ability relative to others). Research indicates that technology integration aligned with mastery goals, such as adaptive feedback systems that scaffold learners' progressive skill development, tends to sustain motivation more effectively than technology use oriented primarily toward performance outcomes (An et al., 2021; Al-Smadi et al., 2025). This distinction has implications for how GenAI tools are framed and implemented in EFL curricula. When AI-generated feedback is positioned as a resource for iterative improvement rather than as a shortcut to polished output, learners are more likely to engage with it in ways that support sustained motivation and deeper learning. However, the evidence base for AGT in GenAI contexts is nascent, and existing studies have not yet examined how learners’ goal orientations interact with the specific affordances of generative AI, such as its capacity to produce complete drafts that may inadvertently reward performance-oriented rather than mastery-oriented engagement.

Sociocultural perspectives on motivation emphasise that learners' engagement with technology is shaped not only by individual beliefs and goals but also by the social contexts in which learning occurs. From this perspective, motivation is understood as situated and relational, emerging through interactions with peers, instructors, and the broader learning community (Rintaningrum, 2023; Zaim et al., 2024). In technology-integrated EFL contexts, sociocultural factors such as instructor modelling, peer norms, and institutional signals play a significant role in shaping learners' motivational orientations toward digital tools. While this perspective enriches individualistic accounts of motivation by foregrounding context, it remains underrepresented in empirical GenAI research, where most studies measure motivation at the individual level through self-report instruments rather than examining the situated social processes through which motivational orientations are negotiated and sustained.

Research on social influence in technology acceptance demonstrates that learners' perceptions of whether their peers and instructors value and endorse technology use significantly predict their own motivation to engage with digital tools (Wang et al., 2025; Zaim et al., 2024). When instructors model reflective and principled use of GenAI tools, demonstrating how to evaluate AI-generated suggestions, integrate them selectively, and maintain critical oversight learners are more likely to adopt similar practices and to sustain motivation for technology-mediated learning (Fang & Han, 2025). Conversely, when technology use is presented as optional, peripheral, or disconnected from core learning goals, learners may perceive it as extraneous, resulting in diminished motivation (Rintaningrum, 2023).

Collaborative learning environments mediated by social media platforms or discussion forums offer additional evidence of motivation's social dimensions. Studies show that platforms such as WhatsApp, Facebook, and online forums support collaborative, learner-centred environments that reduce anxiety and foster enjoyment, thereby enhancing motivation (Annishah et al., 2025). However, the motivational benefits of such platforms depend on the quality of peer interaction and the extent to which collaborative activities are structured to promote meaningful engagement rather than superficial participation. It should be noted that this evidence derives predominantly from social media and Web 2.0

tools; whether collaborative dynamics operate similarly when learners share and compare GenAI outputs, where the quality and sophistication of output depend heavily on individual prompt design, remains an open empirical question.

A critical limitation of much existing research is its reliance on short-term interventions or single-point-in-time measurements, which provide limited insight into how motivation evolves as learners gain experience with technology and as novelty effects dissipate. Longitudinal studies tracking motivation across extended timeframes remain rare, yet available evidence suggests that initial enthusiasm for GenAI tools often declines as learners encounter limitations such as inaccurate feedback, generic suggestions, or technical difficulties (Wang & Xue, 2024; Fang & Han, 2025).

Research on AI-mediated informal digital learning of English (AI-IDLE) provides valuable insights into sustained technology use. Liu et al. (2025) found that perceived usefulness, social influence, and prior digital learning experiences significantly predicted Chinese EFL learners' sustained behavioural intention to use AI tools for informal learning, with habitual use patterns emerging as learners gained familiarity with the technology. This finding underscores the importance of supporting learners in developing routine, self-regulated practices for technology use, rather than relying solely on initial interest or novelty to sustain motivation. However, this study, like much of the research in this area, relied on cross-sectional survey data, which captures behavioural intention at a single point rather than documenting how motivation actually evolves over extended periods of use.

Studies examining the relationship between motivation and self-regulated learning further illuminate this dynamic. An et al. (2021) demonstrated that technology-assisted self-regulated learning is positively associated with English language self-efficacy and enjoyment, with self-efficacy mediating the relationship between self-regulation and learning outcomes. These findings suggest that motivation and self-regulation are mutually reinforcing: motivated learners are more likely to engage in self-regulated technology use, and successful self-regulation, in turn, enhances motivation by fostering perceptions of competence and progress. Importantly, however, this reciprocal relationship has been established primarily through quantitative, correlational designs

that cannot confirm causal direction, and the specific mechanisms by which GenAI tools (as opposed to other digital tools) contribute to this cycle remain underexplored.

The literature on motivation in technology-integrated EFL learning reveals a complex interplay of individual, social, and contextual factors that shape learners' willingness to engage with digital tools and to sustain that engagement over time. While SDT, Expectancy-Value Theory, and Achievement Goal Theory offer valuable frameworks for understanding motivation's cognitive and affective dimensions, sociocultural perspectives remind us that motivation is also situated and relational, emerging through interactions with peers, instructors, and institutional contexts.

Engagement with this literature has directly shaped the theoretical and methodological design of the present study. The recognition that motivation in technology-mediated EFL learning is driven by psychological needs for autonomy, competence, and relatedness informed the decision to integrate Self-Determination Theory alongside UTAUT-2, ensuring that the study captures not only technology acceptance factors but also the deeper motivational processes that sustain engagement over time. Similarly, the finding that expectancy beliefs and value perceptions evolve as learners gain experience with technology highlighted the importance of examining motivation across an extended programme rather than at a single point in time. The literature’s emphasis on the distinction between intrinsic and extrinsic motivation also shaped the survey and interview design, which were constructed to elicit learners’ evolving perceptions of enjoyment, autonomy, and purpose in their use of generative AI tools.

Despite this rich theoretical landscape, empirical research often operationalises motivation narrowly, relying on self-reported attitudes or intentions without examining how motivation unfolds dynamically across extended learning experiences. The present study addresses this gap by examining motivation as both an antecedent and an outcome of technology-mediated learning, tracking how motivational orientations evolve as learners interact with GenAI tools over an extended EFL programme. By triangulating self-reported motivation with process-level indicators of engagement and self-regulation, this research

advances understanding of the conditions under which technology integration sustains meaningful motivation beyond initial adoption.

2.5 Reflection and metacognition

This section reviews work concerned with reflection and metacognition within the literature on technology integration in EFL learning. Reflection and metacognition are widely recognised as essential components of effective language learning, enabling learners to monitor their comprehension, evaluate their progress, and adjust their strategies in response to feedback and changing task demands (An et al., 2021; Al-Smadi et al., 2025). In technology-integrated EFL contexts, the role of reflection and metacognition becomes particularly salient, as digital tools both afford new opportunities for self-monitoring and feedback interpretation, and introduce new challenges related to overreliance, superficial engagement, and diminished critical evaluation of technologically generated outputs.

The literature on reflection and metacognition in technology-integrated EFL learning draws on multiple theoretical traditions, including models of self-regulated learning (SRL), metacognitive awareness frameworks, and sociocultural perspectives on mediated reflection. Self-regulated learning is conceptualised as a cyclical process encompassing goal-setting, strategic planning, monitoring, and evaluation, with technology tools potentially supporting each phase through features such as adaptive feedback, progress tracking, and scaffolded prompts (An et al., 2021; Al-Smadi et al., 2025). However, the extent to which learners actually engage in reflective and metacognitive processes when using technology depends not only on the affordances of the tools themselves but also on how those tools are integrated into pedagogical practices and on learners' prior regulatory skills.

When thoughtfully designed and pedagogically integrated, technology tools can scaffold reflection and metacognition by making learning processes more visible, providing timely and specific feedback, and prompting learners to articulate their reasoning or evaluate their progress. Research on AI-supported self-regulated learning in EFL writing

demonstrates that AI tools can enhance metacognitive strategies such as planning, monitoring, and evaluating, particularly when learners are explicitly trained to use structured prompts that focus AI output on genre-specific goals and reflective criteria (Al-Smadi et al., 2025; Alnemrat et al., 2025).

Studies comparing teacher-generated and AI-generated feedback reveal that while both types of feedback lead to significant improvements in EFL writing performance, students often incorporate more AI feedback into their revisions due to its immediacy, specificity, and detail (Teng, 2024; Wu & Zhao, 2025). However, this higher uptake rate does not automatically indicate deeper metacognitive engagement; learners may accept AI suggestions uncritically without evaluating their appropriateness or reflecting on the underlying principles that would enable transfer to future tasks. Alnemrat et al. (2025) caution that learners may interact more passively with AI feedback, often accepting suggestions without critical evaluation or reflection, raising concerns about surface-level revision, overreliance, and reduced metacognitive engagement.

To mitigate these risks, research suggests that scaffolded reflection, such as asking students to justify revisions based on AI feedback or to compare AI suggestions with their own initial drafts, can encourage critical thinking and deeper metacognitive engagement (Alnemrat et al., 2025; Teng, 2024). When learners are prompted to explain why they accept or reject AI-generated suggestions, they are more likely to develop transferable understanding of writing principles rather than simply adopting technologically generated outputs as final products.

Despite technology's potential to support reflection and metacognition, the literature also documents significant challenges, particularly related to overreliance on AI tools and the emergence of superficial or shortcut-oriented learning behaviours. Research on GenAI tools in EFL contexts reveals that learners may prioritise polished output over reflective engagement, accepting AI-generated text or feedback without critically evaluating its accuracy, appropriateness, or alignment with learning goals (Waluyo & Kusumastuti, 2024; Fang & Han, 2025).

This pattern is particularly evident in studies examining the "engagement-outcome disconnect," where high levels of behavioural engagement with AI tools do not translate into improved learning outcomes because learners' interactions remain cognitively shallow (Waluyo & Kusumastuti, 2024). For example, students may extensively use ChatGPT to generate essay drafts or revise their writing, yet fail to develop the metacognitive awareness necessary to independently evaluate the quality of AI-generated suggestions or to transfer learned principles to new writing tasks.

The risk of overreliance is compounded by the "black box" nature of many AI systems, which provide outputs without explaining the reasoning behind them or the criteria used to generate suggestions (Fang & Han, 2025). When learners lack transparency into how AI tools arrive at their recommendations, they have limited opportunity to develop the metacognitive understanding that would enable them to evaluate those recommendations critically or to apply similar reasoning processes independently. Research indicates that AI feedback may "hallucinate" critiques, offer generic advice, or miss contextually nuanced issues, further undermining learners' capacity for critical evaluation when they lack the metacognitive skills to identify such limitations (Alnemrat et al., 2025).

Studies on uncritical AI adoption document how learners may adopt efficiency-oriented strategies that bypass reflective engagement, particularly when assessment criteria reward polished output over process-oriented evidence of revision and reasoning (Xu & Jumaat, 2024; Fang & Han, 2025). In such contexts, technology use may inadvertently reinforce surface-level learning behaviours, with learners prioritising speed and convenience over the deeper cognitive processing that supports long-term skill development and transfer.

The literature identifies several pedagogical strategies for promoting reflection and metacognition in technology-integrated EFL learning, emphasising the importance of explicit instruction, scaffolded tasks, and assessment alignment. One key strategy is to provide explicit training in how to evaluate and integrate AI-generated feedback, helping learners develop criteria for assessing the quality, relevance, and appropriateness of technologically generated suggestions (Alnemrat et al., 2025; Teng, 2024).

Another strategy involves designing tasks that require learners to articulate their reasoning, compare multiple sources of feedback, or justify their revision decisions. For example, structured revision protocols guide students through the revision process, encouraging them to apply feedback thoughtfully and reflect on changes made, thereby promoting metacognitive awareness and deeper engagement with the writing task (Guo & Li, 2024). Such approaches transform AI tools from passive output generators into interactive partners that scaffold reflective thinking.

Assessment alignment is also critical. When assessment criteria reward evidence of reasoning, revision decisions, and reflective engagement, rather than solely evaluating final products, learners are more likely to engage with technology in ways that support metacognitive development (Rintaningrum, 2023; Pan et al., 2025). For instance, portfolios that include annotated drafts, revision logs, or reflective commentaries provide evidence of learners' metacognitive processes and incentivise thoughtful engagement with technology-mediated feedback.

Research on GenAI literacy and self-regulated learning frameworks further underscores the importance of helping learners develop not only technical skills for using AI tools but also critical literacies for evaluating AI outputs and metacognitive strategies for integrating AI feedback into self-regulated learning processes (Li et al., 2025). Such frameworks position reflection and metacognition as central to responsible and effective AI use, rather than as secondary considerations. Critically, however, the evidence supporting these pedagogical strategies is largely derived from small-scale interventions or conceptual proposals rather than from sustained, controlled investigations of their impact. Most studies documenting the effectiveness of scaffolded reflection and explicit instruction rely on researcher-designed tasks within short interventions, raising questions about whether such strategies translate into routine practice when GenAI tools are embedded across an entire programme of study.

Methodologically, research on reflection and metacognition in technology-integrated EFL learning faces challenges related to the difficulty of capturing internal cognitive processes

through observable indicators. Self-report measures, such as questionnaires assessing metacognitive awareness or reflective practice, are efficient but vulnerable to social desirability bias and may not accurately reflect learners' actual regulatory behaviours during technology-mediated tasks (An et al., 2021).

More methods, such as think-aloud protocols, stimulated recall interviews, learning logs, or analysis of revision histories, offer richer insights into how learners monitor, evaluate, and adjust their strategies when using technology (An et al., 2021; Al-Smadi et al., 2025). For example, examining the types of revisions learners make in response to AI feedback, whether they are surface-level corrections or substantive changes reflecting deeper understanding, can provide evidence of metacognitive engagement that self-reports alone cannot capture.

Longitudinal designs that track the development of reflective and metacognitive skills over extended timeframes are particularly valuable but remain underutilised in the literature. Such designs can reveal whether learners' initial reliance on technology evolves into more strategic, self-regulated use, or whether patterns of overreliance persist or intensify over time (An et al., 2021; Al-Smadi et al., 2025).

The literature on reflection and metacognition in technology-integrated EFL learning reveals a tension between technology's potential to scaffold self-regulated learning and the risks of overreliance, superficial engagement, and diminished critical evaluation. While AI tools can provide timely, specific feedback and make learning processes more visible, these affordances do not automatically translate into metacognitive development unless learners are explicitly supported in engaging with technology reflectively and critically.

Engagement with this literature has importantly shaped the analytical focus of the present study. The finding that AI tools can scaffold metacognitive strategies when learners are explicitly supported, but may equally promote uncritical acceptance of AI-generated output, informed the decision to examine not only whether learners engage reflectively with generative AI tools but under what conditions reflective engagement emerges or fails

to develop. The literature's emphasis on the risk of superficial revision and overreliance on AI feedback shaped the study's attention to evaluative practices and critical awareness as key dimensions of learner engagement. These insights also influenced the data collection approach, which was designed to capture how learners interact with and respond to AI-generated feedback across multiple tasks rather than in isolated instances. The present study addresses these gaps by examining how EFL learners' reflective and metacognitive practices evolve as they interact with GenAI tools over an extended programme. By triangulating self-reported metacognitive awareness with process-level indicators such as revision patterns, think-aloud data, and reflective commentaries, this research advances understanding of the pedagogical conditions that promote, or hinder, the development of metacognitive skills in technology-mediated EFL learning.

2.6 Integration as a process

This section reviews work concerned with integration as a process within the literature on technology integration in EFL learning. Technology integration in EFL learning is increasingly understood not as a one-time event or isolated intervention but as an ongoing, dynamic process through which digital tools become embedded within pedagogical practices, curricular routines, and learners' everyday learning activities (Rintaningrum, 2023; Wang & Kabilan, 2024). This process-oriented perspective foregrounds the temporal, social, and contextual dimensions of integration, recognising that the mere presence of technology in educational settings does not guarantee meaningful or sustained use.

The literature on technology integration as a process draws on multiple frameworks, including diffusion of innovations theory, the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), and pedagogical frameworks that emphasise the intersection of technological, pedagogical, and content knowledge (Hasumi & Chiu, 2024; Li et al., 2025). While TAM and UTAUT focus primarily on individual-level factors influencing initial adoption, such as perceived usefulness, ease of use, and social influence, pedagogical frameworks emphasise the knowledge domains that teachers must integrate to use technology effectively, including technological

knowledge, pedagogical knowledge, and content knowledge (Zaim et al., 2024; Juhana, 2025).

Process-oriented models of technology integration typically distinguish among stages such as awareness, adoption, adaptation, and transformation, reflecting the progression from initial exposure to routine, self-directed use. Research on technology integration in EFL contexts demonstrates that this progression is neither linear nor inevitable; rather, it is shaped by a complex interplay of individual, institutional, and sociocultural factors (Rintaningrum, 2023; Hasumi & Chiu, 2024).

At the awareness and adoption stages, learners' decisions to engage with technology are influenced primarily by perceived usefulness, ease of use, and social endorsement (Cai et al., 2024; Wang et al., 2025). Studies applying TAM and UTAUT to GenAI tools in EFL contexts consistently find that performance expectancy (the belief that using the technology will enhance learning outcomes) and effort expectancy (the belief that the technology is easy to use) are strong predictors of initial adoption. However, Zaim et al. (2024) found that facilitating conditions, such as institutional support and technical infrastructure, unexpectedly negatively impacted behavioural intention among Indonesian EFL lecturers, suggesting that when existing resources are perceived as adequate, the introduction of new tools may be seen as unnecessary or burdensome rather than beneficial.

At the adaptation stage, learners begin to integrate technology into their regular learning routines, experimenting with different features and adjusting their usage patterns based on experience. Research indicates that this stage is characterised by variability in how learners use technology, with some adopting strategic, self-regulated practices while others rely on technology in more passive or superficial ways (Waluyo & Kusumastuti, 2024; Al-Smadi et al., 2025). The extent to which learners progress to the transformation stage, where technology fundamentally reshapes their learning practices and enables new forms of engagement, depends on sustained pedagogical support, alignment with learning goals, and the development of metacognitive skills for evaluating and regulating technology use (Pan et al., 2025; Guo & Li, 2024).

Technology integration is not solely an individual-level process; it is also shaped by institutional policies, infrastructural support, and the broader educational culture in which learning occurs. Research on faculty perspectives on technology integration in EFL contexts highlights the importance of professional development, technical support, and institutional recognition of technology-enhanced teaching as factors influencing teachers' willingness and capacity to integrate digital tools effectively (Alrayes et al., 2024; Alkolaly et al., 2025).

Studies examining EFL teachers' digital literacy reveal that many teachers lack confidence in their ability to use emerging technologies such as GenAI tools, and that this lack of confidence is compounded by limited access to training and ongoing support (Alkolaly et al., 2025; Nhan, 2024). When teachers feel underprepared or unsupported, they are less likely to model reflective and strategic technology use for their students, potentially reinforcing learners' superficial or uncritical engagement with digital tools. However, this evidence is based almost exclusively on teachers' self-reported perceptions; observational studies documenting how teacher confidence actually manifests in classroom technology practices, and how learners respond to varying levels of teacher expertise, remain scarce.

Institutional policies regarding technology use, such as guidelines on acceptable use of AI tools, expectations for technology integration in course design, and assessment criteria that reward process-oriented evidence of learning, also play a significant role in shaping integration trajectories (Rintaningrum, 2023; Fang & Han, 2025). When policies are unclear or inconsistent, learners and teachers may experience uncertainty about how to use technology appropriately, leading to fragmented or ad hoc integration rather than coherent, sustained embedding of digital tools within pedagogical practices.

The literature identifies multiple challenges and barriers to effective technology integration in EFL learning, including technical difficulties, cost, time constraints, rapid technological change, and misalignment between technology affordances and pedagogical goals (Rintaningrum, 2023; Balcı, 2024). Research on technology integration in various EFL contexts highlights that challenges such as large class sizes, limited access to devices or

reliable internet, and teachers' heavy workloads can significantly hinder integration efforts, even when teachers and learners are motivated to use technology (Rintaningrum, 2023; Nhan, 2024). A notable weakness in this literature, however, is its tendency to catalogue barriers without distinguishing those that are context-specific from those that are systemic, or examining how barriers interact with one another. This limits the practical value of the findings for institutional planning, as barriers identified in well-resourced contexts may differ substantially from those in resource-constrained settings.

Another significant barrier is the rapid pace of technological change, which can make it difficult for educators to keep up with new tools and to develop the pedagogical expertise necessary to use them effectively. Studies document that by the time teachers have gained proficiency with one technology, newer tools may have emerged, creating a cycle of perpetual adaptation that can be exhausting and demoralising (Rintaningrum, 2023; Hasumi & Chiu, 2024).

Misalignment between technology affordances and pedagogical goals represents a more fundamental challenge. When digital tools are introduced primarily for their novelty or efficiency rather than for their capacity to support meaningful learning processes, integration efforts may fail to yield anticipated benefits (Waluyo & Kusumastuti, 2024; Fang & Han, 2025). For example, if AI tools are used primarily to automate grading or generate content without attention to how they support learners' cognitive engagement, reflection, or skill development, they may inadvertently reinforce surface-level learning behaviours rather than transforming pedagogical practices (Alnemrat et al., 2025).

Despite these challenges, the literature also documents examples of successful technology integration, characterised by sustained use, alignment with learning goals, and evidence of enhanced learner engagement, motivation, and outcomes. Successful integration efforts typically share several characteristics: (a) clear pedagogical rationale for technology use, (b) explicit instruction and scaffolding to support learners in using technology reflectively and strategically, (c) alignment between technology-mediated tasks and assessment criteria, and (d) ongoing institutional support for both teachers and learners (Rintaningrum, 2023; Li et al., 2025; Juhana, 2025).

Research on AI-powered EFL pedagogy illustrates these principles in practice. Zaim et al. (2024) found that when Indonesian EFL lecturers integrated generative AI into teaching preparation with explicit attention to how AI tools could enhance content delivery, streamline lesson planning, and enable more interactive learning scenarios, they reported positive impacts on teaching performance and student engagement. However, these benefits were contingent on lecturers maintaining critical oversight and balancing AI use with human instruction to ensure quality teaching and meaningful interaction.

Studies on project-based learning mediated by GenAI tools provide additional evidence of successful integration. Abdelhalim and Almaneea (2025) demonstrated that when GenAI tools were embedded within collaborative, inquiry-oriented projects, they significantly enhanced both student engagement and learner agency, as students used AI not as a replacement for their own thinking but as a resource for exploring ideas, generating alternatives, and refining their work. Similarly, research on GenAI-empowered reading support found that interactive AI scaffolding promoted self-regulated strategy use and sustained engagement among university EFL students (Pan, Lai & Guo, 2025). While these examples are encouraging, they share a common limitation: they represent researcher-designed interventions with strong pedagogical scaffolding, and it remains unclear whether similar outcomes would emerge in more naturalistic settings where teachers receive less guidance and learners encounter GenAI tools without structured support.

The literature on technology integration as a process in EFL learning underscores that effective integration is neither automatic nor guaranteed by the mere availability of digital tools. Rather, it requires sustained attention to pedagogical design, institutional support, and the development of learners' and teachers' capacity to use technology reflectively and strategically. While existing frameworks such as TAM, UTAUT, and pedagogical knowledge models offer valuable lenses for understanding different dimensions of integration, they are often applied in isolation, limiting the field's capacity to account for the complex interplay of individual, social, and institutional factors that shape integration trajectories over time (Li et al., 2025; Wang & Kabilan, 2024).

Engagement with this literature has significantly shaped the scope and design of the present study. The recognition that technology integration unfolds through stages, from initial awareness through to sustained, self-directed use, informed the decision to examine learners' experiences across an extended EFL programme rather than during a single intervention. The literature's consistent finding that facilitating conditions and institutional support shape integration trajectories highlighted the importance of attending to the broader pedagogical and institutional context within which generative AI tools are used. Furthermore, the identification of misalignment between technology affordances and pedagogical goals as a pervasive barrier to meaningful integration shaped the study's focus on whether and how generative AI tools become embedded within learners' EFL practices in ways that support genuine skill development.

The present study addresses these gaps by examining technology integration as a dynamic, situated process that unfolds across an extended EFL programme. By tracking how learners' and teachers' practices evolve, how institutional supports and barriers shape integration trajectories, and how pedagogical design influences the quality and sustainability of technology use, this research advances understanding of the conditions under which technology becomes meaningfully embedded within EFL learning rather than remaining peripheral or superficial.

2.7 Social influences

This section reviews work concerned with social influences within the literature on technology integration in EFL learning. Social influence refers to the ways in which learners' technology use is shaped by the expectations, behaviours, and norms of peers, instructors, and the broader institutional context. In technology-integrated EFL learning, social influence operates at multiple levels, affecting not only whether learners adopt digital tools but also how they use them, how deeply they engage with technology-mediated tasks, and whether they develop reflective, self-regulated practices or rely on technology in more passive or uncritical ways (Wang et al., 2025; Zaim et al., 2024).

The literature on social influence in technology-integrated EFL learning draws primarily on technology acceptance frameworks (TAM, UTAUT) and sociocultural theories of learning. Within UTAUT, social influence is operationalised as learners' perceptions of whether important others, such as peers, instructors, or family members, believe they should use a particular technology (Wang et al., 2025; Cai et al., 2024). Research consistently demonstrates that social influence is a significant predictor of behavioural intention to use technology, particularly in collectivist cultural contexts where social norms and group expectations carry substantial weight (Liu et al., 2024; Zaim et al., 2024).

Instructors play a central role in shaping learners' perceptions of technology's value, appropriateness, and role within the learning process. When instructors model reflective and principled use of digital tools, demonstrating how to evaluate AI-generated suggestions, integrate them selectively, and maintain critical oversight, learners are more likely to adopt similar practices (Fang & Han, 2025; Alnemrat et al., 2025). Conversely, when instructors present technology use as optional, peripheral, or disconnected from core learning goals, learners may perceive it as extraneous, resulting in diminished motivation and superficial engagement (Rintaningrum, 2023).

Research on faculty perspectives on GenAI integration highlights that teachers' own attitudes, confidence, and practices significantly influence how learners engage with technology. Studies show that when teachers express enthusiasm for technology and integrate it meaningfully into course activities, learners are more likely to view technology as valuable and to invest effort in using it effectively (Alkolaly et al., 2025; Alrayes et al., 2024). However, when teachers lack confidence in their own digital literacy or express scepticism about technology's pedagogical value, these attitudes can be transmitted to learners, undermining integration efforts. A limitation of this research is its largely unidirectional focus: studies examine how teacher attitudes influence learners but rarely investigate how learner enthusiasm or resistance reciprocally shapes teacher practice, obscuring the dynamic and interactive nature of these relationships.

The way instructors frame technology use also matters. When AI tools are positioned as resources for iterative improvement and skill development rather than as shortcuts to

polished output, learners are more likely to engage with them reflectively and to sustain motivation over time (Teng, 2024; Fang & Han, 2025). Pedagogical framing that emphasises process over product, critical evaluation over uncritical acceptance, and strategic use over passive reliance helps establish social norms that support meaningful technology integration.

Peer interactions and norms also shape learners' technology use, particularly in collaborative learning environments where technology mediates group work, peer feedback, or shared resource creation. Research on social media platforms and online forums in EFL learning demonstrates that when peers actively engage with technology, share resources, and provide supportive feedback, individual learners are more likely to adopt similar practices and to perceive technology as valuable (Annishah et al., 2025; Rintaningrum, 2023). Yet the evidence here is largely drawn from studies of social media and earlier collaborative technologies rather than GenAI specifically, and it is unclear whether the peer dynamics documented for platform-based collaboration transfer directly to GenAI contexts, where interactions with the tool are often individual and private rather than publicly visible to peers.

However, peer norms can also reinforce undesirable behaviours. Studies document the emergence of uncritical AI reliance patterns in which learners prioritise polished output over reflective engagement, influenced by perceptions that peers are using AI tools to generate content quickly rather than to support learning processes (Xu & Jumaat, 2024; Fang & Han, 2025). When learners observe peers relying heavily on AI-generated text without critical evaluation, they may feel pressure to adopt similar practices to keep pace, even if they recognise that such use undermines deeper learning.

Collaborative learning environments mediated by technology can either amplify or mitigate these dynamics depending on how they are structured. When collaborative tasks require learners to explain their reasoning, justify their use of technology, or compare multiple sources of feedback, peer interactions can reinforce reflective and critical engagement (Annishah et al., 2025; Huang & Teng, 2025). Conversely, when collaborative tasks emphasise efficiency or output quality without attention to process, peer norms may coalesce around superficial or shortcut-oriented technology use.

At the institutional level, social signals are mediated through assessment alignment, access conditions, and policy clarity. Research indicates that when assessment criteria reward reasoning, revision decisions, and reflective engagement, social norms cohere around principled technology use (Rintaningrum, 2023; Pan et al., 2025). Conversely, product-focused assessment regimes incentivise uncritical acceptance of technological output, as learners perceive that what matters is the final product rather than the learning process that produced it.

Institutional policies regarding acceptable use of AI tools also shape social norms. When policies are clear, consistent, and communicated effectively, learners and teachers have a shared understanding of how technology should be used, reducing uncertainty and supporting coherent integration (Rintaningrum, 2023; Alrayes et al., 2024). However, when policies are ambiguous, inconsistent, or absent, learners may navigate technology use through trial and error, potentially adopting practices that undermine learning or violate academic integrity expectations.

Access conditions, such as the availability of devices, reliable internet, and technical support, also send institutional signals about the value placed on technology integration. When institutions invest in infrastructure and support, learners and teachers interpret this as endorsement of technology's importance, which can enhance motivation and legitimise integration efforts (Rintaningrum, 2023; Nhan, 2024). Conversely, when access is limited or unreliable, learners may perceive technology integration as aspirational rather than essential, leading to fragmented or inequitable use. Notably, the relationship between access conditions and the quality of technology integration remains under-theorised; most studies treat access as a binary variable (available or not) rather than examining how variations in access quality interact with pedagogical design and learner motivation to produce different integration outcomes.

Methodologically, evidence on social influence in technology-integrated EFL learning is strongest where perceptual data are triangulated with process-level indicators such as learning logs, revision histories, interaction traces, or task artefacts. Studies adopting such approaches move beyond self-reported attitudes to capture how learners enact,

negotiate, and regulate technology use within situated learning practices, providing insight into the social mechanisms through which norms are constructed and internalised over time (An et al., 2021; Al-Smadi et al., 2025).

Process-oriented methods are particularly valuable in revealing how instructor cues, peer interaction, and task expectations shape learners' moment-to-moment decisions, including when to consult digital tools, how to interpret feedback, and whether to prioritise efficiency or reflective engagement (An et al., 2021; Guo & Li, 2024). In EFL contexts, where technology use is often embedded within collaborative and feedback-rich activities, such data offer a more nuanced account of social influence than perception-based measures alone.

However, despite their potential, these approaches remain underutilised. Longitudinal studies that trace how social norms stabilise, shift, or dissipate across courses or programmes are still rare, limiting the field's capacity to make robust claims about the sustainability of socially mediated technology integration beyond short-term interventions (Rintaningrum, 2023; Li et al., 2025).

Taken together, the literature portrays social influence in technology-integrated EFL learning as a dynamic and multilevel process rather than a static contextual variable. Instructor modelling, peer norms, affective classroom climates, and institutional signals jointly shape how learners initially adopt, interpret, and regulate technology use over time (Rintaningrum, 2023; Wang, Amini & Fu, 2025; Zaim et al., 2024). Research examining classroom climate in AI-mediated EFL contexts demonstrates that learners' engagement is significantly influenced by perceived social support, AI literacy levels, and psychological resilience, highlighting the interplay between individual and contextual factors (Wang et al., 2024). While acceptance-oriented models account effectively for early uptake by foregrounding perceived expectations and social endorsement, they under-specify how social norms evolve into reflective and self-regulated practice once technology becomes embedded in everyday EFL learning (Rintaningrum, 2023). Pedagogical and motivational frameworks offer richer accounts of norm internalisation by emphasising modelling, dialogue, and autonomy-supportive design, yet empirical evidence demonstrating how

these norms diffuse and stabilise across programmes remains limited (Alkolaly et al., 2025; Li et al., 2025).

Engagement with this literature has directly informed the design and research questions of the present study. The finding that instructor modelling of reflective technology use significantly shapes learner adoption and engagement practices informed the inclusion of peer and instructor attitudes as a dedicated research question (RQ3). Similarly, the literature's demonstration that peer norms can reinforce either reflective or shortcut-oriented practices highlighted the need to capture the social dynamics surrounding generative AI use, not only individual perceptions. The emphasis on institutional signals, including assessment alignment, policy clarity, and infrastructure support, as determinants of sustained integration shaped the study's attention to the conditions that support or constrain effective use (RQ4).

The present study addresses these gaps by examining how social norms, pedagogical design, and learner regulation co-evolve within an authentic EFL programme. By triangulating learner perceptions with observable process-level evidence across extended timeframes, this research advances understanding of social influence as an evolving force that shapes not only technology adoption but the sustainability and quality of technology integration in EFL learning environments.

2.8 Conclusion

The literature on engagement in technology-integrated EFL learning demonstrates broad consensus that engagement is a multidimensional construct encompassing behavioural, cognitive, and emotional components, and that it serves as a critical mediator between technology use and learning outcomes. A key strength of this body of research is its recognition that engagement cannot be reduced to observable participation alone; rather, the depth of cognitive processing and the quality of affective responses are equally important in determining whether technology-mediated learning produces meaningful skill development. Studies applying technology acceptance frameworks such as UTAUT have usefully identified performance expectancy, effort expectancy, and social influence as

predictors of initial adoption. However, the literature reveals significant weaknesses. Operationalisation of engagement remains inconsistent, with some studies treating it as a unitary construct measured through self-report surveys while others distinguish among its dimensions through triangulated methods. This inconsistency limits cross-study comparison and the field's capacity to identify which specific dimensions of engagement are most influenced by particular technological affordances. Perhaps most critically, acceptance-oriented models tend to focus on frequency and duration of tool use rather than the quality of learners' interactions, leading to an engagement-outcome disconnect whereby high levels of behavioural engagement with GenAI tools do not automatically translate into improved learning outcomes, particularly when learners adopt surface-level strategies or fail to critically evaluate AI-generated suggestions. The present study responds to this gap by examining not only whether learners engage with generative AI tools but how they engage, capturing the interplay between behavioural, cognitive, and emotional dimensions through learners' own accounts of their evolving interactions with these tools in EFL learning.

Research on motivation in technology-integrated EFL learning draws on well-established theoretical frameworks, including Self-Determination Theory, Expectancy-Value Theory, Achievement Goal Theory, and sociocultural perspectives, providing a robust conceptual foundation for understanding motivation as both an antecedent and an outcome of technology-mediated learning. The literature convincingly demonstrates that technology tools supporting learner autonomy, providing competence-affirming feedback, and facilitating social connection tend to enhance intrinsic motivation, while those perceived as controlling may undermine it. Studies have also usefully shown that expectancy beliefs and value perceptions evolve as learners gain experience with technology, rather than remaining static. However, significant limitations persist. Empirical research frequently operationalises motivation narrowly, relying on self-reported attitudes or behavioural intentions without examining how motivation unfolds dynamically over extended learning experiences. The overreliance on short-term interventions or single-point-in-time measurements provides limited insight into how motivation evolves as novelty effects dissipate and as learners encounter the limitations of GenAI tools, such as inaccurate or generic feedback. Furthermore, while theoretical frameworks are often invoked, they are

not always clearly distinguished in empirical studies, leading to conceptual ambiguity and inconsistent operationalisation. The present study addresses this limitation by investigating how motivation evolves across sustained generative AI use in EFL learning, drawing on both UTAUT-2 and Self-Determination Theory to examine the dynamic relationship between technology acceptance factors and intrinsic motivational processes over time.

The literature on reflection and metacognition highlights the essential role these processes play in transforming technology use into genuine learning. A significant strength of this research is its demonstration that AI tools can scaffold metacognitive strategies such as planning, monitoring, and evaluating when learners are explicitly trained to use structured prompts and when pedagogical designs require articulation of reasoning and justification of revision decisions. Studies have also usefully identified pedagogical strategies, including explicit instruction in evaluating AI feedback, scaffolded reflection tasks, and assessment alignment that rewards process over product, as mechanisms for promoting deeper metacognitive engagement. However, the literature also documents substantial challenges. Research consistently shows that learners may accept AI-generated suggestions uncritically without evaluating their appropriateness or reflecting on underlying principles, leading to surface-level revision, overreliance, and reduced metacognitive development. The black box nature of many AI systems, which provide outputs without explaining the reasoning behind them, compounds this risk by limiting learners' opportunity to develop transferable understanding. Methodologically, capturing internal cognitive processes through observable indicators remains difficult, and longitudinal designs that track the development of reflective and metacognitive skills over extended timeframes are notably underutilised. In response to these challenges, the present study explores how learners develop evaluative and reflective practices through extended engagement with generative AI tools, attending to the conditions under which critical awareness and metacognitive strategies emerge rather than remain underdeveloped.

Research examining technology integration as a dynamic process rather than a singular event offers valuable insights into the stages through which digital tools become

embedded within pedagogical practices and learners' everyday activities. The literature usefully distinguishes awareness, adoption, adaptation, and transformation stages, recognising that progression through these stages is neither linear nor inevitable but shaped by individual, institutional, and sociocultural factors. Studies have identified facilitating conditions, such as institutional support, technical infrastructure, and professional development, as important influences on integration trajectories, while also documenting barriers including technical difficulties, cost, time constraints, and rapid technological change. However, the literature reveals critical gaps. Many studies focus on initial adoption, applying TAM or UTAUT frameworks to predict behavioural intention, without following learners through to sustained, transformed practice. Research has also shown that facilitating conditions do not always operate as predicted; for example, when existing resources are perceived as adequate, new tools may be seen as burdensome rather than beneficial. Most fundamentally, misalignment between technology affordances and pedagogical goals represents a pervasive challenge: when AI tools are introduced primarily for efficiency or novelty rather than to support meaningful learning processes, integration efforts may reinforce surface-level learning behaviours rather than enabling transformation. The present study addresses this gap by tracing how learners move beyond initial adoption toward sustained, meaningful integration of generative AI tools within their EFL learning, examining the facilitating conditions and pedagogical alignment that support or constrain this trajectory.

The literature on social influence demonstrates that learners' technology use is shaped not only by individual beliefs and goals but also by the expectations, behaviours, and norms of peers, instructors, and institutional contexts. A key strength of this research is its recognition that social influence operates at multiple levels: instructors model appropriate technology use and frame its pedagogical role; peers establish norms around how tools are used and whether reflective or shortcut-oriented practices prevail; and institutions signal the value of technology through assessment alignment, policy clarity, and infrastructure investment. Studies have convincingly shown that when instructors model reflective and principled use of AI tools, learners are more likely to adopt similar practices, while ambiguous or absent institutional policies lead to fragmented integration. However, the literature also reveals that peer norms can reinforce undesirable

behaviours, with learners prioritising polished output over reflective engagement when they observe peers using AI to generate content quickly. Methodologically, the strongest evidence comes from studies triangulating perceptual data with process-level indicators such as learning logs and revision histories, yet such approaches remain underutilised. Critically, longitudinal studies that trace how social norms stabilise, shift, or dissipate across programmes are rare, limiting understanding of how socially mediated technology integration can be sustained beyond short-term interventions. Accordingly, this study examines how peer norms, instructor attitudes, and institutional signals collectively shape learners' engagement and motivation with generative AI tools, attending to the ways in which these social influences operate within an authentic EFL programme in a Gulf higher education context.

Collectively, these five strands of literature reveal that GenAI's pedagogical value in EFL learning is contingent rather than inherent, depending on how tools are designed, how learners engage with them, how social contexts shape their use, and how institutions support sustained integration. The gaps and limitations identified above have directly informed the research questions guiding the present study, which seeks to address these shortcomings through a process-oriented, contextually situated investigation of GenAI integration in higher education EFL learning.

The overarching research question guiding this study is: How do English as a Foreign Language learners in higher education perceive the impact of generative AI tools on their engagement and motivation to learn? This central question is addressed through four sub-questions, each of which responds directly to the critiques and gaps identified in this review.

Research Question 1: *In what ways do generative AI tools shape the engagement and motivation of higher education students in English as a Foreign Language learning?*

This question responds to the literature's tendency to measure engagement and motivation through narrow, static indicators such as perceived usefulness and enjoyment, without examining the mechanisms through which GenAI actually shapes these

constructs. The reviewed literature demonstrates that while engagement is recognised as multidimensional, studies frequently fail to capture how behavioural, cognitive, and emotional engagement interact and evolve as learners use GenAI tools. Similarly, motivation research often relies on single-point measurements that cannot account for how initial enthusiasm may wane as learners encounter AI limitations. By investigating the ways GenAI tools shape engagement and motivation, this question moves beyond surface-level associations to explore the underlying processes and trajectories of change.

Research Question 2: *How do students' experiences with the usability and accessibility of generative AI tools influence their engagement and motivation in learning English as a Foreign Language?*

This question addresses the literature's failure to connect usability and accessibility with deeper motivational and engagement processes. While technology acceptance research emphasises effort expectancy and perceived ease of use as predictors of adoption, it rarely examines how these experiential factors influence the quality of learners' subsequent engagement or how usability challenges may undermine sustained motivation over time. The literature has shown that effort expectancy does not always predict behavioural intention in expected ways, suggesting that the relationship between design factors and motivational outcomes is more complex than acceptance models assume. This question therefore investigates how learners lived experiences with tool usability and accessibility shape their ongoing engagement and motivation, rather than treating these as simple predictors of initial adoption.

Research Question 3: *How do peer and instructor attitudes toward generative AI tools impact students' engagement and motivation in English as a Foreign Language learning?*

This question responds to the literature's identification of social influence as a significant factor in technology integration, while also addressing the gap in understanding how social and motivational variables interact. The reviewed literature demonstrates that instructor modelling, peer norms, and institutional signals all shape how learners adopt and use technology, yet these social factors are seldom integrated conceptually with

motivational frameworks such as SDT. Research has shown that peer norms can reinforce either reflective or shortcut-oriented practices, and that instructor framing of AI tools significantly influences learner engagement, yet the mechanisms through which these social influences translate into motivational outcomes remain underexplored. By examining how peer and instructor attitudes impact both engagement and motivation, this question bridges social influence and motivational perspectives.

Research Question 4: *What conditions support the effective integration of generative AI tools in higher education English as a Foreign Language learning, and how do they shape student engagement and motivation?*

This question addresses the literature's limited examination of the contextual and institutional conditions that enable sustainable, ethical, and autonomy-supportive GenAI integration. While research has identified facilitating conditions as important, studies often focus on initial adoption rather than sustained integration, and findings about the role of institutional support have proven inconsistent across contexts. The literature has also highlighted that misalignment between technology affordances and pedagogical goals undermines integration efforts, yet few studies systematically investigate what conditions are necessary for GenAI tools to be meaningfully embedded within EFL learning rather than remaining peripheral. By identifying the environmental, pedagogical, and affective factors that sustain long-term engagement and motivation, this question moves beyond adoption to examine integration as an ongoing process.

Beyond these substantive gaps, this study also responds to a significant methodological limitation identified across the reviewed literature: the overreliance on self-report data and short-term interventions that provide limited insight into how learners actually regulate their interactions with GenAI tools over time. The present study addresses this through triangulation of perception data with reflective logs and process-level indicators, enabling a more nuanced examination of how engagement, motivation, and self-regulation unfold across extended learning experiences.

Finally, this review has revealed a pronounced regional gap: to date, no empirical study has investigated the integration of GenAI in EFL higher education within Bahrain or the wider Gulf Cooperation Council region from the student perspective, with a focus on motivation and engagement factors. This absence limits understanding of how cultural, institutional, and linguistic factors specific to Arab EFL contexts interact with technology acceptance and motivation. The present study therefore contributes both to the global literature on GenAI in language learning and to the emerging body of research situated within Gulf-based higher education environments.

In summary, this literature review has established the conceptual foundation for the present study by mapping the strengths and limitations of existing research on engagement, motivation, reflection, integration processes, and social influence in technology-mediated EFL learning. The research questions have been designed to address the specific gaps identified: the need to examine mechanisms rather than merely associations; to connect usability with deeper engagement processes; to integrate social and motivational perspectives; and to investigate the conditions for sustained rather than initial integration. Building on this synthesis, the following chapter develops the theoretical framework underpinning the study, integrating constructs from Self-Determination Theory and UTAUT-2 to provide a coherent analytical lens for interpreting how GenAI mediates engagement and motivation in higher education EFL contexts.

Chapter 3: Theoretical Framework

Research on technology use in language learning has a history of studies informed by Self-Determination Theory (SDT) which have highlighted the motivational depth of technology-mediated engagement. SDT research has consistently demonstrated that when learners' basic psychological needs for autonomy, competence, and relatedness are satisfied, they experience deeper engagement and persistence in language learning contexts (Noels et al., 2002; Noels, 2008; Ryan, 2022). Empirical studies confirm that autonomy-supportive teaching environments reduce anxiety, bolster competence, and enhance intrinsic motivation among language learners (Deci & Ryan, 2008). A recent systematic review and meta-analysis of SDT-based interventions in education found significant positive effects on students' intrinsic motivation, autonomy, and competence across diverse learning contexts (Wang et al., 2024). These foundations establish SDT as a robust framework for understanding the psychological mechanisms that sustain meaningful engagement in technology-mediated learning.

Generative AI tools have increasingly become the focus of SDT-informed research because they offer distinctive affordances relevant to learners' psychological needs. GenAI tools provide immediate, personalised feedback and adaptive support (Liu & Ma, 2023; Chiu, 2024), which can enhance learners' perceived autonomy and competence, two of SDT's fundamental psychological needs (Noels et al., 2002; Noels, 2008). Yet they also introduce tensions when over-reliance or excessive scaffolding reduces learners' sense of agency, a concern observed in digitally mediated EFL contexts (Belda-Medina & Kokošková, 2024). While such technologies can promote self-direction, their impact depends on whether they reinforce intrinsic motivation or shift focus toward extrinsic performance outcomes (Vaezi, 2008; Chiu, 2024).

The recent introduction of generative AI into education has prompted renewed interest in how behavioural and motivational frameworks, particularly UTAUT-2 and SDT, can explain learners' interaction with these tools (Strzelecki, 2024; Grassini et al., 2024; Budhathoki et al., 2024). Early applications of UTAUT-2 in the context of ChatGPT and other generative AI platforms confirm that traditional acceptance factors, performance expectancy, effort expectancy, and social influence, remain central to adoption decisions

(Liu & Ma, 2023; Budhathoki et al., 2024). However, constructs such as hedonic motivation and habit appear to play an even greater role in GenAI contexts, as enjoyment and familiarity increasingly shape how learners integrate generative AI into their study practices (Strzelecki, 2024; Grassini et al., 2024). These findings suggest that while the structural integrity of UTAUT-2 persists, its interpretation must be extended to account for learners' creative and exploratory engagement with conversational AI.

Collectively, applications of UTAUT-2 and SDT to technology use by students reveal both complementarity and friction. As explained in Section 3.6, UTAUT-2 and SDT are integrated within this study as complementary lenses: UTAUT-2 provides a structural lens to explain why learners adopt AI, emphasising perceived usefulness, ease of use, and contextual support (Venkatesh et al., 2003, 2012), whereas SDT clarifies how those external drivers translate into sustained, self-regulated motivation (Deci & Ryan, 2008; Ryan & Deci, 2020). Tensions arise where institutional encouragement or novelty initially promotes adoption but later undermines intrinsic motivation if learners feel dependent on the technology. Nevertheless, both frameworks converge on the principle that meaningful engagement occurs when extrinsic facilitators, such as accessibility and social influence, interact with intrinsic needs for autonomy, competence, and relatedness. This alignment underscores the value of combining UTAUT-2 and SDT to interpret the dynamic relationship between technological acceptance and learner motivation in EFL settings.

This chapter outlines the theoretical foundations that underpin the study. It explains the conceptual lens through which the integration of generative AI tools in EFL learning is examined. By drawing on the Unified Theory of Acceptance and Use of Technology (UTAUT-2) and Self-Determination Theory (SDT), this chapter provides this study's framework to explore both the technological acceptance and the motivational processes involved in learner engagement. These theories were selected to offer a comprehensive understanding of how external and internal factors intersect to shape EFL learners' experiences with generative AI tools.

3.1 Unified Theory of Acceptance & Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) provides a comprehensive framework for understanding user acceptance of technology, incorporating constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). In the context of English as a Foreign Language (EFL), UTAUT has been instrumental in assessing how learners and educators adopt technological tools to enhance language acquisition.

Research on UTAUT in EFL environments highlights the interplay between technology acceptance and learning outcomes. For example, Raman and Don (2013) demonstrated that facilitating conditions and hedonic motivation significantly predicted the behavioural intention of preservice teachers to use Learning Management Systems (LMS) like Moodle. These findings underscore the importance of designing user-friendly platforms and providing robust support mechanisms to encourage adoption in educational contexts. Similarly, Liu and Ma (2023) applied UTAUT to investigate EFL learners' use of ChatGPT in informal learning settings, revealing that perceived usefulness mediated the relationship between ease of use and learners' attitudes as the study highlights how learners perceive AI tools as valuable for self-directed learning outside the classroom.

A number of core constructs from UTAUT have been identified as particularly relevant for studies in EFL settings, where technology adoption is shaped by pedagogical goals, social dynamics, and learner motivation (Hsu, 2023; Hwang et al., 2025; Xue et al., 2024). The role of social influence, a core construct of UTAUT, is particularly significant in EFL contexts because learning is deeply embedded in social and institutional structures. Instructors' attitudes and modelling of technology use can strongly shape students' willingness to engage with new tools (Vaezi, 2008). However, cultural context mediates this process: in collectivist settings, peer and institutional approval often outweigh personal innovation, whereas in individualistic contexts, learners rely more on perceived usefulness and enjoyment (Raman & Don, 2013; Liu & Ma, 2023). Furthermore, facilitating conditions, such as institutional infrastructure and access to support, interact with social norms to either empower or discourage adoption (Venkatesh et al., 2012). These interdependencies illustrate that social influence in educational environments

cannot be isolated from cultural and contextual variables that underpin learners' motivation and self-efficacy.

Moreover, effort expectancy, the perceived ease of technology use, is particularly relevant for learners with limited digital literacy. Digital literacy is defined as "the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills" (American Library Association, 2013). The concept of digital literacy extends well beyond basic technical proficiency with digital devices. Since Gilster (1997) first defined digital literacy as the ability to understand and use information in multiple formats from a wide range of sources presented via computers, the concept has evolved considerably. As the American Library Association (2013) definition implies, digital literacy encompasses a range of cognitive and evaluative competencies, including the ability to locate relevant information, assess its credibility and reliability, synthesise material from multiple sources, and communicate effectively within digital environments.

Eshet (2004) further advanced this understanding by proposing a holistic conceptual framework in which digital literacy comprises not merely technical operations but a complex set of cognitive, sociological, and emotional skills, including photo-visual literacy, information literacy, and socio-emotional literacy. Lankshear and Knobel (2008) similarly argued for the plurality of the concept, proposing that digital literacies be understood as socially situated practices shaped by the contexts in which they are enacted. It is thus an inherently multidimensional construct, requiring not only operational skills such as navigating interfaces and using software tools, but also critical thinking, information evaluation, and an awareness of ethical considerations surrounding digital content creation and sharing. In educational contexts, digital literacy is increasingly recognised as a prerequisite for meaningful engagement with technology-enhanced learning, as learners who lack these foundational competencies may struggle to move beyond surface-level interaction with digital tools (UNESCO, 2025). This is particularly salient in EFL settings, where learners must simultaneously develop linguistic competence and digital fluency, and where the introduction of generative AI tools demands that students critically evaluate AI-generated language output rather than accepting it uncritically. For

the present study, digital literacy therefore represents a foundational layer upon which more specialised competencies, such as AI literacy and prompt literacy, are built, and its role in shaping the quality of learner engagement with generative AI tools is a central concern.

Research confirms that digital literacy serves as a precursor to AI literacy, as individuals require foundational digital and critical skills before they can meaningfully engage with more advanced AI concepts (Ng et al., 2021). Within this broader construct, AI literacy represents a specialised subset focusing on "the ability to understand, use, and critically evaluate AI technologies and their outputs" (Long & Magerko, 2020), encompassing both technical understanding of how AI systems work and critical awareness of their limitations and biases.

Prompt literacy extends this further to include "the competencies required to effectively communicate with generative AI systems through well-structured queries that elicit desired responses" (Dempere et al., 2023). These literacies exist on a continuum: digital literacy provides the foundational technical and cognitive skills for navigating digital environments; AI literacy builds upon this with specific knowledge about artificial intelligence systems; and prompt literacy represents the most specialised skill set for productive interaction with generative AI tools. Together, they determine learners' readiness to engage meaningfully with GenAI technologies in EFL learning environments, framing not just technical competence but also critical evaluation skills essential for autonomous learning (Liu & Ma, 2023; Belda-Medina & Kokošková, 2024).

Despite its strengths, UTAUT in EFL contexts faces challenges. Cultural differences can shape how constructs like social influence are perceived, necessitating localised adaptations of the model. For example, collectivist cultures may place greater emphasis on social influence than individualistic ones, making cultural context a vital consideration in applying UTAUT. Liu and Ma (2023) highlighted that learners' cultural backgrounds significantly influence their perceptions of technology's usefulness and ease of use, which can, in turn, affect adoption rates. Additionally, integrating UTAUT with pedagogical

theories can provide richer insights into how technology impacts acceptance and also language learning processes and outcomes (Belda-Medina & Kokošková, 2024).

The application of UTAUT in EFL also demands longitudinal research to capture the evolution of learner attitudes and behaviours over time. Liu and Ma (2023) emphasised the importance of tracking how learners' attitudes shift as they gain experience with AI tools, highlighting that sustained engagement often depends on variables like continuous technical support, evolving user needs, and updates in technology. Understanding these dynamics can inform the design of more adaptive learning environments, ensuring that technological innovations remain relevant and effective.

UTAUT offers several strengths that make it a valuable framework for this study. Its comprehensive integration of constructs from multiple technology acceptance models provides robust explanatory power (Acosta-Enriquez et al., 2024), while its emphasis on social influence and facilitating conditions aligns well with the institutional and pedagogical dimensions of EFL learning environments of this study. However, UTAUT was originally developed for organisational contexts where technology use is often mandatory (Venkatesh et al., 2003), which presents limitations for the present study. In voluntary, consumer-oriented contexts, such as students independently choosing to use generative AI tools for language learning, UTAUT does not adequately capture the hedonic, habitual, and intrinsically motivated dimensions of technology engagement (Venkatesh et al., 2012). The framework's focus on utilitarian value and extrinsic motivation overlooks the enjoyment, curiosity, and self-directed exploration that characterise learners' voluntary adoption of AI tools. For these reasons, this study does not adopt UTAUT as its primary framework but instead considers UTAUT-2, which extends the original model to address these limitations by incorporating hedonic motivation, habit, and price value as additional predictors of technology acceptance in consumer contexts.

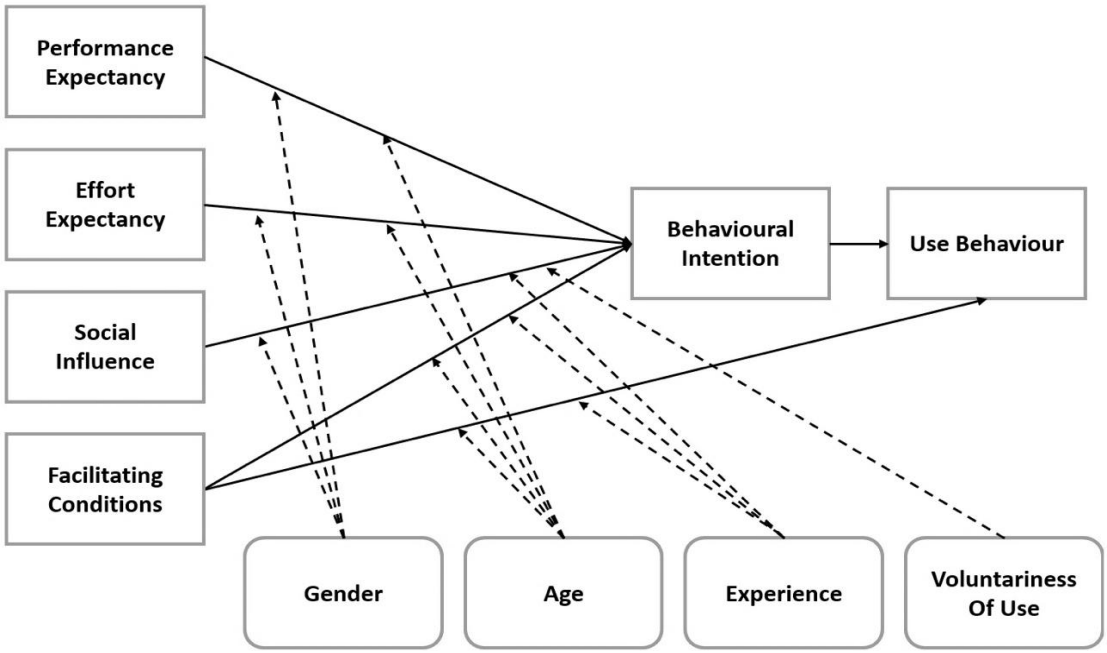

Figure 1: UTAUT (Venkatesh et al., 2003)

3.2 Expanding the Theoretical Model: UTAUT-2 and UTAUT-3

As mentioned in section 3.1, the original UTAUT framework, while robust in organisational contexts, was developed primarily to explain technology acceptance in workplace settings where use is often mandatory and driven by utilitarian considerations (Venkatesh et al., 2003). However, subsequent researchers recognised that this focus on organisational mandates and performance-oriented outcomes left significant gaps when attempting to understand technology adoption in consumer and voluntary contexts (Venkatesh et al., 2012). In such settings, individuals are not compelled to use technology; rather, their engagement is shaped by personal enjoyment, habitual behaviour, and cost-benefit evaluations that extend beyond workplace productivity. To address these limitations, Venkatesh et al. (2012) developed UTAUT-2, which extends the original framework by incorporating three additional constructs: hedonic motivation, price value, and habit. This expansion was considered necessary because the original UTAUT could not adequately capture the emotional, experiential, and self-directed dimensions of technology use that characterise voluntary adoption contexts.

These reasons for developing UTAUT-2 are directly relevant to the present study. In this research, EFL learners' use of generative AI tools such as ChatGPT is entirely voluntary, students are not institutionally mandated to use these technologies but instead choose to engage with them based on personal interest, curiosity, and perceived benefit. The constructs added in UTAUT-2, particularly hedonic motivation and habit, align closely with the exploratory and self-directed nature of how learners interact with generative AI for language learning. Consequently, UTAUT-2 provides a more appropriate theoretical foundation than the original UTAUT for examining the factors that influence learners' voluntary adoption and sustained engagement with AI tools in EFL contexts.

The choice of UTAUT-2 over alternative frameworks warrants explicit justification. The Technology Acceptance Model (TAM) (Davis, 1989) and Theory of Planned Behaviour (TPB) (Ajzen, 1991), along with their derivatives, have been widely applied in educational technology research. However, these frameworks present limitations for the present study. TAM's focus on perceived usefulness and ease of use, while parsimonious, does not adequately capture the hedonic, social, and habitual dimensions of voluntary technology adoption that characterise student use of GenAI tools. TPB incorporates subjective norms and perceived behavioural control but does not distinguish between different types of motivation or account for the role of habit in sustained use. UTAUT-2, by contrast, integrates constructs from multiple models while adding hedonic motivation, price value, and habit, dimensions particularly relevant to understanding why students voluntarily adopt GenAI tools for language learning. The framework's consumer-orientation makes it more suitable than TAM or TPB for contexts where technology use is self-directed rather than organisationally mandated.

In the context of English as a Foreign Language (EFL) learning, hedonic motivation is particularly relevant. Hedonic motivation refers to the pleasure or enjoyment derived from using technology (Venkatesh et al., 2012). Generative AI tools such as ChatGPT, Microsoft Copilot, and Gemini incorporate interactive elements that enhance learner engagement. These tools provide instant feedback, personalised responses, and an interactive interface that can increase motivation and make learning an enjoyable experience. The integration of UTAUT-2 allows for a more nuanced understanding of how

enjoyment influences students' engagement and motivation in language learning. The additional constructs introduced in UTAUT-2 stem from different theoretical perspectives. Hedonic motivation, for example, is rooted in psychological hedonism and consumer behaviour studies, which recognise that enjoyment significantly impacts technology acceptance (Childers et al., 2001). This perspective is particularly applicable in educational settings, where engagement is a key predictor of learning success. In contrast, price value, another construct added in UTAUT-2, is based on economic decision-making theories, emphasising how individuals evaluate the trade-off between costs and benefits when adopting technology (Venkatesh et al., 2012). However, in the context of this study, price value is not directly relevant as AI tools for language learning are largely free, making financial considerations less significant in learners' decision-making processes.

Habit, the third addition to UTAUT-2, extends behavioural-cognitive perspectives by explaining how repeated, positive experiences consolidate technology use over time (Venkatesh et al., 2012). In learning contexts, this aligns with findings from EFL research showing that continued engagement with AI tools strengthens not only familiarity but also confidence and autonomy (Liu & Ma, 2023). Yet the motivational underpinnings differ from purely behavioural models; enjoyment (hedonic motivation) and a sense of mastery must accompany repetition for sustainable use (Childers et al., 2001; Noels et al., 2002).

Farooq et al., 2017 extended UTAUT-2 by introducing personal innovativeness in the domain of information technology as an additional predictor of technology acceptance. This extension was initially tested among business students in Malaysia using lecture capture systems and has subsequently been adapted for other contexts, including electronic health record (EHR) systems among healthcare professionals (Gunasinghe et al., 2020; Ngusie et al., 2024). UTAUT-3 places emphasis on individual propensity toward adopting new technologies, professional compliance, organisational structures, and regulatory requirements, which diverges from the voluntary, engagement-driven nature of language learning. While UTAUT-3 offers insights into professional settings where the adoption of technology is often mandatory or strongly encouraged by institutional factors, the context of this study involves voluntary engagement with AI tools in an educational

setting, where learners' personal motivation and enjoyment play a greater role in continued use. Given that this study investigates the role of generative AI in a voluntary EFL learning setting, UTAUT-3's added complexity does not align with the research objectives. The motivational aspects of hedonic motivation and habit in UTAUT-2 sufficiently address the factors influencing learners' adoption of AI tools, making UTAUT-2 the most appropriate theoretical model for this study. Furthermore, personal innovativeness, which is the key addition in UTAUT-3, is not central to this research, as the study does not focus on individual predispositions toward adopting new technologies but rather on the broader factors influencing engagement and motivation with generative AI tools in the EFL classroom.

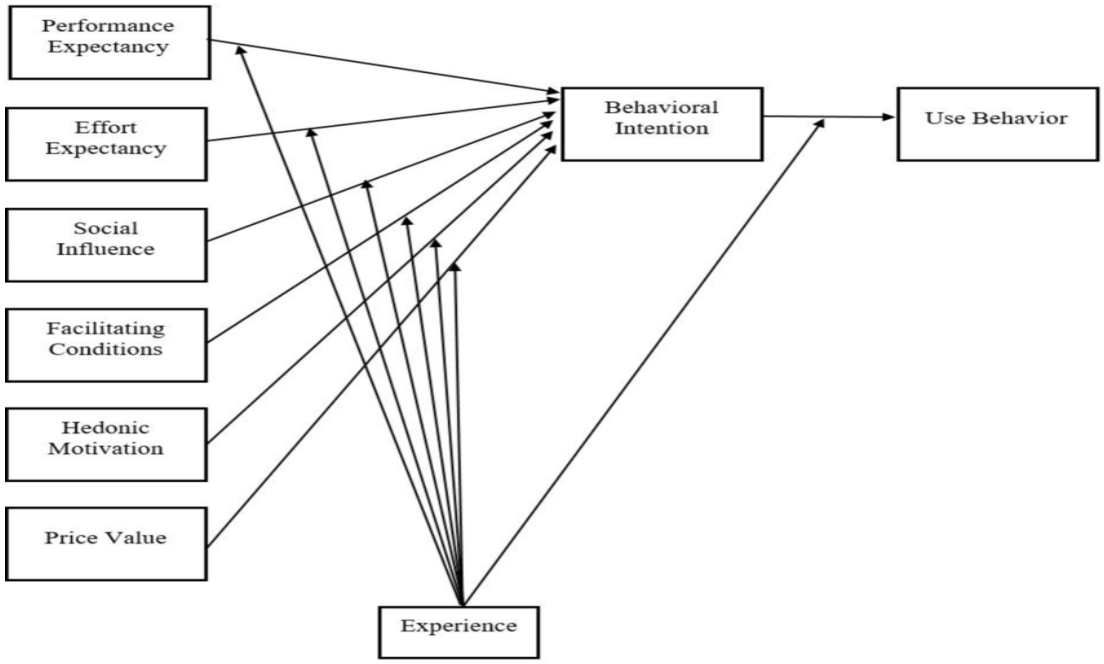

Figure 2: UTAUT 2 (Venkatesh et al., 2012)

Despite its strengths, the application of UTAUT-2 in educational settings requires careful consideration. While its constructs have proven valuable in consumer behaviour studies (Childers et al., 2001), their interpretation in educational settings requires nuance. In EFL learning, enjoyment and sustained interaction are mediated by pedagogical and social dynamics rather than market behaviour (Liu & Ma, 2023). Some scholars argue that UTAUT-2's emphasis on enjoyment risks oversimplifying complex motivational structures (Belda-Medina & Kokošková, 2024), whereas others highlight its flexibility for capturing

affective engagement in learning environments (Raman & Don, 2013). Similarly, while some scholars interpret habit as a strength that bridges behavioural and affective dimensions, others caution that habitual reliance on technology may replace reflective learning processes if not pedagogically guided (Belda-Medina & Kokošková, 2024). Taken together, these perspectives demonstrate both the versatility and the contextual limitations of UTAUT-2 when applied to generative AI in education.

In summary, UTAUT-2 offers several strengths that make it well-suited to this study. Its inclusion of hedonic motivation captures the enjoyment and curiosity that characterise learners' voluntary engagement with generative AI tools, while habit explains how positive initial experiences can consolidate into sustained use patterns over time. The framework's validated constructs, performance expectancy, effort expectancy, social influence, and facilitating conditions, remain relevant for understanding how EFL learners perceive the usefulness, ease, social endorsement, and institutional support associated with AI tools. For these reasons, UTAUT-2 was selected as a primary theoretical lens for this research.

However, UTAUT-2 alone is not sufficient to fully address the research objectives of this study. While the framework effectively explains why learners adopt technology and what external factors influence their behavioural intentions, it is less equipped to explain the quality of motivation that sustains meaningful, long-term engagement. UTAUT-2's constructs remain largely focused on extrinsic drivers, perceived usefulness, social influence, facilitating conditions, and even hedonic motivation, while capturing enjoyment, does not fully account for the deeper psychological needs that underpin autonomous, self-regulated learning. In the context of EFL education, where learners must develop not only skills but also the intrinsic desire to persist in language study, understanding the internal motivational processes is essential. For this reason, Self-Determination Theory (SDT) is integrated alongside UTAUT-2 in this study, and explained further in section 3.3, provides a complementary lens by explaining how the satisfaction of basic psychological needs, autonomy, competence, and relatedness, transforms external adoption into internalised, sustained motivation. Together, UTAUT-2 and SDT offer a comprehensive framework that captures both the contextual determinants of technology acceptance and

the motivational depth required for meaningful engagement with generative AI in EFL learning.

3.3 Self-Determination Theory (SDT)

While UTAUT-2 incorporates hedonic motivation, it primarily focuses on contextual and externally driven determinants of technology adoption, explaining how factors such as ease of use, institutional support, and social influence shape engagement (Venkatesh et al., 2012). However, in the field of language learning, intrinsic motivation plays a crucial role in sustaining effort, persistence, and long-term engagement (Noels et al., 2000). To bridge this gap, Self-Determination Theory (SDT) (Deci & Ryan, 2000) is integrated into the framework to address the psychological aspects of engagement and motivation. The interplay between extrinsic and intrinsic motivation is particularly relevant in this study, as AI tools can serve both as external motivators by providing feedback and structure and as facilitators of intrinsic motivation by fostering autonomy and competence (Chiu, 2024; Liu & Ma, 2023).

Self-Determination Theory was formally introduced by Deci and Ryan (1985) as a macro-theory of human motivation, personality, and optimal functioning. SDT emerged from research comparing intrinsic and extrinsic motives and sought to explain why some behaviours are sustained through genuine interest while others require external reinforcement (Ryan & Deci, 2000). At the core of SDT are three basic psychological needs, autonomy, competence, and relatedness, which the theory posits are universal and innate requirements for psychological growth, integrity, and well-being (Deci & Ryan, 2000). Autonomy refers to:

- the need to feel volitional and self-endorsed in one's actions
- competence concerns the need to feel effective and capable
- relatedness involves the need to feel connected to and cared for by others.

SDT proposes that when social environments support the satisfaction of these three needs, individuals develop more autonomous forms of motivation, leading to enhanced

engagement, persistence, and well-being. This study adopts SDT because it provides a comprehensive framework for understanding not merely whether learners adopt GenAI tools, but the quality of their motivation in doing so, specifically, whether their engagement reflects genuine interest and internalised value or external pressure and compliance.

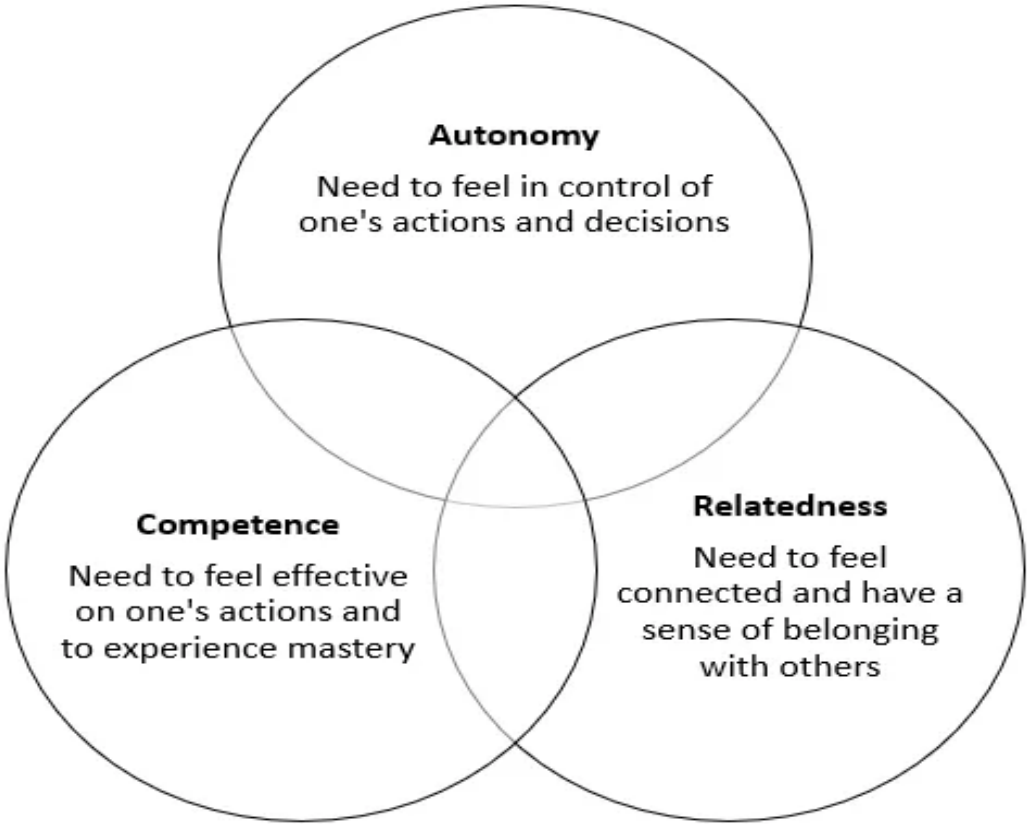

Figure 3: Self-Determination Theory (SDT)

Hedonic motivation, as defined in UTAUT-2 (Venkatesh et al., 2012), explains how technology makes learning enjoyable, encouraging students to continue using them. However, SDT provides a deeper psychological understanding of how motivation operates beyond extrinsic enjoyment. According to SDT, autonomy, competence, and relatedness are the three fundamental needs that drive intrinsic motivation (Ryan & Deci, 2000). Autonomy explores whether learners feel in control of their learning experiences when using AI tools (Deci & Ryan, 2000; Liu & Ma, 2023). AI-powered language platforms often allow learners to choose topics, adjust difficulty levels, and receive personalised feedback, which can enhance their sense of autonomy (Liu & Ma, 2023). Competence relates to learners' perceptions of effectiveness and progress (Deci & Ryan, 2000); AI

tools that offer immediate feedback, explanations, and corrective support may reinforce learners' confidence in their developing language abilities (Chiu, 2024; Liu & Ma, 2023). Relatedness addresses whether learning environments support or undermine social connection, collaboration, and a sense of belonging (Deci & Ryan, 2000); in AI-mediated contexts, this raises questions about whether interactions with generative AI can fulfil this need or whether they risk diminishing authentic human connection (Belda-Medina & Kokošková, 2024).

Self-Determination Theory offers a robust lens for exploring motivation in language learning by focusing on autonomy, competence, and relatedness as essential psychological needs (Noels et al., 2000). Noels and colleagues demonstrated that SDT provides a parsimonious, internally consistent framework for systematically describing learner orientations, with considerable explanatory power for understanding why certain orientations better predict language learning outcomes such as effort, persistence, and attitudes. Empirical studies confirm that when these needs are met, learners experience deeper engagement and persistence (Noels et al., 2000; Honda & Sakyu, 2006). However, the extent to which autonomy can be supported in structured educational environments remains contested. Vaezi (2008) observed that in some EFL contexts, external expectations, such as exam pressure or institutional regulation, constrain intrinsic motivation, while others have shown that autonomy-supportive teaching enhances self-regulation (Deci & Ryan, 2008). These differing findings suggest that SDT's application in digital or AI-mediated learning must account for contextual factors, such as cultural norms and instructional design, that influence how autonomy and competence manifest in practice.

Intrinsic motivation, the spontaneous tendency to seek out novelty and challenges, to extend and exercise one's capacity, to explore, and to learn (Ryan & Deci, 2000), has been shown to correlate with higher proficiency levels and greater persistence in EFL learners (Noels et al., 2000). Studies found that teachers' communication styles that support autonomy, such as providing constructive feedback and avoiding controlling behaviours, enhanced students' intrinsic motivation and demonstrated that perceptions

of autonomy-supportive environments reduce anxiety and bolster competence, key factors for successful language acquisition (Noels et al., 2000; Honda & Sakyu, 2006).

Extrinsic motivation, doing something because it leads to a separable outcome (Ryan & Deci, 2000), also plays a significant role in EFL. Instrumental orientations, such as learning English for career advancement, are common among learners in diverse cultural settings (Vaezi, 2008). However, excessive reliance on extrinsic motivators can undermine intrinsic motivation, especially in environments where performance is evaluated through high-stakes assessments (Deci & Ryan, 2000). Integrating intrinsic and extrinsic motivators within the SDT framework can provide a balanced approach, fostering sustained engagement (Ryan & Deci, 2000).

From an SDT perspective, the affordances of digital learning tools can be understood in terms of their capacity to support or thwart basic psychological needs. While this study focuses specifically on generative AI tools, insights from the broader digital tools literature remain relevant and informative. This relevance stems from the fact that GenAI tools share fundamental characteristics with earlier educational technologies: they mediate the learning process, they provide feedback, and they can either support or constrain learner autonomy depending on how they are designed and implemented. The accumulated research on how digital tools interact with SDT constructs therefore provides a foundation for understanding GenAI's motivational affordances, even as GenAI introduces novel capabilities such as natural language interaction and adaptive content generation. Drawing on this broader literature is not merely convenient; it is methodologically necessary for situating GenAI research within established theoretical traditions.

Digital tools that provide personalised feedback and adaptive learning paths have been shown to enhance competence need satisfaction by helping learners perceive their growing mastery (Honda & Sakyu, 2006). Similarly, tools that offer choice in learning activities and self-paced progression support autonomy need satisfaction (Deci & Ryan, 2008). Generative AI tools represent an evolution of these capabilities, offering more sophisticated, conversational feedback mechanisms that may more effectively satisfy both competence and autonomy needs (Chiu, 2024). For instance, unlike traditional

digital tools that rely on pre-programmed responses, GenAI applications like ChatGPT can generate context-specific explanations and adapt to learners' emerging needs in real-time (Liu & Ma, 2023). This distinction is important from an SDT standpoint: while earlier digital tools establish the principle that technology-mediated feedback can support competence, GenAI tools operationalise this principle through unprecedented personalisation and adaptability, potentially creating conditions more conducive to autonomous motivation.

Relatedness, another fundamental SDT construct, gains renewed relevance in technology-mediated learning. Collaborative tools such as discussion boards and peer-review platforms foster a sense of social connection that enhances motivation (Noels et al., 2000). When applied to EFL contexts, these tools replicate aspects of authentic communication that promote sustained engagement and confidence (Vaezi, 2008). However, the introduction of generative AI tools complicates this dynamic. While AI-driven conversation partners can simulate social presence and provide immediate feedback, they may also limit genuine interpersonal interaction (Belda-Medina & Kokošková, 2024). This tension reinforces Deci and Ryan's (2008) assertion that relatedness must be rooted in authentic connection, not merely functional communication, if intrinsic motivation is to be preserved. These social interactions also provide opportunities to practice language skills in authentic contexts, bridging the gap between classroom learning and real-world application.

Recent advancements in technology have provided new avenues for applying SDT in EFL. Online platforms and apps that personalize learning experiences and provide instant feedback can enhance feelings of competence (Chiu, 2024; Liu & Ma, 2023). Collaborative tools and discussion forums promote relatedness, enabling learners to connect with peers and instructors (Noels et al., 2000). However, to maintain intrinsic motivation, it is essential to avoid overly gamified elements that shift focus to external rewards (Deci & Ryan, 2000). Furthermore, the integration of SDT in curriculum design must address cultural differences in perceptions of autonomy and relatedness, ensuring that motivational strategies resonate with learners' backgrounds and expectations (Vaezi, 2008).

3.4 Theoretical Foundations for GenAI Integration in EFL

Generative AI technologies such as ChatGPT are reshaping EFL learning through interactive language practice, personalised feedback, and adaptive tasks (Liu & Ma, 2023). While these affordances align with the motivational mechanisms proposed by SDT, particularly competence and autonomy, scholars caution that they may also foster dependency or reduce learner agency if used uncritically (Belda-Medina & Kokošková, 2024).

Earlier research on digital learning tools highlighted similar tensions between technological efficiency and authentic engagement (Raman & Don, 2013), suggesting that the motivational value of generative AI is conditional on its pedagogical integration. From a technology-acceptance perspective, UTAUT-2's constructs of performance and effort expectancy explain learners' initial enthusiasm (Venkatesh et al., 2012), yet SDT's autonomy and relatedness are more predictive of sustained use (Ryan & Deci, 2000; Noels et al., 2000). This intersection reinforces the need for balanced implementation strategies that support both technical adoption and intrinsic motivation.

Integrating these technologies within a dual framework that combines UTAUT-2 and SDT can provide a holistic understanding of their impact on EFL learners (Venkatesh et al., 2012; Deci & Ryan, 2000). The dual framework offers a comprehensive lens for evaluating generative AI in EFL. By aligning technological adoption factors with motivational constructs, this approach can guide the design of AI-enhanced learning environments that are both effective and engaging.

The UTAUT-2 framework highlights how factors like perceived usefulness and ease of use influence learners' adoption of AI tools (Venkatesh et al., 2012). Liu and Ma (2023) found that EFL learners' positive attitudes towards ChatGPT stemmed from its ability to simplify complex grammar and vocabulary. However, concerns about reliability and over-reliance underscore the need for educators to guide students in using AI tools judiciously (Belda-Medina & Kokošková, 2024).

From an SDT perspective, generative AI can enhance autonomy, competence, and relatedness (Deci & Ryan, 2000). Autonomy is supported through personalised learning paths and self-paced activities (Chiu, 2024; Liu & Ma, 2023). For example, learners can use AI to generate tailored practice exercises or seek explanations for challenging concepts, fostering a sense of control over their learning process. Competence is bolstered through instant feedback, enabling learners to identify and address weaknesses effectively (Chiu, 2024). Additionally, features like conversational simulations promote relatedness by mimicking real-world interactions, thus preparing learners for authentic communication scenarios (Liu & Ma, 2023).

However, the integration of AI in EFL must be approached with caution. Excessive dependence on AI-generated outputs may hinder the development of critical thinking and problem-solving skills (Belda-Medina & Kokošková, 2024). Furthermore, ethical considerations, such as data privacy and potential biases in AI algorithms, must be addressed to ensure equitable access and usage (Williams, 2024).

Generative AI's potential for adaptive learning is particularly noteworthy (Chiu, 2024). By analyzing learner input and providing targeted feedback, AI can address individual needs more effectively than traditional methods. For instance, ChatGPT's ability to generate context-specific examples and explanations allows learners to deepen their understanding of complex linguistic structures (Liu & Ma, 2023). However, this potential must be balanced with efforts to cultivate learners' self-regulation skills, ensuring that they can critically evaluate AI-generated content (Chiu, 2024).

Bringing all these insights together, it becomes evident that generative AI's efficacy in EFL hinges on how well educators, institutions, and learners align it with deeper motivational structures. UTAUT-2 factors can guide the practical rollout, ensuring that the technology is accessible, reliable, and backed by clear policies and training (Venkatesh et al., 2012). Meanwhile, SDT reminds stakeholders that the mere presence of AI is insufficient; its design and implementation must bolster autonomy by letting learners direct their explorations, enhance competence by highlighting tangible progress, and foster relatedness through collaborative tasks or feedback loops that maintain the human

dimension of language learning (Deci & Ryan, 2000; Ryan & Deci, 2000). If these conditions are neglected, one risks repeating the pitfalls observed in earlier digital initiatives, where high initial enthusiasm fades out under the weight of poorly aligned pedagogical strategies (Raman & Don, 2013).

Generative AI's unique capacity to engage learners through personalised, context-aware interactions could be a breakpoint for EFL pedagogy (Liu & Ma, 2023; Chiu, 2024), if it is rooted in a theoretical understanding of technology acceptance and motivational psychology, rather than driven solely by novelty or administrative mandates.

3.5. Application of UTAUT-2 and SDT in Generative AI Research

The UTAUT and UTAUT-2 frameworks have been extensively applied to investigate generative AI adoption across diverse contexts and geographical settings. In higher education, Strzelecki (2024) conducted a seminal study among Polish university students, finding that habit was the strongest predictor of behavioural intention to use ChatGPT, followed by performance expectancy and hedonic motivation. This work has since been replicated and extended across multiple contexts. Grassini et al. (2024) examined Norwegian university students and confirmed performance expectancy as the most influential construct. Habibi et al. (2023) investigated Indonesian students' ChatGPT acceptance and found that performance expectancy, habit, and hedonic motivation significantly predicted behavioural intention, while facilitating conditions directly influenced actual use behaviour. Namatovu and Kyambade (2025) explored Ugandan students' adoption patterns, finding that social influence and habit were significant predictors. Cross-cultural comparisons have further enriched this literature. Budhathoki et al. (2024) conducted a multi-country analysis of ChatGPT adoption and anxiety, finding that performance expectancy and social influence were significant predictors across countries, while anxiety negatively influenced adoption intentions. Faraon et al. (2025) compared Nordic countries and the United States, revealing that performance expectancy, hedonic motivation, and habit demonstrated positive relationships with behavioural intention across regions.

Beyond higher education, UTAUT-2 has been applied to workplace settings, where studies have examined employee productivity gains from GenAI tools (Brynjolfsson et al., 2023). A systematic review by Acosta-Enriquez et al. (2024) analysing 50 studies confirmed the versatility of UTAUT-2 in elucidating AI adoption processes, with performance expectancy and hedonic motivation emerging as consistent predictors across student, faculty, and administrative staff populations. These studies collectively demonstrate UTAUT-2's robust explanatory power for understanding GenAI acceptance. However, they predominantly focus on behavioural intention and initial uptake rather than sustained, educationally productive use. Notably, none of these studies has examined voluntary GenAI use specifically among EFL learners in Gulf higher education contexts, where cultural expectations, institutional policies, and language learning motivations may uniquely shape adoption patterns.

Self-Determination Theory has similarly gained traction as a framework for understanding motivation in GenAI-mediated learning environments. Chiu (2024) developed a classification tool mapping ChatGPT-based learning activities to SDT needs satisfaction and self-regulated learning phases. The study found that GenAI tools primarily support competence need satisfaction through instant, tailored feedback, while autonomy support emerges through personalised learning pathways. Zhou and Li (2023) investigated how ChatGPT usage affects university students' intrinsic motivation, establishing that perceived competence mediated the relationship between ChatGPT use and intrinsic motivation. Lai et al. (2023) extended this work by demonstrating that intrinsic motivation and perceived usefulness jointly influenced students' intention to use generative AI for active learning. Xia et al. (2023) examined the mediating effects of needs satisfaction on the relationships between prior knowledge and self-regulated learning through AI chatbots, demonstrating how satisfying autonomy, competence, and relatedness needs can engage diverse learner populations.

More recent studies have continued to advance SDT applications in GenAI contexts. Li and Chiu (2025) examined teacher support and student engagement with GenAI chatbots from an SDT perspective, confirming that needs satisfaction mediates the relationship between instructional support and student engagement in L2 contexts. Guo et al. (2024)

demonstrated that AI-generated content can enhance learning motivation when designed to support basic psychological needs. Martínez-Moreno and Petko (2024) applied SDT to explore how AI influences student teachers' career motivation, extending the framework's application beyond learner contexts. These SDT-informed studies provide valuable insights into the motivational quality of GenAI engagement, revealing that tools supporting autonomy and competence foster deeper engagement and persistence (Chiu, 2024; Zhou & Li, 2023). Conversely, controlling implementations produce compliance rather than internalisation. However, SDT-led accounts typically focus on motivational mechanisms without adequately addressing the socio-technical antecedents of engagement. Factors such as interface usability, social influence, personal innovativeness, and institutional infrastructure, which acceptance models treat as first-order determinants, remain underexplored in this literature.

GenAI research in higher education has expanded rapidly but remains theoretically bifurcated. Acceptance-oriented studies extend TAM/UTAUT to GenAI and consistently show that personal innovativeness, trust, and social norms are strong predictors of intention to use (Ma, 2024), while emotional factors like foreign language enjoyment mediate the relationship between attitudes and GenAI acceptance (Wang & Wang, 2025). Performance expectancy and facilitating conditions also matter, though their effects vary by context and are sometimes indirect (Ma, 2024; Eager & Brunton, 2023). Crucially, these studies are intention-centric: they model initial uptake rather than sustained, situated learning behaviours or the quality of learners' motivation once novelty fades. Put differently, they explain whether students start using GenAI, not whether use becomes self-regulated, educationally productive practice.

A complementary line of research, drawing on Self-Determination Theory, examines how GenAI mediates autonomy, competence, and relatedness in classroom settings. This literature shows that autonomy-supportive designs, such as providing learner choice, ensuring process transparency, and offering feedback that learners can accept or reject, are associated with deeper engagement and persistence (Chiu, 2024; Xia et al., 2023). Conversely, controlling implementations characterised by answer-giving, prescriptive prompts, and policy ambiguity tend to produce compliance or avoidance rather than

internalisation (Deci & Ryan, 2000; Ryan & Deci, 2020). Yet SDT-led accounts typically downplay the socio-technical antecedents of engagement, interface usability, social influence, personal traits, and local infrastructure, that acceptance models treat as first-order determinants (Ma, 2024; Wang & Wang, 2025).

This leaves a clear explanatory gap salient for voluntary GenAI use in EFL: acceptance studies under-specify motivational quality and emotional dynamics, while SDT studies under-specify technology adoption factors and contextual conditions. The present study addresses this by combining UTAUT-2 and SDT. UTAUT-2 contributes the external, contextual levers that initiate use in voluntary settings, usefulness, ease, social influence, facilitating conditions, hedonic motivation, and habit (Venkatesh et al., 2012), while SDT contributes the mechanism of internalisation through autonomy, competence, and relatedness (Deci & Ryan, 2000). The integrated lens therefore tests whether acceptance factors are autonomy-supportive in practice (e.g., whether personal innovativeness reflects intrinsic interest or merely novelty-seeking), and whether "facilitating conditions" actually scaffold competence and relatedness rather than just enabling compliant usage.

3.6 The Theoretical Framework Lens of the Study

This study integrates theoretical frameworks by combining the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) with Self-Determination Theory (SDT) to investigate the influence of generative AI tools on EFL learning. UTAUT-2 provides a foundation for understanding how technology adoption unfolds in educational settings, while SDT illuminates the motivational processes that guide sustained engagement with those tools.

In the context of EFL learning, UTAUT-2 is employed as a scaffold to assess how generative AI tools might be perceived and adopted by students. Performance expectancy captures beliefs in the capability of generative AI tools to enhance language learning, encompassing their potential to offer tailored feedback, adaptive tasks, and instant support. The effort expectancy dimension reflects students' readiness to engage with generative AI based on interface simplicity and ease of use. Social influence

considers how peers, instructors, and institutional attitudes shape learners' willingness to adopt AI-driven tools in language learning. Facilitating conditions explore the role of institutional support, technical infrastructure, and access to training in ensuring effective AI integration (Venkatesh et al., 2012). Additionally, hedonic motivation (the enjoyment derived from technology use) and habit (the extent to which AI tool usage becomes second nature) further shape technology adoption and engagement (Venkatesh et al., 2012).

The study also examines how generative AI tools affect learning processes within higher education EFL contexts by drawing on educational psychology theories related to learner engagement and motivation. Integrating SDT highlights the significance of autonomy and self-direction in language education when generative AI tools are present. Emphasis is placed on whether these tools empower learners to manage their own pace and explore content that aligns with personal interests, thus enhancing intrinsic motivation.

A key focus is the distinction between controlled and autonomous motivation within SDT, which is studied to determine how generative AI tools facilitate self-directed learning. This facilitation occurs when learners are encouraged to engage in self-initiated exploration, such as experimenting with new vocabulary or refining writing style, rather than passively relying on AI-generated suggestions. Such autonomy-supportive dynamics can bolster motivation by affirming learners' sense of competence and volition (Deci & Ryan, 2008). Conversely, if generative AI tools inadvertently reduce a learner's sense of agency by dictating too many aspects of the learning process, motivation may wane over time.

The integration of UTAUT-2 and SDT within this study represents a structured attempt to link the technological, behavioural, and psychological dimensions of learner engagement with generative AI tools. While UTAUT-2 identifies the external and contextual factors that influence technology acceptance, SDT provides insight into the internal motivational mechanisms that sustain meaningful use. The integrated framework presented in Table 2 demonstrates how these external and internal dimensions interact in educational contexts such as EFL learning, with each integrated dimension capturing the synergy

between contextual determinants and motivational determinants. motivational processes that underpin sustained engagement and skill development.

Integrated Dimension	Contextual Determinant (UTAUT-2)	Motivational Determinant (SDT)	Relevance to the Study
Perceived Efficacy	Performance Expectancy	Competence	Learners' belief that using generative AI will enhance their language skills reinforces their sense of competence and self-efficacy. When students expect AI tools to improve their performance, they feel more capable of achieving learning goals.
Accessible Mastery	Effort Expectancy	Competence	The perceived ease of using AI tools supports learners' confidence and reduces anxiety, strengthening competence. Low effort requirements enable learners to focus on skill development rather than technical navigation.
Social Endorsement	Social Influence	Relatedness	Guidance and endorsement from instructors or peers promote a sense of belonging and social connection, motivating sustained AI use. Learners who feel socially supported are more likely to persist with AI-assisted learning.
Supported Learning Environment	Facilitating Conditions	Relatedness / Competence	Institutional support and training reinforce both social connectedness and learners' confidence in using the technology effectively. Adequate resources signal that the learning community values and enables AI integration.
Enjoyment-Driven Autonomy	Hedonic Motivation	Autonomy / Intrinsic Motivation	Enjoyment and curiosity derived from exploring AI tools foster self-directed, intrinsically motivated learning. When learners find AI use pleasurable, they engage voluntarily and explore beyond required tasks.
Habitual Self-Regulation	Habit	Internalisation (linked to Autonomy)	Repeated, voluntary engagement evolves into self-regulated learning behaviour, reflecting autonomous internalisation of AI use. Habitual use indicates that external acceptance has transformed into internal motivation.

Table 2: Integration of UTAUT-2 and SDT Constructs into Analytical Dimensions

Within this integrated framework, the dimension of Perceived Efficacy connects performance expectancy with competence need satisfaction. Both emphasise learners' belief in their ability to succeed when using a technology and the perceived benefits of achieving learning goals. When students perceive generative AI tools as useful, they are more likely to feel competent and confident in applying them to language tasks. The Accessible Mastery dimension links effort expectancy with competence, recognising that ease of use directly supports learners' confidence and reduces barriers to skill development.

The Social Endorsement dimension aligns social influence with relatedness, since both reflect the role of interpersonal support. Instructors' attitudes, peer collaboration, and institutional encouragement create a sense of belonging and social validation that reinforces learners' willingness to engage with AI tools. Similarly, the Supported Learning Environment dimension connects facilitating conditions with both relatedness and competence, as institutional support and training reinforce social connectedness while building learners' confidence in using the technology effectively.

The Enjoyment-Driven Autonomy dimension links hedonic motivation with autonomy and intrinsic motivation. The enjoyment and curiosity that drive learners to explore AI-assisted activities mirror the sense of volition and personal interest central to intrinsic motivation. Finally, the Habitual Self-Regulation dimension connects habit with internalisation, where repeated, self-directed actions evolve into sustained, self-regulated engagement. Together, these integrated dimensions illustrate that external acceptance factors and internal motivational needs are interdependent. External conditions may initiate engagement, but intrinsic motivation ensures continuity and depth of learning.

This integrated perspective strengthens the explanatory power of the framework used in this study. UTAUT-2 provides the structural and contextual lens through which learners' interactions with technology are interpreted, while SDT offers the psychological depth necessary to understand why those interactions become meaningful and self-sustaining. The combined model therefore captures both how and why learners engage with generative AI in language learning, linking technology acceptance with deeper

This mapping does not represent two parallel frameworks but an integrated theoretical lens. In this combined model, UTAUT-2 provides the external, contextual, and behavioural determinants of GenAI adoption, while SDT explains the internal motivational quality that determines whether adoption leads to sustained and meaningful engagement. The interaction between these frameworks suggests that when UTAUT-2 conditions (e.g., facilitating environments and social encouragement) are autonomy-supportive, they strengthen SDT's internal needs for competence, relatedness, and autonomy. Conversely, if external pressures constrain autonomy, motivation becomes controlled, reducing engagement even when acceptance factors are high. Thus, the combined framework aims to capture both how learners come to use GenAI tools and why that use endures or diminishes, linking technology acceptance to motivational depth within EFL learning.

By conducting a comprehensive analysis that integrates both UTAUT-2 and SDT, this study provides insights into how generative AI tools and motivational factors interact within EFL classrooms. The interplay of external considerations (such as perceived usefulness, institutional support, and ease of access) with internal drivers (such as autonomy, competence, and relatedness) offers a nuanced perspective on whether these tools truly enhance learner engagement or risk supplanting critical aspects of the educational experience. Through this integrated theoretical framework lens, which is derived from both UTAUT-2 and SDT, the research underscores the importance of shaping pedagogical strategies that recognise both the technological opportunities offered by generative AI and the human-centred needs of language learners seeking meaningful, self-directed growth.

In practical terms, this integrated framework informs the study in several ways. First, it guides the development of survey questions that address both technology acceptance factors (from UTAUT-2) and psychological need satisfaction (from SDT). Second, it provides a lens for interpreting qualitative data, allowing findings to be mapped onto both external determinants and internal motivational processes. Third, it shapes the thematic analysis by sensitising the researcher to patterns that reflect the interplay between

contextual conditions and motivational quality. A more detailed discussion of how the framework operationalised in data collection and analysis is provided in Chapter 4.

3.7 Conclusion

Building upon the integrated theoretical lens introduced in the previous section, this section clarifies how constructs from the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) and Self-Determination Theory (SDT) form the conceptual basis of this study. The objective is to show how both external, technology-related factors and internal, motivational elements work together to shape learners' engagement and motivation when using generative AI tools in English as a Foreign Language (EFL) contexts.

In practice, this alignment is operationalised through the six integrated dimensions presented in Table 2. The research rationale emerges from the contention that merely adopting an AI-based tool does not guarantee meaningful or lasting engagement. When the external conditions outlined by UTAUT-2 are complemented by the internal drivers described in SDT, learners are more likely to experience a deepened commitment to language study.

This conceptual alignment also addresses a gap in existing literature by considering how long-term motivation interacts with institutional support and peer attitudes. The Social Endorsement and Supported Learning Environment dimensions capture this interplay: while UTAUT-2 underscores the importance of practical enablers, such as training sessions and user-friendly designs, SDT stresses the psychological climate needed for learners to feel ownership of their learning process (Venkatesh et al., 2012; Deci & Ryan, 2000). Together, these frameworks help explain why two learners in the same classroom, exposed to the same AI tool, might display vastly different levels of interest and persistence. One learner may experience Enjoyment-Driven Autonomy, where hedonic motivation aligns with intrinsic interest, while another may lack the contextual support necessary to develop Habitual Self-Regulation.

The methodological choices detailed in the following chapter are directly informed by the integrated framework outlined above, which foregrounds the complex and dynamic interplay between learner engagement, motivation, and the pedagogical affordances of generative AI tools within EFL learning environments. This framework offers a structured lens for understanding the phenomenon under investigation, and also justifies the interpretive, learner-centred approach adopted in this study. By prioritising the perspectives and experiences of learners, the methodology reflects the constructivist and ecological orientation of the research, where meaning is co-constructed through interactions with digital tools, peers, and institutional structures. The selected methods therefore seek to capture both the cognitive and affective dimensions of engagement, as well as the contextual factors shaping learner agency in AI-mediated educational settings.

Chapter 4: Methodology

This chapter presents the methodological approach adopted in this study, which examines a teaching intervention, and explains the rationale behind the research design. It outlines the case study strategy, data collection instruments, participant sampling, and analytical procedures used to investigate how generative AI tools influence engagement and motivation among EFL learners in higher education. The chapter also discusses ethical considerations, quality assurance measures, and the contextual features that shaped the implementation of the research. Together, these elements establish the study's rigour and provide a foundation for interpreting the findings in subsequent chapters.

4.1 Research Design

This study employed a descriptive case study approach, supplemented by a survey method, to examine the impact of generative AI tools on English as a Foreign Language (EFL) learners in higher education. A descriptive case study, as defined by Yin (2018), provides a comprehensive account of real-life events and contexts, allowing researchers to focus on the conditions, practices, beliefs, and trends that shape specific phenomena. When combined with a survey method, as recommended by Salaria (2012), this approach is not limited to gathering and presenting facts but instead, it facilitates the analysis, interpretation, and comparison of data, thus identifying patterns and relationships within the collected information. According to Best and Kahn (2006), descriptive inquiries involve disciplined investigation to develop knowledge, making such design particularly suited to exploring nuanced participant experiences.

Although descriptive case studies traditionally place emphasis on in-depth qualitative investigation (Yin, 2018), their integration of survey methods can effectively illuminate how and why questions within real-world contexts. By employing open-ended survey questions, this study emphasis on qualitative exploration, capturing participants' attitudes, behaviours, and interpretations of their interactions with generative AI tools. This dual approach addressed both individual characteristics and collective patterns across the sample, offering valuable insights into the use of generative AI tools in EFL classrooms.

From an epistemological standpoint, an interpretivist stance was adopted, positing that understanding the integration and outcomes of generative AI tools necessitates a deep engagement with the subjective experiences and perspectives of EFL learners and educators. The descriptive case study methodology facilitated this engagement by enabling a comprehensive exploration of individual and collective narratives, interactions, and interpretations (Yin, 2018). It provided a framework that acknowledges the interplay between technology, pedagogy, and human agency, accommodating the investigation of these phenomena in authentic educational settings.

The descriptive case study design, incorporating a survey method, was particularly well suited to this study's objectives, as it allowed for the collection of rich data from participants. This approach complemented an interpretivist epistemological stance, which prioritises the subjective meanings that participants ascribe to their experiences (Denzin & Lincoln, 2011). By integrating principles of rigor and transparency outlined by Yin (2018), the study adhered to best practices in qualitative research, offering a structured yet flexible framework for examining the impact of generative AI tools in the EFL classroom. Such methodology enabled an in-depth examination of specific instances where generative AI tools were deployed, focusing on their effects on student engagement and motivation.

4.2 Case Setting

This descriptive case study was conducted at a higher education institution in the Kingdom of Bahrain during the 2023/2024 academic intake. The academic year begins in September, with two 15-week terms. The institution's foundation (bridging) programme, restructured in 2018, enrols approximately 2,000 students annually and employs around 40 teaching staff. The programme comprises two proficiency levels (one term each) and three core English courses per level: Reading and Vocabulary, Writing and Grammar, and Listening and Speaking. These are supplemented by an online self-study component focused on Study Skills and autonomous learning. Upon successful completion, students progress to various undergraduate colleges and specialisations across the university. The programme adopts an outcome-based learning approach, integrating, task-based, and

learner-centred pedagogical principles to support skills development and academic progression. Educational technologies have been embedded in the programme for several years, including sustained use of the institutional learning management system (Blackboard), online learning resources, and digital assessment tools, establishing a foundation for technology-enhanced learning prior to the emergence of generative AI. Students must also complete either Mathematics or Computer Skills before progression to first-year specialization.

Classes meet five times per week in computer-equipped rooms with stable internet and access to the institutional LMS. Typical class size is 20–25. At the time of data collection, GenAI use (e.g., ChatGPT, Gemini, Microsoft Copilot) was exploratory and informal: instructors and students occasionally employed these tools for idea generation and formative feedback, but no formal policies or curricular requirements governed their use.

Participants were foundation-year students, with heterogeneous prior exposure to technology-enhanced learning. As part of the research intervention, the course instructor delivered brief onboarding sessions that introduced core GenAI features and scaffolded prompt formulation and evaluation. These sessions aimed to encourage students to use GenAI tools for learning purposes, ensure all students had an equal baseline knowledge given that some were already using such tools informally, and guide them toward effective and ethical use.

The foundation programme targets core competencies aligned with the Common European Framework of Reference for Languages (CEFR) B1 level, an internationally recognised benchmark representing intermediate proficiency (Council of Europe, 2020). At this level, learners are expected to produce connected text on familiar topics, understand main points of clear standard input, and interact with reasonable fluency. However, incoming students to the programme typically demonstrate significant skills gaps, particularly in academic writing conventions, grammatical accuracy, and vocabulary range. Common challenges include limited exposure to authentic English texts, reliance on direct translation from Arabic, and limited practice in extended academic writing. These

gaps necessitate intensive remedial support, which the foundation programme addresses through its three-pronged approach:

- Reading and Vocabulary: aims to develop comprehension skills and vocabulary range through exposure to authentic texts and contextualised vocabulary learning, enabling learners to understand texts on familiar topics and expand their lexical repertoire.

- Writing and Grammar: aims to build grammatical accuracy and paragraph coherence through structured writing tasks and explicit grammar instruction, supporting learners to produce connected text with improved structural organisation.

- Listening and Speaking: aims to strengthen aural comprehension and spoken fluency through communicative activities and exposure to standard spoken English, preparing learners to understand main points of clear speech and interact with reasonable fluency.

Prior to the intervention, generative AI tools had begun to feature informally in students' academic practices. Anecdotal observations and informal conversations suggested that some students were using tools such as ChatGPT for translation, grammar checking, and assignment support, though this use was largely unsupervised and unguided. There was no formal institutional policy specifically addressing GenAI use in the foundation programme, and instructors varied in their awareness of and attitudes toward these tools. Some faculty had expressed concerns about potential misuse and academic integrity, while others saw possibilities for learning support.

Within the programme team, discussions about AI had begun but had not yet resulted in systematic integration. The researcher's motivation for undertaking the intervention stemmed from this context: a recognition that students were already engaging with GenAI tools, but in ways that were ad hoc and potentially ineffective or even counterproductive for language development. The intervention sought to provide structure and guidance to this emerging practice, transforming informal use into pedagogically purposeful

engagement while also creating an opportunity to investigate how such structured use affected learner engagement and motivation

4.3 Sampling

A purposive sampling strategy, as outlined by Sharp (2003), was employed to ensure the inclusion of participants who could provide relevant and meaningful data. Purposive sampling, also known as judgmental or selective sampling, involves the deliberate selection of participants based on specific criteria relevant to the research objectives (Creswell, 2018). This approach is particularly useful in qualitative and mixed-methods research, as it allows researchers to focus on individuals or groups that are most likely to offer insights into the phenomenon under investigation (Palinkas et al., 2015).

The target population for this study comprised undergraduate students enrolled in EFL courses at a higher education institution where generative AI tools were integrated into the curriculum. These students were selected for their direct engagement with AI technologies in their academic work, making them an ideal group for exploring the research questions. As Salaria (2012) notes, descriptive surveys focus on capturing the characteristics of the whole sample rather than isolating individual variables. This emphasis on collective patterns aligns with the study's aim of understanding broader trends and shared experiences among EFL learners.

4.4 Participants

The participants in the survey, representing elementary to pre-intermediate language proficiency levels of English and diverse technological literacies and academic backgrounds. The diversity within the sample was essential for capturing a range of experiences and perspectives, consistent with Yin's (2018) emphasis on selecting cases that illuminate broader theoretical concepts.

A total of 174 students were initially invited to participate in the study however, 7 declined involvement bringing the final number of participants to 167. Consistent with ethical guidelines described by Salaria (2012), participation was entirely voluntary, and students

were informed that non-participation would not affect their academic standing. The participants represented diverse educational backgrounds typical of Bahraini foundation programmes. All were recent secondary school graduates (aged 18-20). All had studied English for 12 years in the national curriculum but with limited productive use outside formal instruction. While all participants owned smartphones and used social media, none had formal training in AI tools before the study.

Characteristic	Category	n	%
Gender	Female	94	56.3
	Male	73	43.7
Age range	18–20 years	167	100.0
Enrolment year	2024 entry	136	78.4
	2023 entry	31	18.6
Language background	Arabic L1	167	100.0
Prior formal AI training	None	167	100.0
Proficiency level (target)	CEFR B1 (pre-intermediate)	167	100.0

Table 3: Summary of Participant Characteristics (N=167)

Table 3, which summarises participants' characteristics, shows that participants are broadly representative of the programme's core demographic profile. The age range, Arabic L1 background, target CEFR B1 proficiency level, and absence of prior formal AI training closely reflect the typical intake of the programme. In addition, the gender distribution and enrolment-year spread are consistent with recent cohorts, supporting the relevance and generalisability of the findings to the wider programme population.

In recognition of linguistic diversity within the student body, the researcher gave participants the option to provide written responses in their first language, Arabic. This accommodation aimed to ensure comfort and clarity for students who may have preferred expressing their experiences and perceptions in a first language. Given the researcher's background, holding a Master's degree in Translation from and into Arabic, any Arabic responses were translated into English with a focus on preserving accuracy and faithfulness to the original meaning. Only a small number of students opted to respond in Arabic; where such responses were submitted, their content was carefully reviewed and

included in the data analysis to maintain representation of those participants' perspectives.

During the review of the survey submissions, it was noted that some respondents left one or more questions entirely blank, providing no data for those particular items. In keeping with standard practices of descriptive survey research (Salaria, 2012), these empty responses could not be incorporated into the findings, as they offered no discernible data for analysis. Nonetheless, the remaining completed responses from each participant were retained and thematically analysed, consistent with the procedures outlined in Section 4.6.

4.5 The Intervention

The learning intervention in this study centered on integrating generative AI tools into a series of carefully structured EFL tasks, each designed to strengthen a core skill: writing, speaking, reading, and collaboration. Rather than relying on traditional methods alone, the intervention introduced AI-based resources that allowed participants to practice key linguistic competencies in a flexible, learner-driven manner. For instance, learners refined their descriptive writing by feeding drafts into generative AI tools, received personalised revisions, and reflected on whether to accept or reject automated suggestions. In doing so, they developed both technical skills, such as correcting grammatical flaws and deeper analytical abilities. Details regarding these task activities and guidelines are provided in the appendices of this thesis.

A central component of the intervention was the use of a digital log, a structured record in which learners documented their interactions with the chosen generative AI tools. Each log served two main purposes. First, it captured students' reflections about how generative AI feedback influenced their understanding of language structures. Second, it preserved a tangible record of their task progression, including prompts entered, suggestions received, and self-directed decisions about which feedback to integrate. This documentation gave a window into the learners' thought processes and also allowed students to monitor their own improvements, ultimately encouraging self-regulation and autonomy. Rather than simply following AI recommendations blindly, participants were

prompted to critically assess the AI's output and weigh it against their personal knowledge and contextual needs.

A variety of generative AI platforms, such as ChatGPT, Microsoft Copilot, and Gemini, were made available, allowing learners to choose the one they found most approachable. This recognised the diversity of learner preferences and technological familiarity. At the same time, students were briefed on ethical and academic integrity considerations, ensuring that the use of generative AI tools facilitated legitimate learning rather than replacing the cognitive effort necessary to acquire language skills. They were encouraged to avoid allowing the tools to compose entire assignments on their behalf and, instead, to harness these tools as interactive resources that for example could illuminate gaps in vocabulary, clarify grammar points, and offer additional insights.

Over the course of the intervention, the researcher and the class instructor periodically reviewed participants' digital logs, which in this study served as learning logs documenting students' engagement with generative AI tools. These digital logs consisted of saved prompts, written outputs, and recorded AI interactions, which together reflected how students used AI for feedback, vocabulary development, and writing support. The periodic reviews acted as formative checkpoints to identify common challenges and ensure that AI-assisted learning remained aligned with the pedagogical objectives of the foundation English curriculum. Because the intervention was embedded within the existing EFL syllabus, learners continued to progress through the core curriculum while integrating AI-driven learning practices.

By the end of the intervention, each participant had accumulated a set of digital logs that illustrated the evolution of their engagement with generative AI. It is important to clarify that the digital logs were not analysed as primary data in this study. Rather, they served as memory aids that participants consulted before completing the survey to support accurate recall of specific interactions with GenAI tools. While the researcher periodically reviewed these logs during the intervention to monitor implementation and identify any technical issues, the logs themselves were not subjected to formal thematic analysis. The

primary dataset consisted exclusively of the survey responses, with the digital logs playing a supportive rather than analytical role.

4.6 Data Collection

The primary data collection instrument used in this study was a structured, open-response survey administered in person using Microsoft Forms. The survey was designed to elicit detailed qualitative data on learners' perceptions, experiences, and reflections regarding the use of generative AI tools in English language learning. The survey comprised a total of 15 items, structured into two sections: (1) respondent information (4 items), and (2) open-ended qualitative questions (11 items).

Section 1 collected non-identifiable contextual information such as participants' name, university ID, section, and consent. This section also provided assurances of anonymity and ethical use of data, consistent with institutional ethical guidelines. No data on gender or age was collected, as this was deemed irrelevant to the study. The four demographic/contextual questions were excluded from theoretical alignment in the mapping table as they served a contextual rather than analytical purpose.

Section 2 included 11 open-ended questions, all designed to explore participants' experiences with generative AI tools in language learning. The questions were crafted to reflect and operationalise key constructs from the study's theoretical framework, the Unified Theory of Acceptance and Use of Technology (UTAUT-2) and Self-Determination Theory (SDT).

Question Number	Topic	Theoretical Alignment
5	Tools used	Contextual/Descriptive
6	Language skills supported by Generative AI Tools	Performance expectancy (UTAUT-2); Competence (SDT)
7	Motivation and engagement	Intrinsic & extrinsic motivation (SDT); Hedonic motivation (UTAUT-2)
8	Desired features	Facilitating conditions & usability (UTAUT-2); Autonomy (SDT)
9	Barriers to use	Effort expectancy (UTAUT-2)
10	Usability and learning impact	Effort expectancy & performance expectancy (UTAUT-2)
11	Peer and teacher attitudes	Social influence (UTAUT-2); Relatedness (SDT)
12	Generative AI and collaborative learning	Relatedness (SDT); Social learning
13	Institutional support	Facilitating conditions (UTAUT-2)
14	Institutional improvements	Institutional scaffolding; habit formation (UTAUT-2)
15	Final reflection	Broad insight and triangulation

Table 4: Mapping Survey Items to UTAUT-2 and SDT Constructs

These questions were intentionally designed to explore participants' behavioural patterns and also their underlying motivational orientations and environmental enablers or constraints. For instance, Questions 6 and 7 relate to how AI tools influence learner competence and motivation, key constructs in SDT, while Questions 9 and 10 assess

usability and perceived effort, reflecting effort expectancy in UTAUT-2. Meanwhile, Questions 11–14 explore the social and institutional ecosystem surrounding generative AI use, aligning with social influence and facilitating conditions constructs.

The open-ended format enabled learners to express nuanced reflections in either English or Arabic, enhancing inclusivity and data richness. These qualitative responses provided a window into participants' attitudes, behavioural patterns, and aspirational views on AI integration, offering a foundation for the reflexive thematic analysis presented in Chapter 5.

The open-ended format allowed for depth, complexity, and unexpected perspectives to emerge, particularly valuable given the rapidly evolving nature of generative AI in education. Furthermore, piloting with 20 students led to refinements in language clarity and thematic alignment, ensuring that the final survey items effectively elicited responses relevant to the study's aims.

The survey was developed through a comprehensive review of relevant literature on educational technology and language learning. Pilot testing was conducted with a small group of 20 students enrolled in the same foundation EFL programme. The aim of the pilot was to assess the clarity, relevance, and timing of the questions, as well as the practicality of capturing learners' reflections. Feedback from the pilot indicated that while students were generally able to respond meaningfully to the questions, they struggled to recall specific details about their interactions with generative AI tools, particularly when asked to reflect on multiple tasks. This difficulty in tracking usage and tool engagement prompted the introduction of a structured digital log to accompany the main tasks. The log served as a record-keeping tool, enabling learners to document the interactions in real time, thereby supporting deeper reflection and more accurate survey responses.

Further adjustments were also made to the survey based on pilot feedback. For example, the question "How do you feel about using generative AI tools?" was revised to "How have these generative AI tools affected your motivation and interest in learning English? Did they make you more or less engaged?" to elicit more focused and thoughtful

responses. Additionally, time allocation was reconsidered, as participants reported that completing the full set of questions in one sitting was demanding. Yin (2018) advocates for piloting data collection procedures to enhance reliability and ensure that instruments effectively capture the intended data. Accordingly, revisions from the pilot stage ensured that the final survey was aligned with the study's objectives, accessible to participants, and capable of yielding rich, reflective insights into learners' engagement with generative AI tools.

By covering dimensions such as usability, perceived usefulness, barriers to adoption, and the impact of both peer attitudes and institutional support, the survey offered a holistic view of participants' engagement with generative AI in EFL contexts. The final version of the survey, is presented in Appendix Five, providing a full account of the questions asked and their alignment with the study's research objectives.

4.7 Data Collection Procedures

Data collection was conducted through in-person administration of the survey during scheduled class sessions. This approach was chosen to maximise participation rates and ensure consistency in the data collection process. Administering the survey in a controlled, familiar setting ensured that participants could provide thoughtful and reflective responses, free from external distractions. The survey included both single-response and multiple-response questions. For multiple-response items, participants could select all applicable options. Percentages for these questions may sum to more than 100%.

Participants were briefed on the purpose and scope of the study before completing the survey. As part of this process, they read the participant information at the start of the survey and explicitly agreed to participate in the study. Clear instructions were provided, and the researcher, through the teachers, was available to address any questions or concerns, consistent with Yin's (2018) recommendation to support participants during data collection. Completed surveys were collected immediately after the series of sessions and securely stored to maintain confidentiality and data integrity. The in-person administration method ensured that responses were complete and of high quality,

avoiding issues commonly associated with online surveys, such as low response rates or incomplete data. This method also facilitated a personal connection between the teachers and participants, fostering an environment of trust and openness.

After the surveys were collected, each response set underwent an initial review to identify omissions and verify legibility. Only a small number of students responded in Arabic; those responses were translated into English by the researcher, drawing on a Master's-level proficiency in translation. Special care was taken to preserve the meaning and nuances of each Arabic response, and any ambiguous terms were cross-checked with standard dictionaries and language resources to ensure fidelity.

Once all surveys were reviewed and translated, they were digitised by entering the narrative responses into spreadsheet. Responses were organised under headings corresponding to each survey question, maintaining a clear link between each participant and their set of answers. Specific question omissions were noted alongside each participant's record so that patterns of incomplete data could be detected. In this study, there were 167 respondents and 11 questions each, producing a potential total of 1,836 individual question responses. Of these, 48 were ultimately considered void, for instance, blank answers or responses too short or unclear to interpret where no attempt was made to retrospectively retrieve data as these missing items were treated as unfilled, resulting in a 2.7% omission rate. The highest number of omissions for any single question was 5 out of a 167, indicating that most questions were sufficiently clear and relevant.

The final dataset therefore consisted of manually entered and translated narrative responses, along with a log noting any omitted questions. This procedure maximised the integrity of the data while maintaining transparency regarding the small number of omitted responses. By consolidating all completed items into a centralised spreadsheet, the study ensured that any subsequent analysis could accurately reflect participants' diverse viewpoints Yin (2018).

4.8 Data Analysis

Reflexive thematic analysis, as developed by Braun and Clarke (2006), is a widely used qualitative method for identifying, analysing, and reporting patterns of meaning within data. Unlike earlier versions of thematic analysis that emphasised coding reliability and intercoder agreement, Braun and Clarke's reflexive approach positions the researcher as central to knowledge production, recognising that themes do not passively emerge from data but are actively constructed through the researcher's interpretive engagement (Braun & Clarke, 2022). This approach was selected for the present study because of its theoretical flexibility, its compatibility with an interpretivist epistemology, and its capacity to capture the complexity and depth of learners' experiences with generative AI tools. To ensure methodological transparency, this study followed Braun and Clarke's (2006) six-phase model: (1) data familiarisation, (2) initial coding, (3) searching for themes, (4) reviewing themes, (5) defining and naming themes, and (6) writing up. The process was iterative and reflexive rather than linear, with codes and themes continuously refined through engagement with the data and theoretical framework.

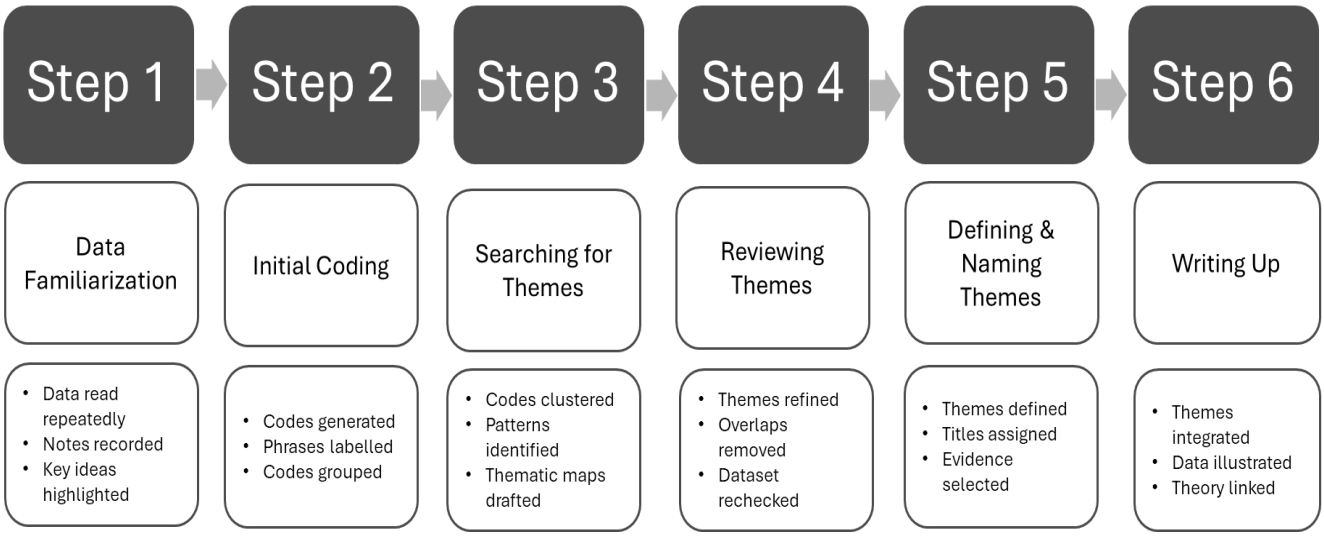

Figure 4: The Thematic Analysis Process

Reflexive thematic analysis is understood here as theoretically flexible yet grounded in qualitative principles, emphasizing the researcher's interpretative role and situating knowledge as co-constructed, context-dependent, and subjective (Braun & Clarke, 2022). The reflexive approach conceives of themes as analytic outputs, patterns of meaning

generated through a dynamic, recursive process of engagement with the data, rather than as pre-existing entities discovered by the researcher (Braun & Clarke, 2021).

As discussed in Section 4.5, the digital logs were not analysed as primary data but served as memory aids for participants before completing the survey. The primary dataset for thematic analysis consisted exclusively of the survey responses.

Phase 1 (data familiarisation) began with multiple readings of the 167 survey responses and repeated engagement with the full set of answers to the eleven open-ended questions. During this stage, I read and re-read the data both on screen and in printed form, annotating margins with initial impressions, questions, and emerging patterns.
For example, in responding to a question about how generative AI tools affected their learning, Participant P160 wrote: *"In class, I feel nervous to ask a question or say something wrong. But with AI, I can try 10 times and it never laughs or gets annoyed."* My initial reflexive note: *"This emotional safety dimension appears across 23 similar responses. Participants repeatedly contrast classroom anxiety with AI comfort. This suggests a pattern beyond mere convenience - there's an affective transformation happening here."*

At this stage, rather than treating such observations as fixed "findings," I used them as sensitising concepts that guided subsequent coding.

In Phase 2 (initial coding), I generated codes inductively from the data without applying pre-existing categories. Each response was examined line by line, and segments that captured a meaningful idea relevant to the research questions were assigned succinct, data-driven codes. Coding was completed manually in an Excel workbook, with each row representing a coded extract linked to participant ID and survey question. The information presented in the figures of this thesis were processed using Microsoft PowerPoint.

For instance, Participant P14 described a transformation in vocabulary learning practices: *"When I used to study vocabulary from a list, it was boring. Now I can ask the AI to test me, to use the word in a joke, or to tell me a story with that word. It's more fun and I remember more."* This response generated multiple initial codes, such as

boredom_with_traditional_lists, interactive_vocabulary_practice, AI_as_quiz_partner, use_of_humour, and enhanced_retention. These codes captured both the shift in learning activity, from list memorisation to interactive practice, and the affective dimension, finding the process "more fun". An illustrative pathway from raw data to initial codes is presented in Figure 5.

Participant Quote	Initial Codes Applied	Code Frequency
P14: "When I used to study vocabulary from a list, it was boring. Now I can ask the AI to test me, to use the word in a joke, or to tell me a story with that word. It's more fun and I remember more."	traditional_methods_boring AI_makes_learning_fun personalized_vocab_practice storytelling_for_memory interactive_testing	n=12 n=34 n=28 n=15 n=21
P160: "In class, I feel nervous to ask a question or say something wrong. But with AI, I can try 10 times and it never laughs or gets annoyed."	classroom_anxiety AI_no_judgment multiple_attempts_allowed emotional_safety	n=31 n=23 n=19 n=26
P77: "Exchanging AI outputs with classmates increases my vocabulary faster."	collaborative_engagement peer_learning vocabulary_development	n=42 n=38 n=51

Figure 5: Example of Raw Data to Initial Codes

In Phase 3 (searching for themes), I reviewed the full code list and began clustering related codes into broader patterns of meaning that spoke to the research questions on engagement, motivation, and the pedagogical role of generative AI. For example, codes such as emotional_safety, fear_of_judgement_in_class, comfort_with_AI, and risk-free_experimentation were initially grouped together. In parallel, codes such as

AI_makes_learning_fun, voluntary_extra_practice, and learning_beyond_requirements were clustered under a broader pattern related to amplified motivation and engagement. Through this pattern recognition process, an initial set of 23 potential themes was identified. These were documented in a working thematic map that visually linked clusters of codes and indicated how they might relate to one another conceptually (see Figure 6).

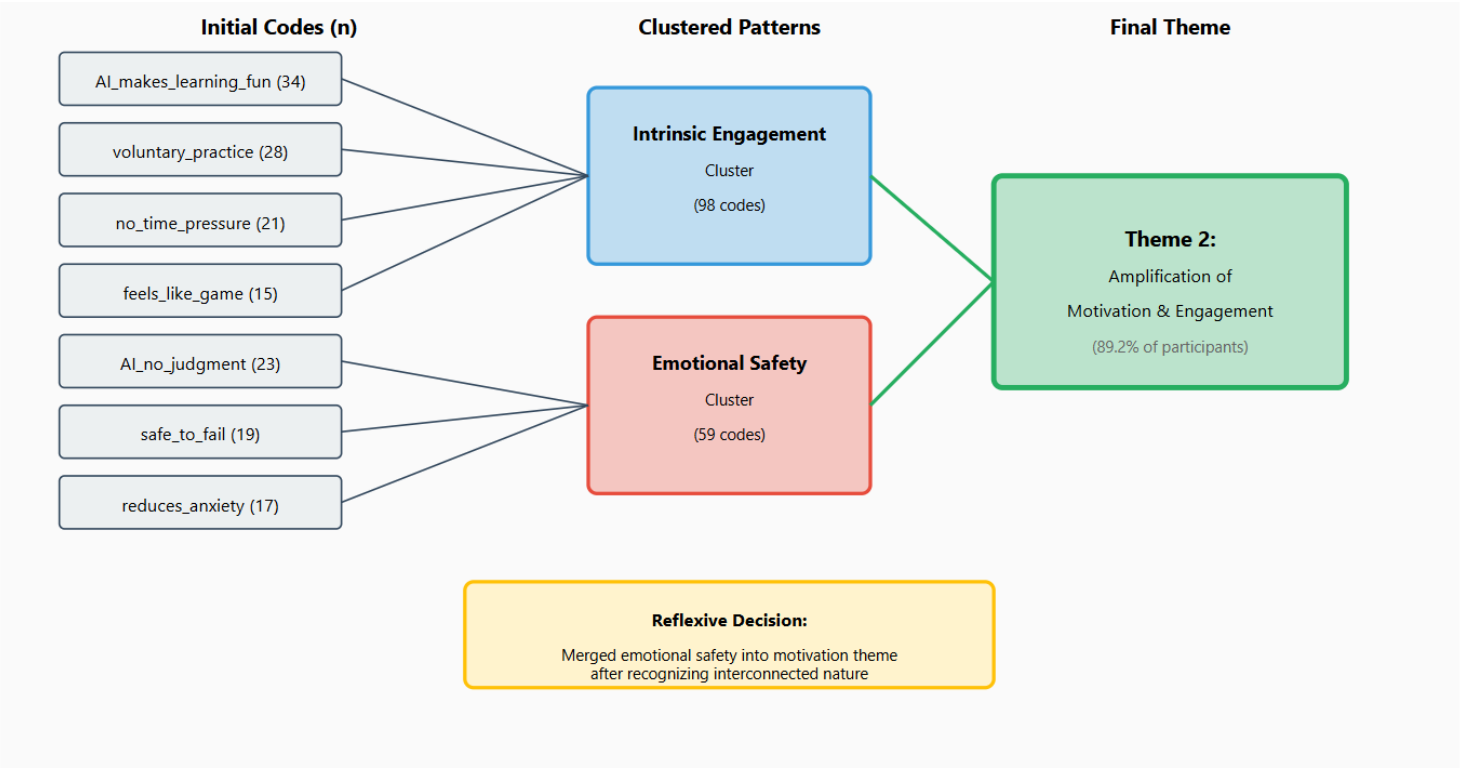

Figure 6: From Initial Codes to Theme Formation

Similarly, the theme *Amplification of Motivation and Engagement through Interactive Learning Dynamics* evolved from initially separate codes such as "AI is fun," "I use it outside class," and "AI motivates me to write more." These were gradually linked through constant comparison to reflect learners' affective engagement and voluntary participation. The code "I don't feel judged when I make mistakes with AI" was initially placed under a different theme but was later reclassified within this cluster, as it aligned more strongly with motivational rather than ethical dimensions.

In Phase 4 (reviewing themes), candidate themes were critically reviewed against both the coded data and the dataset as a whole. This involved asking whether each theme

had a clear central organising concept, whether it was sufficiently distinct from other themes, and whether it was adequately supported by multiple rich data extracts (Braun & Clarke, 2006, 2022). Several important reflexive decisions were made at this stage:

- Emotional safety had initially been considered as a standalone theme. However, further engagement with the data showed that feelings of safety and reduced anxiety were consistently articulated as drivers of increased practice, risk-taking, and sustained engagement. Consequently, 59 codes relating to emotional safety were merged into a broader theme on motivation and engagement rather than being retained separately.

- Initial coding grouped issues of trust, accuracy, and technical difficulties together. Closer reading demonstrated that learners were not only frustrated by inaccuracies but were also developing verification strategies and critical literacy practices. These analytic insights led to the elevation of "Negotiating trust and critical awareness" as a distinct theme, rather than subsuming it under "technical problems."

- Although only 26.3% of participants (44/167) explicitly articulated shifts in their learner identity, the depth and theoretical significance of these accounts justified a separate theme on "Reframing learner identity," consistent with a reflexive, meaning-centred approach that does not rely on frequency alone.

- While there was overlap between collaborative use of AI and other themes, the data revealed a distinct strand of meaning around co-construction of knowledge, peer sharing of prompts, and group experimentation. This warranted preserving "Collaborative engagement" as a separate theme rather than folding it into other categories.

Through this recursive review process, the initial 23 potential themes were refined and collapsed into nine major themes that demonstrated internal coherence and clear differentiation from one another.

In Phase 5 (defining and naming themes), each theme was further defined, with attention to its scope, internal structure, and relationship to the overall narrative of the findings. Theme names were refined to be both conceptually precise and accessible to the intended audience. For example, an early label such as "improved skills" was replaced by "Enhancement of multidimensional competencies" to reflect the integrated development of grammar, vocabulary, writing, and reading skills. Similarly, "fun with AI" evolved into "Amplification of motivation and engagement", foregrounding the interplay between enjoyment, increased autonomy, and voluntary practice. Figure 7 illustrates examples of how theme titles evolved through iterative refinement.

Figure 7: Theme Evolution Through Reflexive Process

In Phase 6 (producing the analytic narrative), the themes were woven into a coherent analytic narrative that addressed the research questions and engaged with the theoretical framework established in Chapter 3. The write-up situates the themes within a broader pedagogical ecosystem, showing how generative AI tools intersected with learners' motivational dynamics, identities, and institutional context.

Reflexivity was embedded throughout all phases of the analysis. I maintained a reflexive journal to record analytic insights, emotional reactions, and shifts in interpretation, regularly questioning how my disciplinary perspective may have influenced coding and theme development (Braun & Clarke, 2021). This practice strengthened interpretative rigour and transparency, acknowledging that meaning making in reflexive thematic analysis is shaped by the researcher's standpoint rather than standardised through intercoder agreement (Braun & Clarke, 2022).

The final thematic structure is summarised in Table 4, which presents the nine themes, brief descriptions, prevalence across the dataset, illustrative codes, and theoretical alignment.

Theme	Description	Prevalence	Example Codes	Theoretical Alignment
1. Enhancement of Multidimensional Competencies	AI tools supporting integrated language skills	94.6% (158/167)	grammar_support, vocabulary_expansion, writing_structure	Perceived Efficacy (Performance Expectancy + Competence)
2. Amplification of Motivation & Engagement	Increased intrinsic motivation through AI interaction	89.2% (149/167)	AI_makes_fun, voluntary_practice, emotional_safety	Enjoyment-Driven Autonomy (Hedonic Motivation + Autonomy/Intrinsic Motivation)
3. Aspirations for Advanced Functionalities	Desired AI features and improvements	57.5% (96/167)	real_life_simulation, cultural_awareness, personalization	Accessible Mastery (Effort Expectancy + Competence)
4. Feedback as Conversation	Redefining feedback from correction to dialogue	88.6% (148/167)	iterative_feedback, learner_initiated, dialogic_interaction	Accessible Mastery (Effort Expectancy + Competence)
5. Socio-Institutional Influences	Impact of teachers, peers, and policies	97.6% (163/167)	teacher_endorsement, peer_influence, policy_clarity	Social Endorsement (Social Influence + Relatedness); Supported Learning Environment
6. Reframing Learner Identity	Shift from passive to autonomous learners	26.3% (44/167)	self_direction, ownership, language_user_identity	Habitual Self-Regulation (Habit + Autonomy)
7. Negotiating Trust & Critical Awareness	Developing critical evaluation of AI outputs	53.9% (90/167)	verification_strategies, AI_limitations, critical_literacy	Accessible Mastery (Effort Expectancy + Competence)
8. Collaborative Engagement	Social learning through shared AI use	75.6% (126/167)	peer_sharing, group_discovery, collective_progress	Social Endorsement (Social Influence + Relatedness)

Theme	Description	Prevalence	Example Codes	Theoretical Alignment
9. Institutional Support	Need for training and infrastructure	57.5% (96/167)	training_needs, ethical_guidance, resource_access	Supported Learning Environment (Facilitating Conditions + Relatedness/Competence)

Table 5: Final Thematic Structure

4.9 Quality

Ensuring the quality of qualitative research involves establishing processes that enhance the trustworthiness, credibility, and rigor of both data collection and analysis (Lincoln & Guba, 1985; Yin, 2018). In this study, several measures were implemented throughout the process to uphold high-quality standards and to foster confidence in the findings. These measures address the common dimensions of qualitative research quality: credibility, dependability, confirmability, and transferability.

Credibility pertains to how well the research findings capture the realities of the participants (Lincoln & Guba, 1985). To strengthen credibility, this study employed methodological transparency by clearly outlining each phase of the data collection and analysis. The open-ended survey questions were developed and refined through pilot testing, ensuring that the instrument elicited rich and meaningful data (Salaria, 2012). Additionally, iterative coding in thematic analysis (Braun & Clarke, 2006) was used to remain attentive to patterns, rival explanations, or anomalies that could refine or challenge the initial interpretations (Yin, 2018). These steps helped ensure that the participants' perspectives were accurately captured and interpreted.

Dependability highlights the importance of consistent and systematic procedures (Lincoln & Guba, 1985). To strengthen dependability, the research design and data collection protocols were documented in detail, including the selection of participants through purposive sampling, the administration of the survey instrument in controlled classroom settings, and the step-by-step thematic analysis of qualitative responses. This audit trail (Yin, 2018) enables external reviewers or future researchers to follow the decision-making process and verify the consistency of methods over time.

Confirmability addresses the potential for researcher bias and ensures that findings are derived from the data rather than the researcher's predispositions (Lincoln & Guba, 1985). In this study, reflexivity was practiced by maintaining a log of analytic decisions, emerging questions, and insights during the coding process. By critically examining personal assumptions and seeking to bracket them when interpreting survey responses, the researcher minimized undue influence on the findings. Where appropriate, direct quotations from participants were used to substantiate themes, thereby offering tangible evidence of how the data informed the conclusions (Braun & Clarke, 2006).

To ensure transparency and rigour consistent with reflexive thematic analysis, an audit trail was maintained throughout the process. This included a corpus of 1,837 potential data points (167 responses x 11 questions), a codebook documenting the 847 initial codes with their definitions and example extracts, iterative thematic maps that traced the reduction from 23 candidate themes to 9 final themes, and reflexive journal entries capturing shifts in interpretation, analytic decisions, and the influence of my own positionality as an educator-researcher working in technology-enhanced language learning. In line with Braun and Clarke's (2022) reflexive stance, themes in this study were not treated as objectively "discovered" entities, but as analytic constructions developed through sustained, critical engagement with the data. The reflexive documentation, combined with the systematic audit trail, supports the credibility and coherence of the analytic claims presented in the subsequent chapters.

Transferability involves the extent to which findings can be applied in similar contexts or populations (Lincoln & Guba, 1985). Although qualitative research does not seek statistical generalizability, the rich, contextualized descriptions (Salaria, 2012) of learners' experiences with generative AI tools in EFL classrooms provide enough detail for educators and researchers in comparable educational settings to determine whether the insights are relevant to their contexts. The study's clear description of participant demographics (e.g., proficiency levels, programme details) supports readers in assessing the applicability of the findings to different institutions or learner populations.

4.10 Ethical Considerations

Ethical considerations were integral to the design and implementation of this study, ensuring that all research activities adhered to institutional and professional guidelines. Ethical approval for this study was granted by Lancaster University in accordance with institutional guidelines. The ethics application number, on REAMS, is EdRes-2024-4618-EDRES-2. Research at the host institution in Bahrain was conducted following its standard procedures for research involving students. Before data collection began, participants were provided with comprehensive information about the study's objectives, and procedures. While the researcher took extensive measures to protect participants' identities, the study promised only to anonymize the participants' responses and took all reasonable care to ensure their identities were protected. Participants were informed that their data would be handled in accordance with these measures.

To protect the identity of participant, all survey responses were anonymized through the use of unique identifiers, and data were securely stored in password-protected files accessible only to the researcher. Participants were also informed that their responses would not influence their academic performance or evaluations, and they were completely free to join or not, fostering an environment of trust and encouraging candid reflections. Yin (2018) highlights the importance of addressing potential ethical dilemmas proactively, ensuring that participants' rights and well-being are protected throughout the research process.

A teacher served as the gatekeeper in this study, introducing the research to potential participants during class and ensuring all ethical procedures were followed. By overseeing recruitment, the teacher helped minimise any perceived obligation among students to take part. The researcher's role combines certain aspects of both an insider and an outsider perspective. On one hand, the researcher shares some key characteristics with the gatekeeper, such as a parallel educational background and familiarity with the institution's routines. On the other hand, the researcher did not hold a formal teaching position with these particular students and was therefore not deeply engaged in their daily academic lives. Consequently, this outsider stance afforded the

researcher some analytic distance, making certain patterns more readily observable than they might be to someone fully embedded in the setting.

4.11 Limitations

While the descriptive survey methodology provided valuable insights into the integration of generative AI tools in EFL classrooms, several limitations must be acknowledged. First, the reliance on self-reported data introduces the potential for response bias, as participants may have provided socially desirable answers rather than fully accurate accounts of their experiences. Salaria (2012) notes that surveys are inherently limited by the subjective nature of participant responses, making it essential to interpret findings within their context. Efforts were made to mitigate bias through voluntary participation; however, its influence cannot be entirely eliminated.

The study's focus on a single institution may limit the generalizability of the findings to other educational contexts with different technological, cultural, or institutional conditions. Yin (2018) cautions against overgeneralization in qualitative research, emphasizing that the goal is not to produce statistically representative findings but to shed light on theoretical concepts and contextual factors. Future research could address this limitation by conducting similar studies across diverse institutions and regions to capture a broader range of experiences.

The exclusive use of open-ended survey questions, while providing rich qualitative data, may have limited the study's ability to capture certain types of structured or comparative information. Yin (2018) suggests that combining multiple data sources can enhance the depth and breadth of qualitative research. Future studies might incorporate additional methods, such as interviews or focus groups, to complement survey data and provide a more comprehensive understanding of the impact of generative AI tools on language learning. Despite these limitations, the study offers a robust foundation for understanding the role of generative AI tools in EFL education.

The following chapter presents the findings that are organised thematically to reflect the key dimensions of learner engagement, motivation, and interaction with generative AI tools as theorised in this literature. This structure enables a coherent interpretation of how participants navigated the educational ecosystem shaped by emerging technologies, shedding light on patterns of behaviour, perception, and agency. Emphasis is placed on maintaining a close connection between the empirical data and the theoretical constructs guiding the study, ensuring that the findings meaningfully address the research aims while foregrounding learner voice.

Chapter 5: Findings

The findings presented in this chapter are based on students' self-reported perceptions and reflections gathered through qualitative survey responses after experiences with generative AI tools. Organised thematically, the chapter explores how learners engaged with AI technologies, how these tools influenced their motivation and skill development, and the broader pedagogical and institutional factors shaping their use. The findings are interpreted in light of the theoretical framework introduced earlier, offering empirical insight into the dynamics of AI integration in higher education language learning contexts.

To ensure alignment between the research aims and the data collection instruments, each survey question was explicitly designed to address one or more of the study's research questions. Table 6 below presents a clear mapping between the four research questions and the corresponding survey items used in the study. This alignment demonstrates the coherence of the instrument design and illustrates how each component of the survey contributes to answering the broader research objectives. Notably, some survey questions address multiple research questions, reflecting the interconnected nature of learner experiences with generative AI tools in EFL contexts. This mapping also supported the thematic analysis by linking specific data points to the conceptual framework guiding the study.

Research Question		Survey Question		
How do English as a Foreign Language learners in higher education perceive the	1. In what ways do generative AI tools shape the engagement and motivation of higher education students in English as a Foreign Language learning?	Does working with others using generative AI tools increase your motivation to learn English?	Are there any features you wish these tools had to help you better?	
	2. How do students' experiences with the usability and accessibility	Are there any features you wish these tools	How does the user-friendliness of generative AI	What improve ments

Research Question		Survey Question		
impact of generative AI tools on their engagement and motivation to learn?	of generative AI tools influence their engagement and motivation in learning English as a Foreign Language?	had to help you better?	tools affect your learning and engagement?	would make these tools easier for you to use?
	3. How do peer and instructor attitudes toward generative AI tools impact students' engagement and motivation in English as a Foreign Language learning?	How have your classmates' and teachers' attitudes toward generative AI tools influenced how you use them for learning English? Can you provide examples?	Does working with others using generative AI tools increase your motivation to learn English?	
	4. What conditions support the effective integration of generative AI tools in higher education English as a Foreign Language learning, and how do they shape student engagement and motivation?	How does support from your university, like resources or training, affect your use of generative AI tools in learning English?	What can your university do to make generative AI tools more useful and engaging for your English learning? Are there specific improvements or support you would suggest?	What kind of help would encourage you to use these tools more?

Table 4: Mapping Research Questions to Survey Questions

5.1 Analytical Framing and Thematic Overview

This chapter begins by outlining key quantitative insights derived from the dataset, providing contextual grounding for the subsequent thematic analysis. A total of 167 learners participated in the study, and an initial scan of their responses revealed clear patterns in how generative AI tools were employed in English as a Foreign Language (EFL) learning. The most frequently cited area of use was “Writing & Grammar,” highlighting that learners primarily leveraged AI tools to refine sentence structure, improve grammatical accuracy, and organise written content. Reading comprehension and vocabulary development were also commonly supported by generative AI, often integrated into broader writing-related tasks. These trends underscore a preference for AI support in tasks that benefit from immediate, structured, and corrective feedback.

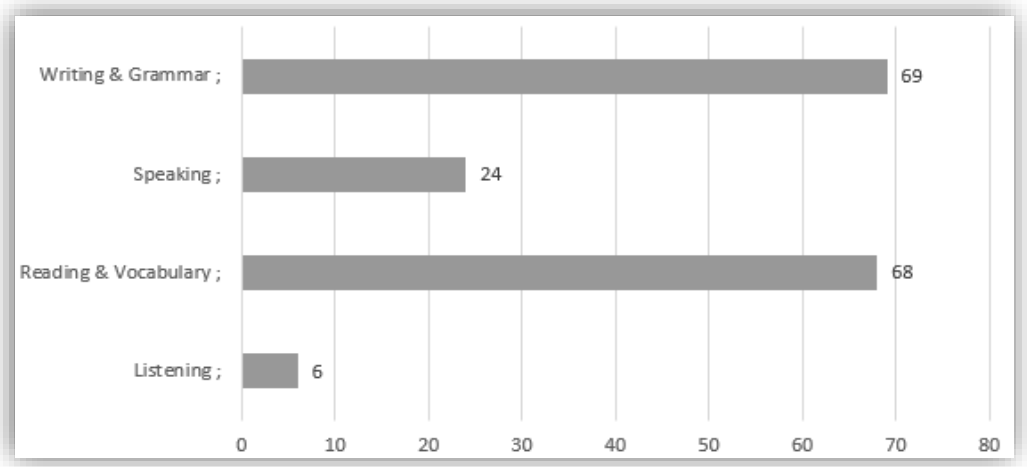

Figure 8: Generative AI tools employed for EFL Skills

A significant number identified specific platforms such as ChatGPT, Gemini, Microsoft Copilot, and Google Bard. ChatGPT was the most frequently named, suggesting a high level of brand recognition and integration into learners’ academic routines. Students described using these tools to generate examples, simplify complex phrases, explore lexical alternatives, and simulate conversational exchanges.

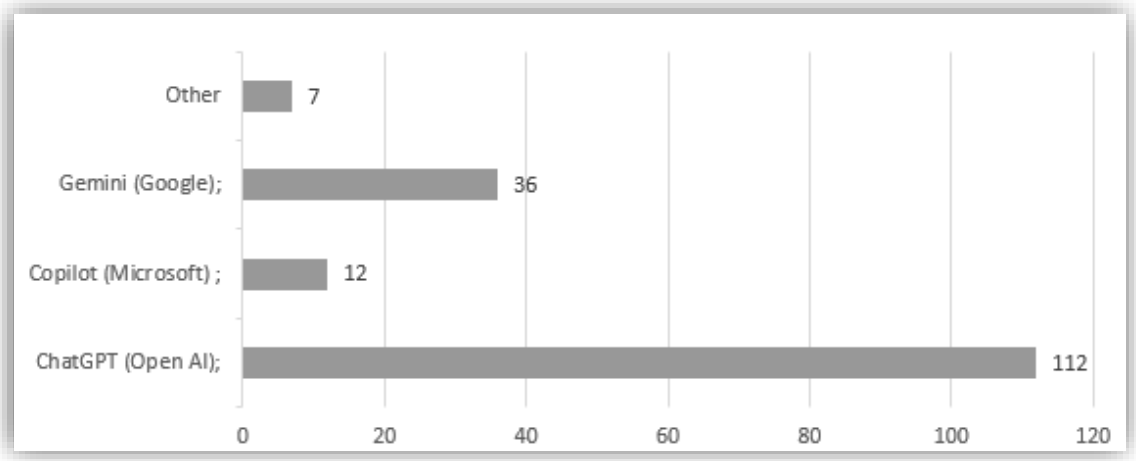

Figure 9: Generative AI Tools Used

These quantitative patterns offer a foundational lens through which to interpret the more nuanced, qualitative themes that follow. The concentration of generative AI use in writing tasks and the dominant role of ChatGPT indicate that learners are not passive recipients of AI assistance but are actively shaping their engagement with these technologies. These insights reveal important dimensions of learner agency and digital literacy, setting the stage for a deeper understanding of how AI-enhanced learning environments are navigated by students. They also highlight the necessity of addressing tool-specific usage behaviours when designing future interventions or curricula that incorporate generative AI.

The remainder of this chapter presents an in-depth thematic analysis of learners' qualitative reflections, organised around emergent themes that capture their experiences, expectations, and challenges. These themes were generated through reflexive thematic analysis and are situated within the theoretical framework of UTAUT-2 and Self-Determination Theory. Each theme explores a distinct facet of learner interaction with generative AI, offering a comprehensive view of how generative AI tools are redefining EFL learning experiences in higher education.

Theme	Description
1. *Enhancement of Multidimensional English Language Competencies*	Describes how students reported using AI tools to improve writing, reading, speaking, grammar, and vocabulary in an integrated, self-directed manner.
2. *Amplification of Motivation and Engagement through Interactive Learning Dynamics*	Explores how AI interactions increased students' motivation, enjoyment, and willingness to engage in learning beyond classroom settings.
3. *Aspirations for Advanced Functionalities in AI-Driven Language Learning*	Summarizes learners' desired improvements in AI features to support real-life communication, feedback, personalization, and emotional intelligence.
4. *Redefining Feedback as Conversation when Using Generative AI Tools in EFL*	Presents how learners indicated that they began to treat feedback from AI as a continuous, low-stress, self-initiated learning conversation rather than a teacher-only process.
5. *Socio-Institutional Influences on Generative AI Tool Adoption*	Examines how teacher encouragement, peer use, institutional support, and cultural perceptions influenced students' willingness to adopt AI tools.
6. *Reframing the Learner Identity when Using Generative AI*	Highlights how AI use fostered increased autonomy, confidence, and learner agency, leading to a transformed perception of the learner role.
7. *Negotiating Trust and Critical Awareness in Generative AI Use*	Details how learners described developing critical awareness about the limits, errors, and ethical considerations of AI, and adjusted their strategies accordingly.

Table 5: Overview of Thematic Analysis Findings

It is important to note that participants tended to refer to "AI" in general terms, without distinguishing between specific types of generative AI (e.g., large language models like ChatGPT, Gemini, or Copilot). This imprecision in terminology reflects a common tendency among non-specialist users to use the term AI, particularly in this study where

all the exposure is to generative platforms. As such, participants' responses often blurred this distinction. This contextual nuance is accounted for in the interpretation of themes and quotes throughout this chapter.

5.2 Enhancement of Multidimensional English Language Competencies

Generative AI tools such as ChatGPT, Microsoft Copilot, and Gemini emerged as pivotal learning companions for students of English as a foreign language, reshaping the way learners reported engaging with core language skills. This theme was identified in 158 of the 167 responses (94.6%), with 487 coded references across the dataset. Writing improvement was the most frequently cited benefit (n=142, 85.0%), followed by grammar support (n=118, 70.7%) and vocabulary expansion (n=97, 58.1%).

This theme directly addresses Research Question 1, which investigates how students perceive the use of generative AI tools in enhancing language learning. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Perceived Efficacy dimension, which connects performance expectancy (UTAUT-2) with competence need satisfaction (SDT). Learners' belief that generative AI tools would enhance their language skills reinforced their sense of competence and self-efficacy, with students expecting AI tools to improve their performance feeling more capable of achieving learning goals. The theme also relates to the Accessible Mastery dimension, linking effort expectancy (UTAUT-2) with competence (SDT), as the perceived ease of using AI tools supported learners' confidence, reduced anxiety, and enabled them to focus on skill development rather than technical navigation. This integration of contextual and motivational determinants illustrates how external technology acceptance factors and internal psychological needs work together to sustain meaningful engagement with generative AI in language learning.

5.2.1 Generative AI-Driven Support for Core Language Skills

Writing emerged as one of the most frequently cited areas of perceived improvement (n=142, 85.0% of participants). Learners consistently articulated how they turned to

generative AI for help in structuring ideas, refining grammar, and adjusting tone. [P10] stated that *"the tool not only corrected my grammar but explained why the sentence was wrong. It helped me learn by doing, not just copying."* This idea of learning through engagement, trial, error, correction, and reflection, was echoed throughout the responses. [P21] noted, *"when I wrote a paragraph and pasted it into the AI, it showed me better ways to connect my ideas. It made my writing sound more academic without changing my meaning."* Such reflections indicate a shift from surface-level editing to a more nuanced process of developing stylistic maturity.

In grammar correction, participants often described how AI functioned not as an error detector but as a dialogic partner (n=118, 70.7% of participants). [P53] explained, *"I liked that it didn't just say 'wrong.' It told me, 'this is past perfect because...' and then gave me a clear example."* This kind of metalinguistic scaffolding allowed learners to begin internalizing rules rather than simply accepting corrections. [P79] added, *"I would ask it: 'why is this wrong?' and it gave me options and examples. That helped me remember it next time."* The generative AI tools thus acted as tireless, judgment-free grammar coaches, always ready to explain, reinforce, and support.

Learners also leveraged these tools to explore vocabulary in ways that extended beyond simple definitions (n=97, 58.1% of participants). A recurrent theme was the use of AI to personalize vocabulary acquisition. [P110] commented, *"if I didn't know a word, I asked the AI to give me five synonyms and use them in a sentence about the environment, because that's my topic."* [P65] wrote, *"I used the tool to learn phrasal verbs. I would ask it: 'what's the difference between "give up" and "give in"?' It gave examples that helped me feel the difference."* This tactile engagement with language, driven by curiosity and contextual relevance, demonstrates how these tools could nurture vocabulary learning in meaningful and user-centered ways.

Reading comprehension, especially with academic texts, was another area where learners indicated that they found significant support. Generative AI tools were repeatedly described as a mediator between learners and dense, challenging material. [P98] described, *"when I read an article and didn't understand a paragraph, I copied it into the*

AI and asked for a simpler version. It helped me get the idea without giving up." Importantly, this practice didn't seem to reduce learners' critical thinking. In fact, many used the generative AI's response as a basis for deeper engagement: [P106] explained, *"After getting the summary, I compared it to my own. Sometimes it showed me I missed something important."* This reflective process, initiated by generative AI support, pushed learners toward higher-order reading skills. [P149] noted, *"the AI helped me learn how to skim and scan. I would ask it what the key points were and then go back to see if I could find them myself."*

Speaking skills, though less frequently discussed than writing (n=73, 43.7% of participants), were nonetheless a prominent area of improvement. Students described using generative AI tools to simulate conversations and rehearse speech patterns. [P164] shared, *"I practiced dialogues by pretending to be in a coffee shop. The AI acted like the cashier, and I practiced ordering food. It was like role play."* Learners were particularly drawn to the non-threatening environment the tools created. [P8] said, *"I'm shy to speak in class, but with AI I can try many times without feeling stupid."* [P88] explained, *"it corrected my sentences, but in a friendly way. I felt I was improving without being embarrassed."* The AI thus provided a private rehearsal space where learners could experiment freely, take risks, and build fluency.

Pronunciation, often seen as difficult to address outside of oral feedback, was explored creatively through AI. Learners reported using voice tools or text-to-speech features to mimic correct pronunciation. [P43] described how they *"typed a sentence and asked the AI to say it. Then I repeated it many times until it sounded the same."* This repetition strategy, guided by AI-generated audio, was reported to support auditory discrimination and vocal practice in ways that were accessible and self-paced.

Listening development was also noted, particularly in relation to exposure to accents and natural language flow. [P29] said, *"I used it to understand fast speakers."* [P138] described, *"I would write what I heard, then ask the AI to check if I got it right."* This active engagement with listening tasks helped learners to comprehend and self-monitor. Learners also requested simulations of real-life conversations: [P77] stated, *"I asked it to*

act like a job interviewer. It asked me questions, and I answered. It corrected me and explained why. That was very helpful."

5.2.2 Fostering Integrated Learning and Learner Autonomy

What stood out across responses was how integrated the skill development became. Learners rarely described working on skills in isolation. Rather, they used the generative AI tools for tasks that simultaneously demanded reading, writing, grammar, and vocabulary. For example, a learner practicing writing about climate change said: [P143] explained, *"I wrote a short text, used the AI to fix my grammar, learned two new words, and then asked it to help me explain my ideas better."* [P1] shared, *"I read an article, summarised it with AI help, then turned it into a speaking script and practiced saying it."*

This natural blending of skills suggests that, from learners' perspectives, generative AI tools, when used intentionally, can support an authentic model of language use that mirrors real communication rather than discrete drills. Learners described moving between input and output, form and meaning, comprehension and production. [P40] summarised this by saying, *"it's like everything is connected. When I use the AI, I read, write, speak, and learn vocabulary all at once."*

Confidence and autonomy were other major takeaways. Many learners described how using generative AI tools made them feel more independent and capable. [P15] said, *"before, I waited for the teacher to check my writing. Now I do a first check myself with AI. Then I ask the teacher for deeper advice."* [P126] shared, *"I learn better because I control the speed. If I need to review something five times, the AI doesn't get tired or annoyed."*

Learners also felt safer experimenting with language in a private, non-judgmental space. [P77] said, *"when I speak English in class, I get nervous. With AI, I try many ways to say something and see which is better. I feel braver now in real conversations."* This perceived affective support, reducing anxiety and increasing willingness to communicate, reflects a dimension of language development often overlooked in traditional learning contexts.

Not all experiences were ideal. Learners acknowledged that sometimes generative AI tools' suggestions were strange or too formal. [P157] commented, *“some sentences were correct but sounded robotic. I learned to mix AI suggestions with my own style."* [P36] noted, *“once the AI gave me a wrong idiom. I checked it online and found it wasn’t used like that."* These instances, rather than discrediting generative AI tools, revealed learners’ growing critical literacy. They became evaluators of input, not just passive recipients. [P118] said, *"I learned that AI helps, but I still need to think."*

Overall, the findings of this theme suggest that learners indicated that they perceived generative AI tools as having the potential to deeply support language learning across multiple competencies. Participants described valuing the immediacy, personalisation, interactivity, and repetition these tools offer, viewing them as meaningful supplements to their learning. More importantly, learners described becoming more active agents in their learning, reporting growth not just in perceived proficiency but also in autonomy, confidence, and critical awareness. These tools, when thoughtfully integrated into learning routines, were perceived not as a shortcut but as a scaffold, enabling them to navigate linguistic challenges at their own pace and with increasing control.

5.3 Amplification of Motivation & Engagement through Interactive Learning Dynamics

The use of generative AI tools in EFL learning appeared to be associated with increased learner motivation and engagement. This theme was identified in 149 of the 167 responses (89.2%), suggesting widespread reports of heightened enthusiasm and sustained participation. Participants reported that they did not use these tools merely as passive reference sources but interacted with them as engaging learning partners. This interactive dynamic created a personalised, responsive, and enjoyable environment that, according to learners, fuelled intrinsic motivation and encouraged consistent involvement. Unlike conventional classroom tools, generative AI provided instant replies, conversational feedback, and adaptive support, making the learning process feel more dynamic and rewarding.

This theme addresses Research Question 2, which explores how the motivational and engagement aspects of AI use manifest in learners' experiences. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Enjoyment-Driven Autonomy dimension, which connects hedonic motivation (UTAUT-2) with autonomy and intrinsic motivation (SDT). Enjoyment and curiosity derived from exploring AI tools fostered self-directed, intrinsically motivated learning, with learners engaging voluntarily and exploring beyond required tasks. The theme also relates to the Habitual Self-Regulation dimension, linking habit (UTAUT-2) with internalisation (SDT), as repeated, voluntary engagement evolved into self-regulated learning behaviour, reflecting autonomous internalisation of AI use. This integration demonstrates how external acceptance factors and internal motivational needs are interdependent, with enjoyment initiating engagement and intrinsic motivation ensuring continuity and depth of learning.

5.3.1 Intrinsic Enjoyment & Voluntary Use of GenAI Tools

Learners frequently referred to the experience of using generative AI tools as enjoyable or even entertaining (n=98, 58.7% of participants). [P1] shared, *"it's fun to use. You type something, and it talks back. It feels like you're chatting with someone smart who always wants to help you."* This sense of dialogue, of interaction rather than instruction, seemed to play a key role in shifting learners' attitudes. Generative AI tools transformed what might have felt like solitary tasks, such as writing practice or vocabulary memorization, into dynamic exchanges. [P14] explained, *"when I used to study vocabulary from a list, it was boring. Now I can ask the AI to test me, to use the word in a joke, or to tell me a story with that word. It's more fun and I remember more."*

Many participants highlighted that they voluntarily spent more time on language tasks because the tools' experience was more engaging than traditional materials (n=87, 52.1% of participants). [P29] stated, *"I find myself using the tool even after class. I want to try things with it. Sometimes I write a short story just to see how the AI will help me fix it."* This kind of voluntary engagement points to an important motivational shift, where learners are no longer practicing English because they must, but because they want to.

[P35] noted, *"I open the AI tool when I'm bored. I ask it to quiz me, to give me riddles or explain jokes in English. It doesn't feel like studying."*

What emerged strongly from the data was how generative AI encouraged learners to take initiative. Several learners described how they began using generative AI tools to set their own goals, monitor progress, and challenge themselves. [P97] explained, *"I told the AI I wanted to write better essays. It helped me plan one essay every week, and each time it showed me how I improved."* This kind of self-regulated learning, where the learner defines their path and the generative AI tool supports it, represents a major departure from teacher-led instruction. [P67] shared, *"it became a routine. Every morning, I start my day with five minutes of English chat with the AI. It's like mental exercise."*

Learners also found motivation in the immediacy of feedback. Rather than waiting for a teacher to return an assignment or correct an exercise, they could engage in a constant loop of input and response. [P117] remarked, *"I used to get frustrated waiting for corrections. Now, if I write something, I get help instantly. I don't lose motivation because I can fix it right away and move on."* This flow of rapid input, feedback, and adjustment contributed to a sense of momentum that kept learners engaged. [P136] noted, *"when I ask something and get an answer in two seconds, it keeps me going. I want to ask more."*

Learners reported that they felt safe experimenting with language (n=62, 37.1% of participants). In traditional settings, fear of making mistakes can be a strong demotivator. However, many learners described how generative AI helped them overcome this anxiety. [P160] shared, *"in class, I feel nervous to ask a question or say something wrong. But with AI, I can try 10 times, and it never laughs or gets annoyed."* This freedom to make mistakes without judgment or embarrassment was crucial for keeping learners engaged, especially those with lower confidence or more anxiety around performance.

The conversational quality of generative AI tools helped humanize the learning experience. [P145] learner explained, *"when I write a sentence and it replies, it feels like someone is there. I don't feel alone in learning."*. This emotional connection, however

subtle, contributed to sustained motivation. [P149] stated, *“sometimes it says, 'great job!' or 'excellent point.' I know it’s just a machine, but it still feels good."*

The gamification-like elements of some generative AI interactions also supported engagement. [P105] wrote, *"I asked the AI to make a quiz for me with five levels. If I passed one, I moved to the next. It made learning exciting."* This sense of progress and reward, even when self-created, helped maintain interest.

Learners also noted how the tools’ adaptability kept them engaged. [P56] commented, *“if I ask a difficult question, it answers at a high level. But if I say, 'explain it like I’m 10,' it adjusts. That keeps me interested because I don’t get stuck or bored."* This adaptive responsiveness personalised the experience and helped learners stay in the optimal zone of challenge, where tasks are neither too hard nor too easy.

5.3.2 Building Consistent Habits and Emotional Resilience

Several learners described how the use of generative AI tools helped them build habits and routines. [P85] shared, *“it made me more consistent. I use it every day because it’s easy to open and start. Five minutes becomes 30 minutes because it keeps me engaged."* [P126] explained, *“when I used paper books, I stopped after 10 minutes. With AI, I don’t notice the time. I just keep going."*

Even the aesthetic and technical aspects of generative AI tools seemed to contribute to engagement. [P155] said, *"I like that I don’t have to wait or flip pages. Everything is there. It’s like chatting, not studying."*

Yet motivation and engagement were not entirely driven by novelty or entertainment. For many learners, it was the sense of progress and empowerment that sustained their efforts. [P141] wrote, *"I can see myself getting better. I look at my old texts and compare. The AI helped me fix mistakes I didn’t even notice before."* [P91] added, *"I feel more independent now. I don’t need someone to tell me what to do all the time. I can learn by myself and enjoy it."*.

The emotional dimension of engagement was also significant. Several participants perceptions described how generative AI reduced feelings of stress or overwhelm. [P46] explained, *“when I have too many assignments and feel stuck, I talk to the AI. It helps me plan or just gives me encouragement. I feel calmer after."* The tool thus acted as a motivational coach, helping learners regulate their emotions as well as their tasks.

Overall, the findings of this theme reveal that generative AI tools played a powerful role in amplifying learners’ motivation and engagement by offering interactive, responsive, and supportive learning experiences. Learners were drawn to the novelty of the technology, by the sense of dialogue, empowerment, and continuous feedback. The combination of instant responsiveness, judgment-free practice, adaptive support, and emotional encouragement created an environment in which learners reported feeling inspired to explore, persist, and take ownership of their language learning.

5.4 Aspirations for Advanced Functionalities in AI-Driven Language Learning

While generative AI tools have already provided a robust framework for language learning, many participants expressed clear and specific aspirations for more advanced functionalities that would better align with their needs, preferences, and real-world language use. This theme appears in 96 of the 167 responses (57.5%), reflecting frequent calls for more customised and responsive AI capabilities. Participants envisioned tools with enhanced contextual accuracy, multimodal support, and features such as pronunciation feedback, voice interaction, and cultural adaptation. These reflections reveal learners not only as users but also as critical evaluators and co-designers of their own learning experiences, actively imagining how these tools could evolve to better serve them.

This theme addresses Research Question 3, which examines how learners perceive the limitations and future potential of generative AI in language learning. It also relates to Research Question 4, which explores the conditions that support effective AI integration, as learners' aspirations reflect the improvements needed for more effective implementation. Within the integrated theoretical framework presented in Section 3.6

(Table 2), this theme aligns with the Supported Learning Environment dimension, which connects facilitating conditions (UTAUT-2) with relatedness and competence (SDT). Participants highlighted the need for technological improvements, institutional support, and adequate resources to enhance usability and reliability, signalling that the learning community values and enables AI integration. The theme also relates to the Perceived Efficacy dimension, linking performance expectancy (UTAUT-2) with competence (SDT), as learners' aspirations for advanced functionalities reflected their desire for AI tools that would better support their sense of competence, self-efficacy, and goal-oriented engagement. This integration illustrates how learners' expectations for improved AI capabilities are shaped by both contextual support needs and internal motivational drives for mastery and control.

5.4.1 Learner-Centred Visions for Generative AI Tool Evolution

A prominent aspiration was for generative AI tools to simulate real-life communicative contexts more effectively (n=52, 31.1% of participants). Many learners desired more immersive, scenario-based interactions that reflect authentic experiences. [P101] described, *"I wish it could look at me like I'm in a real conversation. For example, like I'm at a restaurant ordering food or doing an interview."* [P109] commented, *"I want it to play roles, like a job interviewer, and I respond like in real life. Then it gives me feedback on how natural or polite I was."* These reflections suggest a need for these AI tools to evolve to dynamic role-play environments where learners can practice functional language in situational contexts that involves gesture and body language evaluation.

Closely linked to this desire for advanced simulation was the aspiration for generative AI tools to offer more pragmatic and culturally aware language suggestions. Several learners remarked that while the tools were helpful for grammar and vocabulary, they sometimes lacked a sense of appropriateness. [P130] shared, *"I asked how to write an email to my professor, and it was correct, but too direct. I wanted it to sound more respectful."* [P167] reflected, *"it gives me words, but not the feeling. I need to know how to sound polite or formal in different situations."* Learners are looking for generative AI to bridge social and cultural dimensions of communication.

Many participants perceived that they wished for the tools to recognise their learning goals and track their progress over time (n=38, 22.8% of participants). [P147] explained, *"I want it to remember me. Like what I'm working on, what mistakes I often make, and what vocabulary I'm trying to learn."* Others echoed the desire for personalised learning journeys, where the tools evolve alongside them. [P87] wrote, *"it would be great if it gave me weekly challenges or reviewed what I learned last time. Not just start from zero every time."* These comments reveal a longing for more continuity and a sense of relationship with the generative AI tools, something akin to a personal tutor who instructs and also grows with the learner.

Learners also proposed ideas for interactive, multi-modal learning features. Some imagined generative AI tools integrated with speech recognition and pronunciation grading. [P64] noted, *"I want it to listen to how I pronounce words and tell me what sounds I need to fix, like a coach."* Others wished for tools that could respond to voice commands or even provide gestures or facial expressions for better comprehension. [P40] explained, *"if it could show expressions or gestures, it would help understand the tone and feeling of the sentence."* This aspiration indicates a desire for more embodied, visually enriched learning experiences that mirror human interaction.

The expectation for gamified and engaging formats also came through clearly. Learners suggested that generative AI tools could create interactive quizzes, language games, and even stories or adventures based on their interests. [P110] proposed, *"what if I say I like cooking, and it teaches me English using recipes and cooking shows?"* [P13] imagined, *"I want it to be like a language game, complete tasks, win points, and move to the next level."* These comments reflect a trend toward experiential, playful learning that sustains motivation through challenge and reward structures, especially valuable in self-paced environments.

Some learners envisioned tools that would function more like intelligent companions, ones that understand their moods, challenges, and personal learning habits. [P1] shared, *"sometimes I'm tired and want to do something light. It would be nice if the AI could ask me how I feel and suggest something easy or fun."* This level of emotional intelligence,

though aspirational, highlights how learners are beginning to see the generative AI tools as a resource and as a partner in their educational journeys, one that could adapt to their mental and emotional states.

5.4.2 Expectations for Personalisation, Feedback, and Cultural Sensitivity

There was also an emphasis on integrating generative AI tools with learners' daily lives and goals outside the classroom. Several learners wanted the tools to help with specific language functions like writing CVs, preparing presentations, or crafting formal emails. [P23] explained, *"I'm applying for a job. I asked the AI to help me write my CV in English, but I wish it gave examples or templates too."* Another added, *"it helped me write a speech, but I wish it could time it or tell me if I'm speaking too fast."* [P143]

Learners also hoped for more localised and bilingual functionalities. Some expressed a desire for tools that could switch seamlessly between English and their native language. [P52] said, *"sometimes I want to check something in my own language to be sure I understand. But switching languages is annoying. It would be better if it was equal power in multilanguages."* Others wanted culturally relevant examples: [P77] explained, *"if it used names, food, or places I know, it would feel more familiar and easier to connect."*

Some even proposed features that go beyond language and enter the domain of learning strategy. [P155] imagined, *"what if the AI could suggest how to study? Like tell me which grammar to focus on or how to make a study plan based on my level?"* [P122] echoed this: *"if it could say, 'you need to work on articles more' or 'your vocabulary is strong, but you need connectors,' that would be amazing."*

In all these aspirations, what stands out is learners' desire for generative AI tools that is more human-like, in responsiveness, memory, sensitivity, and contextual intelligence. Learners' suggestions reflect gaps in current functionality or/and training in available tools.

The findings of this theme suggest that learners are not only passive recipients of AI-generated content but active stakeholders with clear visions for what AI-powered education could become. Their aspirations point toward a future where generative AI tools are more adaptive, context-aware, emotionally intelligent, and culturally responsive, supporting language learning in ways that are functional and deeply human-centered.

5.5 Redefining Feedback as Conversation when Using GenAI Tools in EFL

One of the most transformative shifts experienced by learners in this study was in how they understood and interacted with feedback. Traditionally viewed as a top-down evaluative practice delivered by teachers, feedback in the AI-assisted learning context was reimagined as a two-way, learner-driven conversation that was both dynamic and responsive. This theme was identified in 148 of the 167 responses (88.6%), indicating strong adoption of dialogic and iterative feedback practices with AI. Participants consistently described how generative AI tools allowed them to move beyond the anxiety and rigidity often associated with correction, entering a space where feedback became a non-threatening, continuous, and reflective dialogue. This process enables learners to take greater ownership of their development by actively questioning, revising, and refining their language with AI as an interactive partner.

This theme primarily addresses Research Question 3, which investigates the factors shaping the adoption and integration of generative AI tools in educational settings. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Supported Learning Environment dimension, which connects facilitating conditions (UTAUT-2) with relatedness and competence (SDT). Institutional support, training, and adequate resources reinforced both social connectedness and learners' confidence in using the technology effectively, signalling that the learning community values and enables AI integration. The theme also relates to the Social Endorsement dimension, linking social influence (UTAUT-2) with relatedness (SDT), as guidance and endorsement from instructors and peers promoted a sense of belonging and social connection, motivating sustained AI use. This integration illustrates how external

institutional and social conditions work together with internal needs for belonging and competence to shape learners' willingness to adopt and persist with AI-assisted learning.

5.5.1 From One-Way Correction to Dialogic Interaction

Many learners spoke about the emotional ease of receiving feedback from these tools (n=78, 46.7% of participants). Without the presence of a human authority figure, they felt freer to ask questions, make mistakes, and try again. [P4] shared, *"when I get corrections from the AI, I don't feel nervous. I feel like I can learn quietly and fix my work by myself."* This shift in emotional tone played a critical role in reducing anxiety and opened up opportunities for self-correction and experimentation. [P25] expressed, *"if I don't understand something, I ask again and again. The AI doesn't judge me. It just answers."*

This recurring sense of safety enabled learners to engage more fully with the correction process. Feedback was no longer something they waited for after submitting a piece of work; it became an immediate and interactive process initiated by the learner. [P32] explained, *"I write a paragraph and ask the AI to check it. Then I change it and ask again. I keep doing this until it looks better."* This iterative process illustrates how learners indicated that they began to perceive feedback as a developmental tool embedded into the act of learning itself.

Learners also described how they used generative AI tools to clarify, question, and even challenge feedback, something they felt less comfortable doing with teachers. [P49] stated, *"sometimes I ask why the correction is needed. The AI gives an explanation, not just the answer. That helps me understand more."* This behaviour reflects a deeper engagement with the mechanics of language. Rather than blindly accepting corrections, students described beginning to develop an analytical mindset, treating feedback as a learning opportunity rather than a fixed outcome.

Several learners compared the immediacy of AI feedback with the delays they experienced in traditional classrooms (n=68, 40.7% of participants). [P58] remarked, *"usually we submit our writing and wait a few days. With AI, I know my mistakes in two*

seconds." This quick turnaround allowed for real-time adjustments and reinforces the connection between action and consequence, between linguistic choice and grammatical or stylistic correctness.

Beyond grammar and vocabulary, some participants also explored feedback related to tone, register, and cohesion. [P71] explained, *"when I write a formal email, I ask the AI: is it polite enough? Is it too direct? It tells me how to improve it."* The ability to receive feedback on details of communication, areas not always prioritized in traditional correction, expanded learners' understanding of effective language use.

5.5.2 Learner Autonomy through Iterative Feedback Loops

Learners described adapting their own learning strategies based on the responses they received (n=89, 53.3% of participants). [P111] said, *"if I keep making the same mistake and the AI corrects it every time, I realize it's a pattern. Then I focus on that grammar point more."* This feedback awareness fostered independent goal setting and helped students target their weaknesses more precisely.

Some learners even reported creating their own custom routines with generative AI tools, using them as simulated editors or writing coaches. [P124] explained, *"before I finish an assignment, I put it through the AI three times: once for grammar, once for style, and once to check the tone."* This multi-layered use of feedback shows a high level of learner autonomy and self-regulation; traits often associated with advanced language users.

While learners reported valuing AI feedback for its clarity and accessibility, many still acknowledged the continued importance of human feedback. [P152] said, *"the AI helps me fix things, but the teacher tells me how to think better. They are different, and I need both."* This distinction reflects a growing sophistication in how learners indicated that they viewed different types of feedback, AI as a tool for mechanical and immediate correction, and teachers as guides for broader critical thinking and nuance.

There were also moments of tension. A few learners described feeling overwhelmed by the amount of feedback the tools could provide. [P92] noted, *“sometimes I just want one answer, but the AI gives me five options. It’s too much."* Others struggled with knowing which feedback to trust when different tools or sources provided conflicting advice. [P83] shared, *"I get confused when the AI says one thing and a different tool says another."* These moments reveal that while generative AI feedback is rich and immediate, it still requires learner judgment and, at times, institutional support to interpret effectively.

Learners were reframing feedback as something they could initiate, shape, question, and learn from. The authority of correction shifted from external expert to collaborative interaction. [P167] summarised it succinctly: *“with AI, feedback is not something I receive, it’s something I do."*

This redefinition of feedback has important implications for both pedagogy and learner identity. By transforming correction into conversation, generative AI tools were perceived by learners as empowering them to become active participants in their own development. Participants’ accounts suggest an educational model where feedback is integrated into the learning process, not appended to the end of it.

5.6 Socio-Institutional Influences on GenAI Tool Adoption

Learners’ engagement with generative AI tools for English language acquisition did not occur in isolation; rather, it was deeply shaped by broader socio-institutional contexts, including the guidance of teachers, peer interactions, institutional infrastructure, and the prevailing cultural attitudes toward technology. These external influences played a crucial role in either facilitating or constraining learners’ ability and willingness to integrate generative AI tools into their daily learning practices. The findings from participants underscore the interdependence between individual motivation and the systemic support, or lack thereof, that determines the success of AI tool implementation in educational environments. This theme was identified in 163 of the 167 responses (97.6%), showing that almost all learners referred to institutional context and support as central to their experiences.

This theme primarily addresses Research Question 3, which investigates the factors shaping the adoption and integration of generative AI tools in educational settings. It also directly addresses Research Question 4, which examines the conditions that support effective integration of generative AI tools, as participants highlighted institutional accessibility, teacher endorsement, and peer attitudes as central to their engagement. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Supported Learning Environment dimension, which connects facilitating conditions (UTAUT-2) with relatedness and competence (SDT). Institutional support, training, and adequate resources reinforced both social connectedness and learners' confidence in using the technology effectively, signalling that the learning community values and enables AI integration. The theme also relates to the Social Endorsement dimension, linking social influence (UTAUT-2) with relatedness (SDT), as guidance and endorsement from instructors and peers promoted a sense of belonging and social connection, motivating sustained AI use. This integration illustrates how external institutional and social conditions work together with internal needs for belonging and competence to shape learners' willingness to adopt and persist with AI-assisted learning.

5.6.1 The Role of Teachers, Peers, & Academic Culture

One of the strongest influences cited by learners was the role of educators (n=124, 74.3% of participants). Participants frequently referred to how their instructors' attitudes, encouragement, or scepticism impacted their own perceptions of generative AI tools. Several learners explained that when their teachers introduced or recommended tools like ChatGPT or Copilot, they felt more confident experimenting with them. [P3] shared, *"my teacher showed us how to use the AI to check our grammar. After that, I started using it at home for other things too."* [P21] commented, *"when the teacher uses AI in class, it makes me feel like it's allowed and useful. Otherwise, I wouldn't try it because I think maybe it's cheating."*

The concept of generative AI tools as a legitimate learning aid, as opposed to a tool of academic dishonesty, was frequently mediated by institutional discourse. Students were keenly aware of the boundaries set by their instructors. [P164] remarked, *"sometimes I*

want to use AI to help with homework, but I'm scared the teacher will think I didn't do it myself." This uncertainty points to the need for clearer policies and educational guidelines regarding appropriate AI use. In the absence of structured dialogue or explicit guidance, learners often navigated this gray area with caution, unsure whether they were using technology as a resource or violating ethical expectations.

Peer influence also played a notable role (n=98, 58.7% of participants). Many learners were introduced to generative AI tools through friends or classmates who had already experimented with them before this study started. [P130] recounted, *"my friend used AI to prepare for math test. He said it helped a lot, so I tried it too."* [P107] added, *"we share prompts and ideas. Like, if someone finds a good way to ask the AI something, we tell each other."* These informal networks served as spaces of innovation and support, particularly in environments where institutional guidance was limited or inconsistent.

Some technological accessibility reflects broader socio-economic factors that influence digital learning outcomes. Even when generative AI tools are free to use, their practical accessibility depends on reliable devices, internet infrastructure, and digital literacy. Institutions that proactively address these gaps, by offering workshops, providing equipment, or embedding AI into the curriculum, can significantly increase the equity and reach of AI-supported learning.

Participants also highlighted the importance of structured integration of these tools into educational programs (n=87, 52.1% of participants). Several learners expressed a desire for formal training sessions, saying they would feel more comfortable and competent if they received step-by-step instruction. [P2] said, *"I wish our university had a session about how to use AI for learning, not just leave us to figure it out."* Others felt that when generative AI tools were used only informally or individually, its benefits were unevenly distributed. [P83] explained, *"some students use it a lot and improve faster, but others don't know it exists."*

5.6.2 Navigating Uncertainty, Equity, & Institutional Support

Institutional endorsement also influenced how students framed the value of generative AI tools in relation to their academic goals. Learners who were part of programs or classes that openly incorporated these tools spoke more positively and confidently about their experiences. [P33] shared, *"in my English class, the teacher asked us to write with the help of AI and then explain what we learned. That helped me see it as a learning tool, not just a shortcut."* Others noted that when AI was presented as a resource to supplement, not replace, learning, they were more inclined to engage with it productively.

Cultural context and national educational policy also shaped learners' receptiveness. A few students expressed concern about whether their use of these tools would be misunderstood by family members or elders. [P46] explained, *"my parents think AI is for cheating. They don't understand how it helps with studying."* These intergenerational perspectives reveal tensions between traditional views of education and emerging technological practices. In contexts where technology is not yet fully embedded into academic culture, learners may experience internal conflict or hesitation, despite their interest.

Another noteworthy theme was the moral and ethical uncertainty surrounding generative AI use (n=73, 43.7% of participants). Participants were aware of the growing debates about authorship, originality, and intellectual integrity. [P64] asked, *"sometimes I think, if I use AI to write a paragraph, is it really my work?"* These concerns were particularly pronounced when there was no institutional framework to address them. Learners expressed a desire for open discussions about how to use AI responsibly. [P4] said, *"I want to know where the line is. What is okay, and what is too much? We need rules that help us use AI the right way."*

This request for ethical guidance was often paired with calls for emotional support. Students noted that they felt more motivated and secure when they knew their institutions recognised their learning struggles and offered tools to address them. [P43] reflected, *"when the university gives us access to AI and encourages us to use it, I feel like they understand our challenges. It shows they care about making things easier."* This sense

of institutional empathy can play a powerful role in shaping learners' attitudes toward generative AI tools and learning itself.

Ultimately, the adoption and sustained use of generative AI tools in EFL learning were deeply tied to the broader socio-institutional ecosystems in which learners operated. Teachers, peers, administrators, and even families formed a network of influence that either empowered or discouraged engagement. The findings of this theme suggest that successful adoption depends the functionality of the tools themselves and also on the clarity, accessibility, and cultural acceptance fostered by the systems that surround learners. In supporting these tools use, institutions have the opportunity to enhance language learning and to cultivate a more inclusive, forward-thinking, and learner-centered approach to education as a whole.

5.7 Reframing the Learner Identity when Using GenAI

One of the shifts observed among participants was in how they began to perceive themselves as learners within the context of generative AI use. The adoption of these tools redefined the learner's role and agency in the learning process. As students described engaging with AI regularly and independently, their reflections revealed a transformation in self-concept, from passive recipients of instruction to autonomous, exploratory, and increasingly self-aware language users. This theme appears in 44 of the 167 responses (26.3%), with a subset of learners describing shifts in confidence, authorship, and study identity. The emergence of this theme suggests that sustained interaction with AI may contribute to the reconfiguration of what it means to "learn" a language in digitally mediated environments.

This theme primarily addresses Research Question 2, which examines how generative AI tools influence learners' motivation, engagement, and sense of self in the learning process. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Habitual Self-Regulation dimension, which connects habit (UTAUT-2) with internalisation linked to autonomy (SDT). Repeated, voluntary engagement evolved into self-regulated learning behaviour, reflecting autonomous

internalisation of AI use where external acceptance transformed into internal motivation. The theme also relates to the Enjoyment-Driven Autonomy dimension, linking hedonic motivation (UTAUT-2) with autonomy and intrinsic motivation (SDT), as enjoyment and curiosity derived from exploring AI tools fostered self-directed learning and a transformed sense of learner identity. This integration illustrates how repeated and pleasurable AI interactions work together with internal drives for autonomy and competence to reshape learners' self-perceptions from passive recipients to independent, confident language users.

5.7.1 Autonomy, Confidence, & Strategic Learning Behaviour

Many participants perspectives described a noticeable increase in self-initiative and independence (n=28, 16.8% of participants). Learners reported beginning seeking solutions on their own before asking for assistance from teachers or peers. [P114] shared, *“now when I don’t understand something, I ask the AI first. I try to fix it myself. Then if I still have problems, I ask the teacher."* This sense of responsibility for one’s own learning marked a departure from earlier reliance on structured classroom help. The AI tool functioned as a confidence-building scaffold that learners could lean on while gradually assuming more control.

Another participant reflected on how interacting with generative AI tools changed their approach to mistakes. [P4] explained, *“before, I was afraid to make errors. I waited for the teacher to check my work. But with the AI, I write, get feedback, and try again. I learn more because I’m not scared to fail."* This comment illustrates a mindset shift: learners indicated that they began to view errors as opportunities for improvement. The continuous, low-stakes feedback provided by AI encouraged experimentation, helping students move from a performance-oriented identity to a growth-oriented one.

Several learners noted that generative AI tools enabled them to set personal goals and track progress in ways that were not possible before. [P75] explained, *"I started writing a journal in English using AI. Every day I write something, ask the AI to correct it, and see how I improve over time."* This type of self-monitoring indicates a developing

metacognitive awareness as learners were actively evaluating their growth. They began to perceive themselves as strategists capable of shaping and managing their language learning journeys.

Learners also highlighted how their confidence grew as a result of repeated and autonomous engagement with the tools (n=23, 13.8% of participants). [P25] shared, *"when I use the AI regularly, I feel like I know more English. I can answer questions faster, write better, and understand more. I feel more like a language user, not just a student."* This shift from learner to user is significant. It suggests that learners described beginning to see themselves as individuals engaging with English in real-world contexts.

The flexible nature of these tools, available anytime and anywhere, also contributed to this redefined learner identity. Several participants described using them outside formal study hours, often as part of their daily routines. [P62] remarked, *"I use it before I sleep, or when I'm cooking. It's part of my life now, not just university."* In integrating AI into their personal time and space, learners no longer confined English learning to the classroom. They began to internalize language practice as part of their broader identity and lifestyle.

5.7.2 Language Learning Beyond the Classroom

The learner-AI interaction prompted reflective thinking. Some participants described talking to the tools to test their own thinking or understanding. [P7] said, *"sometimes I write an answer to a question, then ask the AI and compare. I like seeing where I'm right and where I need to change."* This kind of comparison fosters self-assessment and deeper cognitive engagement. Learners reported beginning to use these tools as a reflective tool to interrogate and refine their own thinking.

Learners also described a sense of ownership over their learning that was reinforced through these independent interactions. [P110] explained, *"when I learn something with the AI, it feels like I discovered it. I didn't just copy from the book or wait for the teacher. I did it."* This feeling of ownership, empowerment, and discovery marks an aspect of identity transformation; it moves the learner from dependency to self-direction.

Even the way learners talked about their relationship with English began to shift. For some, English was no longer just a subject or a university requirement. [P160] stated, *“English is something I use every day now, with AI. It’s like it became my second language more than before."* This evolving perception reflects how language, once compartmentalized within academic boundaries, became a lived and personalised medium through the daily use of these tools.

However, the shift in learner identity was not uniform. Some participants were still navigating the transition. A few described hesitations or inconsistencies in use, citing uncertainty or fear of doing things incorrectly. Yet even these accounts reflect an awareness of possibilities. [P121] shared, *"I know I can learn more if I use it more. I just need to find my way with it."* These comments suggest that the identity shift is unfolding over time, contingent on familiarity, support, and personal readiness.

5.8 Negotiating Trust & Critical Awareness in GenAI Use

While learners embraced generative AI tools as innovative and helpful companions in their language learning journey, their engagement was also marked by an evolving sense of caution, evaluation, and critical reflection. This was identified in 90 of the 167 responses (53.9%), revealing attention to issues of reliability, verification, and ethical use. Rather than accepting AI-generated responses as unquestionably accurate or authoritative, participants described an ongoing process of negotiation, balancing the usefulness of the tools with a growing awareness of their limitations and potential biases. This pattern illustrates a maturing relationship between learners and technology, where trust is continually reassessed through experience and reflection.

This theme primarily addresses Research Question 3, which explores the challenges, constraints, and evaluative processes surrounding learners' use of generative AI. It also relates to Research Question 4, which examines the conditions supporting effective integration, as learners identified the need for guidance, training, and ethical frameworks to navigate AI use responsibly. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Supported Learning Environment

dimension, which connects facilitating conditions (UTAUT-2) with relatedness and competence (SDT). Learners' confidence and caution were shaped by access to guidance, peer discussion, and institutional discourse on appropriate use, with adequate support signalling that the learning community values responsible AI integration. The theme also relates to the Accessible Mastery dimension, linking effort expectancy (UTAUT-2) with competence (SDT), as students indicated that they developed critical awareness and independent judgment in evaluating AI-generated content, reducing cognitive barriers and strengthening their sense of mastery over the technology. This integration illustrates how external guidance and internal drives for competence and autonomy work together to foster critical digital literacy, enabling learners to exercise agency and reflective control over their learning decisions.

5.8.1 Awareness of Limitations & Need for Human Validation

Despite the overwhelmingly positive perceptions of generative AI tools in enhancing English language learning, many participants encountered navigational and accessibility challenges that influenced the consistency and depth of their engagement. While these tools presented unprecedented opportunities for personalised and autonomous learning, they also surfaced barriers related to usability, comprehension, trust, digital literacy, and contextual appropriateness. Learners' accounts underscored the importance of recognizing these obstacles as critical factors in ensuring effective implementation.

A recurring issue in learners' reflections was the initial confusion and uncertainty about how to interact with the tools (n=34, 20.4% of participants). Many described a learning curve in understanding how to frame their prompts effectively or how to interpret the AI's responses. [P5] shared, *"At the beginning, I didn't even know what to ask. I wrote questions, but the answers were strange or not helpful."* This sense of disorientation often stemmed from unfamiliarity with the interface or from expectations that the tools would behave like a human teacher. [P32] echoed this by saying, *"sometimes I asked for help, and it gave me something too general or off topic. It took time to figure out how to ask better."*

The challenge of crafting precise and productive prompts was especially evident among learners with lower English proficiency. Some students described finding it difficult to clearly express their questions, which led to irrelevant or confusing responses. [P48] explained, *“if I don’t ask the question well, the answer is not useful. But I’m asking because I don’t know how. That’s the problem."* This paradox, where learners struggle to ask the right question because of the very language gap they are trying to overcome, emerged as a central accessibility issue.

A number of learners also commented on the complexity of some AI-generated responses. Although the tools were capable of tailoring language to user input, several participants reported feeling that the answers were occasionally too advanced or lacked appropriate simplification. [P10] noted, *“sometimes the answer has too many big words. I need simple English, but it doesn’t always do that."*

There were also concerns about the reliability and correctness of AI-generated content (n=43, 25.7% of participants). While many learners trusted the tools for grammar and vocabulary support, they expressed caution about using the tools' responses in academic or formal contexts. [P24] stated, *"I like using it for practice, but I don’t trust it 100%. Sometimes it gives wrong examples or uses strange expressions."* [P40] shared, *“one time I followed its advice, but my teacher said it was not natural. I felt embarrassed."* Such experiences reinforced a sense that while generative AI tools are helpful, they cannot fully replace human validation or expert feedback. Learners indicated that they began to develop strategies for cross-checking the generative AI’s responses, using dictionaries, grammar websites, or seeking confirmation from teachers. [P103] described, *“now I always double-check. I use AI first, then confirm with another source. I don’t want to depend on it blindly."*

Beyond language-related concerns, digital literacy emerged as a significant barrier for some participants. Although the majority were comfortable with basic device use, navigating the full functionality of generative AI tools, such as using specific commands, enabling speech features, or switching languages, was not always intuitive. [P71] admitted, *"I only use the simple chat. I know it can do more, but I don’t know how to use*

those options." [P99] noted, *"sometimes I want to use the voice tool, but I can't figure out how. I just leave it."*

These limitations suggest that learners' ability to benefit from AI tools depends on their language proficiency but also on their technological confidence. When technical frustrations accumulated, they occasionally led to disengagement. [P118] shared, *"it's too much trouble if I have to fix settings. I just stop using it."* This highlights the importance of intuitive design, guidance, and training.

Another obstacle identified was cognitive overload. Some learners described finding the generative AI's output to be dense or overwhelming. [P87] shared, *"when I ask for help, it gives too much information. I feel lost."* Rather than simplifying the learning process, excessive or unfiltered content sometimes discouraged users. [P132] described, *"I just wanted a quick answer, but it gave me a long explanation. I didn't know what to focus on."*

This feedback reflects the need for generative AI tools to better calibrate the amount of information provided based on the user's needs and preferences. While some learners reported appreciating detailed answers, others desired brief, digestible responses. The lack of customization in this regard limited the efficiency and effectiveness of AI-assisted learning.

Trust in AI also emerged as a nuanced issue. While some learners indicated that they developed strong confidence in the tools, others expressed scepticism, particularly when they encountered inconsistencies or errors. [P154] remarked, *"I asked the same question twice and got two different answers. I didn't know which one was correct."* This inconsistency, especially when not explained, undermined the reliability of the tool in learners' eyes.

There was an emotional dimension to these challenges. Some learners described feeling intimidated or frustrated when they could not get the tool to respond the way they expected. [P133] said, *"I felt stupid when I didn't know what to type."* Others worried that

they were misusing the tool. [P159] admitted, *"I don't know if I'm doing it right. Maybe I'm not using all the features, and I'm missing something important."*

These sentiments point to the importance of technical onboarding, emotional and motivational support. Learners benefit from reassurance that it is acceptable to learn through trial and error, and that generative AI tools are meant to support, not judge, their process. The absence of this kind of guidance can lead to discouragement or underuse of valuable features.

Some learners also identified limitations in the generative AI's contextual awareness. A few commented that the tools didn't always understand what they meant or gave responses that were technically correct but socially inappropriate. [P167] observed, *"I asked how to say something politely, and it gave me a sentence that sounded cold."* This suggests that learners expect cultural and pragmatic guidance in addition to grammar and vocabulary, an area where current tools may fall short.

Learners also identified ethical concerns around the use of generative AI tools, particularly in academic contexts (n=38, 22.8% of participants). Some worried about where to draw the line between assistance and dependence. [P70] asked, *"if I use the AI to write my whole paragraph, is that still my work?"* Others expressed unease about being perceived as dishonest. [P148] said, *"sometimes I feel guilty when I use AI too much. I don't want my teacher to think I didn't try."*

These concerns were heightened by the absence of clear institutional guidance. Participants noted that they were often unsure what was considered appropriate or acceptable. [P8] explained, *"nobody told us how much AI we can use. I want to learn, but I don't want to get in trouble."* In the absence of policy, learners reported developing their own informal rules, such as using generative AI only for first drafts or vocabulary suggestions, but not for final submissions.

5.8.2 Towards Critical Digital Literacy & Responsible Use

The ethical reflection extended to broader questions about authorship and originality. A few learners voiced worries about becoming overly reliant on these tools. [P116] said, *“sometimes I feel like my ideas are not mine anymore. The AI helps too much, and I don’t know what I actually learned."* [P118], *"I want to be able to write without help. I don’t want to forget how to do it myself."*

Despite these tensions, many learners indicated that they found empowerment in their growing ability to critique the tool itself (n=37, 22.2% of participants). [P115] observed, *"At first, I thought the AI was always right. Now I can see when it’s wrong or when it gives too much information. I use it, but I control it."* This evolution, from dependence to discernment, was often tied to increased exposure and experience. As learners became more familiar with how the tools functioned, they grew more confident in identifying what was useful and what was not.

This emerging critical awareness also influenced how learners framed their own responsibility in the learning process. [P72] explained, *“it’s my job to understand. The AI can help, but I need to decide if the help is good or not."* This sense of ownership reflects an important pedagogical shift; rather than surrendering judgment to the tools, learners described beginning to reassert their agency.

Some even adapted their usage strategies in response to this critical lens. Learners described using generative AI for brainstorming but writing independently afterward or comparing multiple AI responses before choosing which to follow. [P18] said, *"I don’t copy and paste. I read what it says, think about it, and then write my own version."*
The findings of this theme reveal a sophisticated and evolving learner relationship with generative AI tools; one marked by both trust and scrutiny. While generative AI tools initially inspired curiosity and excitement, learners gradually developed a more nuanced understanding of their capabilities and limitations. This negotiation of trust reflects a practical adaptation to new technology and a broader educational evolution. The development of critical digital literacy in an age where assistance is abundant, but discernment is essential. In navigating these tools, learners were absorbing content, and

they were learning how to question, evaluate, and take responsibility for their choices, skills that are indispensable far beyond the language classroom.

5.9 Collaborative Engagement & Motivation through GenAI Tools

Another theme emerging from the data, represented by 126 of the 167 responses (75.6%), was the motivational impact of collaborative engagement with generative AI tools. While much of the initial attention centred on individual interaction with AI, learners' accounts revealed that collaborative use, discussing prompts, sharing outputs, and jointly evaluating responses, enhanced not only motivation but also critical thinking, creativity, and reflective learning. Working together around AI transformed language learning from an individualised task into a dynamic, socially driven process, strengthening engagement through shared exploration and dialogue.

This theme addresses Research Question 2, which investigates how generative AI fosters motivation and engagement in language learning. It also relates to Research Question 3, which examines how peer attitudes impact engagement, as collaborative use and peer sharing of AI experiences significantly influenced learners' willingness to engage with these tools. Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Social Endorsement dimension, which connects social influence (UTAUT-2) with relatedness (SDT). Guidance and collaboration from peers promoted a sense of belonging and social connection, motivating sustained AI use as learners who felt socially supported were more likely to persist with AI-assisted learning. The theme also relates to the Enjoyment-Driven Autonomy dimension, linking hedonic motivation (UTAUT-2) with autonomy and intrinsic motivation (SDT), as collective enjoyment and curiosity derived from exploring AI tools together fostered self-directed, intrinsically motivated learning within an interactive community of practice. This integration illustrates how social collaboration and shared enjoyment work together with internal needs for relatedness and autonomy to amplify motivation and sustain meaningful engagement with language learning.

5.9.1 Peer Interaction & Shared Discovery through GenAI Tools

Participants consistently reported that using these tools in group settings fosters a sense of shared achievement and collective progress (n=73, 43.7% of participants). [P2] shared, *"collaborative work with AI fosters a sense of shared achievement,"* emphasizing how group use of generative AI built positive momentum. [P5] explained, *"collaboration with AI tools makes learning more fun. We use them to practice together, challenge each other, and explore different learning strategies"* transforming the tasks from solitary exercises into opportunities for interactive discovery and peer-supported growth.

Learners also noted that collaboration using generative AI tools helped stimulate critical thinking and broadened their perspectives. [P17] described, *"discussing AI-generated essays with others strengthens my critical thinking,"* while [P38] commented, *"AI collaboration teaches me to refine my thinking based on group feedback."* Through collaborative discussions, learners were exposed to different approaches to problem-solving, prompting deeper engagement with both AI-generated outputs and their own ideas.

The motivational boost derived from observing peers' approaches was another notable finding. [P8] reflected, *"seeing classmates' different approaches to AI responses keeps me curious,"* This sense of curiosity, sparked by observing diverse approaches to the same tools, was echoed across multiple responses. Watching others use generative AI tools creatively encouraged learners to experiment, adapt, and extend their own uses of the technology, reinforcing a growth-oriented learning mindset.

Collaborative use of generative AI tools helped learners overcome the sense of isolation often associated with autonomous digital learning. [P14] explained, *"using AI with others helps me feel like I'm not studying alone,"* and [P34] added, *"group projects involving AI tools make learning less lonely and more motivating."* By fostering a sense of community around generative AI-assisted tasks, learners reported being able to sustain motivation and create a supportive environment conducive to deeper engagement.

Feedback emerged as a central element of the collaborative generative AI usage experience (n=58, 34.7% of participants). [P44] stated, *"yes, talking about AI errors as a group helps me learn more deeply,"* highlighting how group review of AI-generated outputs provided immediate and varied feedback. [P23] emphasised, *"when working with others, AI tools provide a great platform for discussion and brainstorming. It makes learning more engaging and keeps me motivated."* These collaborative feedback loops appeared to enable learners to move beyond passive acceptance of generative AI outputs, engaging instead in collective evaluation and refinement.

Teamwork also fostered faster learning and reduced anxiety. [P43] shared, *"working with AI tools in groups helps me notice mistakes I often miss alone,"* and [P60] described, *"yes, teamwork and AI combined create a very engaging learning experience."* Students reported feeling less intimidated by errors and more willing to take risks when learning became a shared responsibility. [P77] noted, *"exchanging AI outputs with classmates increases my vocabulary faster,"* suggesting that collaborative generative AI use was perceived to accelerate both motivation and language development.

5.9.2 Tensions, Benefits, & the Value of Social Learning

The theme reveals some limitations and challenges associated with group generative AI use. [P30] expressed frustration that, *"sometimes group discussions about AI are off-topic and unhelpful,"* and [P36] commented, *"no, sometimes classmates depend too much on AI instead of thinking."* These observations underline the need for structured collaborative activities that maintain focus and encourage deeper cognitive engagement rather than surface-level reliance on generative AI outputs.

Some learners expressed concerns about group dynamics impacting the quality of AI-supported learning. [P53] shared, *"no, sometimes group work with AI slows me down because not everyone uses it efficiently."* Similarly, [P98] noted, *"sometimes group AI activities feel disorganised and slow down my learning."* These tensions suggest that the benefits of collaborative generative AI use depend heavily on the quality of peer interaction and the level of shared responsibility within the group.

Despite these challenges, the majority of participants described collaboration as enhancing their engagement and shaping a more positive learning experience. [P40] explained, *"it's easier to stay motivated when others are using AI tools and sharing their results,"* and [P70] emphasised, *"collaborative AI projects encourage a sense of shared progress."* These findings indicate that group activities that use generative AI tools have the potential to build resilience, persistence, and a stronger sense of belonging among learners.

Learners also pointed to the value of emotional and motivational support embedded within EFL collaborative generative AI tasks. [P130] stated, *"the group energy during AI exercises keeps learning exciting and motivating,"* and [P91] reflected, *"when I see how classmates use AI creatively, it inspires me to try new learning strategies."* The social dynamics of peer collaboration motivated learners to stay engaged and helped normalise mistakes and reduce fear of failure, two important factors in sustaining long-term language learning.

Several participants highlighted that collaborative work using generative AI made the learning experience more dynamic, lively, and creative. [P125] commented, *"collaborative learning with AI tools makes lessons feel faster and more dynamic,"* and [P120] shared, *"collaborating around AI-generated tasks keeps me involved and curious."* Learners reported viewing generative AI-enhanced collaboration as a catalyst for energizing classroom activities and making language practice more meaningful and enjoyable.

Some learners described an evolving identity as active co-constructors of knowledge rather than passive recipients. [P146] explained, *"working with peers using AI tools enhances my motivation. It gives me the opportunity to exchange ideas and refine my understanding through discussion."* This shift towards collaborative agency emphasises participation, co-creation, and critical engagement.

The findings of this theme suggest that collaborative use of generative AI tools significantly amplified learners' motivation, engagement, critical thinking, and social learning. While challenges remain, especially regarding peer coordination and critical use

of these tools, the overall impact of working with others was overwhelmingly positive. Collaborative generative AI tasks helped learners move beyond isolated practice into a socially and intellectually stimulating space where exploration, discussion, and shared progress defined the learning experience.

5.10 Institutional Support & Enhancements for GenAI Use in Language Learning

While learners demonstrated enthusiasm and autonomy in their engagement with generative AI tools, they also identified specific areas where institutional support could enhance the effectiveness, accessibility, and ethical use of these tools. This theme appears in 96 of the 167 responses (57.5%), with participants offering practical recommendations for institutional integration. This theme directly addresses Research Question 4, which asks: What conditions support the effective integration of generative AI tools in higher education English as a Foreign Language learning, and how do they shape student engagement and motivation? Within the integrated theoretical framework presented in Section 3.6 (Table 2), this theme aligns with the Supported Learning Environment dimension, which connects facilitating conditions (UTAUT-2) with relatedness and competence (SDT). Institutional support, training, and adequate resources reinforce both social connectedness and learners' confidence in using the technology effectively, signalling that the learning community values and enables AI integration. Participants offered practical, thoughtful recommendations for how universities could better integrate generative AI into the learning environments, highlighting a strong awareness of both the potential and the challenges associated with generative AI-supported education.

Learners emphasised that early and clear guidance would help them interact with generative AI tools more effectively (n=54, 32.3% of participants). [P1] proposed, *“creating tutorial videos that show both successes and common mistakes with AI would be educational,"* emphasizing the importance of visual and practical learning. [P4] recommended, *“the university should offer AI training programs to help students understand how to use tools like ChatGPT and Grammarly for writing, pronunciation, and grammar correction."* Participants also advocated for formal AI literacy courses to teach

students critical evaluation skills, as [P7] noted, *"providing comparative examples of AI writing drafts versus human edits would teach critical evaluation."*

Learners also called for dedicated spaces where they could deepen their AI knowledge. [P5] suggested, *"organizing 'AI for English' monthly seminars would keep students updated and engaged,"* while [P47] proposed, *"launching mini lectures on responsible and strategic AI use would build smarter learners."* These findings reflect a strong learner demand for ongoing, structured support rather than ad-hoc or incidental exposure.

Participants expressed a clear desire for generative AI tools to be embedded more systematically into the curriculum (n=48, 28.7% of participants). [P8] recommended, *"offering AI-integrated language learning courses would make students more familiar with these tools, helping them incorporate AI into their daily study routines."* Similarly, [P77] emphasised the importance of normalizing generative AI use: *"encouraging instructors to use AI tools in assignments would normalise them as part of the learning process."* Students proposed that integration into coursework would shift these tools from optional resources to essential components of language learning.

Learners also suggested practical strategies to support daily use. [P36] recommended, *"introducing AI-focused English clubs where members practice and explore new AI tools,"* and [P10] envisioned, *"creating AI-driven group project activities would promote collaboration and deeper language practice."* It is clear that students believed that confidence, engagement, and skill development would be significantly enhanced when using these tools under clear guidance.

Several learners emphasised the motivational potential of gamification in generative AI-supported learning. [P14] proposed, *"hosting AI-focused challenge weeks for example best essay, best prompt, would boost excitement around learning,"* while [P33] suggested, *"organizing a 'Prompt of the Week' challenge where students creatively engage AI tools."* [P67] added, *"building AI English learning leaderboards could gamify practice sessions."* Such initiatives were seen as ways to make generative AI learning more dynamic, competitive, and engaging, particularly in sustaining motivation over time.

Participants highlighted the value of personalised generative AI support to cater to diverse learning needs. [P34] recommended, *"introducing specialised AI study guides for different English proficiency levels would personalize support,"* while [P65] suggested, *"launching AI-powered diagnostic tests to identify weak language areas would personalize learning."* Personalised learning paths were perceived as essential to making these tools relevant, efficient, and meaningful for different types of learners.

The importance of individualized guidance was also emphasised. [P15] proposed, *"providing one-on-one AI learning consultations with educators could help students receive tailored advice on how to use AI effectively for their studies."* Learners saw personalised feedback as crucial in helping them refine their language use, avoid misuse, and maximise the tools' educational potential.

Ethical awareness and responsible use of generative AI tools were major concerns for learners. [P25] emphasised, *"including sample assignments demonstrating how to use AI properly would help students learn responsibly."* [P63] recommended, *"including prompt-crafting as a graded skill would encourage students to learn how to interact with AI wisely."* Participants recognised that without guidance, students risked over-relying on generative AI, misusing it, or failing to develop critical evaluation skills.

Students also suggested institutional measures to promote ethical AI literacy. [P103] proposed, *"providing specific guidelines on ethical AI use would prevent misuse and build trust,"* while [P127] advocated for, *"adding short optional modules about AI ethics and academic integrity to ensure responsible use."* These recommendations show a sophisticated learner understanding that successful AI integration requires not only technical proficiency but also a strong ethical framework.

A strong emphasis was placed on peer-led initiatives to enhance generative AI learning experiences. [P37] suggested, *"setting up a peer-sharing programme on AI learning tips would make students more confident using the tools,"* and [P110] proposed, *"creating a peer-learning programme where students can share their AI learning experiences and best practices."* Participants indicated that they valued the idea of collaborative learning

communities where students could learn from one another's experiences, mistakes, and innovations.

Building positive AI-centered communities was also seen as a way to lower barriers for new users. [P140] proposed, *"developing an AI mentorship programme where experienced students help newcomers navigate AI language tools."* These structures were envisioned as motivational and as mechanisms for building resilience and critical confidence in navigating generative AI resources.

Students recognised the need for practical infrastructural support to facilitate broader generative AI use. [P13] suggested, *"giving access to premium versions of popular AI tools free for students would boost usage,"* while [P45] proposed, *"offering free AI app subscriptions for students would encourage broader use."* Accessibility was framed in financial terms and in terms of technological and infrastructural support.

Learners also called for the creation of centralised support hubs for generative AI usability. [P80] recommended, *"launching an AI hotline or chat support system to provide quick help for AI questions,"* and [P130] proposed, *"building a centralised AI resource hub with grammar, vocabulary, and speaking tools."* Providing easy access to technical and academic support was seen as critical for democratizing these tool use across different learner profiles.

The suggestions made by learners reflect a deep and critical engagement with both the promises and limitations of generative AI tools. Participants envisioned a future where these tools are supplementary aids and integrated components of structured, ethical, personalised, and socially supported learning environments. Their feedback emphasises the need for training, ethical guidance, personalization, infrastructure, and community support. The findings of this theme point toward a model of AI-enhanced education that is proactive, learner-centered, and critically informed.

The subsequent chapter offers a critical interpretation of the findings within the context of the reviewed literature and the conceptual framework established earlier. Rather than

restating results, the chapter engages with theoretical constructs related to engagement, motivation, and learner agency, thereby positioning the findings within broader debates on technology-enhanced language learning.

5.11 Integrative Discussion of Key Findings

This section synthesizes the findings to directly address each research question, drawing connections across the thematic analysis presented in this chapter. While the findings are linked to the study's integrated theoretical framework (Section 3.6, Table 2), a comprehensive theoretical discussion and critical positioning of these findings within the broader literature is reserved for Chapter 6. This deliberate structuring allows the current chapter to maintain its empirical focus while the subsequent Discussion chapter engages more deeply with theoretical implications, contributions, and extensions.

5.11.1 Research Question 1: Engagement and Motivation through Generative AI

Research Question 1: In what ways do generative AI tools shape the engagement and motivation of higher education students in English as a Foreign Language learning?

The findings suggest that generative AI tools shaped engagement and motivation through multiple interconnected pathways. Theme 1: *Enhancement of Multidimensional English Language Competencies* (Section 5.2) demonstrates that learners described perceiving AI as a transformative learning partner capable of enhancing linguistic accuracy, comprehension, and productive skills. Participants reported improvements in writing (85.0%), grammar (70.7%), and vocabulary (58.1%), with AI's instant feedback and adaptive correction features contributing to sustained engagement. This aligns with the Perceived Efficacy

Theme 2: *Amplification of Motivation and Engagement through Interactive Learning Dynamics* (Section 5.3) further illustrates how AI interactions increased students' motivation, enjoyment, and willingness to engage beyond classroom settings. Identified in 89.2% of responses, this theme shows that conversational interactivity, immediacy of

feedback, and the absence of judgment reduced language anxiety and created a sense of partnership with the tool. This connects to the Enjoyment-Driven Autonomy dimension, where enjoyment and curiosity fostered self-directed, intrinsically motivated learning.

Theme 4: *Redefining Feedback as Conversation when Using Generative AI Tools in EFL* (Section 5.5) reveals how learners reported reimagining feedback as a two-way, learner-driven conversation. Identified in 88.6% of responses, participants described how AI allowed them to move beyond the anxiety associated with correction, entering a space where feedback became non-threatening, continuous, and reflective. This relates to the Accessible Mastery dimension, where the perceived ease of AI feedback supported learners' confidence and enabled skill development through iterative dialogue.

Together, these findings indicate that generative AI tools shape engagement and motivation by providing immediate, personalised, and judgment-free support that satisfies learners' needs for competence, autonomy, and enjoyment.

5.11.2 Research Question 2: Usability, Accessibility, and Their Influence on Engagement

Research Question 2: How do students' experiences with the usability and accessibility of generative AI tools influence their engagement and motivation in learning English as a Foreign Language?

The findings demonstrate that usability and accessibility significantly influenced learners' engagement and motivation. Theme 3: *Aspirations for Advanced Functionalities in AI-Driven Language Learning* (Section 5.4) captured learners' desires for more customised and responsive AI capabilities. Appearing in 57.5% of responses appeared appeared,

Theme 7: *Negotiating Trust and Critical Awareness in Generative AI Use* (Section 5.8) reveals that 53.9% of learners indicated that they attended to issues of reliability, verification, and ethical use. Participants described challenges including initial confusion about how to interact with tools (20.4%), concerns about reliability and correctness (25.7%), and cognitive overload from excessive information. These usability barriers

sometimes lead to disengagement, highlighting the importance of intuitive design, guidance, and training. This connects to the Accessible Mastery dimension, where ease of use directly supports learners' confidence and reduces barriers to skill development.

Theme 6: *Reframing the Learner Identity when Using Generative AI* (Section 5.7) shows that when usability barriers were overcome, learners described experiencing transformations in self-concept. Appearing in 26.3% of responses, participants described increased self-initiative, independence, and confidence as a result of accessible AI interactions. The flexible nature of these tools, available anytime and anywhere, contributed to this redefined learner identity. This relates to the Habitual Self-Regulation dimension, where repeated, voluntary engagement evolved into self-regulated learning behaviour.

These findings indicate that usability and accessibility act as critical mediators of engagement. When AI tools are perceived as easy to use and reliable, learners experience reduced anxiety, increased confidence, and sustained motivation. Conversely, usability challenges can undermine engagement and limit the transformative potential of AI-assisted learning.

5.11.3 Research Question 3: Peer and Instructor Attitudes

Research Question 3: How do peer and instructor attitudes toward generative AI tools impact students' engagement and motivation in English as a Foreign Language learning?

The findings reveal that peer and instructor attitudes played a crucial role in shaping learners' engagement with generative AI tools. Theme 5: *Socio-Institutional Influences on Generative AI Tool Adoption* (Section 5.6) was identified in 97.6% of responses, showing that almost all learners referred to social and institutional context as central to their experiences. The role of educators was the strongest influence cited (74.3%), with participants explaining that when teachers introduced or recommended AI tools, they felt more confident experimenting with them. Peer influence was also notable (58.7%), with many learners introduced to AI tools through friends or classmates.

This theme aligns with the Social Endorsement dimension of the integrated framework, where guidance and endorsement from instructors or peers promote a sense of belonging and social connection, motivating sustained AI use. Learners who felt socially supported were more likely to persist with AI-assisted learning.

Theme 8: *Collaborative Engagement and Motivation through GenAI Tools* (Section 5.9) further demonstrates the motivational impact of peer collaboration. Appearing in 75.6% of responses, participants reported that collaborative use, discussing prompts, sharing outputs, and jointly evaluating responses, enhanced motivation, critical thinking, and reflective learning. Working together around AI transformed language learning from an individualised task into a dynamic, socially driven process. This connects to both the Social Endorsement dimension and the Enjoyment-Driven Autonomy dimension, as collaboration and collective enjoyment reinforced learners' sustained interest in AI-mediated tasks.

These findings indicate that positive attitudes from teachers and peers create an enabling environment that legitimises AI use, reduces uncertainty, and fosters a sense of community. Conversely, the absence of clear guidance or negative attitudes can create hesitation and limit engagement.

5.11.4 Research Question 4: Conditions Supporting Effective Integration

Research Question 4: What conditions support the effective integration of generative AI tools in higher education English as a Foreign Language learning, and how do they shape student engagement and motivation?

The findings identify several key conditions that support effective AI integration. Theme 5: *Socio-Institutional Influences on Generative AI Tool Adoption* (Section 5.6) highlights the importance of structured integration into educational programmes (52.1%), with learners expressing desire for formal training sessions and step-by-step instruction. Participants also identified moral and ethical uncertainty (43.7%) as a barrier, requesting clear policies and guidelines regarding appropriate AI use. This aligns with the Supported

Learning Environment dimension, where institutional support and training reinforce both social connectedness and learners' confidence in using the technology effectively.

Theme 9: *Institutional Support and Enhancements for GenAI Use in Language Learning* (Section 5.10) appeared in 57.5% of responses, with participants offering practical recommendations for institutional integration. Learners emphasised early and clear guidance (32.3%), systematic curriculum embedding (28.7%), and personalised support for diverse learning needs. Participants also called for ethical awareness training, peer-led initiatives, and infrastructural support including access to premium AI tools and centralised resource hubs.

Theme 7: *Negotiating Trust and Critical Awareness in Generative AI Use* (Section 5.8) reveals that learners reported developing critical digital literacy when supported appropriately. Despite encountering AI limitations and inconsistencies, 22.2% of participants indicated that they found empowerment in their growing ability to critique the tool itself, evolving from dependence to discernment through increased exposure and experience.

These findings indicate that effective integration requires a multi-layered approach encompassing: (1) clear institutional policies on ethical AI use, (2) structured training and onboarding, (3) curriculum-embedded AI activities, (4) technical infrastructure and equitable access, (5) peer support networks and collaborative learning opportunities, and (6) ongoing guidance that develops critical digital literacy. When these conditions are met, learners experience enhanced engagement, sustained motivation, and the development of autonomous, critically aware learning behaviours.

Taken together, the findings portray generative AI as a complex, multidimensional mediator of language learning that operates across cognitive, motivational, and contextual layers. Learners described perceiving tangible linguistic benefits, deepened motivation, and enhanced autonomy, yet their engagement was also shaped by usability, social endorsement, and institutional affordances. The interaction between the integrated dimensions of the theoretical framework reveals that technological acceptance and

psychological fulfilment are mutually reinforcing. When AI satisfies learners' needs for competence, autonomy, and relatedness, its perceived usefulness and adoption likelihood increases correspondingly.

The subsequent Discussion Chapter extends these findings by critically interpreting their implications for theory, pedagogy, and future research, situating generative AI within a broader discourse on sustainable and human-centred language education.

Chapter 6: Discussion

This chapter offers an interpretation of the study's findings in light of the theoretical framework that shaped its design: the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) (Venkatesh et al., 2012) and Self-Determination Theory (SDT) (Deci & Ryan, 2000). By engaging with these frameworks, the chapter examines how higher education English as a Foreign Language (EFL) learners' interaction with generative AI tools reveal complex, and at times contradictory, relationships between engagement, motivation, feedback, autonomy, and institutional support.

The findings presented in Chapter 5 illustrate that generative AI tools acted as both facilitators of language skill development and as agents of change in learners' self-perception, behaviour, and strategy use. However, these outcomes cannot be fully understood without situating them within the theoretical lens adopted in this study. UTAUT-2 provides an account of technology acceptance driven by constructs such as performance expectancy, effort expectancy, hedonic motivation, social influence, and habit, all of which were reflected in learners' responses. For example, learners' enjoyment and voluntary engagement with generative AI tools point to the central role of *hedonic motivation* in sustaining use (Venkatesh et al., 2012), while the ease of use and adaptive features reflect *effort expectancy* and *performance expectancy* as predictors of continued engagement. These findings align with previous research demonstrating that perceived usefulness mediates the relationship between ease of use and learners' attitudes toward AI tools in EFL contexts (Liu & Ma, 2023), and that expectancy beliefs significantly predict learners' intentions to adopt and sustain use of AI-powered platforms (Cai et al., 2024).

Yet UTAUT-2 on its own cannot sufficiently account for the deeper psychological transformations reported by learners, particularly those involving autonomy, identity, and internal motivation. The integration of Self-Determination Theory (Deci & Ryan, 2000) allows a more nuanced understanding of how generative AI tools support external goal attainment and also promote the fulfilment of the psychological needs of *autonomy*, *competence*, and *relatedness*. Learners' descriptions of their evolving habits, independent task revision, and increased confidence when receiving feedback from generative AI tools reflect behavioural change and also the internalisation of learning

responsibility, a core mechanism of intrinsic motivation as defined within SDT (Noels et al., 2002).

As the findings reveal, the use of generative AI tools initiated a redefinition of feedback as a learner-initiated dialogue rather than a top-down evaluative mechanism. This shift underscores the learner's transition from passive recipient to active agent, a transformation not fully captured by technology acceptance models but central to motivational theories such as SDT. For example, students' iterative use of generative AI to explore alternative expressions, challenge AI-generated outputs, and select context-appropriate language points toward a higher-order engagement where competence is not imposed but constructed through interaction. These patterns reaffirm the relevance of *competence* and *autonomy* in sustaining deep learning (Deci & Ryan, 2008).

The discussion proceeds by interpreting each theme through this theoretical lens, interrogating where the findings affirm, extend, or challenge the assumptions of UTAUT-2 and SDT. While UTAUT-2 explains how learners *approach* this technology, SDT helps to understand *what sustains* their use and *how learners evolve* through these engagements. The intersection of these insights ultimately leads to a refined conceptual framework that captures both the behavioural and motivational dimensions of generative AI tool integration in higher education EFL learning.

6.1 Interpreting Learner Engagement through UTAUT-2 & SDT

The integration of UTAUT-2 and SDT offers a multidimensional view of learners' interactions with generative AI, where practical utility and psychological fulfilment coalesce (Venkatesh et al., 2012; Deci & Ryan, 2000). The Literature Review established that engagement in technology-integrated EFL learning is multidimensional, encompassing behavioural, cognitive, and emotional components that interact dynamically (Rintaningrum, 2023; Wei, 2022; Altwijri & Alghizzi, 2024). This study's findings both confirm and extend that characterisation. Learner engagement was not reducible to surface-level adoption or isolated instances of use. Instead, it manifested as sustained, reflective, and strategic involvement with generative AI, challenging traditional

interpretations of user behaviour in educational technology research and demonstrating that engagement, when theorised through the combined lens of UTAUT-2 and SDT, reveals layers of interaction that neither framework captures independently.

From the standpoint of UTAUT-2, constructs such as performance expectancy, hedonic motivation, effort expectancy, social influence, and facilitating conditions help frame learners' initial and ongoing interactions with generative AI tools (Venkatesh et al., 2012). However, these behavioural constructs alone proved insufficient to explain the internalised and often transformative experiences reported by learners. This limitation mirrors what Wang et al. (2025) and Zaim et al. (2024) demonstrated in their studies of AI acceptance among EFL learners and lecturers: behavioural intention to use technology is strongly predicted by UTAUT constructs, yet the quality and depth of engagement that follows adoption require a complementary motivational lens. Here, SDT's dimensions of autonomy, competence, and relatedness provide that deeper interpretive framework.

Performance expectancy was evident in learners' acknowledgement of the tool's utility for tasks such as grammar correction, vocabulary development, and writing enhancement, and also in the strategic ways in which they integrated generative AI into their personal learning routines. As reported in Chapter 5, the most frequently cited area of use was writing and grammar, with 85% of participants describing improvements in sentence structure, transitions, and clarity. This suggests that performance expectancy must be understood not merely as perceived usefulness, but as a dynamically negotiated belief grounded in iterative experimentation and feedback cycles. This mirrors how Venkatesh et al. (2012) conceptualised performance expectancy as the strongest predictor of behavioural intention, particularly in voluntary usage contexts. Critically, the Literature Review documented that perceived usefulness consolidates when learners cycle between drafting and review, and that expectancy beliefs are not static but evolve as learners gain experience with the technology (Cai et al., 2024; Wang et al., 2025; Wang & Xue, 2024).

The present findings confirm this: learners did not adopt the tools blindly but formed nuanced judgments about when and how generative AI was most effective for their needs, pointing to a reframing of performance expectancy as an evolving construct shaped through sustained interaction rather than static expectation. This pattern closely resembles what Liu and Ma (2023) observed in their UTAUT-based study of ChatGPT use in informal EFL settings, where perceived usefulness mediated the relationship between ease of use and sustained learning attitudes.

Hedonic motivation played a vital role, but not simply as enjoyment in the conventional sense. It operated through a sense of intellectual stimulation, curiosity, and cognitive play. As evidenced in Section 5.3, the voluntary and often prolonged use of generative AI indicates that affective engagement was intrinsic to learner behaviour. Wei's (2022) comprehensive review demonstrated that interactive technology tools enhance intrinsic motivation by fostering autonomy, competence, and relatedness, the three psychological needs central to SDT. The present findings substantiate this claim: learners' enjoyment was not tied to novelty or gamification but to the cognitive satisfaction of exploring language, testing hypotheses, and receiving immediate responses in a low-stakes environment. This further aligns with SDT's notion of autonomous motivation, where the satisfaction derived from using the tool is not tied to external rewards but to the learner's internal drive to explore, create, and refine language (Deci & Ryan, 2000). Thus, hedonic motivation should be seen as functionally linked to SDT's concept of autonomy, with both constructs reinforcing each other to sustain engagement. Annishah et al.'s (2025) systematic review of technology and motivation in EFL classrooms found that visual-based tools and interactive platforms generally enhance motivation through enjoyment and curiosity, but cautioned that such gains depend on design quality, a finding that resonates with the present study's observation that enjoyment was most consistently reported when learners reported experiencing genuine intellectual challenge rather than passive tool consumption.

Similarly, Wang and Wang (2025) found that enjoyment enables continued intention to use AI tools while anxiety impairs it, particularly in lower-proficiency cohorts, underscoring

the importance of the affect-safe, non-judgmental interaction that participants in this study repeatedly described. Effort expectancy, while initially relevant in shaping early user perceptions, diminished in explanatory power as learners indicated that they developed fluency in prompt design and tool navigation.

This developmental trajectory suggests that effort expectancy is temporally bounded and that its role becomes subordinate to competence and strategic control over time. This finding is consistent with Zaim et al.'s (2024) discovery that effort expectancy had no significant effect on behavioural intention among Indonesian EFL lecturers who were already familiar with generative AI, suggesting that once a threshold of familiarity is crossed, perceived ease of use ceases to be a meaningful predictor of continued engagement. SDT provides a stronger explanatory model for this shift. As learners described gaining confidence and experienced mastery through repeated use, their sense of competence grew (Deci & Ryan, 2000). This perceived competence was an affirmation that reinforces further engagement. The decline in perceived effort thus signals not just familiarity, but an internalisation of tool-mediated learning as an extension of self-regulated practice.

However, the Literature Review also documented risks associated with this transition. Waluyo and Kusumastuti (2024) reported an engagement-outcome disconnect in Thai EFL contexts where high levels of behavioural engagement with ChatGPT did not translate into improved writing performance because learners' interactions remained cognitively shallow. Similarly, Xu and Jumaat (2024) and Fang and Han (2025) cautioned that when assessment criteria reward polished output over process-oriented evidence of revision and reasoning, learners may adopt efficiency-oriented strategies that bypass reflective engagement. These warnings from the literature are significant because they highlight that the decline in effort expectancy observed in this study must be accompanied by the development of evaluative judgment if it is to support genuine learning rather than superficial tool dependence.

Social influence emerged in complex ways. It was not merely the presence of peers or instructors that guided engagement, but the negotiated meanings around legitimacy, appropriateness, and innovation. Learners were not passive recipients of normative pressure; they actively evaluated and reinterpreted the social cues they encountered. This selective uptake of social influence resonates with SDT's emphasis on relatedness, not in the sense of conformity, but as a context for shared meaning-making (Deci & Ryan, 2000).

When learners discussed generative AI use with peers, it was less about validation and more about co-construction of knowledge and comparison of strategies. This finding extends what the Literature Review established about social influence in technology-integrated EFL learning. Wang et al. (2025) and Zaim et al. (2024) demonstrated that learners' perceptions of whether their peers and instructors value and endorse technology use significantly predict their own motivation to engage with digital tools. Liu et al. (2024) found that social influence was particularly salient in collectivist cultural contexts, where social norms and group expectations carry substantial weight. In the present study, situated within a Bahraini higher education context, social influence operated not as a directive force but as a contextual cue, signalling what was possible or acceptable in the learning environment. Importantly, when instructors communicated clear boundaries and demonstrated how the tools could be used ethically and effectively, learners reported feeling empowered to explore, a pattern consistent with Fang and Han's (2025) finding that instructor modelling of reflective technology use promotes similar practices among students. Conversely, where institutional signals were ambiguous or implicitly negative, learners hesitated or used the tools covertly, consistent with Rintaningrum's (2023) observation that technology positioned as optional or peripheral leads to diminished motivation.

Facilitating conditions played a dual role. While UTAUT-2 defines these as infrastructural or institutional supports (Venkatesh et al., 2012), this study indicates that the psychological clarity around ethical and appropriate use was equally important. A lack of guidance or institutional positioning created hesitancy and cognitive dissonance for some

learners. SDT offers a more robust interpretation here: autonomy is undermined when learners operate under unclear boundaries (Deci & Ryan, 2000). Thus, facilitating conditions should provide access and also affirm learner agency through explicit norms and supportive environments. Without this, learners may adopt the tools but remain ambivalent or restrained in their use. This echoes findings from the Literature Review that assessment alignment and policy clarity are critical institutional signals. Rintaningrum (2023) and Pan et al. (2025) showed that when assessment criteria reward reasoning, revision decisions, and reflective engagement, social norms cohere around principled technology use, whereas product-focused assessment regimes incentivise uncritical acceptance of AI output. Alrayes et al. (2024) similarly found that clear, consistent institutional policies reduce uncertainty and support coherent integration, while ambiguous or absent policies lead to fragmented adoption. In the present study, the absence of explicit institutional guidelines did not prevent use altogether but introduced hesitation, selective use, and reduced confidence, particularly in formal learning contexts. These observations reinforce the argument that facilitating conditions must be reconceptualised beyond infrastructure to encompass the broader ecology of norms, policies, and pedagogical frameworks that legitimate and guide learner engagement with emerging technologies.

The convergence of UTAUT-2 and SDT in this study reveals that behavioural constructs like performance expectancy and social influence gain explanatory depth when understood in relation to motivational fulfilment (Deci & Ryan, 2000). Learners were not merely reacting to the affordances of generative AI; they were appropriating these affordances to serve their own trajectories of growth, confidence, and identity formation. The adoption of generative AI was embedded within broader patterns of self-determined behaviour, where competence and autonomy were not outcomes but drivers.

Methodologically, this interpretation is supported by the Literature Review's call for triangulating perceptual data with process-level indicators such as learning logs, revision histories, and interaction traces, to distinguish transient enthusiasm from durable self-regulation (An et al., 2021; Al-Smadi et al., 2025). Al-Smadi et al. (2025) demonstrated

that high-achieving EFL students exhibit significantly greater cognitive and metacognitive engagement with AI tools than their lower-achieving peers, using them strategically for planning, monitoring, and evaluating their work. The present study's qualitative data offer a complementary perspective, revealing the motivational mechanisms through which such strategic engagement develops. It is when learners experience both the practical utility promised by UTAUT-2's performance expectancy and the psychological satisfaction of competence and autonomy described by SDT that engagement becomes truly self-sustaining.

This reframing of learner engagement presents a continuum of interaction where generative AI functions as both a technological mediator and a psychological enabler. It also points to a need for educational technology research to move beyond usage statistics and explore the internal processes through which learners integrate tools into their evolving academic identities. The theoretical lens applied here allows for such depth, demonstrating that generative AI engagement is as much about learner becoming as it is about learner doing.

UTAUT-2 helps elucidate the functional and social dimensions of generative AI use, while SDT captures the motivational and developmental undercurrents that sustain it. The interplay between these models reveals that generative AI engagement is most meaningful when it activates core psychological needs while aligning with practical goals. Learners' behaviour in this study was neither passive adoption nor uncritical enthusiasm; it was a complex negotiation between technological possibilities and personal agency, structured by institutional affordances and internalised through motivational alignment.

6.2 Language Competency Gains & Performance Expectations

The development of multidimensional language competencies through the use of generative AI tools was one of the most recurrent and substantial findings in this study. As reported in Section 5.2, this theme was identified in 158 of the 167 responses (94.6%), with writing improvement the most frequently cited benefit (85.0%), followed by grammar

support (70.7%) and vocabulary expansion (58.1%). Learners consistently described how these tools enhanced their writing, grammar, vocabulary, reading comprehension, and, to a lesser extent, speaking and listening. When interpreted through the lens of UTAUT-2 and SDT, these enhancements reveal a complex interplay between learners' performance expectations, evolving competence, and emerging self-regulatory behaviours. The Literature Review established that durable improvement in technology-integrated EFL learning typically follows iterative, feedback-rich activity rather than passive tool exposure (Altwijri & Alghizzi, 2024; Cai et al., 2024), and that engagement is sustained through visible gains rather than novelty alone (Wang et al., 2025). The present pattern aligns with that mechanism and directly informs RQ1 by demonstrating how learners' observable skill development reinforced continued, purposeful use of generative AI tools.

From the UTAUT-2 perspective, performance expectancy, the belief that technology will help one attain gains in performance, was strongly evident, but it operated in a manner more dynamic than Venkatesh et al.'s (2012) original conceptualisation suggests. Learners did not merely perceive generative AI tools as useful in the abstract; they used them strategically to improve specific aspects of their linguistic output, describing how tools like ChatGPT and Gemini helped them organise ideas, revise grammar, and enrich vocabulary. These behaviours reflect more than convenience; they indicate a deliberate investment of effort aligned with the expectation of better outcomes, a central tenet of UTAUT-2's predictive model of behavioural intention (Venkatesh et al., 2012). The Literature Review's discussion of integration as a process (Section 2.6) established that perceived usefulness consolidates when learners cycle between drafting and review, and that expectancy beliefs evolve as learners gain experience with the technology rather than remaining static pre-adoption judgments (Cai et al., 2024; Wang et al., 2025; Wang & Xue, 2024). Liu and Ma (2023) demonstrated that in informal EFL learning settings, perceived usefulness mediated the relationship between ease of use and learners' sustained attitudes toward ChatGPT, a pattern mirrored in the present data where learners' initial curiosity progressively gave way to strategic, goal-directed use. What the present study adds is evidence that this consolidation occurs through skill-specific feedback cycles: learners formed nuanced judgments about when and how generative AI

was most effective for different language domains, reframing performance expectancy as a construct that matures through iterative practice. This finding clarifies RQ2 by showing how ease-of-use cues evolved into purposeful, evaluative routines.

However, performance expectancy was not uniformly experienced across all skills. Writing, the most frequently cited domain of improvement, offers the clearest illustration of how performance expectancy and competence development became mutually reinforcing. As detailed in Section 5.2.1, learners treated generative AI tools as accessible writing coaches, engaging with feedback in iterative cycles rather than using them passively. They repeatedly rephrased, asked for clarification, and integrated suggestions selectively, signalling a deeper engagement with written form that went beyond surface-level editing.

These behaviours echo Zhang, Zou and Cheng's (2024) finding, discussed in the Literature Review, that chatbot-based learning environments promoting personalised feedback and interactive practice significantly increased EFL students' enthusiasm and confidence. However, the present study extends this by revealing the mechanism through which such gains occur: the prompt-explain-revise loops reported in Section 5.5.2 fostered not just surface correction but rule awareness and self-correction capacity. The Literature Review's discussion of reflection and metacognition (Section 2.5) established that scaffolded reflection, such as asking students to justify revisions or compare AI suggestions with their own drafts, is essential for converting AI feedback into transferable understanding (Alnemrat et al., 2025; Teng, 2024). The present data suggest that many participants spontaneously developed analogous evaluative behaviours, engaging in precisely the kind of metacognitive processing that Guo and Li (2024) identified as critical for transforming AI tools from passive output generators into interactive partners that scaffold reflective thinking. This iterative grammar and writing coaching thus represent a form of engagement where performance expectancy and competence development become mutually reinforcing, directly advancing RQ1.

Grammar development, cited by 70.7% of participants, followed a similar trajectory. As reported in Section 5.2.1, learners described how AI tools functioned not merely as error detectors but as dialogic partners that explained underlying rules and provided contextualised examples. This metalinguistic scaffolding enabled learners to begin internalising grammatical principles rather than simply accepting corrections. The Literature Review documented that AI tools can enhance metacognitive strategies such as planning, monitoring, and evaluating when learners engage with structured prompts focusing on reflective criteria (Al-Smadi et al., 2025; Alnemrat et al., 2025). While the participants in this study did not receive formal prompt training, their spontaneous development of interrogative prompting strategies**,** asking why corrections were needed rather than simply accepting them**,** mirrors the structured revision protocols that Guo and Li (2024) found effective in promoting metacognitive awareness. Notably, Alnemrat et al. (2025) cautioned that learners may interact passively with AI feedback, often accepting suggestions without critical evaluation, raising concerns about surface-level revision and reduced metacognitive engagement. The present findings suggest that the conversational affordance of generative AI tools may naturally scaffold the kind of noticing and evaluative behaviour that the literature identifies as essential for deep learning, provided learners approach the interaction with curiosity rather than compliance.

Vocabulary development followed a distinctly personalised path that illuminates the intersection of performance expectancy and autonomy. As detailed in Section 5.2.1, learners reported using generative AI to explore synonyms, phrasal verbs, and topic-specific terminology, often adapting tools for thematic learning by requesting vocabulary related to their own interests or academic contexts. This self-direction suggests that performance expectancy extended beyond general improvement to task-specific and goal-oriented enhancements. The tools were not viewed as static resources but as responsive collaborators whose perceived utility increased as learners indicated that they developed their prompt formulation skills. Wei's (2022) comprehensive review demonstrated that interactive technology tools enhance intrinsic motivation by fostering autonomy, competence, and relatedness, and the present data substantiate this claim at the micro-level of vocabulary acquisition: learners' ability to choose their own topics, set the level of difficulty, and direct the nature of AI output exemplifies autonomy-supportive

conditions that the Literature Review identified as critical for sustained motivation (Altwijri & Alghizzi, 2024; Rintaningrum, 2023). From an SDT perspective, this learner-initiated vocabulary work represents a case where autonomy shaped the quality of engagement rather than merely its frequency (Deci & Ryan, 2000; Noels et al., 2002), with learners pursuing linguistic knowledge that felt personally relevant and contextually meaningful.

Reading comprehension was another domain where performance expectancy was realised, albeit in a scaffolded form that deserves careful theoretical interpretation. As reported in Section 5.2.1, learners did not expect generative AI to teach reading directly but relied on it to mediate complex texts by requesting simplified explanations, seeking clarifications of main ideas, and cross-checking their own interpretations against AI-generated summaries. These practices highlight a nuanced form of performance expectancy: not expecting the tool to replace comprehension, but to augment and validate it (Venkatesh et al., 2012). This augmentation-rather-than-substitution stance is significant because the Literature Review documented a persistent risk of overreliance in GenAI-mediated learning. Waluyo and Kusumastuti (2024) reported an engagement-outcome disconnect where high levels of behavioural engagement with ChatGPT did not translate into improved writing performance because learners' interactions remained cognitively shallow. The reading comprehension practices observed in this study suggest a different trajectory: learners who used AI to scaffold their understanding while maintaining their own interpretive effort were engaging in what the Literature Review's discussion of integration as a process (Section 2.6) characterised as the transformation stage, where technology reshapes learning practices and enables new forms of engagement rather than substituting for existing cognitive effort (Hasumi & Chiu, 2024; Pan, Lai & Guo, 2025). This finding helps delineate, for RQ4, why mediation tasks that preserve learner sense-making are more productive than tasks that delegate comprehension entirely to AI.

Less commonly reported but still significant were the gains in speaking and listening, as discussed in Section 5.2.1. Learners described simulating conversations, rehearsing dialogues, and using AI audio outputs to practise pronunciation. In these cases,

performance expectancy was more modest and often tied to supplementary practice rather than primary instruction. Learners Reading comprehension was another domain where performance expectancy was realised, albeit in a scaffolded form that deserves careful theoretical interpretation. As reported in Section 5.2.1, learners did not expect generative AI to teach reading directly but relied on it to mediate complex texts by requesting simplified explanations, seeking clarifications of main ideas, and cross-checking their own interpretations against AI-generated summaries. These practices highlight a nuanced form of performance expectancy: not expecting the tool to replace comprehension, but to augment and validate it (Venkatesh et al., 2012). This augmentation-rather-than-substitution stance is significant because the Literature Review documented a persistent risk of overreliance in GenAI-mediated learning. Waluyo and Kusumastuti (2024) reported an engagement-outcome disconnect where high levels of behavioural engagement with ChatGPT did not translate into improved writing performance because learners' interactions remained cognitively shallow. The reading comprehension practices observed in this study suggest a different trajectory: learners who used AI to scaffold their understanding while maintaining their own interpretive effort were engaging in what the Literature Review's discussion of integration as a process (Section 2.6) characterised as the transformation stage, where technology reshapes learning practices and enables new forms of engagement rather than substituting for existing cognitive effort (Hasumi & Chiu, 2024; Pan, Lai & Guo, 2025). This finding helps delineate, for RQ4, why mediation tasks that preserve learner sense-making are more productive than tasks that delegate comprehension entirely to AI.

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generative AI tools as private rehearsal partners, not necessarily to receive expert feedback, but to increase fluency and reduce anxiety. The Literature Review established that collaborative platforms and interactive technologies reduce anxiety and foster enjoyment in EFL contexts (Annishah et al., 2025; Wei, 2022), and that affect-safe environments are critical preconditions for sustained participation (Altwijri & Alghizzi, 2024). The present findings extend this by demonstrating that generative AI tools can create analogous emotional safety individually rather than socially: the private, non-judgmental space of AI interaction provided the conditions that enabled learners to take the linguistic risks essential for oral fluency development. Huang and Teng (2025), in their comparison of peer feedback and generative AI feedback in Japanese EFL speaking contexts, found that both modalities positively impacted motivation and engagement, but through different mechanisms. The present data suggest that for speaking practice specifically, it was the absence of social evaluation pressure, rather than the quality of linguistic feedback, that most powerfully sustained engagement**,** a finding that refines the relationship between performance expectancy and the affective conditions under which it operates, thereby contributing to RQ1.

These skill-specific developments, when viewed collectively, align closely with SDT's notion of competence, the need to feel effective in one's interactions and to experience opportunities for growth (Deci & Ryan, 2000). Learners reported tangible linguistic improvements and articulated a growing belief in their own abilities. Importantly, these gains were not externally imposed but arose from learners' own goal-setting and iterative engagement, reflecting autonomous motivation in the SDT sense (Noels et al., 2002). An et al. (2021) demonstrated that technology-assisted self-regulated learning is positively associated with English language self-efficacy and enjoyment, with self-efficacy mediating the relationship between self-regulation and learning outcomes. The present study's qualitative data, as reported across Sections 5.2 and 5.5, reveal how this mediation operates in practice: as learners reported experiencing visible improvements in their drafts, argumentation, and vocabulary range, their sense of competence grew, which in turn motivated further self-directed engagement. This virtuous cycle confirms the SDT principle that competence involves not merely the acquisition of skills but the internalisation of those skills as self-efficacy (Deci & Ryan, 2000).

This internalisation was particularly evident in writing tasks. As detailed in Section 5.5.2, learners frequently described how generative AI tools allowed them to identify recurring mistakes, understand underlying rules, and apply corrections independently in subsequent drafts. This progression from correction to understanding reflects a deepening sense of competence, where learners begin to trust their capacity to self-correct and refine their output without full reliance on the tool. SDT suggests that when learners feel competent, they are more likely to engage persistently and meaningfully in learning tasks (Deci & Ryan, 2000), a pattern repeatedly confirmed by the present study's findings. The Literature Review emphasised that feedback-literacy moves, such as justifying, comparing, and adapting, are the mechanisms through which metacognitive engagement deepens (Teng, 2024; Guo & Li, 2024). The writing behaviours reported in this study demonstrate those moves in practice and foreshadow the task design conditions recommended later under RQ4.

In many cases, the alignment between performance expectancy (UTAUT-2) and competence (SDT) appeared seamless. As the findings of Sections 5.2 and 5.3 illustrate, when learners indicated that they used generative AI to revise essays, identify grammatical structures, or develop more coherent arguments, they experienced both improved performance and a growing sense of mastery. These synergistic gains reinforce motivation, leading to sustained and often voluntary engagement with the tools, especially outside of class hours. The Literature Review documented that successful technology integration is characterised by cross-stage embedding, brainstorm, draft, revise, and that such embedding is associated with stronger retention and sustained use (Rintaningrum, 2023; Li et al., 2025). The finding reported in Section 5.2.2, that learners described moving between reading, writing, speaking, and vocabulary tasks within single generative AI sessions, constructing knowledge across modalities rather than practising skills in isolation, provides empirical support for this claim. This integrative engagement aligns with SDT's emphasis on competence as an ongoing process of optimally challenging oneself within self-directed learning contexts (Deci & Ryan, 2000), and it extends what Liu et al. (2024) observed about varied patterns of AI adoption in informal digital learning: in the present study, the most engaged learners were those who discovered cross-skill utility, turning a single AI session into a multidimensional learning experience.

However, this alignment between performance expectancy and competence development was not universal. As reported in Section 5.2.2, some learners encountered limitations in generative AI feedback, particularly when it was overly formal, culturally inappropriate, or linguistically flat. These limitations, while initially frustrating, did not diminish engagement for most learners. Rather, they prompted critical reflection and cautious adoption. Learners learned to weigh the tools' suggestions against their own knowledge or teacher input, gradually assuming the role of editors rather than passive recipients. This shift signals a maturing of competence: the development of evaluative judgement and ownership over learning decisions (Deci & Ryan, 2000). The Literature Review's metacognition section cautioned extensively against equating surface-level engagement with deep learning, documenting how learners may prioritise polished output over reflective engagement (Waluyo & Kusumastuti, 2024; Fang & Han, 2025), and how the "black box" nature of AI systems can undermine metacognitive development when

learners lack transparency into the reasoning behind suggestions (Fang & Han, 2025). The editorial stance adopted by many participants in this study indicates movement toward what Xu and Jumaat (2024) described as criteria-based evaluation, where learners develop the capacity to assess rather than simply consume AI output, a critical condition for ensuring that technology-mediated competency gains translate into durable language development.

The data also suggest that perceived gains in competence were not dependent on teacher approval or formal recognition. As detailed across Sections 5.2.2 and 5.7, learners described progress in personal terms, understanding more, expressing themselves more clearly, or feeling prepared for real-world tasks. This autonomy in goal setting and self-assessment reinforces the SDT view that competence must be accompanied by autonomy to lead to true intrinsic motivation (Deci & Ryan, 2000). The Literature Review identified autonomy-supportive conditions as the critical factor converting skill gains into persistence, with research demonstrating that tools supporting learner autonomy and providing competence-affirming feedback tend to enhance intrinsic motivation, whereas tools perceived as controlling may undermine it (Wei, 2022; Altwijri & Alghizzi, 2024). The present accounts confirm that generative AI tools, when used reflexively, enabled precisely this dynamic: learners directed their own learning, validated their growth through iterative improvement, and chose when and how to incorporate feedback.

The findings related to language competency also caution against equating improvement in surface-level language features with comprehensive language competence. As noted in Section 5.2.2, learners sometimes described generative AI outputs as robotic or overly polished, recognising limitations in creativity, nuance, and rhetorical complexity. This critical awareness is a positive indicator of metacognitive growth and also underscores the need for generative AI integration to be scaffolded with human feedback and pedagogical guidance. This mirrors the Literature Review's extensive documentation of the risks of uncritical AI adoption (Waluyo & Kusumastuti, 2024; Fang & Han, 2025; Alnemrat et al., 2025) and highlights the importance of assessment alignment: when

assessment criteria reward evidence of reasoning and reflective engagement rather than solely evaluating final products, learners are more likely to engage with technology in ways that support genuine competence development rather than surface-level polish (Rintaningrum, 2023; Pan et al., 2025).

Taken together, the evidence from this section demonstrates a convergence between UTAUT-2's performance expectancy and SDT's competence, confirming that when learners perceive technology as useful and experience themselves as capable users, both behavioural engagement and intrinsic motivation are reinforced. However, the effectiveness of generative AI in supporting deep learning depends not only on the tool's capabilities but on learners' ability to engage reflectively, monitor their own development, and navigate the boundaries between assistance and autonomy (Venkatesh et al., 2012; Deci & Ryan, 2000). Section 6.2 primarily advances RQ1 by demonstrating how engagement was sustained through visible competency gains and self-verified progress, clarifies aspects of RQ2 where initial ease-of-use perceptions gave way to strategic and evaluative routines, and prepares the ground for RQ4 by identifying the conditions**,** iterative drafting, augmentation over substitution, affect-safe rehearsal, and assessment alignment**,** that turned perceived gains into stable practice.

6.3 Motivation, Enjoyment, & Autonomy in GenAI Use

The motivational aspects of learners' engagement with generative AI tools emerged as a core thread across the dataset, signalling a shift from compliance-driven language learning to one shaped by curiosity, self-direction, and enjoyment. As reported in Section 5.3, this theme was identified in 149 of the 167 responses (89.2%), suggesting widespread heightened enthusiasm and sustained participation. This section interprets these findings through the lens of hedonic motivation in UTAUT-2 and autonomy in Self-Determination Theory (SDT), providing a deeper understanding of why and how learners sustained engagement with generative AI in English language learning contexts. The Literature Review established that sustained engagement in technology-integrated EFL learning is located in intrinsically framed activity rather than tool novelty (Wei, 2022; Altwijri & Alghizzi, 2024), and that technology tools supporting learner autonomy and

providing competence-affirming feedback tend to enhance intrinsic motivation, whereas tools perceived as controlling may undermine it (Deci & Ryan, 2000; Noels et al., 2002). The present findings both confirm and extend this body of work by demonstrating that enjoyment and autonomy in generative AI use were not independent constructs but functionally linked, with hedonic motivation operating as a mechanism of autonomous motivation rather than a separate driver. This coupling directly informs RQ1 and specifies for RQ2 the conditions under which usability converts to routine.

As reported in Section 5.3.1, participants described feelings of comfort, reduced anxiety, and enjoyment when using generative AI tools, with 58.7% of learners explicitly characterising the experience as enjoyable or entertaining. For many learners, the non-judgmental and responsive interaction with AI contributed to a sense of psychological safety and control over the learning process, reinforcing autonomy and reducing affective barriers. These affective responses are significant when considered against the Literature Review's treatment of emotional engagement. Altwijri and Alghizzi (2024) and Wei (2022) established that emotional engagement encompasses affective responses such as interest, enjoyment, anxiety, and sense of connection to the learning task. Annishah et al.'s (2025) systematic review of technology and motivation in EFL classrooms found that interactive platforms generally enhance motivation through enjoyment and curiosity but cautioned that such gains depend on design quality and pedagogical framing rather than technological novelty alone. The present findings substantiate this caution: the enjoyment reported by learners was not attributable to the novelty of generative AI as a technology but rather to the specific affordances of conversational interaction, immediacy of response, adaptability to individual needs, and absence of social evaluation pressure. This distinction matters because it suggests that the motivational benefits observed are likely to persist beyond initial novelty effects, a concern the Literature Review identified as under-examined in existing research (Wang & Xue, 2024; Fang & Han, 2025). Wang and Wang (2025) found that enjoyment enables continued intention to use AI tools while anxiety impairs it, particularly in lower-proficiency cohorts. The present data confirm this pattern: learners who described the strongest affective engagement were those who emphasised the safety of interacting without fear of judgment, suggesting that for this

population, the reduction of anxiety was as motivationally significant as the presence of enjoyment.

From the UTAUT-2 perspective, hedonic motivation refers to the extent to which using a technology is perceived to be enjoyable in its own right (Venkatesh et al., 2012). The findings reported in Section 5.3 demonstrate that many learners did not merely tolerate the use of generative AI but actively sought it out, with 52.1% reporting that they voluntarily spent more time on language tasks because the tools were more engaging than traditional materials. This enjoyment was closely linked to the design of the tools themselves. The interactive, conversational nature of generative AI platforms enabled learners to explore ideas, test hypotheses, and receive responses in real time, all within a low-stakes environment. Such affordances contributed to a sense of playfulness and reduced performance anxiety, particularly in contrast to more evaluative, teacher-centred forms of feedback. The Literature Review's discussion of integration as a process (Section 2.6) identified similar design-linked affordances as catalysts that transform initial interest into recurrent use. Rintaningrum (2023) demonstrated that when technology integration is characterised by learner interactions that are cognitively demanding, emotionally positive, and aligned with meaningful learning goals, engagement is more likely to be sustained. The present data illustrate this mechanism in action: the conversational design of generative AI tools created conditions where cognitive challenge and emotional comfort coexisted, enabling a form of engagement that was simultaneously playful and productive. This connects enjoyment to early usability and thereby addresses RQ2 by showing how design affordances initiated the transition from exploratory use to purposeful routine.

The motivational engagement observed was sustained over time, a finding with important theoretical implications. As detailed in Section 5.3.2, learners described developing routines around generative AI use, integrating it into their writing process, revision habits, and even extracurricular learning. These routines are critical to understanding hedonic motivation as a persistent driver of learning behaviour rather than a transient response to novelty. According to UTAUT-2, such ongoing use reflects a deeper belief that the enjoyable nature of the tool contributes meaningfully to the learning process (Venkatesh

et al., 2012). In this study, pleasure and productivity were not opposites but mutually reinforcing, suggesting that enjoyment itself was instrumental in promoting skill development and knowledge retention. Liu et al. (2024) found that habitual use patterns emerge as learners gain familiarity with AI tools, with perceived usefulness and prior digital learning experiences predicting sustained behavioural intention. The present findings extend this by revealing the affective mechanism underlying habit formation. It was not mere familiarity that sustained use, but the ongoing experience of enjoyment coupled with visible learning gains. This routinisation echoes the Literature Review's discussion of motivation (Section 2.4), where research demonstrated that initial enthusiasm for GenAI tools may wane if learners perceive the tools as providing generic or inaccurate feedback (Wang & Xue, 2024; Fang & Han, 2025). That the learners in this study sustained their engagement suggests that the personalised, responsive quality of their interactions with generative AI successfully counteracted the novelty-decay pattern that the literature identifies as a persistent risk.

This intrinsic appeal of generative AI intersects meaningfully with SDT's construct of autonomy, which posits that learners are more motivated when they feel a sense of volition and control over their learning activities (Deci & Ryan, 2000). The findings reported in Section 5.3.1 indicate that generative AI tools created spaces for learners to act independently, experiment with language, and pursue self-generated goals. Learners frequently described engaging with the tools outside of formal class time, often using them to explore personal interests or to prepare for upcoming tasks at their own pace. These patterns are indicative of autonomous motivation, where behaviour is guided not by obligation or external validation but by internal values and interests (Deci & Ryan, 2000; Noels et al., 2002). Noels et al. (2002) demonstrated that SDT provides a parsimonious, internally consistent framework for describing learner orientations, with considerable explanatory power for understanding why certain motivational orientations better predict language learning outcomes such as effort, persistence, and positive attitudes. The voluntary, self-initiated nature of learners' generative AI use in this study exemplifies precisely the autonomous orientation that Noels and colleagues identified as most predictive of sustained engagement. The Literature Review further established that An et al. (2021) found technology-assisted self-regulated learning to be positively associated

with English language self-efficacy and enjoyment, with self-efficacy mediating the relationship between self-regulation and learning outcomes. The present findings demonstrate the upstream mechanism: it was the experience of autonomy, choosing when, what, and how to learn, that initiated the self-regulatory cycle, with enjoyment functioning as both a product and a reinforcer of autonomous engagement.

The design of generative AI tools aligned well with autonomy-supportive conditions. The on-demand nature of these tools meant that learners could choose when, how, and to what extent they wanted to engage. Unlike classroom settings that are bound by time constraints and power dynamics, generative AI tools offered private, flexible interactions that fostered learner ownership. The ability to control the flow of interaction, whether by rephrasing a prompt, switching topics, or requesting clarification, empowered learners to become active participants in their own language development rather than passive recipients of instruction. Liu and Ma (2023) demonstrated that AI-powered language platforms allowing learners to choose topics, adjust difficulty levels, and receive personalised feedback enhance their sense of autonomy, and Chiu (2024) found that generative AI tools represent an evolution of earlier digital capabilities, offering more sophisticated, conversational feedback mechanisms that may more effectively satisfy both competence and autonomy needs. The present data substantiate these claims. Learners' descriptions of controlling the pace, depth, and direction of their AI interactions reflect precisely the autonomy-supportive conditions that the Literature Review identified as critical for sustained motivation across multiple theoretical traditions (Wei, 2022; Deci & Ryan, 2008).

This autonomy was also evident in the strategic ways learners adapted the tools to their evolving needs. As reported across Sections 5.3 and 5.5, learners reported developing personalised prompting strategies, shifting from basic queries to more nuanced, goal-oriented instructions. Such strategic adaptation is a strong indicator of metacognitive engagement, wherein learners regulate their actions in alignment with their broader learning intentions. SDT suggests that when learners experience both autonomy and competence, intrinsic motivation flourishes (Deci & Ryan, 2000). In this study, the iterative refinement of prompts and reflection on generative AI responses demonstrated a growing

alignment between learner agency and skill development. The Literature Review's discussion of reflection and metacognition (Section 2.5) established that the movement from procedural use to strategy-led use is a key marker of deep engagement, with Al-Smadi et al. (2025) demonstrating that high-achieving students exhibit significantly greater cognitive and metacognitive engagement with AI tools, using them strategically for planning, monitoring, and evaluating their work. The present findings suggest that the autonomy afforded by generative AI tools may facilitate this transition even among learners who would not traditionally be classified as high-achieving: the low-stakes, self-paced nature of the interaction allowed learners to develop strategic approaches organically, without the performance pressure that can inhibit metacognitive risk-taking in formal classroom settings.

While motivation was often linked to immediate enjoyment, it also encompassed longer-term self-regulation. As detailed in Section 5.3.2, learners described how the process of using generative AI enabled them to stay engaged with tasks they might otherwise avoid. Some learners indicated that they used the tool to overcome writer's block or to initiate brainstorming, finding that it helped them begin when they lacked ideas or confidence. These accounts reflect a motivational shift from avoidance to engagement, underpinned by the perception that the tool made the task more approachable and less intimidating. Rather than relying on external deadlines or grades, learners described relying on the tool itself to spark momentum, an important marker of intrinsic motivation (Deci & Ryan, 2000). The Literature Review established that technology integration aligned with mastery goals, such as adaptive feedback systems that scaffold learners' progressive skill development, tends to sustain motivation more effectively than technology use oriented primarily toward performance outcomes (An et al., 2021; Al-Smadi et al., 2025). The present data illustrate this distinction: learners who described using generative AI to overcome task avoidance were motivated by a desire to improve their skills rather than to produce a polished output, suggesting that the mastery-oriented framing of AI-mediated interaction was critical to its motivational efficacy.

However, the experience of autonomy was not absolute. As reported in Section 5.6, institutional ambiguity and peer scepticism introduced friction in some cases. Learners

expressed concern about whether using generative AI would be viewed as acceptable or as a form of academic dishonesty. While this uncertainty did not prevent use, it did temper the sense of freedom. This illustrates that for autonomy to fully flourish, learners require not only access to tools but also clarity and support from their learning environment. SDT posits that autonomy is not merely the absence of control but the presence of enabling structures that validate the learner's agency (Deci & Ryan, 2000). When such structures were lacking, such as unclear policies or negative peer perceptions, some learners internalised hesitation, suggesting that autonomy-supportive conditions must be reinforced by institutional alignment. The Literature Review's discussion of social influences (Section 2.7) documented extensively how peer and instructor cues shape the motivational climate of technology-integrated learning. Rintaningrum (2023) found that when technology use is presented as optional, peripheral, or disconnected from core learning goals, learners may perceive it as extraneous, resulting in diminished motivation. Alrayes et al. (2024) demonstrated that clear, consistent institutional policies reduce uncertainty and support coherent integration. The friction observed in this study, where learners reported using generative AI but felt uncertain about its legitimacy, directly informs RQ3 and identifies policy clarity as a prerequisite condition under RQ4.

Despite these challenges, the overall motivational trajectory observed was positive. Learners indicated that they moved from tentative exploration to confident, purposeful use, often reporting a sense of satisfaction not only from the task outcome but from the process itself. This distinction is important: when learners value the process of learning, they are more likely to persist, adapt, and invest effort over time (Noels et al., 2002). In this study, generative AI tools did not merely make tasks easier; they made them more meaningful by aligning with learners' goals, preferences, and self-concepts. The Literature Review's motivation section established that motivation and self-regulation are mutually reinforcing. Motivated learners are more likely to engage in self-regulated technology use, and successful self-regulation in turn enhances motivation by fostering perceptions of competence and progress (An et al., 2021; Wei, 2022). The present findings exemplify this virtuous cycle, with learners' growing sense of mastery fuelling continued autonomous engagement.

The motivational engagement was not confined to a single domain. As detailed across Sections 5.2 and 5.3, learners described using generative AI across a variety of tasks, writing, reading, vocabulary building, and speaking practice, each time modifying the interaction to suit their specific needs. This cross-functional engagement suggests that both hedonic motivation and autonomy were tied not to specific content but to the nature of the interaction itself. UTAUT-2 acknowledges that hedonic motivation can vary across usage contexts, particularly when engagement is voluntary and learner-driven (Venkatesh et al., 2012). The tools acted as open-ended platforms for exploration, enabling learners to personalise their learning trajectory in ways that traditional instruction often cannot accommodate. The Literature Review documented that successful integration is characterised by clear pedagogical rationale, explicit scaffolding, alignment between technology-mediated tasks and assessment criteria, and ongoing institutional support (Rintaningrum, 2023; Li et al., 2025; Juhana, 2025). The present data suggest that when these conditions are met, even partially through tool design rather than institutional planning, the versatility of generative AI tools enables the kind of cross-functional, autonomy-driven engagement that the literature identifies as the hallmark of effective technology integration.

The findings presented in Section 5.3 demonstrate that motivation and autonomy were central to how learners described engaging with generative AI tools. Enjoyment played a critical role in initiating and sustaining use, as articulated through the construct of hedonic motivation in UTAUT-2 (Venkatesh et al., 2012). Simultaneously, learners exercised significant autonomy, using the tools to shape their learning paths in alignment with personal goals and values (Deci & Ryan, 2000). This combination of enjoyment and self-direction was not incidental but foundational, suggesting that when learners experience both affective satisfaction and volitional control, technology-mediated language learning can become a site of genuine engagement. This relationship between autonomous engagement and persistent effort mirrors SDT's assertion that autonomy-supportive environments cultivate not just task completion but sustained educational resilience (Deci & Ryan, 2000).

Taken together, Section 6.3 clarifies RQ1 by demonstrating how engagement and motivation were shaped through affective safety and volitional control, specifies RQ2 by showing how usability and flexibility matured into routine, self-directed use, and, where institutional ambiguity and peer cues intervened, points to RQ3 and RQ4 by naming the social and institutional conditions that amplify or mute autonomy.

6.4 Feedback as a Dialogic, Learner-Controlled Process

One of the most significant and conceptually rich findings of this study lies in how learners redefined their understanding and use of feedback through generative AI tools. As detailed in Sections 5.5 and 5.5.1, participants described an evolving relationship with feedback, one characterised by dialogue, iteration, and autonomy, moving away from instructor-driven models of correction toward a learner-initiated process of recursive exchange. This transformation reflects learners' growing technical familiarity with the tools and, more importantly, reveals deeper shifts in their motivational regulation and identity. This section explores these shifts through the lens of Self-Determination Theory (SDT), particularly the constructs of competence and autonomy (Deci & Ryan, 2000), while drawing also on the performance expectancy dimension of UTAUT-2, which explains continued engagement with technologies perceived as useful for improving performance (Venkatesh et al., 2012). The Literature Review's discussion of reflection and metacognition (Section 2.5) established that scaffolded reflection, such as asking students to justify revisions or compare AI suggestions with their own drafts, is essential for converting AI feedback into transferable understanding (Alnemrat et al., 2025; Teng, 2024). The present findings demonstrate that many learners spontaneously developed analogous dialogic practices, positioning generative AI feedback not as a terminal correction but as the starting point for iterative self-improvement, directly illuminating RQ1.

In conventional language learning contexts, feedback is typically experienced as an external judgment, authoritative, sometimes corrective, and often unidirectional. In contrast, the findings reported in Sections 5.5 and 5.5.1 describe a fundamentally different pattern. Participants reported using generative AI tools not merely to receive evaluations

of their language production but to generate alternatives, request clarification, and revise iteratively. This was not a hypothetical possibility but a practice that emerged robustly in learners' own accounts of engaging recursively with generative AI feedback. It signals the emergence of a dialogic model of feedback in which learners and tools co-construct meaning, accuracy, and rhetorical effectiveness through continuous exchange. The Literature Review's engagement section (Section 2.3) foregrounded iterative interaction as a pathway from surface uptake to sustained engagement, with Rintaningrum (2023) and Wei (2022) establishing that engagement is most productively conceptualised as multidimensional, encompassing behavioural, cognitive, and emotional components. The dialogic feedback practices observed in this study exemplify this multidimensionality: learners were behaviourally active in initiating and sustaining feedback cycles, cognitively engaged in evaluating and applying suggestions, and emotionally invested through the growing confidence that accompanied visible improvement.

The findings reported under the redefining feedback theme (Section 5.5) suggest that learners indicated that they valued generative AI for its immediate and responsive feedback, especially in writing and vocabulary-related tasks. The tools provided corrective suggestions and also enabled learners to engage in exploratory interaction, supporting the noticing and intake processes fundamental to language acquisition. As reported in Section 5.5.1, learners described how they asked generative AI to explain why corrections were needed, sought multiple alternative phrasings, and compared AI suggestions against their own initial formulations. The Literature Review documented that studies comparing teacher-generated and AI-generated feedback reveal that while both types lead to significant improvements in EFL writing performance, students often incorporate more AI feedback into their revisions due to its immediacy, specificity, and detail (Teng, 2024; Wu & Zhao, 2025). However, Alnemrat et al. (2025) cautioned that this higher uptake rate does not automatically indicate deeper metacognitive engagement, as learners may accept AI suggestions uncritically. The present data suggest that the dialogic affordance of generative AI, the ability to ask follow-up questions, request explanations, and generate alternatives, may mitigate this risk by transforming feedback reception into an active, interrogative process. This finding clarifies the contribution to

RQ4 by identifying the conversational structure of feedback as a design condition that supports deep processing rather than passive acceptance.

From an SDT perspective, this form of dialogic feedback engagement speaks directly to the fulfilment of competence, defined as the need to feel effective and capable within a domain of activity (Deci & Ryan, 2000). The data reported across Sections 5.5 and 5.5.2 shows that learners described experiencing a growing sense of mastery as they engaged in these feedback loops. They did not simply accept corrections from the AI but reflected on them, evaluated alternatives, and gradually identified patterns in their own errors. Over time, this led to the internalisation of feedback principles, where learners could anticipate likely issues, correct errors independently, and apply the feedback to future tasks without relying on the tool. This shift from external support to internal regulation exemplifies the transition from extrinsically motivated correction to intrinsically driven competence development (Deci & Ryan, 2000). The Literature Review's motivation section (Section 2.4) established that perceived progress is a primary driver of autonomous engagement, with research demonstrating that technology-assisted self-regulated learning is positively associated with English language self-efficacy (An et al., 2021). The present findings reveal the feedback-specific mechanism through which this self-efficacy develops. As learners successfully navigated iterative correction cycles and observed tangible improvements in their output, their belief in their own capacity to self-correct strengthened, which in turn motivated further independent engagement with the feedback process. This competence-building trajectory directly informs RQ1 by demonstrating how internalisation transforms short-term assistance into durable motivation (Deci & Ryan, 2000; Noels et al., 2002).

The iterative and self-directed nature of generative AI-mediated feedback strongly reinforced learners' autonomy. Unlike classroom feedback, which is often bound by institutional schedules and hierarchies, generative AI tools offered on-demand, private, and responsive interactions. As reported in Section 5.5.2, learners determined the timing, frequency, and scope of feedback, choosing when to seek clarification, when to accept suggestions, and when to reframe their queries. This level of control contributed to a reduction in performance anxiety and an increase in exploratory learning behaviours.

Participants reported using the tools to test out new structures, rehearse vocabulary, and refine their tone in ways that felt low-stakes and learner-centred. The Literature Review established that autonomy-supportive environments are critical to sustained motivation, as learners begin to perceive themselves as the principal drivers of their own progress (Deci & Ryan, 2000; Liu & Ma, 2023). Chiu (2024) argued that generative AI tools represent an evolution of earlier digital capabilities, offering conversational feedback mechanisms that may more effectively satisfy both competence and autonomy needs. The present data substantiate this argument: the on-demand, dialogic structure of generative AI feedback created conditions where learners exercised genuine control over their learning, a finding that speaks directly to RQ1 and adds empirical weight to the Literature Review's treatment of autonomy as a precondition for evaluative judgment.

The structure of generative AI also enabled learners to view feedback as non-final and revisable, a perspective rarely encouraged in more rigid educational contexts. As observed across the findings, participants often reworded prompts, generated multiple versions of the same paragraph, or adjusted the level of feedback from basic to advanced explanations. These behaviours reflect a recursive epistemology, a belief that knowledge can be tested, modified, and reconstructed. From a learning design perspective, this recursive engagement with feedback suggests that generative AI can scaffold learners' metacognitive development, particularly when learners use the feedback process not just to correct but to understand underlying rules and principles. The Literature Review's discussion of reflection and metacognition (Section 2.5) established that structured revision protocols, such as those requiring learners to articulate their reasoning or compare multiple sources of feedback, promote metacognitive awareness and deeper engagement (Guo & Li, 2024). The recursive feedback behaviours observed in this study represent a spontaneous approximation of such structured protocols, suggesting that the conversational design of generative AI tools may naturally scaffold the staged refinement that the literature identifies as a condition for effective technology use (Hasumi & Chiu, 2024; Li et al., 2025).

While UTAUT-2 does not have a dedicated construct for feedback, its emphasis on performance expectancy is relevant here. Learners' belief in the tool's capacity to help

them improve was central to their willingness to persist with feedback interactions (Venkatesh et al., 2012). As the findings demonstrate, they did not view the tools' feedback as trivial or superficial; instead, they saw it as directly contributing to their ability to produce clearer, more accurate, and more effective language. In particular, they perceived improvements in grammar accuracy, lexical variation, clarity of argument, and logical flow, each of which contributed to their belief that the tools were instrumental in enhancing academic and professional communication. The Literature Review established that perceived usefulness consolidates when learners cycle between drafting and review, and that expectancy beliefs evolve as learners gain experience with the technology (Cai et al., 2024; Wang et al., 2025). The feedback practices observed in this study illustrate this consolidation in action: as learners indicated that they experienced tangible improvements through iterative feedback, their performance expectancy strengthened, which in turn motivated further engagement, a self-reinforcing cycle that directly addresses RQ2 by linking usability and accessibility to sustained motivational effort.

The tools were not simply delivering surface-level corrections. As detailed in Section 5.5.1, learners described engaging with them as collaborators capable of explaining decisions, offering stylistic alternatives, and adapting tone and structure to suit different audiences. This responsiveness fostered a conversational mode of engagement where learners reported beginning to internalise the logic behind corrections. They developed personalised prompting strategies, learned how to interpret AI-generated explanations, and sometimes chose to reject suggestions based on context or purpose. Such evaluative judgment, the ability to discern when and how to apply feedback, is a critical component of advanced academic literacy and represents a maturation of competence beyond technical correctness. The Literature Review's metacognition section documented that learners may prioritise polished output over reflective engagement when assessment criteria reward product over process (Xu & Jumaat, 2024; Fang & Han, 2025). The evaluative stance adopted by participants in this study indicates movement beyond this risk: learners were not simply consuming AI feedback but actively curating it, a behaviour that Alnemrat et al. (2025) and Teng (2024) identified as essential for developing transferable understanding rather than task-specific correction.

Learners' increasing agency over feedback was also observed in how they shared and discussed generative AI feedback with peers, further reinforcing SDT's concept of relatedness. Although relatedness was not the primary driver of engagement in feedback processes, it provided a meaningful layer of social validation. As reported in Section 5.6.1, learners compared AI-generated suggestions, debated alternative wordings, and exchanged prompting techniques, thereby positioning feedback as a social and collaborative resource rather than an isolated correction event. The Literature Review's discussion of social influences (Section 2.7) established that peer interactions and norms shape learners' technology use, particularly in collaborative environments where technology mediates group work and peer feedback (Annishah et al., 2025; Huang & Teng, 2025). However, the literature also cautioned that peer norms can reinforce undesirable behaviours when learners observe peers relying heavily on AI-generated text without critical evaluation (Xu & Jumaat, 2024; Fang & Han, 2025). The present findings suggest that when feedback sharing is oriented toward comparison and evaluation rather than output generation, peer interaction reinforces reflective rather than uncritical engagement, providing direct evidence for RQ3 regarding how peer attitudes shape engagement.

The findings reported in Section 5.5 also reveals that learners were aware of the limitations of generative AI feedback, such as lack of contextual nuance, formulaic expressions, or occasional inaccuracies. However, instead of disengaging, learners indicated that they developed strategies to compensate for these shortcomings. They cross-validated generative AI feedback with teacher input, consulted other sources, and used their growing knowledge base to edit and refine AI-generated text. This critical engagement underscores that learners were not blindly dependent on generative AI feedback but were increasingly acting as editors, curators, and decision-makers. The Literature Review documented that the "black box" nature of AI systems can undermine metacognitive development when learners lack transparency into the reasoning behind suggestions (Fang & Han, 2025), and that efficiency-oriented strategies may bypass reflective engagement when assessment criteria reward polished output over process-oriented evidence (Xu & Jumaat, 2024). The strategic selectivity observed in this study, where learners actively compared, filtered, and sometimes rejected AI feedback,

suggests that when the dialogic affordance of generative AI is present, learners are more likely to develop the critical evaluation skills that the literature identifies as essential, rather than defaulting to passive acceptance. This finding specifies how design guidance can support the emergence of evaluative judgment, directly informing RQ4 (Noels et al., 2002; Waluyo & Kusumastuti, 2024).

Learners described using generative AI feedback in ways that extended beyond academic tasks. As reported across the findings, several described using feedback to prepare for real-world communication such as professional emails and workplace interactions. In doing so, they applied feedback principles across domains, indicating a transfer of learning that is central to deep competence (Deci & Ryan, 2000). They were not only learning how to write better within a classroom context but how to communicate more effectively in diverse professional and social settings. The Literature Review documented that successful technology integration is characterised by alignment between technology-mediated tasks and authentic learning goals (Rintaningrum, 2023; Li et al., 2025), and that when AI tools are embedded within inquiry-oriented activities, they significantly enhance both student engagement and learner agency (Abdelhalim & Almaneea, 2025). The ability to generalise feedback across contexts observed in this study is a critical marker of internalised competence, suggesting that learners were consolidating feedback not as task-specific input but as reusable knowledge.

The development of self-regulatory strategies was also evident. As detailed in Section 5.5.2, learners described how they began to anticipate common errors, structure their writing more effectively from the outset, and revise before prompting the generative AI tools for suggestions. These behaviours reflect a transition from reactive correction to proactive self-monitoring, a process well-supported by SDT (Deci & Ryan, 2000). Rather than waiting for error detection, learners initiated self-review, sought targeted input, and validated their choices, thus demonstrating ownership over their linguistic development. The Literature Review established that self-regulated learning encompasses goal-setting, strategic planning, monitoring, and evaluation, with technology tools potentially supporting each phase through features such as adaptive feedback, progress tracking, and scaffolded prompts (An et al., 2021; Al-Smadi et al., 2025). The sequence observed

in this study, anticipation, planning, and targeted consultation, represents the operationalisation of these self-regulatory phases within AI-mediated feedback practices, positioning feedback as a bridge between tool support and autonomous performance.

The dialogic nature of generative AI-mediated feedback contributed to a profound shift in learners' self-concept as language users. Participants no longer saw themselves as dependent on teacher approval or constrained by textbook norms. Instead, they began to view themselves as autonomous learners capable of navigating complex feedback, making informed decisions, and improving through self-directed practice. This identity shift is perhaps the most compelling outcome of feedback-as-dialogue: it transforms feedback from an external mechanism into an internal motive, one that empowers learners to evaluate, adapt, and grow beyond institutional expectations. This reconfiguration of identity aligns with SDT's concept of integrated regulation, where behaviours are assimilated into one's sense of self (Deci & Ryan, 2000). The Literature Review's motivation section established that when autonomy, competence, and relatedness are satisfied, learners develop more autonomous forms of motivation, leading to enhanced engagement, persistence, and well-being (Noels et al., 2002; Wei, 2022). The identity movement observed in this study represents the culmination of that need satisfaction within the specific context of feedback practices, pointing to the importance of consistent classroom cues and pedagogical framing in supporting this transformation.

Taken together, the transformation of feedback into a dialogic, learner-controlled process demonstrates how generative AI tools have redefined one of the most fundamental aspects of language learning. Through recursive interaction, metacognitive reflection, and strategic adaptation, learners reported using feedback not merely to correct but to construct their linguistic competence. Anchored in SDT's constructs of competence and autonomy and supported by UTAUT-2's performance expectancy, this reconceptualisation of feedback presents a powerful model of technology-mediated learning. It suggests that when learners are provided with responsive, autonomous, and iterative feedback environments, they evolve into reflective, independent, and resilient users of language. Section 6.4 primarily advances RQ1 by revealing how dialogic feedback sustained engagement through competence growth and autonomous self-

regulation, addresses RQ2 by demonstrating how perceived usefulness was reinforced through visible improvement in iterative feedback cycles, contributes to RQ3 by documenting how peer sharing of feedback practices shaped collective engagement norms, and informs RQ4 by specifying the design conditions, conversational structure, on-demand access, iterative task design, and transparent institutional norms, that support the transition from correction to self-regulation.

6.5 Learner Agency & the Transformation of Identity

Beyond task completion and performance improvement, the sustained engagement with generative AI tools described by participants led to a deeper transformation in how learners understood themselves as language users. As reported in Section 5.7, this theme appeared in 44 of the 167 responses (26.3%), with learners describing shifts in confidence, authorship, and study identity that went beyond behavioural change to encompass a fundamental reconfiguration of self-concept, from passive recipients of instruction toward strategic, reflective agents. This section analyses this identity transformation through the lenses of Self-Determination Theory (SDT) and UTAUT-2, focusing especially on the constructs of autonomy, competence, and the emerging role of habit in strategic language behaviour. The Literature Review's motivation section (Section 2.4) established that when autonomy, competence, and relatedness are satisfied, learners develop more autonomous forms of motivation, leading to enhanced engagement, persistence, and well-being (Noels et al., 2002; Wei, 2022). The present findings provide concrete evidence of how this need satisfaction culminates in identity change, demonstrating that the downstream outcome of sustained, autonomy-supportive technology use is not merely improved performance but a transformed sense of self as a language user.

In this study, learner agency is conceptualised not merely as behavioural independence but as a key driver of identity transformation. As learners indicated that they engaged more autonomously with generative AI tools, setting goals, evaluating feedback, and taking ownership of their learning, they began to reframe their roles from passive recipients to strategic, reflective users. This transformation of self-perception, grounded

in the fulfilment of autonomy and competence needs (Deci & Ryan, 2000), demonstrates how agency and identity are not separate constructs but interrelated dimensions within the motivational ecology of AI-supported language learning. The Literature Review's discussion of reflection and metacognition (Section 2.5) established that self-regulated learning encompasses goal-setting, strategic planning, monitoring, and evaluation, with technology tools potentially supporting each phase (An et al., 2021; Al-Smadi et al., 2025). The present data reveal that when these self-regulatory processes are sustained over time, they produce not only improved learning outcomes but a qualitative shift in how learners perceive their own capacity, from individuals who need external guidance to individuals who can direct their own development. This interrelation between evaluative judgment, self-regulation, and identity consolidation directly informs RQ1.

From an SDT perspective, a learner's identity is shaped not only by their outcomes but by the perceived ownership of the learning process, which supports intrinsic motivation and the internalisation of goals (Deci & Ryan, 2000). As detailed in Sections 5.7.1 and 5.7.2, learners integrated generative AI tools into their routines in personally meaningful ways, developing individualised prompting strategies, acting autonomously, and reflecting on the outcomes of their interactions. They made independent decisions about when and how to use the tools, developed individual strategies for interacting with them, and reflected critically on the value of their outputs. These patterns point to a high degree of autonomous motivation, in which learners are guided not by obligation or external pressure but by intrinsic goals, interests, and a desire for mastery (Deci & Ryan, 2000). Noels et al. (2002) demonstrated that autonomous motivational orientations are the strongest predictors of language learning outcomes such as effort, persistence, and positive attitudes. The voluntary, self-initiated nature of learners' generative AI use in this study exemplifies precisely the autonomous orientation that Noels and colleagues identified as most conducive to sustained engagement. The Literature Review further established that perceived progress is a primary driver of autonomous engagement, with research demonstrating that technology-assisted self-regulated learning is positively associated with English language self-efficacy (An et al., 2021). The present findings suggest that the experience of self-efficacy through successful AI-mediated learning was the mechanism through which autonomous motivation became consolidated into identity:

as learners succeeded in self-directed tasks, they began to see themselves as capable, independent language users rather than dependent students.

Learners frequently used generative AI outside of assigned coursework, developing their own prompts, testing the limits of what the tools could do, and even correcting or refining the outputs. As reported in Section 5.7.1, learners described seeking solutions independently before asking teachers or peers and using AI to set personal goals and track progress in ways not previously possible. These behaviours reflect a shift from reliance to independence; learners were not waiting for feedback or permission to improve but were actively generating the conditions for their own development. This pattern exemplifies the internalisation of self-regulation, a core aspect of SDT's concept of learner identity (Deci & Ryan, 2000), in which individuals begin to see themselves as responsible for and capable of directing their own progress. The Literature Review's discussion of integration as a process (Section 2.6) established that this progression from externally cued to self-initiated practice is characterised by variability, with some learners adopting strategic, self-regulated practices while others rely on technology in more passive ways (Waluyo & Kusumastuti, 2024; Al-Smadi et al., 2025). The present data clarify the conditions under which the more agentic trajectory develops. It was when learners described experiencing both visible competence gains and genuine control over their learning process that self-initiated practice emerged, suggesting that neither competence nor autonomy alone is sufficient, it is their convergence that catalyses identity transformation.

This transformation was not simply the result of exposure to AI but of learners' agentive engagement with it. Their identity shift, from dependent recipient to confident user, was enacted through choices: selecting tools, determining task approaches, and evaluating output. These deliberate actions reflect autonomy-supportive behaviours as defined in SDT, where motivation becomes internalised through self-directed practice. Thus, agency served as both a mechanism for and evidence of identity development. The Literature Review's discussion of social influences (Section 2.7) highlighted that the legitimation of technology-related choices by peers and instructors is a catalyst for sustained engagement, with research demonstrating that when instructors model reflective and

principled use of digital tools, learners are more likely to adopt similar practices (Fang & Han, 2025; Alnemrat et al., 2025). The present data specify how such social cues stabilise agentive trajectories: learners who received positive signals from instructors about the acceptability and value of AI use were more likely to develop the confident, self-directed engagement that underpinned identity transformation, while those operating in environments of ambiguity or implicit disapproval developed more cautious and constrained patterns of use.

This transformation was accompanied by a strengthened sense of competence, not only in linguistic skill but in metacognitive strategy. As reported across Sections 5.7.1 and 5.7.2, learners described how they began to anticipate challenges, prepare for tasks more thoroughly, and evaluate their performance with greater precision. The tools provided immediate opportunities to test hypotheses, revise phrasing, and explore rhetorical options, but the critical factor was that learners reported using these opportunities reflectively, developing confidence in their ability to learn independently. Over time, this competence became self-reinforcing: as learners succeeded in self-directed tasks, their self-efficacy increased, and they became more likely to pursue challenging goals. The Literature Review documented that high-achieving students demonstrate significantly greater cognitive and metacognitive engagement with AI tools, using them strategically for planning, monitoring, and evaluating their work (Al-Smadi et al., 2025). The present findings extend this by revealing the identity dimension of metacognitive growth: it was not merely that learners became more skilful in their use of AI but that they began to see themselves differently, as individuals capable of anticipatory planning, self-evaluation, and strategic decision-making. This identity consolidation through competence development directly advances RQ1 (Deci & Ryan, 2000).

The transformation in identity was also observable in how learners redefined what it meant to be a language learner. As Section 5.7.2 illustrates, instead of viewing proficiency as correctness or fluency alone, many learners indicated that they began to value qualities such as adaptability, initiative, and strategic use of resources. They understood that being successful in academic and professional communication was about making informed, context-sensitive choices. Generative AI tools became instruments through

which they could experiment, receive feedback, and refine their decisions, thereby fostering a conception of language learning that is dynamic, situated, and agentic. This broadened proficiency profile reflects a shift from product to process orientation. The Literature Review established that effective technology integration is characterised by learner interactions that are cognitively demanding, emotionally positive, and aligned with meaningful learning goals (Rintaningrum, 2023; Wei, 2022). The present findings suggest that when learners experience this alignment, when technology use feels both productive and personally meaningful, the result is not just improved performance but a reconceptualisation of what learning itself entails, a finding central to RQ1 and enabled by the access and usability factors linked to RQ2 (Venkatesh et al., 2012).

From a UTAUT-2 perspective, this sustained engagement also reflects the emergence of habit as a driver of behaviour. Habit, in this framework, is understood as the extent to which people tend to perform behaviours automatically because of learning (Venkatesh et al., 2012). As learners repeatedly used generative AI tools to support their learning, what began as novel or exploratory use gradually became routinised. As detailed in Section 5.7.1, participants The transformation in identity was also observable in how learners redefined what it meant to be a language learner. As Section 5.7.2 illustrates, instead of viewing proficiency as correctness or fluency alone, many learners indicated that they began to value qualities such as adaptability, initiative, and strategic use of resources. They understood that being successful in academic and professional communication was about making informed, context-sensitive choices. Generative AI tools became instruments through which they could experiment, receive feedback, and refine their decisions, thereby fostering a conception of language learning that is dynamic, situated, and agentic. This broadened proficiency profile reflects a shift from product to process orientation. The Literature Review established that effective technology integration is characterised by learner interactions that are cognitively demanding, emotionally positive, and aligned with meaningful learning goals (Rintaningrum, 2023; Wei, 2022). The present findings suggest that when learners experience this alignment, when technology use feels both productive and personally meaningful, the result is not just improved performance but a reconceptualisation of what learning itself entails, a

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predictable patterns of generative AI use, drafting essays, checking grammar, rehearsing language for presentations, all of which point to the formation of strategic learning habits. Importantly, these habits were not mechanical; they were embedded in conscious, reflective practice and continually refined based on feedback and task demands. Liu et al. (2024) found that habitual use patterns emerge as learners gain familiarity with AI tools, with perceived usefulness and prior digital learning experiences predicting sustained behavioural intention. The present findings add an identity dimension to this habituation process: learners did not simply develop habits of AI use; they developed habits of autonomous, reflective learning that became integrated into their self-concept as language users. This extends the Literature Review's treatment of motivation (Section 2.4), where enjoyment and perceived usefulness are proposed as antecedents of routinised practice (Wei, 2022; Altwijri & Alghizzi, 2024), by demonstrating that for

habitual use to evolve into identity transformation, it must be coupled with reflective agency.

The development of such habits also contributed to learners' perceived behavioural control. As their proficiency in interacting with the tools increased, so too did their belief in their ability to handle complex tasks. This aligns with UTAUT-2's proposition that habitual use of a tool strengthens perceptions of performance expectancy, the belief that the technology improves outcomes, which in turn increases its integration into everyday practices (Venkatesh et al., 2012). However, the findings outlined in Sections 5.7.1 and 5.7.2 suggest that for habitual tool use to evolve into identity transformation, it must be coupled with reflective agency. The learners did not just use generative AI tools because they were effective; they used them because doing so aligned with their goals, values, and evolving sense of who they were as language users. This nuance refines the Literature Review's treatment of habit by indicating that identity-relevant habits depend on autonomy-supportive contexts and on credible social signals (Venkatesh et al., 2012; Deci & Ryan, 2000). Rintaningrum (2023) and Alrayes et al. (2024) documented that institutional policies and instructor attitudes shape whether technology use is perceived as legitimate and valued, and the present data suggest that these institutional signals were critical mediators of whether habitual use remained purely functional or evolved into the values-aligned, identity-constitutive practice observed among the most engaged learners.

The identity shift was especially noticeable in learners who began to engage critically with the generative AI's responses. These individuals moved beyond passive acceptance, questioning outputs, revising answers, and sometimes rejecting suggestions based on their own judgment. This development reflects cognitive growth and a deeper form of academic agency in which learners see themselves as capable of evaluating sources, asserting their own perspectives, and managing uncertainty. This repositioning, from dependent learner to discerning editor, is central to the identity transformation observed and marks a key contribution of this study to understanding how generative AI tools impact learners' self-concept. The Literature Review cautioned that learners may adopt efficiency-oriented strategies that bypass reflective engagement, particularly when

assessment criteria reward polished output over process-oriented evidence of revision and reasoning (Xu & Jumaat, 2024; Fang & Han, 2025). The critical, evaluative stance observed among these learners indicates a different trajectory, one where the experience of competence through successful evaluation of AI output reinforced an identity as a discerning, autonomous language user.

This transformation was not uniform across all participants. As reported in Section 5.7.2, some learners expressed hesitance or limitations in how far they trusted the tools or how much autonomy they were comfortable exercising. However, even among these participants, there was evidence of strategic awareness, a recognition that they were experimenting with new modes of learning, even if not yet fully confident in their execution. This transitional space is important as it shows that identity transformation is not binary but developmental, influenced by personal readiness, familiarity, and the availability of support. SDT highlights that identity transformation unfolds progressively as learners internalise values, experience mastery, and act from volition rather than obligation (Deci & Ryan, 2000). The Literature Review's integration section documented that the progression from initial adoption to transformation is shaped by a complex interplay of individual, institutional, and sociocultural factors, and that sustained pedagogical support, alignment with learning goals, and the development of metacognitive skills for evaluating and regulating technology use are critical conditions for reaching the transformation stage (Rintaningrum, 2023; Li et al., 2025; Pan et al., 2025). The present data suggest that learners in this transitional space require not only tool access but clear institutional norms and pedagogical scaffolding that validate their emerging agency, indicating practical conditions relevant to RQ4.

The findings reflected in Section 5.7 suggest that generative AI tools, when used autonomously and reflectively, can facilitate a transformation in learner identity marked by increased confidence, self-regulation, and purpose. This transformation is supported by the fulfilment of competence and autonomy (Deci & Ryan, 2000) and reinforced by performance expectancy and habit (Venkatesh et al., 2012). Learners came to view themselves not merely as students completing tasks but as language users engaging in meaningful, goal-directed communication. The tools provided access, structure, and

feedback, but it was the learners' own agency, strategy, and reflection that produced growth.

Taken together, Section 6.5 directly advances RQ1 by demonstrating how sustained, autonomous engagement with generative AI tools produced identity transformation, a shift from dependent learner to strategic, reflective language user. It addresses RQ2 by showing how habitual use, when values-aligned and autonomy-supported, consolidates into identity-relevant learning routines rather than mere behavioural repetition. It contributes to RQ3 by documenting how peer and instructor signals either accelerated or inhibited the consolidation of agentive identities, and informs RQ4 by specifying the conditions, staged support, transparent institutional norms, and pedagogical scaffolding, that enable learners to move through the transitional thresholds between tool use and identity transformation.

6.6 Social & Institutional Factors Shaping GenAI Use

Learners' engagement with generative AI tools did not occur in isolation; it was shaped, guided, and at times constrained by the broader educational ecosystem in which learning took place. As reported in Section 5.6, this theme was identified in 163 of the 167 responses (97.6%), showing that almost all learners referred to institutional context and support as central to their experiences. Peer norms, instructor attitudes, institutional policies, and broader cultural narratives surrounding technology use played a decisive role in determining how learners approached and sustained their interaction with generative AI. These dynamics can be understood through the social influence and facilitating conditions constructs of UTAUT-2 (Venkatesh et al., 2012), and through SDT's concept of relatedness, which concerns the individual's need for meaningful connection and validation within a social learning environment (Deci & Ryan, 2000). The Literature Review's discussion of social influences (Section 2.7) established that peer and instructor signalling are central context-setters for technology uptake and persistence, with research consistently demonstrating that social influence is a significant predictor of behavioural intention to use technology, particularly in collectivist cultural contexts where social norms and group expectations carry substantial weight (Wang et al., 2025; Liu et al., 2024; Zaim

et al., 2024). The present findings both confirm and extend this body of work by demonstrating that social influence in generative AI use operates primarily through dialogic relatedness, peer co-construction and teacher modelling, rather than through compliance or normative pressure, directly informing RQ3 and, via policy clarity, RQ4.

From a UTAUT-2 perspective, social influence is the extent to which individuals perceive that important others believe they should use a particular technology (Venkatesh et al., 2012). As reported in Section 5.6.1, peer practices and visible classroom norms were powerful drivers of initial exploration and continued engagement. With 58.7% of participants citing peer influence, learners described how seeing classmates use generative AI tools encouraged them to experiment independently. However, this influence was not always imitative; learners made strategic decisions about whether to adopt peer behaviours based on their personal goals, confidence levels, and perceived legitimacy of use. In this sense, social influence operated not as a directive force but as a contextual cue, signalling what was possible or acceptable in the learning environment. The Literature Review documented that peer norms can reinforce both productive and unproductive behaviours: Annishah et al. (2025) found that collaborative, learner-centred platforms reduce anxiety and foster enjoyment, while Xu and Jumaat (2024) and Fang and Han (2025) cautioned that peer norms can reinforce uncritical AI reliance when learners observe peers using AI to generate content quickly rather than to support learning processes. The present data suggest that the direction of peer influence was contingent on the prevailing framing of AI use within the learning environment: where peers shared strategies, compared prompts, and discussed the quality of AI output, social influence reinforced reflective engagement; where peers focused on efficiency and output production, it risked reinforcing surface-level adoption. This finding specifies the mechanisms through which peer influence operates, extending the Literature Review's treatment beyond general predictions of behavioural intention to the qualitative dynamics of how peers shape the nature of engagement.

Instructor attitudes played a more complex and ambivalent role. As detailed in Section 5.6.1, 74.3% of participants cited the role of educators as a significant influence. While some learners benefited from teachers who endorsed or even integrated generative AI

use into classroom tasks, others reported uncertainty, fear of disapproval, or mixed messaging. This variation in instructional stance contributed to differing levels of psychological safety. When instructors communicated clear boundaries and demonstrated how the tools could be used ethically and effectively, learners reported feeling empowered to explore. By contrast, in environments where teachers' positions were unclear or implicitly negative, learners hesitated or used the tools covertly. This inconsistency illustrates a critical point: that institutional actors can function as either enablers or inhibitors of learner autonomy depending on the clarity, consistency, and tone of their messaging (Deci & Ryan, 2000). The Literature Review established that when instructors model reflective and principled use of digital tools, demonstrating how to evaluate AI-generated suggestions, integrate them selectively, and maintain critical oversight, learners are more likely to adopt similar practices and to sustain motivation for technology-mediated learning (Fang & Han, 2025; Alnemrat et al., 2025). Conversely, Rintaningrum (2023) found that when technology use is presented as optional, peripheral, or disconnected from core learning goals, learners perceive it as extraneous, resulting in diminished motivation. The present findings add specificity to these claims by revealing that instructor influence operates through perceived legitimacy rather than explicit instruction. It was less what teachers said about generative AI and more how they positioned it within their pedagogical practice that shaped learners' willingness to engage openly and reflectively.

This ambivalence extended to the facilitating conditions available within the institutional infrastructure. UTAUT-2 defines facilitating conditions as the degree to which individuals believe that an organisational and technical environment exists to support their use of the technology (Venkatesh et al., 2012). In this study, learners had access to AI tools largely through personal devices and independent initiative. While this autonomy promoted experimentation, it also introduced a layer of uncertainty and self-regulation burden. As reported in Section 5.6, learners often questioned whether their usage aligned with institutional policy or whether it would be perceived as academic dishonesty. The absence of official guidelines created a motivational paradox: while learners indicated that they valued the freedom to explore, they also desired clearer parameters to legitimise and contextualise their use. The Literature Review documented those institutional policies

regarding acceptable use of AI tools shape social norms, and that when policies are clear, consistent, and communicated effectively, learners and teachers have a shared understanding of how technology should be used (Rintaningrum, 2023; Alrayes et al., 2024). However, Zaim et al. (2024) found that facilitating conditions unexpectedly negatively impacted behavioural intention among Indonesian EFL lecturers, suggesting that when existing resources are perceived as adequate, the introduction of new tools may be seen as unnecessary rather than beneficial. The present findings reveal a different dynamic: here, the absence rather than the presence of facilitating conditions was problematic, creating uncertainty that constrained the depth and openness of engagement even among learners who were intrinsically motivated to use the tools. This finding directly addresses RQ4 by identifying policy clarity as a prerequisite for converting autonomous motivation into sustained, open practice.

The role of relatedness, as articulated in SDT, further deepens understanding of these dynamics. Relatedness is the psychological need to feel connected, respected, and part of a learning community (Deci & Ryan, 2000). Although AI use was often solitary in execution, the findings of Section 5.9 revealed numerous instances in which learners described engaging in peer collaboration, shared strategies, or discussed AI-generated content. These interactions foster a sense of community and reinforce the perception that AI use was not a marginal or stigmatised practice but part of a shared learning culture. Even when used individually, learners frequently reported discussing AI outputs with peers or comparing prompt results, which created a form of distributed dialogue around AI-mediated learning. The Literature Review established that peer interactions and norms shape learners' technology use, particularly in collaborative environments, and that platforms supporting collaborative, learner-centred interaction reduce anxiety and foster enjoyment (Annishah et al., 2025; Rintaningrum, 2023). Huang and Teng (2025) found that both peer feedback and generative AI feedback positively impact motivation and engagement, but through different mechanisms. The present data suggest that peer dialogue about AI use, sharing prompts, comparing outputs, debating quality, functioned as a mechanism through which relatedness and evaluative judgment developed simultaneously: learners reported feeling connected to a learning community while also

developing shared standards for what constituted effective and appropriate AI use. This finding clarifies how relatedness supports autonomous regulation, directly engaging RQ3.

This peer-based relatedness was especially important in offsetting the institutional ambiguity noted above. Where formal guidance was lacking, learners indicated that they turned to each other for reassurance, validation, and support. As reported in Section 5.6.1, informal social networks became sources of knowledge, confidence, and ethical calibration. In this context, relatedness was not merely about emotional connection but about shared meaning-making, where learners co-constructed norms around effective and appropriate AI use. The Literature Review's discussion of social influences documented that learners' perceptions of whether their peers and instructors value and endorse technology use significantly predict their own motivation to engage (Wang et al., 2025; Zaim et al., 2024). The present findings extend this by demonstrating that in the absence of clear institutional direction, peer communities functioned as stabilisers of emerging practice, filling a normative vacuum that institutional actors had left unfilled. This observation has direct implications for RQ4: institutional support need not be restrictive or prescriptive to be effective; rather, it should provide enough clarity to legitimise the informal peer norms that naturally develop around technology use (Deci & Ryan, 2000).

These social and institutional dynamics influenced not only whether learners described using generative AI tools but how they used them. Learners in more supportive or technology-forward environments described using the tools more confidently and creatively, experimenting with multiple formats, integrating AI into their workflow, and even helping others improve their use. Conversely, learners in restrictive or uncertain environments were more likely to use AI narrowly, avoid asking questions about it, or limit their engagement to low-risk contexts. These usage patterns reflect the interaction between social context and learner agency: while motivation and autonomy were internally generated, they were significantly shaped by the level of external validation or inhibition (Deci & Ryan, 2000). The Literature Review documented that access conditions send institutional signals about the value placed on technology integration, and that when institutions invest in infrastructure and support, learners interpret this as endorsement of technology's importance (Rintaningrum, 2023; Nhan, 2024). The present data confirm

that these signals were actively interpreted by learners: perceived institutional endorsement expanded the scope and depth of engagement, while perceived ambiguity or disapproval constricted it, regardless of learners' individual motivation levels.

Another dimension of social and institutional influence was the ethical framing of generative AI use. As reported in Section 5.6, some learners expressed concern that using AI might be seen as dishonest or as bypassing genuine learning effort. Others debated whether accepting AI feedback counted as original work. These concerns were rarely about the tool itself but about how others, especially instructors or assessors, might interpret its use. This ethical ambiguity created a tension between learners' desire for competence and autonomy and their need for legitimacy and acceptance (Deci & Ryan, 2000). According to SDT, such tension can undermine intrinsic motivation if the social environment is perceived as controlling or judgmental (Deci & Ryan, 2000). The Literature Review documented that when assessment criteria reward evidence of reasoning, revision decisions, and reflective engagement rather than solely evaluating final products, social norms cohere around principled technology use (Rintaningrum, 2023; Pan et al., 2025). The present findings suggest that assessment alignment is not merely a pedagogical design consideration but a critical social signal: when learners reported perceiving that assessments valued process over product, they felt more secure in using AI as a learning tool rather than hiding or minimising their use.

Despite these challenges, many learners indicated that they developed personal ethical codes for generative AI use. They drew boundaries around what constituted acceptable support, such as idea generation and error identification, and what they considered overreliance, such as full-text generation. These internal standards were often influenced by peer dialogue, prior academic norms, and broader cultural understandings of academic integrity. The development of such reflective stances further evidences the maturation of learner identity and the internalisation of responsible learning behaviours, even in the absence of top-down regulation (Deci & Ryan, 2000). The Literature Review's discussion of reflection and metacognition established that when learners are prompted to explain why they accept or reject AI-generated suggestions, they are more likely to develop transferable understanding rather than simply adopting AI outputs as final

products (Alnemrat et al., 2025; Teng, 2024). The ethical self-regulation observed in this study represents an analogous evaluative stance applied not to linguistic content but to the moral and pedagogical dimensions of AI use, suggesting that metacognitive development and ethical awareness develop in parallel through sustained, reflective engagement.

As detailed in Section 5.6.2, learners expressed a strong desire for structured institutional support. They requested training, workshops, or exemplars that would help them use the tools more effectively and ethically. While individual autonomy was valued, learners also recognised the limits of self-regulation in novel and fast-evolving technological contexts. This suggests that institutional facilitation is not incompatible with autonomy but can, in fact, enhance it when designed supportively (Deci & Ryan, 2000). The Literature Review documented that professional development, technical support, and institutional recognition of technology-enhanced teaching are critical factors influencing teachers' willingness and capacity to integrate digital tools effectively (Alrayes et al., 2024; Alkolaly et al., 2025). Li et al. (2025) emphasised the importance of helping learners develop not only technical skills for using AI tools but also critical literacies for evaluating AI outputs and metacognitive strategies for integrating AI feedback into self-regulated learning processes. The role of the institution, therefore, is not merely to grant access or impose restrictions but to cultivate an environment where learners feel empowered, guided, and connected in their use of emerging tools, a finding that directly specifies the enabling conditions targeted in RQ4.

Taken together, Section 6.6 advances RQ3 by specifying how peer and instructor stances steer the quality and openness of engagement, demonstrating that social influence in generative AI use operates through dialogic relatedness and perceived legitimacy rather than normative compliance. It advances RQ4 by identifying the institutional levers, policy clarity, assessment alignment, capacity-building, and instructor modelling, that shape sustained, legitimate use. The convergence of UTAUT-2's social influence and facilitating conditions with SDT's relatedness reveals that learners' sense of belonging and validation was essential to sustaining motivation, and that the absence of clear institutional signals

created a motivational paradox in which autonomy was desired but constrained by uncertainty.

6.7 Developing Critical Awareness & Digital Discernment

As learners described engaging more deeply with generative AI tools, a significant shift occurred in their understanding of the tools' limitations, reliability, and epistemic authority. As reported in Section 5.8, this theme was identified in 90 of the 167 responses (53.9%), revealing sustained attention to issues of reliability, verification, and ethical use. Learners reported moving from initial acceptance of AI-generated content toward a more evaluative, questioning stance. This development reflects the emergence of critical digital literacy, the capacity to judge, adapt, and contextualise digital outputs, and an important evolution in self-regulation, linked directly to both performance and effort expectancy (Venkatesh et al., 2012) and autonomy and competence (Deci & Ryan, 2000). The Literature Review's discussion of reflection and metacognition (Section 2.5) established that such discernment is a precondition for meaningful, sustained engagement, with Alnemrat et al. (2025) cautioning that learners may interact passively with AI feedback, often accepting suggestions without critical evaluation, raising concerns about surface-level revision and reduced metacognitive engagement. The present findings contradict deficit views that assume blanket dependency and instead detail learner strategies of critique and selective uptake, demonstrating that many participants indicated that they developed sophisticated evaluative practices through sustained interaction with generative AI.

In the early stages of engagement, many learners approached generative AI tools with a sense of novelty and openness, often assuming that outputs, particularly grammatical corrections or text expansions, were reliable. This initial trust aligns with UTAUT-2's performance expectancy, as learners believed the tools would improve their task performance and accelerate their learning (Venkatesh et al., 2012). However, with repeated use, this perception began to shift. As reported in Section 5.8, learners started to notice inconsistencies in the AI's suggestions, moments of overly formal or awkward phrasing, occasional factual inaccuracies, and contextually inappropriate

recommendations. These moments became pivotal, prompting a reconsideration of the tool's role: not as an unquestionable authority, but as a resource requiring critical engagement. The Literature Review documented that AI feedback may produce inaccurate critiques, offer generic advice, or miss contextually nuanced issues, further undermining learners' capacity for critical evaluation when they lack the metacognitive skills to identify such limitations (Alnemrat et al., 2025; Fang & Han, 2025). The present findings demonstrate that rather than undermining engagement, encounters with AI limitations served as catalysts for metacognitive development, learners who discovered errors in AI output developed greater awareness of their own linguistic knowledge and greater confidence in their capacity to evaluate competing sources of information.

This emerging discernment can be understood as a development of effort expectancy in a more nuanced direction. While UTAUT-2 defines effort expectancy as the ease associated with technology use (Venkatesh et al., 2012), the findings detailed in Section 5.8 suggest that learners described beginning to recognise that effective use of generative AI required more, not less, cognitive effort. Learners had to frame appropriate prompts, evaluate responses, compare outputs, and sometimes edit or reject suggestions. Thus, rather than reducing the workload, the tools shifted the type of effort required, from text generation to critical decision-making. This shift does not contradict UTAUT-2 but rather enriches its interpretation: ease of use may attract initial engagement, but long-term use is sustained by the learner's ability to manage the cognitive and evaluative demands of generative AI interaction (Venkatesh et al., 2012). The Literature Review established that Zaim et al. (2024) found effort expectancy had no significant effect on behavioural intention among Indonesian EFL lecturers already familiar with generative AI, suggesting that once a threshold of familiarity is crossed, perceived ease of use ceases to be a meaningful predictor of continued engagement. The present data extend this finding by revealing what replaces effort expectancy as the sustaining mechanism: it is the learner's growing evaluative competence, their ability to allocate cognitive effort strategically toward judgment rather than production, that stabilises productive habits over time. This reallocation of effort represents a qualitative shift in how learners relate to the technology, directly addressing RQ2.

From the perspective of SDT, the development of critical awareness also reflects the interplay of autonomy and competence. Learners who questioned generative AI outputs, made deliberate modifications, and sought external confirmation were exercising agency and self-regulation. Their engagement with the tools was no longer passive or externally directed but self-authored. These learners took ownership of the learning process, choosing when to accept feedback, when to challenge it, and when to seek alternative inputs. In doing so, they affirmed their autonomous role in shaping the learning experience (Deci & Ryan, 2000). The Literature Review documented that technology tools supporting learner autonomy and providing competence-affirming feedback tend to enhance intrinsic motivation, whereas tools perceived as controlling may undermine it (Wei, 2022; Altwijri & Alghizzi, 2024). The critical engagement observed in this study represents a case where the limitations of AI feedback paradoxically strengthened autonomy: it was precisely because the tools were imperfect that learners were compelled to exercise independent judgment, developing the evaluative stance that the Literature Review identified as a marker of internalisation (Deci & Ryan, 2000; Noels et al., 2002).

The findings reported in Section 5.8, under the themes related to critical engagement, autonomy, and collaborative judgment, revealed that learners' competence was not defined solely by correctness or fluency but by the ability to navigate ambiguity. Learners described scenarios in which they disagreed with AI suggestions or were unsure about the appropriateness of a given structure. Rather than disengaging, they turned to their own judgment, consulted peers, or compared generative AI feedback with prior knowledge. This active judgment is central to what SDT defines as integrated motivation, a form of regulation in which learners act in accordance with their own values and goals (Deci & Ryan, 2000). Competence, in this context, becomes a combination of linguistic skill, strategic reasoning, and epistemic resilience. The Literature Review established that structured revision protocols, such as those requiring learners to articulate their reasoning or compare multiple sources of feedback, promote metacognitive awareness and deeper engagement (Guo & Li, 2024; Teng, 2024). The evaluative practices observed in this study represent a spontaneous approximation of such structured protocols, suggesting that sustained interaction with imperfect AI feedback can naturally scaffold the

development of evaluative judgment when learners approach the interaction with a reflective rather than compliant orientation.

The process of developing judgment was also socially mediated. As reported across Sections 5.8 and 5.9, some learners discussed their doubts about generative AI outputs with peers, comparing notes or validating each other's decisions. These social interactions helped normalise critical engagement and positioned judgment as a shared learning practice rather than an isolated act of scepticism. While UTAUT-2 does not directly address these micro-social interactions, they are closely aligned with SDT's concept of relatedness, which highlights the motivational power of connection, mutual respect, and collaborative learning (Deci & Ryan, 2000). When learners reported feeling supported in questioning or adjusting generative AI feedback, they were more likely to persist in developing thoughtful, informed strategies for the tools' use. The Literature Review established that collaborative learning environments mediated by technology can either amplify or mitigate uncritical adoption depending on how they are structured: when collaborative tasks require learners to explain their reasoning, justify their use of technology, or compare multiple sources of feedback, peer interactions reinforce reflective and critical engagement (Annishah et al., 2025; Huang & Teng, 2025). The present data confirm this pattern, demonstrating that peer-mediated critique was a powerful mechanism for consolidating individual critical awareness into collective practice norms, directly elaborating RQ3.

The move toward critical engagement did not reduce learners' use of generative AI tools; rather, it reshaped the nature and purpose of their engagement. Learners no longer relied on AI-generated answers alone but used the tools as sounding boards, collaborators, and instruments for testing hypotheses. They used them to challenge their assumptions, explore alternative phrasing, or simulate how a native speaker might respond. In this way, the generative AI tools became not a source of truth but a site of inquiry, allowing learners to deepen their understanding of language in context. This transformation reflects an integration of both instrumental and epistemic goals, with learners balancing utility with critical distance. The Literature Review's discussion of integration as a process (Section 2.6) established that the transformation stage of technology integration is characterised

by technology fundamentally reshaping learning practices and enabling new forms of engagement (Hasumi & Chiu, 2024; Rintaningrum, 2023). The shift from tool-as-answer to tool-as-inquiry observed in this study exemplifies this transformation stage, marking a mature form of integration in which the technology's value lies not in providing correct answers but in scaffolding the learner's capacity for independent evaluation and contextualised judgment.

As detailed in Section 5.8, critical awareness fostered digital maturity, an ability to operate confidently in technology-rich environments without overdependence. Learners described how, over time, they reduced their reliance on generative AI for certain tasks, such as generating content, and instead used it for targeted feedback, stylistic experimentation, or clarity checks. They learned to draw boundaries, develop their own criteria for effective communication, and apply usage selectively. These behaviours are indicative of a high level of self-efficacy, where learners trust their judgment and use technology to complement rather than define their skills. The Literature Review documented that the engagement-outcome disconnect reported by Waluyo and Kusumastuti (2024), where high levels of behavioural engagement did not translate into improved outcomes because interactions remained cognitively shallow, represents the risk of technology use without critical awareness. The selective, criteria-driven usage patterns observed in this study represent the opposite trajectory: learners who developed critical awareness used the tools less frequently but more purposefully, suggesting that digital maturity involves not maximising tool use but optimising it. This finding has important implications for how institutions measure and evaluate technology integration, directly informing RQ4.

At the same time, some learners reported struggling with the ambiguity of AI outputs, especially when feedback conflicted with prior knowledge or teacher expectations. These tensions highlight a key challenge in AI-mediated learning: the lack of transparent authority. Unlike teachers, AI tools do not explain their rationale in pedagogically structured ways, nor do they adapt to curriculum objectives or classroom norms. Learners had to navigate this ambiguity independently, often relying on their developing critical faculties to mediate between competing sources of authority. In SDT terms, this challenge tests the learner's autonomy and competence simultaneously, demanding both

confidence and reflection (Deci & Ryan, 2000). The Literature Review documented that the “black box” nature of many AI systems provides outputs without explaining the reasoning behind them, limiting learners’ opportunity to develop the metacognitive understanding that would enable critical evaluation (Fang & Han, 2025). The present data reveal that while this opacity was initially disorienting, it ultimately served a productive function for many learners: the absence of transparent authority compelled them to develop their own evaluative criteria, a process that strengthened rather than undermined their sense of competence. However, this positive outcome was not universal, and learners who lacked prior linguistic confidence or peer support found the ambiguity paralysing rather than productive, a finding that underscores the importance of institutional scaffolding.

In response to this ambiguity, learners expressed a need for more institutional support in cultivating digital literacy. As reported in Section 5.8, they wanted clearer guidance on how to use the tools responsibly, ethically, and effectively. They also sought validation for their developing critical stances, recognition that discerning, questioning, and editing generative AI outputs were legitimate and valuable learning behaviours. This underscores the importance of facilitating conditions not just in technical terms but in pedagogical and ethical terms (Venkatesh et al., 2012). The Literature Review established that helping learners develop not only technical skills for using AI tools but also critical literacies for evaluating AI outputs and metacognitive strategies for integrating AI feedback into self-regulated learning processes is essential for responsible and effective AI use (Li et al., 2025). Alrayes et al. (2024) and Alkolaly et al. (2025) found that professional development and institutional recognition of technology-enhanced teaching are critical factors influencing integration quality. Institutions that provide frameworks for responsible AI use, including prompt literacy, model critique, and assessment-aligned guidance, thus support learner development in critical thinking and reflective practice, directly addressing RQ4.

Taken together, Section 6.7 demonstrates that critical awareness and digital discernment are not merely by-products of generative AI engagement; they are integral to its value as a learning tool. Learners who engaged critically did not reject the technology, they repositioned themselves in relation to it, using it as a partner in exploration rather than a

source of authority. This repositioning reflects the fulfilment of autonomy and competence as defined in SDT, and the evolving dynamics of performance and effort expectancy as outlined in UTAUT-2 (Deci & Ryan, 2000; Venkatesh et al., 2012). Section 6.7 advances RQ1 by showing how evaluative practice sustains motivation through competence growth, RQ2 by clarifying how initial ease-of-use perceptions evolve into skilled discernment, RQ3 by locating critique within supportive peer climates that normalise questioning, and RQ4 by identifying the institutional literacy frameworks, prompt training, evaluative scaffolding, assessment alignment, and transparent norms, that convert individual discernment into stable, ethical practice (Rintaningrum, 2023; Li et al., 2025; Alrayes et al., 2024).

6.8 Collaboration, Peer Dynamics, & Shared Learning Purpose

While generative AI tools are often conceived as individualised technologies, used privately, asynchronously, and independently, the findings of this study reveal that their integration into the learning environment was also profoundly social. As reported in Section 5.9, learners indicated that they engaged not only with the tools themselves but with each other, using generative AI as a shared resource, topic of discussion, and collaborative platform. These peer dynamics significantly shaped learner motivation, strategy, and identity. This section examines how learners' use of generative AI fostered collaborative engagement and how these dynamics can be understood through UTAUT-2's social influence construct and SDT's concept of relatedness, extending both frameworks by positioning generative AI as a shared artefact around which metalinguistic dialogue and informal mentorship develop. The Literature Review's discussion of social influences (Section 2.7) established that peer-mediated uptake and normalisation are early catalysts for sustained engagement, with research demonstrating that when peers actively engage with technology, share resources, and provide supportive feedback, individual learners are more likely to adopt similar practices (Annishah et al., 2025; Rintaningrum, 2023). The present findings confirm and extend this by demonstrating that prompt sharing and joint critique turn what might be solitary use into distributed cognition and collective efficacy, directly informing RQ3.

Relatedness, in SDT, refers to the basic psychological need to feel connected to others and to experience a sense of belonging in one's learning environment (Deci & Ryan, 2000). While generative AI is not inherently social in its design, the findings demonstrated in Section 5.9 illustrate how learners socialised their experiences. They shared prompts, discussed the outputs they received, compared alternative phrasings, and sometimes worked together to refine or question the tool's suggestions. These interactions emerged organically, reflecting a practice in which generative AI use became part of peer-supported language development. The Literature Review documented that collaborative learning environments mediated by technology can either amplify or mitigate uncritical engagement depending on how they are structured: when collaborative tasks require learners to explain their reasoning, justify their use of technology, or compare multiple sources of feedback, peer interactions reinforce reflective and critical engagement (Annishah et al., 2025; Huang & Teng, 2025). The present data suggest that the collaborative dynamics around generative AI use were predominantly reflective in character, with learners using peer interaction as a mechanism for evaluating AI output quality rather than simply sharing shortcuts or circumventing learning tasks.

This peer collaboration fulfilled multiple motivational functions. First, it served as a source of validation and encouragement. Learners expressed greater confidence when their peers also used the tools or when they jointly evaluated AI-generated responses. Second, collaboration served as a mechanism for deepening understanding. By explaining prompts, defending output choices, or rephrasing content collaboratively, learners extended their cognitive engagement. Rather than reinforcing dependence on AI, these exchanges positioned generative AI use as a point of dialogue, enabling learners to develop metalinguistic awareness and co-construct knowledge in real time. The Literature Review established that peer explanation is a driver of evaluative judgment and sustained motivation, with An et al. (2021) demonstrating that technology-assisted self-regulated learning is positively associated with self-efficacy and enjoyment, and that self-efficacy mediates the relationship between self-regulation and learning outcomes. The present findings reveal the social mechanism through which this self-efficacy develops in collaborative contexts: when learners articulated their prompting strategies and evaluated AI output together, they simultaneously strengthened their own understanding and

contributed to their peers' development, creating a virtuous cycle of mutual competence growth. Teng (2024) found that scaffolded reflection on feedback promotes deeper metacognitive engagement; the present data suggest that peer discussion of AI feedback serves an analogous scaffolding function, with collaborative evaluation replacing formal pedagogical structures.

The findings of Section 5.9.1 affirm that relatedness does not require direct human-human instruction; it can also arise through peer mediation of digital experiences. Learners described feeling connected through the shared task of using and refining their use of these tools. In this way, the technology served as a mediator of collaboration, offering a common reference point and facilitating purposeful discussion. This connection played a crucial role in sustaining motivation, especially for learners who were initially unsure about how to use the tools or uncertain about their legitimacy in academic contexts. The Literature Review established that sociocultural perspectives on motivation emphasise that learners' engagement with technology is shaped not only by individual beliefs and goals but also by the social contexts in which learning occurs, with motivation understood as situated and relational (Rintaningrum, 2023; Zaim et al., 2024). The present data illustrate this situatedness: learners who had access to peer networks around AI use were more likely to develop confident, sustained engagement than those who used the tools in isolation, regardless of their individual motivation levels. This finding underscores that relatedness is not merely a secondary benefit of collaboration but a primary driver of the transition from tentative exploration to established practice.

Social influence, as conceptualised in UTAUT-2, played a key role in shaping learners' adoption and continued use of generative AI. Social influence is defined as the degree to which individuals perceive that important others believe they should use a particular technology (Venkatesh et al., 2012). As reported in Section 5.6.1, observing others use the tools, whether classmates, more confident peers, or early adopters, created a sense of permission and normalisation. This did not translate into uncritical imitation; learners made individual decisions about how and when to use the tools, but the social context clearly shaped perceptions of what was possible, acceptable, and worthwhile. The Literature Review established that learners' perceptions of whether their peers and

instructors value and endorse technology use significantly predict their own motivation to engage with digital tools (Wang et al., 2025; Zaim et al., 2024). Liu et al. (2024) found that social influence was particularly salient in collectivist cultural contexts, where social norms carry substantial weight. The present study, situated within a Bahraini higher education context, confirms this salience: normative visibility lowered perceived risk and supported exploratory uptake, with peer endorsement functioning as a legitimacy signal that was particularly important in the absence of clear institutional direction. This finding primarily advances RQ3.

Peer dynamics also introduced variation in engagement styles. As reported in Section 5.9, some learners emerged as informal mentors, helping others navigate the tools or interpret confusing outputs. These roles reinforce the competence and status of the mentor-learner while also supporting the autonomy and relatedness of the peer receiving help. These reciprocal relationships extended the social value of generative AI use as a collaborative learning asset. The Literature Review documented that when instructors model reflective and principled use of digital tools, learners are more likely to adopt similar practices (Fang & Han, 2025; Alnemrat et al., 2025). The present data suggest that in the absence of extensive instructor modelling, peer mentors partially fulfilled this function: more experienced AI users demonstrated effective prompting strategies, modelled evaluative engagement with AI output, and provided the reassurance that less experienced peers needed to develop their own practices. This finding has important implications for pedagogical design, suggesting that institutions could formally scaffold these informal mentoring dynamics to extend their reach and consistency.

However, collaboration around generative AI use was not without tension. The findings evidenced in Section 5.9.2 reveal moments where learners disagreed over AI-generated suggestions, questioned the validity of a peer's interpretation, or held divergent ethical views about appropriate use. These tensions, rather than undermining collaboration, prompted negotiation and reflection. Learners had to articulate their reasoning, defend their preferences, or revise their views in response to others. In this way, collaboration functioned not only as a motivational enhancer but as a catalyst for critical thinking and a space for developing argumentation and evaluative judgment. The Literature Review

established that assessment alignment and transparent norms shape whether peer interaction reinforces principled or uncritical technology use: when assessment criteria reward evidence of reasoning and reflective engagement, social norms cohere around principled practice (Rintaningrum, 2023; Pan et al., 2025). The negotiated norms observed in this study, where learners collaboratively established criteria for acceptable versus excessive AI use, illustrate this dynamic in action, bridging RQ3 and RQ4.

In some cases, peer collaboration helped learners develop a more nuanced understanding of the tool's limitations. As reported across Sections 5.8 and 5.9, some learners realised the tool's biases or stylistic constraints only after discussing outputs with others. These insights illustrate the value of distributed cognition, where individual experiences are extended through joint problem-solving. This process reinforces both competence and relatedness, affirming the idea that learners are part of a shared journey in understanding both language and the role of generative AI tools in language learning (Deci & Ryan, 2000). The Literature Review cautioned that the "black box" nature of AI systems can undermine metacognitive development when learners lack transparency into the reasoning behind suggestions (Fang & Han, 2025). The present data suggest that peer discussion functioned as a corrective to this opacity: by comparing outputs and evaluating them collectively, learners generated the transparency that the tools themselves did not provide, developing shared evaluative criteria through social rather than technical means.

The findings highlighted in Section 5.9.1 also demonstrate that learners often engaged in collaborative experimentation, testing how different inputs yielded different responses and comparing their strategies. These shared discoveries increased learners' sense of control and language development while reinforcing the idea that AI-mediated learning was not fixed but exploratory. This spirit of experimentation contributed to a positive emotional climate around generative AI use, replacing uncertainty with curiosity and enhancing collective motivation. The Literature Review's discussion of motivation (Section 2.4) established that initial enthusiasm for GenAI tools may wane if learners perceive the tools as providing generic or inaccurate feedback (Wang & Xue, 2024; Fang & Han, 2025). The collaborative experimentation observed in this study suggests a

mechanism through which this novelty decay is counteracted: when learners explored AI capabilities together, each new discovery renewed collective interest and provided social motivation to continue experimenting, sustaining engagement beyond what individual use alone might achieve.

The findings of Section 5.9.2 also uncovered limitations in peer dynamics. Some learners reported feeling unsure or left out when others were more fluent in using generative AI tools. In these instances, peer collaboration could inadvertently create hierarchies of access and competence, particularly when digital literacy varied. The Literature Review documented that Al-Smadi et al. (2025) found significant differences between high-achieving and low-achieving students' metacognitive engagement with AI tools, with high-achievers using them more strategically. The present data extend this to the social dimension: digital literacy differentials among peers could reproduce existing achievement hierarchies in new forms, with more proficient AI users gaining additional advantages through peer collaboration while less proficient users risked marginalisation. These findings suggest that while collaboration generally supports learning, it must be intentionally inclusive, with efforts made to ensure all learners have the confidence, opportunity, and support to engage meaningfully. Institutions and instructors have a role to play by scaffolding collaborative cultures in which generative AI is discussed, demystified, and democratised as a shared learning experience.

Another insight from Section 5.9.2 is that learners sometimes relied more on peer consensus than teacher approval when navigating AI-related uncertainties. This underscores the growing influence of peer norms in shaping ethical and strategic choices in digital learning. While this horizontal influence was often positive, it also poses challenges. Without institutional frameworks or teacher guidance, peer advice can become inconsistent or misaligned with assessment expectations. The Literature Review established that institutional policies regarding acceptable use of AI tools shape social norms, and that when policies are ambiguous or absent, learners navigate technology use through trial and error, potentially adopting practices that undermine learning or violate academic integrity expectations (Rintaningrum, 2023; Alrayes et al., 2024). This

calls for a balanced model of collaboration, one that values peer agency but is anchored in pedagogical clarity and shared learning outcomes.

Taken together, Section 6.8 demonstrates that collaboration and peer dynamics significantly influenced how learners reported using, adapted, and evaluated generative AI tools. Through shared experimentation, informal mentorship, and reflective dialogue, learners indicated that they developed a common learning purpose grounded in both individual progress and mutual support. These dynamics are best understood through SDT's relatedness, which highlights the importance of meaningful social connection for motivation (Deci & Ryan, 2000), and UTAUT-2's social influence, which captures how peer norms shape behavioural intention (Venkatesh et al., 2012). Generative AI, while technically individualised, became socially embedded, functioning as a bridge between learners, a site for joint exploration, and a catalyst for deeper connection in the language learning journey. This section advances RQ3 by detailing how peer and instructor climates shaped engagement quality, supports RQ1 by showing how collaborative discourse sustained motivation through relatedness and mutual competence development, and informs RQ4 by identifying institutional scaffolds, inclusive collaborative structures, assessment alignment, and pedagogical frameworks, that harmonise peer practice with ethical, principled use.

6.9 Institutional Responsibilities & Learner Support Needs

The integration of generative AI tools into language learning depends critically on the institutional environment in which learners operate. As the findings of this study reveal, while learners demonstrated high levels of autonomy, adaptability, and creativity in their use of generative AI, their engagement was consistently shaped by the presence, or absence, of institutional structures, guidance, and validation. This section interprets these findings through the lens of UTAUT-2's facilitating conditions and Self-Determination Theory's emphasis on autonomy support and competence development, arguing that institutions play a pivotal role not only in enabling access to AI tools but also in shaping how these tools are understood, trusted, and meaningfully integrated into learners' academic development. The Literature Review's discussion of integration as a process

(Section 2.6) established that system-level cues about legitimacy and purpose condition learner confidence and persistence, with research demonstrating that sustained pedagogical support, alignment with learning goals, and the development of metacognitive skills for evaluating and regulating technology use are critical conditions for reaching the transformation stage of technology integration (Rintaningrum, 2023; Hasumi & Chiu, 2024; Li et al., 2025). The present findings both confirm and extend this body of work by specifying that enabling structures must include ethical, pedagogical, and affective clarity, not infrastructure alone, directly informing RQ4 and, by extension, RQ2 where usability is socially framed rather than purely technical.

According to UTAUT-2, facilitating conditions refer to the extent to which individuals believe that organisational and technical infrastructure exists to support their use of a system (Venkatesh et al., 2012). In this study, learners often operated in environments where access to generative AI was voluntary, permitted and teacher-guided, but not explicitly supported. While most learners described using the tools independently through personal devices and platforms, they repeatedly expressed uncertainty about institutional expectations, ethical boundaries, and long-term implications for academic performance. As reported in Section 5.6, this ambiguity led some to conceal their use of generative AI or to limit their engagement to areas perceived as low risk. These behaviours indicate that the absence of institutional clarity does not deter usage altogether but introduces hesitation, selective use, and reduced confidence, especially in formal learning contexts. The Literature Review documented that institutional policies regarding acceptable use of AI tools shape social norms, and that when policies are clear, consistent, and communicated effectively, learners and teachers have a shared understanding of how technology should be used within the educational context (Alrayes et al., 2024; Rintaningrum, 2023). Conversely, Zaim et al. (2024) found that facilitating conditions can have unexpected effects on behavioural intention when existing institutional structures send ambiguous signals about the value of new technologies. The present data confirm that ambiguity was the primary institutional barrier: even among highly motivated learners, unclear policies produced covert, low-risk use patterns that constrained the depth and quality of engagement.

As outlined in Section 5.6, learners' concern was not about technological access; they wanted pedagogical and ethical frameworks that could legitimise and guide their use of these tools. This desire reflects a deeper need for psychological safety, where learners can explore and make mistakes without fear of penalisation or moral judgment. According to SDT, such conditions are essential for autonomy support, defined as an environment in which learners feel their choices are validated and their learning processes respected (Deci & Ryan, 2000). Where such institutional guidance was missing, even highly motivated learners reported internal conflict, self-censorship, or a reliance on peer networks to compensate for institutional silence. The Literature Review established that technology tools perceived as controlling may undermine intrinsic motivation, while tools embedded within autonomy-supportive environments tend to enhance it (Deci & Ryan, 2000; Deci & Ryan, 2008; Wei, 2022). The present findings extend this to the institutional level: it was not the tools themselves that were perceived as controlling, but the ambiguity of the institutional environment that created a controlling dynamic, learners who feared punishment for using AI were effectively placed in an externally regulated position, even though their actual use was autonomously motivated. This paradox, institutional silence producing a controlling climate despite the absence of explicit restrictions, represents an important refinement of how facilitating conditions interact with autonomy support, bearing directly on RQ4.

Learners articulated a strong need for training and skill development in AI literacy. As reported in Section 5.6.2, many felt that while they could use the tools in basic ways, they lacked the strategies, critical frameworks, and technical understanding to use them effectively and responsibly. This aligns with SDT's principle that motivation is sustained when learners perceive themselves as competent and when they are given opportunities to develop mastery (Deci & Ryan, 2000). When learners perceive that they are being equipped with the skills to succeed, their intrinsic motivation is reinforced; conversely, when they are left to navigate complex systems without institutional support, the burden of self-regulation can become overwhelming. The Literature Review documented that helping learners develop not only technical skills for using AI tools but also critical literacies for evaluating AI outputs and metacognitive strategies for integrating AI feedback into self-regulated learning processes is essential for responsible and effective

AI use (Li et al., 2025). Alnemrat et al. (2025) emphasised that without scaffolded reflection, such as asking students to justify revisions or compare AI suggestions with their own drafts, there is a risk that AI feedback will be consumed passively rather than integrated reflectively. The present findings suggest that institutions should invest in intentional pedagogical interventions that build learner capacity, confidence, and critical discernment, including prompt literacy training, structured feedback evaluation exercises, and guided comparison activities, directly addressing RQ2 (usability and accessibility) and contributing to RQ4 by specifying the enabling conditions of integration.

Several learners also highlighted the importance of ethical orientation. While they appreciated the flexibility and feedback generative AI tools offered, they were aware of potential risks such as overreliance, plagiarism, or diminished originality. What they lacked, however, was consistent guidance on where the ethical boundaries lay and how to use the tools in ways that enhanced learning rather than undermined it. As reported in Section 5.6, the need for ethical clarity is not simply a compliance issue; it is a matter of learning integrity. Learners wanted institutions to treat them not as potential cheaters but as capable individuals navigating new and uncertain territory. This call for respect and mutual trust aligns strongly with SDT's notion of relatedness, where learners feel valued and supported within their learning community (Deci & Ryan, 2000). The Literature Review established that when assessment criteria reward evidence of reasoning, revision decisions, and reflective engagement rather than solely evaluating final products, social norms cohere around principled technology use (Rintaningrum, 2023; Pan et al., 2025). The present data suggest that assessment alignment was a particularly powerful institutional lever. Learners who perceived that their assessments valued process over product were more willing to use AI transparently and reflectively, while those who perceived a product-focused assessment culture were more likely to use AI covertly or to minimise evidence of its use. This finding has direct implications for institutional policy, suggesting that assessment reform may be as important as usage guidelines in shaping responsible AI engagement.

Institutions are therefore positioned not as gatekeepers but as enablers of meaningful engagement. They must create spaces where learners can integrate generative AI into

their practices openly, reflectively, and responsibly. This includes establishing clear usage policies, designing AI-integrated assessments that reward critical thinking rather than memorisation, guiding learners on appropriate tools and capacity building in prompt design, and training instructors to model appropriate and effective generative AI use in the classroom. The Literature Review documented that professional development, technical support, and institutional recognition of technology-enhanced teaching are critical factors influencing teachers' willingness and capacity to integrate digital tools effectively (Alrayes et al., 2024; Alkolaly et al., 2025). Juhana (2025) found that faculty engagement with AI tools was shaped by institutional culture, and that institutions which provided both resources and philosophical frameworks for AI integration produced more confident and pedagogically intentional use among instructors. These structural conditions fulfil the aims of UTAUT-2's facilitating conditions and SDT's autonomy support, creating a learning ecology in which learners are not only allowed but encouraged to become active agents in their own learning development (Venkatesh et al., 2012; Deci & Ryan, 2000). The alignment between policy, pedagogy, and assessment reduces hidden-curriculum effects and stabilises practice communities, specifying the institutional mechanisms relevant to RQ4.

Learners indicated that emotional and psychological factors, such as fear of doing something wrong, feeling isolated in their use of technology, or lacking validation, had a significant impact on their engagement. As reported across Sections 5.6 and 5.9, these insights underscore that facilitating conditions must be holistic, addressing not only infrastructure and training but also the affective dimensions of learning. Supportive mentorship, spaces for discussion, and constructive feedback on generative AI use are all part of creating an environment in which learners feel safe, empowered, and intellectually challenged. The Literature Review established that emotional engagement, encompassing interest, enjoyment, anxiety, and sense of connection to the learning task, is a critical component of sustained technology-mediated learning (Wei, 2022; Altwijri & Alghizzi, 2024). Wang and Wang (2025) found that enjoyment enables continued intention to use AI tools while anxiety impairs it, particularly in lower-proficiency cohorts. The present data confirm that institutional environments which addressed the affective dimension, through instructor encouragement, peer collaboration spaces, and explicit

validation of AI use as a learning strategy, produced more sustained and deeper engagement than those which focused solely on access and technical provision. This finding extends the concept of facilitating conditions beyond its traditional UTAUT-2 definition to encompass the psychological and relational dimensions that SDT identifies as essential for autonomous motivation.

Taken together, Section 6.9 demonstrates that institutions have a central role to play in shaping how generative AI tools are integrated into language learning. Facilitating conditions must be understood not merely as the provision of tools and infrastructure but as the creation of ethical, pedagogical, and emotional scaffolding that enables learners to thrive. When institutions adopt a learner-centred approach that values autonomy, competence, and relatedness, they do more than manage new technology integration, they co-create a future-oriented model of education in which AI and humanity are in productive dialogue. The patterns reported here specify the contextual levers addressed by RQ4, policy clarity, assessment alignment, AI literacy training, instructor professional development, and affective support, and clarify how perceived usability and access are institutionally constructed rather than solely technical, thereby informing RQ2 and, where instructor stance is salient, RQ3.

6.10 Conclusion

This chapter has interpreted the findings presented in Chapter 5 through the integrated theoretical lens of UTAUT-2 and Self-Determination Theory, examining how generative AI tools mediate engagement, motivation, and identity transformation in higher education EFL learning. Across nine discussion sections, the analysis has demonstrated that learners' interactions with generative AI are shaped by a complex interplay of performance expectations, motivation, autonomy support, social influence, facilitating conditions, and digital literacy. The discussion has shown that engagement with generative AI is not reducible to technology acceptance alone but involves deeper processes of identity renegotiation, feedback reconceptualisation, and metacognitive development. Table 7, organised by the literature review areas and themes identified in Chapter 2, summarises the key contributions of this study.

Literature review area	Theme	Contribution
Engagement (Section 2.3)	Interpreting learner engagement through UTAUT-2 & SDT	• to demonstrate that neither UTAUT-2 nor SDT alone captures the full complexity of GenAI engagement; their integration reveals layered interactions between behavioural intention and psychological need satisfaction • to extend acceptance-oriented models by showing that engagement quality depends on motivational depth, not just adoption frequency
	Language competency gains & performance expectations	• to show that perceived competency gains in writing, grammar, vocabulary, and speaking reinforce continued GenAI use through a self-sustaining cycle of performance expectancy and competence satisfaction • to confirm performance expectancy as a driver of adoption but extend this by linking it to SDT's competence need
Motivation (Section 2.4)	Motivation, enjoyment, & autonomy in GenAI use	• to reveal that hedonic motivation is not a transient novelty effect but sustains engagement when coupled with learner autonomy and personalised interaction • to challenge assumptions that enjoyment diminishes over time by showing that autonomy transforms enjoyment into sustained intrinsic motivation

Literature review area	Theme	Contribution
Reflection & Metacognition (Section 2.5)	Feedback as a dialogic, learner-controlled process	• to reconceptualise AI feedback as a two-way, learner-driven conversation rather than a one-directional evaluative mechanism • to extend feedback literature by demonstrating that GenAI enables dialogic feedback practices previously limited to human interaction
	Developing critical awareness & digital discernment	• to show that learners develop critical digital literacy through sustained GenAI interaction, moving from uncritical acceptance to evaluative, questioning engagement • to address the gap regarding how metacognitive skills develop over time rather than at a single measurement point
Integration as a Process (Section 2.6)	Learner agency & the transformation of identity	• to document how sustained GenAI use triggers identity shifts from “passive learner” to “strategic user,” reshaping self-concept and self-efficacy • to extend integration models by showing transformation is not merely behavioural but involves fundamental changes in learner identity
	Institutional responsibilities & learner support needs	• to identify six institutional conditions necessary for effective GenAI integration: policy clarity, assessment alignment, AI literacy training, instructor development, infrastructure, and affective support

Literature review area	Theme	Contribution
		• to extend facilitating conditions beyond infrastructure to include pedagogical, ethical, and emotional scaffolding
Social Influences (Section 2.7)	Social & institutional factors shaping GenAI use	• to demonstrate that social influence operates beyond initial adoption to shape ongoing engagement quality, with instructor modelling and peer norms reinforcing either reflective or surface-level practices • to challenge UTAUT's static operationalisation of social influence by revealing its evolving, practice-shaping role
	Collaboration, peer dynamics, & shared learning purpose	• to reveal that GenAI use is socially mediated through peer collaboration, shared strategies, and collective sense-making • to extend social influence literature by documenting micro-level peer interactions around GenAI that reinforce reflective engagement and foster relatedness

Table 6: Summary of contributions to new research knowledge

Chapter 7: Conclusion

This concluding chapter synthesises the key findings of the study, discusses its theoretical and practical contributions, and acknowledges its limitations while proposing directions for future research. It begins by revisiting the study's objectives and how they were achieved, before reflecting on the broader implications for both theory and practice. It concludes by highlighting the potential of generative AI as a transformative pedagogical force in English as a Foreign Language (EFL) education and beyond.

This study investigated how EFL learners in higher education engage with generative AI tools, focusing on the motivational, behavioural, and contextual factors that influence their sustained use. Drawing on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) and Self-Determination Theory (SDT), the study demonstrated that generative AI tools are not merely functional technologies but integral components of learners' evolving strategies, identities, and motivations.

The empirical evidence presented in Chapter 5 revealed that learners reported perceiving generative AI as supportive in enhancing multiple language competencies, particularly writing, vocabulary, and grammatical awareness, while also promoting reflection, experimentation, and metacognitive awareness. Learners reported a transition from being passive recipients of instruction to autonomous and proactive users who shaped their own interactions with AI tools.

This transformation was underpinned by the dialogic and iterative nature of AI feedback, the enjoyment associated with tool use, and the opportunity to rehearse, revise, and explore ideas without fear of judgment. Institutional and peer dynamics also emerged as significant factors, influencing the legitimacy and frequency of AI use within classroom and self-directed contexts. These findings collectively underscore that successful AI integration requires both technological access and social validation within the learning environment.

7.1 Theoretical Implications

Theoretically, this research contributes to the understanding of learner engagement and motivation in technology-enhanced language learning. By integrating UTAUT-2 and SDT, the study offers a dual-lens analytical approach that bridges behavioural intention with intrinsic motivation. The findings extend UTAUT-2 by illustrating how constructs such as performance expectancy, effort expectancy, and social influence operate synergistically with internal motivational drivers. For instance, Section 5.3 demonstrated how learners' continuous engagement with AI tools was not solely determined by external enablers or peer approval, but by the degree to which these tools fulfilled psychological needs for autonomy, competence, and relatedness as outlined in SDT. The identity transformation described in Section 5.7 provides empirical evidence of how technological adoption intertwines with self-concept evolution.

This integration reveals a critical theoretical insight: technological adoption in educational contexts cannot be fully explained by behavioural intention models alone. As shown in Section 5.5, the sustainability of AI use depends on the internalisation of enjoyment, mastery, and self-directed agency, particularly through the reconceptualization of feedback as conversation rather than correction.

Building on this synthesis, the study introduces the Generative AI Engagement and Motivation (GAIEM) Framework, later discussed in Section 7.5, which conceptualises AI-assisted learning as a motivational ecosystem encompassing four interrelated dimensions: Enabling Environment, Mediated Engagement, Internalisation Mechanisms, and Learner Agency. This framework advances theoretical discourse by positioning AI-supported learning as a dynamic process of motivational internalisation, rather than a simple interaction between technology and behaviour. It provides a foundation for further theoretical expansion and empirical testing within AI-mediated education.

7.2 Practical Implications

The findings carry substantial implications for practice, particularly for educators, curriculum designers, and policymakers. For educators, the study recommends

integrating AI tools as dialogic partners that promote reflection, revision, and learner autonomy. Drawing from Section 5.5, rather than using AI merely to correct errors, teachers should incorporate it as a mechanism for discussion and critical thinking. The collaborative dynamics identified in Section 5.9 suggest that classroom tasks should be designed to stimulate analytical comparison between AI feedback and peer or teacher feedback, encouraging learners to question, adapt, and personalise their learning.

For institutions, the barriers identified in Section 5.6 highlight the importance of establishing clear ethical and operational frameworks. The absence of institutional policies and explicit guidance was perceived by learners as a barrier to legitimate and confident AI use. Section 5.10's findings indicate that institutions should therefore prioritise the development of AI literacy training, addressing issues of authorship, data security, and plagiarism. Providing workshops and resources to both teachers and students can help ensure that AI is used as a tool for empowerment rather than dependency.

For policymakers, the study emphasises the necessity of balancing innovation with educational ethics. Equitable access to AI technologies, professional training, and robust policy frameworks are essential to ensure that AI use supports inclusive, transparent, and sustainable educational goals. Embedding AI literacy into national curricula and language education strategies can strengthen institutional readiness and learner resilience in digital environments.

Ultimately, the practical contribution of this research lies in its call for a pedagogical paradigm that treats AI as a co-creator of learning experiences, not as a mechanical assistant. When implemented thoughtfully, AI can enhance learner motivation, self-efficacy, and engagement while preserving human-centred values of empathy, creativity, and collaboration.

7.2.1 Key Recommendations for Practice

For Educators:

- Integrate AI tools as dialogic partners for reflection and revision, not just error correction
- Design classroom tasks that stimulate analytical comparison between AI, peer, and teacher feedback
- Encourage learners to question, adapt, and personalise AI-generated content
- Model ethical and strategic AI use while maintaining human judgment as central
- Participate in professional development programmes on AI pedagogy

For Institutions:

- Establish clear ethical and operational frameworks for AI use
- Develop comprehensive AI literacy training addressing authorship, data security, and plagiarism
- Provide workshops and resources for both teachers and students
- Create explicit policies that position AI as a tool for empowerment rather than dependency
- Ensure infrastructure supports equitable access to AI technologies

For Policymakers:

- Balance innovation with educational ethics in AI implementation
- Ensure equitable access to AI technologies across all educational settings
- Mandate professional training for educators on AI integration
- Embed AI literacy into national curricula and language education strategies
- Develop robust policy frameworks for transparent and sustainable AI use

For Curriculum Designers:

- Design tasks that promote iterative AI interaction rather than single-use correction
- Integrate AI tools systematically into course objectives and assessments
- Create rubrics that value critical evaluation of AI output
- Develop materials that teach prompt literacy alongside language skills

7.3 Limitations of the Study

While the study provides meaningful insights, several limitations must be acknowledged, each influencing the scope and nature of knowledge produced.

7.3.1 Institutional Context Limitation

The research was conducted within a single institutional context where students had relatively open access to generative AI tools and pedagogical support. This limitation arose because of practical constraints in accessing multiple institutions during the data collection period and the need for in-depth, contextually rich data that required sustained researcher presence. These favourable conditions, including institutional openness to AI experimentation and available technological infrastructure, may not exist in more restricted or resource-limited settings. Consequently, the knowledge produced reflects an optimal-case scenario of AI integration, potentially overestimating the ease of adoption and underrepresenting the challenges faced in institutions with limited resources, restrictive policies, or lower digital readiness. The framework developed may therefore require significant adaptation when applied to contexts with different levels of institutional support or technological access.

7.3.2 Self-Reported Data Limitation

The data were derived primarily from self-reported perceptions gathered through surveys, supplemented by digital interaction logs. This methodological choice was necessary given the exploratory nature of the research and the importance of understanding learners' subjective experiences with emerging technology. However, self-reported data are inherently susceptible to social desirability bias, recall limitations, and potential misalignment between perceived and actual learning gains. While digital traces enhanced validity by providing behavioural evidence of engagement patterns, they do not substitute for direct observation or measured performance outcomes. This limitation means the findings should be interpreted as reflections of learners' experiences and beliefs rather than objective evidence of linguistic improvement, affecting the study's ability to make

definitive claims about the efficacy of AI tools for language acquisition versus their perceived value.

7.3.3 Temporal Limitation

The research design was cross-sectional, capturing learners' perspectives during one academic term of approximately 15 weeks. This temporal constraint arose from the practical limitations of doctoral research timelines and the need to capture a complete learning cycle within the academic calendar. Such a limited timeframe restricts understanding of long-term behavioural and motivational trends, particularly regarding whether initial enthusiasm for AI tools represents novelty effects that might diminish over time or sustainable engagement patterns. The evolving identity shifts described in Section 5.7 may represent early-stage adaptations rather than stable transformations, and the collaborative dynamics explored in Section 5.9 might change as AI tools become more routine. Future longitudinal research would be required to determine whether learners' engagement and attitudes toward AI evolve, stabilise, or decline across multiple semesters.

7.3.4 Perspective Limitation

The study foregrounded the learner perspective, with 167 student participants providing the primary data source. This focus was deliberate, addressing a gap in literature that had predominantly examined AI from technical or pedagogical viewpoints rather than learner experiences. However, this single-stakeholder approach means the study lacks triangulation from educator perspectives on classroom integration challenges, administrator views on institutional readiness, or developer insights into tool design intentions. The institutional support needs identified in Section 5.10 represent only learners' perceptions of what would help, not necessarily what is feasible or aligned with educator capabilities or institutional priorities. Including the voices of educators, curriculum designers, and policy administrators would provide a more comprehensive understanding of the systemic factors influencing successful AI integration and might reveal tensions between learner desires and pedagogical best practices.

7.4 Future Research Directions

Several areas for further inquiry emerge from this study. Future research should focus on validating and refining the GAIEM Framework across varied educational settings, disciplines, and cultural contexts. Quantitative approaches such as structural equation modelling could be employed to test the relationships among framework dimensions and assess predictive validity. Longitudinal and mixed-methods studies could explore how learners' engagement with AI evolves across multiple semesters, providing insight into sustained motivation and changing learner identities.

Ethnographic classroom studies could reveal how learners negotiate AI use within real-time instructional dynamics. Further, examining educators' perspectives would illuminate how teaching beliefs, task design, and institutional policy shape learners' willingness to experiment with AI tools. Comparative research between institutions with different AI policies could reveal how governance and cultural contexts mediate adoption and learner agency. Finally, exploring the intersection between AI and multilingual education could deepen understanding of how generative tools support language diversity, intercultural awareness, and inclusive pedagogy.

This study highlights the potential of generative AI tools to foster learner agency, motivation, and competence when implemented within an ethically grounded and pedagogically intentional framework. Learners in this study demonstrated that, when supported by reflective instruction and institutional scaffolding, AI can act as a powerful ally in the learning process.

The study's integration of UTAUT-2 and SDT underscores that sustainable AI adoption depends on both extrinsic affordances and intrinsic motivation. The development of the GAIEM Framework further contributes to the theoretical understanding of how engagement with AI becomes internalised as a dynamic interplay of cognitive, emotional, and contextual factors. Generative AI represents more than a technological innovation, it signals a pedagogical transformation. By positioning learners as co-creators of their educational journeys, AI can redefine what it means to engage, reflect, and communicate in a digital learning environment. Future research should continue to test, expand, and

refine the framework proposed in this study to ensure that AI remains a tool that amplifies, rather than replaces, the human dimensions of teaching and learning.

7.5 Towards a Refined Conceptual Framework

The integration of generative AI in higher education language learning requires the adoption of new tools and the rethinking of how learner engagement is shaped, sustained, and transformed across multiple levels of influence. This study examined these dynamics within the context of university-level English language learning, but the conceptual insights it generated have broader relevance. Rather than being discipline-bound or context-specific, the framework draws on theoretical principles from both the Unified Theory of Acceptance and Use of Technology 2 (UTAUT-2) and Self-Determination Theory (SDT), offering a flexible, explanatory structure for understanding learner behaviour in generative AI-supported environments.

The framework adopts an ecological perspective, recognising that learner engagement does not emerge in isolation, but is shaped by a dynamic system of interconnected influences. These include institutional policies, teacher practices, peer norms, technological design, and the learner's own psychological orientation. An ecological lens views the learning process as situated, adaptive, and reciprocal. Learners are affected by their environment and actively respond to and reshape it through their decisions, strategies, and reflections. This perspective is especially valuable in the context of generative AI, where institutional clarity, pedagogical design, and learner agency interact in complex, evolving ways.

The conceptual framework, presented in this section, consists of four interrelated dimensions that together describe the motivational ecology of generative AI use in learning. These are: (1) Enabling Environment, which refers to the institutional, pedagogical, and social conditions that permit or constrain engagement; (2) Mediated Engagement, which focuses on the tools, tasks, and design mechanisms through which learners interact with AI; (3) Internalisation Mechanisms, which describe how learners integrate these experiences into their motivational and cognitive processes; and (4)

Learner Agency, which captures the longer-term transformational outcomes in terms of learner autonomy, criticality, and self-concept.

The development of the four dimensions emerged during the iterative thematic analysis of the responses presented in Chapter 5 and was refined through constant comparison with key constructs from both theoretical models.

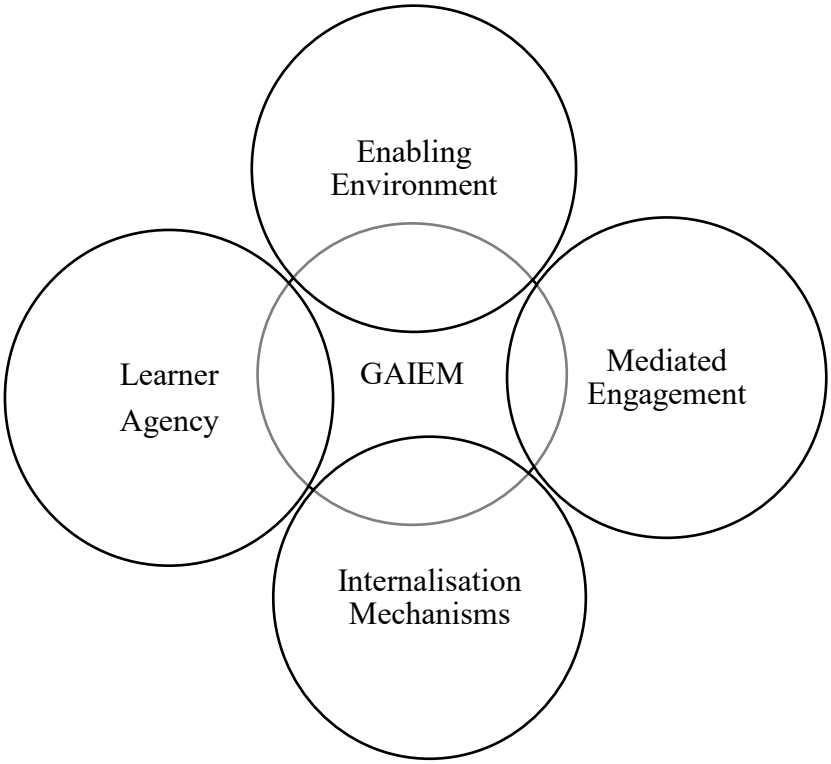

Figure 10: Generative AI Engagement and Motivation (GAIEM) Framework

Enabling Environment reflects the contextual and socio-institutional conditions discussed in Sections 5.5 and 5.10, capturing institutional support, teacher influence, and peer dynamics, all of which were theorised using UTAUT-2 constructs such as facilitating conditions and social influence. Mediated Engagement derives from learners' descriptions of how they interacted with generative AI tools to support writing, reading, and speaking in section 5.2, and aligns with performance expectancy and effort expectancy. Mechanisms were inductively derived from participants' reflections on motivation and strategic self-regulation in relation to SDT's autonomy and competence constructs. Learner Agency emerged from patterns indicating shifts in identity, confidence, and ownership over learning through SDT's concept of integrated regulation

and the UTAUT-2 construct of habit. This conceptual model was not pre-defined but built from the data up, allowing insights to shape its structure. It serves to integrate learners' lived experiences, theoretical constructs, and contextual affordances into a coherent representation of the motivational ecology surrounding generative AI use in higher education EFL contexts.

The framework is intended to serve as both an explanatory model for researchers and a practical guide for educators and institutions. It provides a structured way to analyse how generative AI is being used in language learning, what factors influence its adoption and effectiveness, and how learners can be supported to engage with it ethically, strategically, and meaningfully. It has room for refinement, and further research is needed to both develop it conceptually and validate it empirically. Studies involving participants from across different faculties and disciplines within the university would help test its applicability beyond EFL contexts.

7.5.1 Enabling Environment

The first dimension of the conceptual GAIEM Framework is Enabling Environment which captures the institutional, pedagogical, and social foundations upon which learner engagement with generative AI tools is built. As the outermost layer of influence, the enabling environment does not directly determine learner behaviour, but it establishes the conditions under which engagement is legitimised, encouraged, or constrained. From a theoretical standpoint, this layer integrates UTAUT-2's notion of facilitating conditions and social influence with SDT's emphasis on relatedness and autonomy support (Venkatesh et al., 2012; Ryan & Deci, 2020).

Facilitating conditions, as described in UTAUT-2, refer to the perceived availability of institutional and technical infrastructure that supports effective use of a technology. In this study, learners were generally able to access generative AI tools outside formal systems; however, it was not access that influenced their motivation, it was the degree of clarity, consistency, and endorsement from institutions and instructors. These findings, found in section 5.6, affirm that facilitating conditions are not about tool availability, but about

ethical orientation, policy framing, and pedagogical integration. It was clear that as educators framed generative AI as a legitimate learning resource, learner engagement became open, creative, and sustained.

Closely tied to this is the role of social influence, which in UTAUT-2 refers to the perceived expectations of significant others, such as teachers and peer, regarding the use of the technology. Learners in this study were influenced by both explicit and implicit signals from their instructor and peers. These social cues shaped initial adoption and also the emotional safety learners reported feeling in using AI openly and reflectively.

From the SDT perspective, the enabling environment also plays a central role in shaping relatedness, the learner's sense of being respected, understood, and connected within the learning context. In the tasks used in the EFL classroom of this study, where generative AI use was acknowledged and supported, learners reported a strong sense of alignment between their goals and the expectations of their learning community. This alignment allowed them to pursue generative AI use without fear of judgment or penalty, thereby preserving their intrinsic motivation. Furthermore, when teacher behaviour modelled autonomy-supportive principles, such as acknowledging learner choices, offering rationale for suggested limits, or providing scaffolding for responsible use, learners took initiatives and reflected on their own learning processes.

The enabling environment forms the foundation of learner engagement with generative AI. It determines whether learners feel psychologically safe to explore AI tools, whether they have access to support and guidance, and whether their use is validated by peers and educators. The GAIEM Framework positions this domain not as background context, but as an active, relational ecosystem that shapes the motivational climate in which learners decide how, when, and why to engage.

7.5.2 Mediated Engagement

The second dimension of the GAIEM Framework, Mediated Engagement, captures how learners' interaction with generative AI is shaped through the interface of task design, tool

use, and prompt literacy. Unlike the Enabling Environment dimension, which concerns external conditions and permissions, the Mediated Engagement dimension focuses on how engagement happens, how learners encounter, experiment with, and begin to shape their own AI-supported learning practices. This layer of the framework highlights the interdependence between learner agency and design structure, grounded in UTAUT-2 constructs of performance expectancy, effort expectancy, and hedonic motivation, alongside SDT's autonomy and competence.

At the core of Mediated Engagement is the design of the task itself. Learners reported engaging more purposefully when generative AI was integrated into learning tasks that were authentic, open-ended, and allowed for recursive interaction. When the use of generative AI was positioned as a tool for revision, brainstorming, or language enhancement, rather than substitution, learners were more likely to reflect critically on their own writing and linguistic choices. In these contexts, the tool was not a replacement for skill but a scaffold for deeper engagement, enabling learners to test, refine, and compare multiple responses. This supports performance expectancy, as learners perceived technology as genuinely useful in helping them produce better outcomes (Venkatesh et al., 2012).

Closely related is effort expectancy, or the perceived ease of use. In this study, learners initially experienced a learning curve when interacting with generative AI, particularly around prompt design. However, over time, those who developed more refined prompting strategies were able to generate context-sensitive responses that better matched their task goals. This iterative prompting behaviour demonstrates increased tool proficiency and also growing metacognitive control, as learners adjusted inputs to elicit more relevant outputs. This shift signals the emergence of competence as described in SDT, not just in language skills, but in strategic use of technology for self-regulated learning (Ryan & Deci, 2020).

The role of hedonic motivation was also present but served more as a sustaining condition than a triggering one. While enjoyment and curiosity were reported as motivating factors in early experimentation, these feelings were more consistently linked to learner

autonomy than novelty. Learners valued the ability to explore, test, and revise in a non-judgmental and responsive environment, which allowed them to work at their own pace and on their own terms. This alignment with autonomy supported sustained engagement, particularly when learners could personalise the way they interacted with the tool.

Importantly, mediated engagement is not limited to the learner–AI interaction alone. It is also shaped by teacher mediation, the extent to which instructors scaffolded generative AI use, provided models of prompting, or aligned AI-supported tasks with learning outcomes.

Thus, Mediated Engagement in the GAIEM Framework is where design meets behaviour. It is the functional core of learner–AI interaction, shaped by task structure, tool responsiveness, and learner experimentation. When supported by meaningful task design and informed prompting, mediated engagement becomes a driver of self-regulation, critical feedback use, and growing learner independence.

7.5.3 Internalisation Mechanisms

The third dimension of the GAIEM Framework, Internalisation Mechanisms, explains how learners move from surface-level engagement with generative AI tools toward deeper, more autonomous, and personally meaningful integration of generative AI into their learning processes. While the previous two components of the framework, Enabling Environment and Mediated Engagement, account for the contextual and structural conditions of use, internalisation addresses the psychological and motivational transformation that occurs when learners begin to take ownership of their engagement. This shift is best understood through SDT's core concepts of autonomy and competence, and supported by selected constructs from UTAUT-2, particularly habit and performance expectancy as evolving rather than fixed predictors.

Internalisation, as understood in SDT, occurs when learners adopt external tools or strategies and gradually align them with their own goals, values, and sense of self (Ryan & Deci, 2020). In this study, learners did not simply use generative AI to complete tasks,

they engaged with it iteratively, adjusted their prompting behaviours, and reflected on the quality and appropriateness of the output. Over time, this process led to more strategic, goal-directed use, indicating that learners were not merely complying with a useful tool, but integrating it into their own learning philosophy.

A key mechanism of internalisation was the recursive feedback loop that generative AI enabled. Learners who used the technology as a space for generating multiple drafts, testing phrasing, or exploring stylistic alternatives demonstrated high levels of self-regulation. These behaviours reflect what SDT describes as the movement toward integrated regulation, where external resources become part of one's internal system of motivation. The repetition of these feedback cycles also began to establish patterns of behaviour consistent with UTAUT-2's construct of habit, an outcome of intentional reflection and perceived value in the form of a dialogue between the learner and the technology.

This perception of value aligns with the evolving nature of performance expectancy. Learners believed it improved their capacity to learn, revise, and self-monitor. This shift in expectancy transformed generative AI from a tool of convenience into a partner in language development, even in the absence of direct teacher feedback. This reinforces the idea that internalisation is not just cognitive, but affective and volitional, it is about believing in one's capacity to direct learning, and in the relevance of the tools one chooses to use.

Internalisation was supported by learners' growing prompt literacy. Learners who advanced from basic input to strategic prompting showed increased metacognitive awareness and began to view generative AI as a thinking partner rather than a correction machine. This skill development contributed to their sense of competence, and in turn, reinforced their motivation to keep improving. Prompt design thus became a medium for autonomy, as learners tailored their interaction with the tool to suit their goals, tone, and desired output.

Internalisation mechanisms in the GAIEM Framework illustrate how motivation deepens when learners are given space, tools, and feedback environments that allow them to reflect, iterate, and align external inputs with internal goals. This layer represents a turning point where engagement becomes sustained, strategic, and increasingly self-directed, laying the groundwork for the final stage of identity transformation: the development of learner agency.

7.5.4 Learner Agency

The fourth and culminating component of the GAIEM Framework is Learner Agency, the point at which learners engage with generative AI tools and begin to act with intention, autonomy, and strategic awareness. Learner agency in this framework is not defined by the capacity to make purposeful, informed decisions about when, how, and why to use them, grounded in internalised motivation and developed competence. It is the outcome of sustained, scaffolded engagement in an enabling environment, supported by meaningful design and dialogical feedback processes.

From the perspective of Self-Determination Theory, this stage reflects the highest level of motivational internalisation which is integrated regulation. Here, learners' use of generative AI is no longer reactive or exploratory; it is fully aligned with their learning goals, values, and identity as capable, self-directed learners (Ryan & Deci, 2020). Agency, in this sense, represents the internalisation of both control and responsibility. Learners take ownership of the process, actively evaluating the tool's feedback, refining their prompting strategies, and adapting generative AI outputs to suit academic, rhetorical, or professional contexts.

This agency is also supported by what UTAUT-2 describes as habit, but in this framework, habit is not defined as unconscious repetition. Instead, it represents automatised strategic behaviour, a self-regulated routine built through reflective cycles of use. Learners who reach this stage display behavioural consistency in how they use generative AI, but without becoming dependent. They demonstrate selective use, choosing when to consult the tool, when to rely on their own skills, and when to seek human feedback.

In addition to autonomy and competence, critical awareness becomes a hallmark of learner agency. Learners who exercise agency are able to recognise the limitations of generative AI, its formal tone, occasional inaccuracies, or lack of cultural nuance and adjust accordingly. This reflects a shift from user to editor, and from learner to strategic communicator, capable of evaluating, refining, and transforming AI-generated output. In this way, agency encompasses both critical digital literacy and linguistic strategy.

GAIEM	Operational Elements
Enabling Environment	• Policy clarity • Facilitator readiness • Peer norms • Psychological safety
Mediated Engagement	• Prompt design • Task alignment • Ease of use • Exploratory interaction
Internalisation Mechanisms	• Recursive feedback • Strategic prompting • Goal alignment
Learner Agency	• Selective use • Evaluative judgment • Self-regulation • Critical digital literacy

Table 7: The Operational Elements of the Conceptual GAIEM Framework

Learner Agency represents the transformational outcome of the GAIEM Framework, a learner who is autonomous, competent, reflective, and discerning in their use of generative AI. It reflects the successful alignment of external tools with internal goals, marking the shift from assisted performance to strategic, self-directed learning.

Rooted in UTAUT-2 and Self-Determination Theory (SDT), the conceptional GAIEM Framework, was development by recurring patterns identified across learner narratives, particularly in relation to engagement, autonomy, and tool-mediated strategy use. The dimensions of Enabling Environment, Mediated Engagement, Internalisation Mechanisms, and Learner Agency were not imposed a priori but iteratively refined through thematic analysis of learner reflections. As such, the framework captures both theoretically grounded constructs and lived learner experiences, ensuring that it remains empirically valid and pedagogically relevant, but also flexible enough to be adapted, tested, and extended across varied educational settings and learner populations.

The framework's emphasis on exploratory interaction and recursive feedback is informed by principles of meaningful engagement in language learning. Rintaningrum (2023) demonstrates that technology integration is most effective when learner interactions are cognitively demanding, emotionally positive, and aligned with meaningful learning goals, while Guo and Li (2024) show that structured revision protocols, in which learners notice, evaluate, and act on feedback, promote metacognitive awareness and deeper engagement. These insights underpin the framework's design, especially its focus on prompt design, task alignment, and feedback mechanisms that enable learners to engage in cognitively meaningful interaction with generative AI tools.

Taken together, this study offers one of the earliest in-depth accounts of how EFL learners in higher education perceive and navigate the pedagogical role of generative AI tools. By integrating UTAUT-2 and SDT and proposing the GAIEM framework, the research provides a theoretically grounded lens through which to understand the motivational, cognitive, and socio-institutional dynamics shaping GenAI engagement. While situated within a single institutional context, the findings offer insights that may inform wider discussions on AI-enhanced language learning and emerging learner identities in AI-mediated environments. As generative technologies continue to evolve, further work will be needed to explore how such tools can support equitable, ethical, and sustainable educational practices. It is hoped that this study contributes meaningfully to these ongoing conversations and provides a foundation for future research in this rapidly developing field.

Appendix One

Writing Task

Description: This task encourages students to enhance their descriptive writing skills by engaging with generative AI tools. By using exercises and samples from their textbooks, students will explore how AI can assist in refining their writing while reflecting on its benefits and limitations.

Aim: Develop the ability to write a descriptive paragraph with a focus on sentence structure, grammar, and vocabulary, while examining the role of generative AI tools in the writing process.

Instructions:

1. **Select a Writing Prompt from Your Textbook:**

   Choose a descriptive writing task from your course materials that asks you to write about a place, experience, person…etc.

2. **Initial Writing:**

   Write a short paragraph (50–75 words) based on the selected topic without any assistance.

3. **Engage with a Generative AI Tool:**

   Use a generative AI tool (e.g., ChatGPT, Gemini, Copilot) to review your paragraph.

   Ask the tool for suggestions on improving grammar, vocabulary, and sentence structure.

   Consider asking questions like:

   - "How can I make my writing more descriptive?"
   - "Are there any grammatical on punctuation errors in my paragraph?"

4. **Critical Reflection:**

   Reflect on the generated suggestions.

   Decide which suggestions to incorporate and which to disregard, providing reasons for your choices.

5. **Revision:**

   Revise your paragraph based on your reflections and create a final version.

6. **Documentation:**

Keep a record of your initial paragraph, the AI's feedback, and your revised paragraph.

Document your thought process throughout the task.

Reflection Questions:

- Which generative AI tool did you use, and why did you choose it for this task?
- How did the AI tool influence your writing?
- Were there any suggestions from the AI that you chose not to use? Explain your reasoning.
- What insights did you gain about the capabilities and limitations of generative AI tools in writing?

Log Instruction: Maintain a log that includes:

- **Initial Paragraph:** Your original writing.
- **AI Interaction:** The feedback and suggestions provided by the AI tool.
- **Revised Paragraph:** Your final version after revision.
- **Reflections:** Your thoughts on how the AI influenced your work and your assessment of its utility.

Appendix Two

Speaking Task

Description: This task focuses on practicing spoken English by engaging with generative AI tools. Students will assess how AI can aid in improving fluency and pronunciation, using speaking activities from their textbooks.

Aim: Improve speaking skills by interacting with generative AI tools, while evaluating their effectiveness in language development.

Instructions:

1. **Select a Speaking Activity from Your Textbook:**

   Choose a dialogue or speaking exercise provided in your course materials.

2. **Prepare Your Response:**

   Plan what you will say in response to the activity without AI assistance.

3. **Engage with a Generative AI Tool:**

   Use a generative AI tool to simulate a conversation or practice the dialogue.

   If the tool supports speech recognition, practice speaking aloud and receive feedback on pronunciation.

4. **Critical Reflection:**

   Observe how the AI tool responds to your input.

   Note any areas where the AI's responses are helpful or lacking.

5. **Practice with a Peer:**

   Repeat the activity with a classmate or your teacher to compare experiences.

6. **Documentation:**

   Record your interactions with the AI and your human partner.

   Reflect on the differences between practicing with AI and a human partner.

Reflection Questions:

- What generative AI tool did you use, and what influenced your choice?
- How did the AI tool contribute to your speaking practice?
- Compare the effectiveness of practicing with the AI tool versus with a peer.
- What are the strengths and limitations of using generative AI tools for speaking exercises?

Log Instruction: Create a log that includes:

- **AI Interaction:** Details of your conversation with the AI, including any feedback received.
- **Peer Interaction:** Notes on your practice with a human partner.
- **Reflections:** Your analysis of both experiences and the role of AI in speaking practice.

Appendix Three

Reading Task

Description: This task focuses on reading comprehension by utilizing generative AI tools to explore and understand texts from your course materials. Students will critically evaluate the support provided by AI in interpreting the content.

Aim: Improve understanding of reading materials by interacting with generative AI tools, focusing on vocabulary development and critical analysis.

Instructions:

1. **Select a Reading Passage from Your Textbook:**

   Choose a reading passage assigned in your coursework.

2. **Initial Reading:**

   Read the passage thoroughly on your own.

3. **Engage with a Generative AI Tool:**

   Use the AI tool to discuss challenging words or concepts.

   Ask questions to clarify meanings and enhance understanding.

   - Example questions:
     - "What does the word 'resilient' mean in this context?"
     - "Can you explain the main idea of the second paragraph?"

4. **Critical Reflection:**

   Assess the accuracy and helpfulness of the AI's explanations.

   Note any discrepancies or areas of confusion.

5. **Documentation:**

   Keep records of your questions and the AI's responses.

Reflection Questions:

- Which generative AI tool did you select, and why?
- How effective was the AI in aiding your comprehension of the text?
- Did the AI provide any information that was unclear or incorrect?
- What conclusions can you draw about the usefulness of generative AI tools in reading activities?

Log Instruction: Document the following:

- **Questions and Responses:** Your interactions with the AI tool.

- **Reflections:** Insights on how the AI tool affected your reading comprehension.

Appendix Four

Collaborative Reading Task

Description: This task involves collaborating on a reading project using generative AI tools to support comprehension and analysis. Students will critically assess how AI influences group reading strategies and collective understanding.

Aim: Develop collaborative reading skills while evaluating the impact of generative AI tools on group interactions and the reading process.

Instructions:

1. **Select a Reading Text from Your Course Materials:**
   As a group, choose a passage or article provided in your textbook or other reading materials.
2. **Planning:**
   - Discuss and outline your approach to understanding the text without AI assistance.
   - Identify key areas where comprehension might be challenging (e.g., vocabulary, main ideas, details).
3. **Engage with a Generative AI Tool:**
   - Use the AI tool to generate summaries, clarify difficult vocabulary, or answer comprehension questions.
   - Each group member should interact with the AI and bring their findings to the group.
4. **Critical Group Discussion:**
   - Share how the AI tool influenced your understanding of the text.
   - Decide collectively which AI-generated suggestions to incorporate into your analysis.
5. **Analysis and Summary:**
   - Collaboratively create a summary or analysis of the text, integrating selected AI inputs.
   - Highlight key takeaways and any new insights gained from the AI assistance.

6. **Presentation:**
    - Prepare to present your findings to the class, discussing both the content of the reading and the process of using the AI tool.

Reflection Questions:

- Which generative AI tool did your group use, and why?
- How did the AI tool affect your group's reading comprehension and analysis?
- Were there any disagreements on using AI suggestions? How were they resolved?

Appendix Five

Survey Questions

Generative AI Tools in the EFL Classroom

Exploring the Role of Generative AI Tools in Enhancing Engagement and Motivation in EFL Learning

Contact Email: a.a.alhitty@lancaster.ac.uk

* Required

Please read each point carefully and only select agree if you accept all the points.

:::

1.

- I confirm that I have read and understand the information sheet for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- I understand that my participation is voluntary and that I am free to withdraw at any time during my participation in this study and within 6 weeks after I took part in the study without giving any reason. If I withdraw within 6 weeks of taking part in the study, my data will be removed.
- I understand that my organisation's name will not appear in any reports, articles, or presentations without my consent.
- I understand that any surveys will be conducted using Microsoft 365 Forms, and no personal information such as age, or gender will be collected as it has no influence on the study.
- I understand that any information given by me may be used in future reports, academic articles, publications, or presentations by the researcher(s), but my personal information will not be included, and all reasonable steps will be taken to protect the anonymity of the participants involved in this project.
- I understand that data will be kept according to university guidelines for a minimum of 10 years after the end of the study.

I agree to take part in the above study. *

◯ I agree

◯ I disagree

2. Name *

3. University ID number *

4. Section *

Please read each question carefully and answer in English or Arabic.

5. Which generative AI tools have you used to learn English? *

- [ ] ChatGPT (Open AI)
- [ ] Gemini (Google)
- [ ] Copilot (Microsoft)
- [ ] Other

6. What English skill did you use the generative AI tool with *

- [ ] Reading & Vocabulary
- [ ] Writing & Grammar
- [ ] Listening
- [ ] Speaking
- [ ] Team work
- [ ] Other

7. How did they help you with developing the skill? Please give specific examples.ما هي أدوات الذكاء الاصطناعي التي استخدمتها لتعلم اللغة الإنجليزية؟ واذكر كيف ساعدتك في تطوير مهارة من مهارات اللغة -التحدث أو الكتابة أو القراءة أو الاستماع- يرجى تقديم أمثلة . *

8. How have these generative AI tools affected your motivation and interest in learning English? Did they make you more or less engaged? كيف أثرت هذه الأدوات على تحفيزك واهتمامك في تعلم اللغة الإنجليزية؟ هل جعلتك أكثر أو أقل تفاعلاً؟ *

9. Are there any features you wish these tools had to help you better?هل هناك ميزات تتمنى أن تتوفر في هذه الأدوات لمساعدتك تعلم اللغة بشكل أفضل؟ *

10. Was it easy for you to start using generative AI tools in your English studies? Did you face any problems or barriers? Please explain.هل كان من السهل عليك البدء في استخدام أدوات الذكاء الاصطناعي في دراستك للغة الإنجليزية؟ هل واجهت أي مشاكل أو عوائق؟ يرجى التوضيح. *

11. How does the user-friendliness of generative AI tools affect your learning and engagement? What improvements would make these tools easier for you to use?كيف يؤثر سهولة استخدام أدوات الذكاء الاصطناعي على تعلمك وتفاعلك؟ ما التحسينات التي قد تجعل هذه الأدوات أسهل بالنسبة لك في الاستخدام؟ *

12. How have your classmates' and teachers' attitudes toward generative AI tools influenced how you use them for learning English? Can you provide examples?كيف أثر اهتمام زملائك واساتذتك تجاه أدوات الذكاء الاصطناعي على كيفية استخدامك لها في تعلم اللغة الإنجليزية؟ هل يمكنك تقديم أمثلة؟ *

13. Does working with others using generative AI tools increase your motivation to learn English? هل استخدام الذكاء الاصطماعي في الاعمال الجماعية مع الطلبة حفزك على تعلم اللغة الانجليزية؟ *

14. How does support from your university, like resources or training, affect your use of generative AI tools in learning English? What kind of help would encourage you to use these tools more?كيف يؤثر دعم المؤسسة التعليمية بالموارد أو التدريب، على استخدامك لأدوات الذكاء الاصطناعي في تعلم اللغة الإنجليزية؟ ما نوع المساعدة التي قد تشجعك على استخدام هذه الأدوات بشكل أكثر؟ *

15. What can your university do to make generative AI tools more useful and engaging for your English learning? Are there specific improvements or support you would suggest? ماذا يمكن للمؤسسة التعليمية أن تفعل لجعل أدوات الذكاء الاصطناعي أكثر فائدة وتشجيعية في تعلمك للغة الإنجليزية؟ هل هناك تحسينات أو دعم محدد تقترحه؟ *

Abbreviations

AI - Artificial Intelligence

CEFR - Common European Framework of Reference

CALL - Computer-Assisted Language Learning

EFL - English as a Foreign Language

GCC - Gulf Cooperation Council

GenAI - Generative Artificial Intelligence

GPA - Grade Point Average

GPT- Generative Pretrained Transformers

LLMs - Large Language Models

LMS - Learning Management System

MALL - Mobile-Assisted Language Learning

SDT - Self-Determination Theory

SLA - Second Language Acquisition

TAM - Technology Acceptance Model

TELL - technology-enhanced language learning

TOEIC - Test of English for International Communication

ULLs - Ubiquitous Learning Logs

UTAUT - Unified Theory of Acceptance and Use of Technology

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