



Building Autonomy in English Language Learning: Integrating Digital Technology with CEFR-CLIL in Thai EFL Education*

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ABSTRACT

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This study explores the influence of technology on learner autonomy and English language competencies in the four language domains, including reading, writing, listening, and speaking, among Thai EFL learners. Adopting a quantitative survey methodology, data was collected from 230 participants in Chiang Mai, Thailand, utilizing a structured questionnaire to explore the role of technology within English language learning framed within the CEFR-CLIL framework. The study's primary objectives were to evaluate the extent of technology integration in the development of language skills, examine its impact on learner autonomy, and provide insights into the usage patterns and perceived effectiveness of digital tools. The findings from the quantitative analysis demonstrated a statistically significant and positive connection between the use of technology and the development of learner autonomy, as well as the improvement of reading, writing, and listening competencies. Despite this, the utilization of technology in enhancing speaking skills has shown certain difficulties, thereby suggesting the need for additional advancement and assistance in this domain. Additionally, the findings highlight a dominant trend among Thai EFL learners, indicating a strong inclination to embrace digital platforms, specifically for interactive content, whereas traditional resources continue to play a supplemental role. The result of this study suggests that integrating technology into the CEFR-CLIL framework could elevate language education and prepare students for a future where digital proficiency and English language mastery are intertwined.

KEYWORDS

learner autonomy, CEFR, CLIL, English competency, digital technology

1. Introduction

Within the context of English Language Teaching (ELT), Thailand, much like several countries, has attempted to enhance the ability of its learners to meet international benchmarks. Subsequently, teaching English today requires understanding the differences between 20th and 21st century learning goals. However, language ability alone is not enough for effective English usage, particularly since non-native speakers from diverse backgrounds are increasingly using English as a medium for communication. Furthermore, intercultural competence is also crucial for cross-cultural communication effectiveness (Phongsirikul 2017). Throughout history, Thailand's English Language Teaching (ELT) landscape has been primarily characterized by the widespread use of traditional pedagogical approaches. While these methods are rooted in long-standing practices, they have shown shortcomings in today's educational landscape. Rote learning, an over-reliance on textbooks, and limited exposure to practical English often hinder students from effectively handling real-world communication challenges. Given Thailand's global ambitions, it is crucial to reevaluate and enhance its approach to English instruction.

The Common European Framework of Reference for Languages (CEFR) was published officially in 2001 (Council of Europe 2001) after an extensive development process. Thailand's English language education system significantly shifted in 2014 by adopting the CEFR. This move aimed to elevate the quality of English language instruction at all levels, as highlighted by the Ministry of Education in 2014 (Ministry of Education 2014). Simultaneously, in recent years, the Content and Language Integrated Learning (CLIL) approach has gained momentum and popularity. Various studies conducted in the Thai context echo the positive implications of CLIL. Specifically, Prasongporn (2009), reflecting on a CLIL pilot study in Thailand, asserted that CLIL has the potential to revolutionize language instruction in the country. Consequently, integrating the CEFR-CLIL methodologies offers a promising direction for language education. On one hand, CEFR offers educators a well-organized framework that outlines the progression of language learning, enabling them to track students' progress from fundamental understanding to proficient linguistic proficiency. On the other hand, CLIL introduces an innovative approach to language instruction, ensuring that the focus is not limited to language usage but also on communicating meaningful content. The 4Cs Framework—Content, Communication, Cognition, and Culture—is the foundation of CLIL. "Content" focuses on the subject matter, "Communication" on the language, "Cognition" on higher-order thinking skills, and "Culture" on intercultural awareness (Coyle et al. 2010).

Additionally, the necessity to incorporate technology into pedagogical approaches has grown progressively obvious in the present digital era. The incorporation of content, pedagogy, and technology is essential in order to improve the quality of lessons by ensuring an integrated approach (Fitri et al. 2022, Fitria 2023). An immersive and enriched educational environment is created through the integration of modern technological tools with CEFR and CLIL. This integration provides learners with a wide range of opportunities to actively interact with foreign languages in an interactive way. Thus, by adopting CEFR, Thailand strategically transformed its language education system and brought it into alignment with international benchmarks. Beyond offering linguistic proficiency, this integration attempts to develop practical communication skills and cultural awareness, all of which are imperative in the interconnected global society of the 21st century. In addition to CLIL's emphasis on content-driven learning, the CEFR's structured approach establishes an inclusive framework for the development of English language proficiency (Council of Europe 2001, Ministry of Education 2014). However, the transition to these methodologies has revealed gaps, particularly in their practical application and alignment with technological advancements in education.

Furthermore, the dynamics of CLIL in the Thai educational context have underscored the need for professional

development and pedagogical support to effectively implement its 4Cs framework. The challenges faced by teachers in adapting to this approach highlight an urgent need for resources that can facilitate the integration of language and content learning in a manner that resonates with the learners' experiences and interests (Charunsri 2020, Suwannoppharat and Chinokul 2015). Consequently, for Thai EFL learners, the potential for a paradigm shift toward more active, engaging, and autonomous learning environments can be brought in through the integration of CEFR-CLIL frameworks with modern technology. The integration of digital technologies can provide opportunities for personalized and immersive language learning experiences, addressing the gap between theoretical frameworks and practical implementation. Despite these advancements, there is a lack of comprehensive studies investigating the combined impact of CEFR-CLIL and digital technology on learner outcomes. This study aims to fill this research gap by exploring how such integration affects learners' autonomy, competency across key language skills, and interaction with digital tools. Investigating these aspects is crucial for identifying effective strategies that support learner autonomy and improve overall language proficiency. Therefore, this study is guided by four primary research questions:

- RQ1: To what extent does the use of technology in reading, writing, listening, and speaking activities impact Thai EFL learners' autonomy in learning English?
- RQ2: How does the use of technology affect Thai EFL learners' competency across different English language skills, including reading, writing, listening, and speaking?
- RQ3: What is the extent of usage of specific apps and online tools among Thai EFL learners for enhancing their English language skills?
- RQ4: How do Thai EFL learners perceive the effectiveness and enjoyment of using the technological tools in improving their English language competency?

Following this line of inquiry, the research investigates learners' technology utilization patterns and their levels of engagement with accessible digital resources. In conclusion, the underlying goal of this study is to shed light on the complex connection between technology, learner autonomy, and language competence in the Thai EFL context.

2. Literature Review

2.1 The Landscape of the CEFR Implementation

The Common European Framework of Reference for Languages (CEFR) is a well-known framework that is globally employed for the purposes of language instruction, acquisition, and evaluation. The CEFR is a commonly employed framework for assessing language competency. It categorizes language competence into six distinct levels, namely A1, A2, B1, B2, C1, and C2 (Council of Europe 2001). In the 2018 revised version, however, some scales within each category were modified to include a low stage, a pre-A1 stage, and a plus stage (A2+). The revision also included the addition of lines separating the performance of higher and lower stages, such as B1 and B2. (Council of Europe 2018, Lee 2022). The CEFR is widely utilized on a global scale and is implemented across various languages, including the English language. Several frameworks, such as the American Council on the Teaching of Foreign Languages Proficiency Guidelines (ACTFL), have objectives comparable to CEFR. Developed by the Council of Europe, this framework provides a unique path for the development of curriculum,

the direction of instructional approaches, and the assessment of learners. In 2014, the Thai government acknowledged the increasing significance of the English language in an interconnected global context. Consequently, Thailand adopted the CEFR as a means to enhance the quality of English instruction at all levels of education, ranging from primary schools to universities. This development was officially acknowledged by the Ministry of Education of Thailand (Ministry of Education 2014).

The adoption of the CEFR in Thailand was an intentional attempt to modernize language education, with a strong emphasis on real-world communication and cultural differences. It was not simply a matter of keeping up with a global trend; instead, it represented a coordinated effort to implement an interactive approach to language instruction. This method is central to the CEFR and aims to shape learners into proficient communicators. It emphasizes not only grammar and vocabulary but also the real-world use of language, such as recognizing cultural differences and communicating effectively with others. In April 2014, the English Language Institute (ELI), a branch of the Ministry of Education (MOE), introduced FRELE-TH, a localized version of the CEFR, to promote effective communication strategies (Foley 2021). However, in 2015, when 94% of teachers failed to reach the targeted proficiency level of B2, many began to view the CEFR primarily as a proficiency assessment tool. This stands in contrast to the primary objectives of curriculum reform and the improvement of English education in the country (Franz and Teo 2017). In Thailand, the CEFR functions as a practical benchmark beyond the context of education. It is utilized by schools, universities, and businesses to evaluate the English proficiency of students, staff, and prospective employees. The incorporation of the CEFR into Thailand's English teaching methods has resulted in significant enhancements, most notably in the instructors' evolving pedagogical practices. In short, despite challenges, the CEFR has changed how English is taught in Thailand and set a clear standard for proficiency.

2.2 The Dynamics of CLIL Approaches in Thai Educational Contexts

Despite its worldwide recognition, adapting the 4Cs framework within the CLIL approach remains challenging in Thailand due to time-consuming preparation and inadequate training for Thai English teachers. As Thailand attempts to achieve its vision for 2025, there is an urgent need for major contributions to CLIL preparation and professional development, especially regarding the challenges encountered by non-native English-speaking teachers and students (Charunsri 2020, Suwannoppharat and Chinokul 2015). Understanding the fundamental objectives of CLIL provides further clarity; thus, Marsh and Wolff (2007) articulate that the CLIL approach serves a dual purpose: the first is to teach the foreign language (linguistic subject), while the second is to teach the content (nonlinguistic subject). In the classroom, teachers can use soft CLIL and hard CLIL in different ways to support students' language and content learning. Soft CLIL and hard CLIL (sometimes called 'strong' and 'weak') are two variations of the CLIL approach that differ in the amount of focus given to language learning and content learning (Ball et al. 2015). Soft CLIL (language-driven) is an approach that places a greater emphasis on language learning than on content learning. In soft CLIL, language is taught as a subject in its own right, with explicit language instruction taking place alongside the teaching of subject-specific content (Linares et al. 2012). Soft CLIL is often used in contexts where language learning is a primary goal, such as in language immersion programs. Hard CLIL (content-driven), on the other hand, places greater emphasis on content learning than on language learning. In hard CLIL, content is taught in a way that encourages the development of language skills, with language learning taking place implicitly through exposure to subject-specific content (Coyle et al. 2010). Hard CLIL is often used in contexts where subject-specific learning is the primary goal, such as in international schools or bilingual education programs (See Table 1).

supplemented with contemporary technological tools, offer various methods to integrate language learning and content knowledge acquisition in educational contexts. To enhance language acquisition and content proficiency in the educational context, it is advisable to consider incorporating the CLIL approach, including language classes emphasizing content, thematic units, subject courses, partial immersion, or total immersion, along with technology integration.

2.3 Learner Autonomy Integrating Digital Technology in Language Education

Learner autonomy is usually described as the capability of learners to take charge of their own learning, including their willingness and capacity to act independently and in collaboration with others as socially responsible individuals. This perspective emphasizes not only their ability to take charge of their educational journey but also their abilities in transforming limitations of the environment into opportunities, thereby enabling autonomous action, and maximizing their learning potential. (Benson 2011, Dam 2003, Holec 1981). As a direct manifestation of this principle, autonomous learners exhibit learner autonomy. Such learners are proactive, enabling them to manage their learning process, utilizing resources and strategies, and evaluating their own development. This proactive approach paves the way for fostering a personalized learning ecology for future opportunities (Mynard 2019). In the modern era, learner autonomy is increasingly recognized as a crucial factor contributing to successful language learning and personal development in the contemporary field of language education. At its core, learner autonomy essentially refers to the capacity of learners to take command of their own education by establishing clear objectives, selecting relevant resources, and evaluating their own progress. Remarkably, with the rapid growth of digital technology and its subsequent implementation into the field of education, the opportunities for enhancing learner autonomy have multiplied significantly. Over recent decades, for the past thirty years, learner autonomy has been a primary focus of study and practice in language education. The obvious expansion of student-centered education and technology-based learning approaches further emphasizes the importance of learner autonomy in language education (Daflizar 2023). Because of these advances, learners are able to customize their learning experiences, engage in autonomous learning, and access a wide range of resources that accommodate their diverse learning preferences and needs by utilizing a variety of technological tools and platforms.

In today's fast-paced digital era, technological advancements, particularly in mobile-assisted language learning, have redefined our understanding of the connection between language learning inside and outside the classroom. As a result, out-of-class resources have become more accessible, thanks to technological and digital innovations. Subsequently, learning outside the classroom offers many benefits, positioning it as an efficient alternative to conventional teaching methods (Benson and Reinders 2011, Reinders and Benson 2017). Navigating this educational evolution, integrating technology into language education stands out as a crucial step that has the potential to broaden the range and extent of autonomy in language learning. Supporting this, Jeong and Ahn (2021) investigated teachers' perceptions and classroom practices regarding learner autonomy. The findings revealed that teachers emphasized learner autonomy in their classrooms, fostering motivation, self-evaluation, and student responsibility. However, it is noteworthy that despite students' lack of autonomy, teachers persisted in fostering it. They did so with a forward-looking mindset, recognizing the profound potential of blended classes and technology in promoting learner autonomy.

In Thailand, technology integration in language education is viewed as an opportunity for fostering learner autonomy. Recognizing the global shift toward digital learning, Thai educators employ online platforms and tools to give students greater control over their learning journey. This emphasis on technology is not merely intended

to modernize classrooms; it is also meant to provide Thai students with the skills to navigate and direct their own learning, particularly in English proficiency. Highlighting this, Impeng and Nomnian (2022) explored how platforms like Facebook can promote learner autonomy among EFL pre-service teachers, especially during global challenges like the COVID-19 pandemic. Despite its drawbacks, Thai EFL PSTs found Facebook beneficial to language learning. Facebook may be a good tool for ELT professional development and lifetime learning, especially during global disruptions like the COVID-19 epidemic. Furthermore, according to a study by Jitpaisarnwattana (2018), digital storytelling in a technological learning environment can foster learner autonomy in English language learning. This approach, combining individual and collaborative elements, can enhance students' language improvement and motivation, requiring careful design. Moreover, Howlett and Waemusa (2019) conducted a study and found that high school EFL students in Southern Thailand perceive mobile devices as enhancers of learning and satisfaction, indicating readiness for autonomous learning. The findings suggest that students are ready to use mobile devices in conjunction with their 21st-century learning skills, enhancing their learning potential. In essence, integrating technology into language education in Thailand is not only a modernizing tool but also an opportunity for learner autonomy, signifying an important step in the educational journey of Thai language learners in the digital age.

2.4 CEFR-CLIL Four-Pillar Model for Enhancing Learner Autonomy and Language Competency

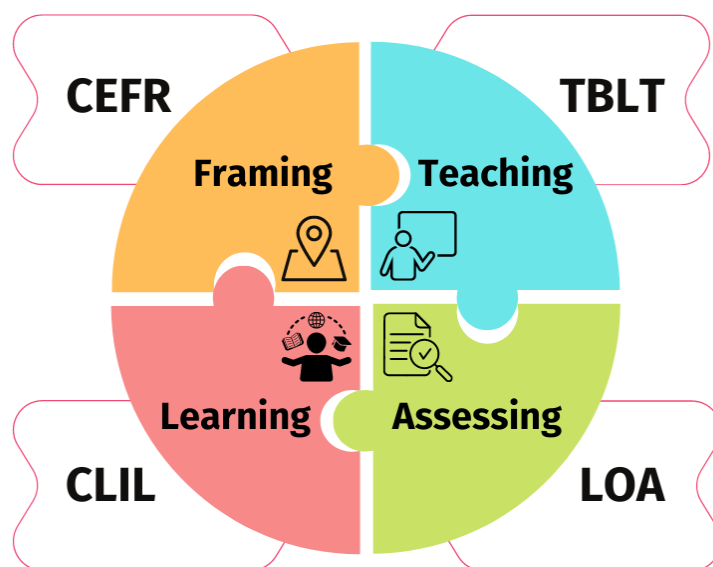


Figure 1. Interlocking Four-Pillar Model (Kunschak 2020)

The integration of CEFR, CLIL, TBLT, and LOA, as shown in Figure 1, provides an instructional plan for effective language education, emphasizing the role of learner autonomy in the process. From Figure 1, the diagram represents a comprehensive approach to language education, illustrating the pivotal components and methodologies in contemporary language instruction and assessment. Central to the diagram are the core pedagogical phases: 'Framing,' 'Teaching,' 'Learning,' and 'Assessing'. These phases denote a cyclical process,

ensuring that language education is structured, delivered, experienced, and evaluated, which is vital for continuous improvement. Encircling these phases are four fundamental methodologies in language education. On the left, 'CEFR' symbolizes the Common European Framework of Reference for Languages, an internationally recognized guideline ensuring a standardized language proficiency measure. Its counterpart on the right, 'TBLT,' stands for Task-Based Language Teaching, underscoring the significance of real-world application and contextual language usage. Beneath, 'CLIL' denotes Content and Language Integrated Learning, highlighting the dual importance of academic content mastery alongside language acquisition, thus promoting deeper cognitive engagement. Lastly, 'LOA,' or Learning Oriented Assessment, emphasizes a student-centric approach, recognizing that individualized assessment strategies lead to more meaningful feedback and enhanced learning outcomes. As depicted in the diagram, integrating these methodologies highlights the significance of a modern, multifaceted approach to language education. It emphasizes that the combination of standardized frameworks, practical applications, content integration, and individualized assessment is essential for true language proficiency. The diagram's comprehensive design serves as a reminder that language education is about linguistic proficiency and cultivating critical thinking, cultural awareness, and real-world application.

Learner autonomy stands at the heart of contemporary educational approaches, as supported by CLIL, CEFR, and TBLT. CLIL, which emphasizes content exploration and communication, promotes learner autonomy. TBLT engages students in language use in the real world and encourages autonomous learning and cooperative skills. Similarly, while the CEFR provides a structured learning path, it emphasizes learner autonomy by encouraging self-assessment and a sense of accomplishment. CLIL in higher education promotes critical thinking and independent decision-making, which are essential to learner autonomy. Younger students, on the other hand, utilize CLIL to concentrate more on their own language competencies. These frameworks are supported by LOA, which enables teachers to customize their instruction to promote greater student autonomy. Considering CEFR, CLIL, TBLT, and LOA as interconnected systems enables us to recognize their similar emphasis on autonomous learning. Adapting these systems to the local context is imperative, ensuring that they consistently promote learner autonomy across all educational levels (Kunschak 2020).

In conclusion, within this framework, technology emerges as a crucial element in harmonizing these educational strategies, reinforcing their principles to support a comprehensive learning ecosystem. By facilitating the practical application of CEFR, CLIL, TBLT, and LOA, technology acts as a bridge, enabling the practical application of these methodologies, facilitating access to diverse learning materials, and providing platforms for real-world language practice and personalized feedback. This strategic integration underlines how technology not only complements but significantly strengthens the core educational methodologies, further driving the development of learner autonomy and enhancing language proficiency. By means of this cohesive investigation, technology is perceived as a means by which these frameworks are connected, thereby promoting an enhanced, captivating, and autonomous educational setting for Thai EFL learners.

3. Method

3.1 Research Aims

The primary aim of this research is to explore the integration of technology within English language education among Thai EFL learners, focusing on its impact on learner autonomy and English competency across reading, writing, listening, and speaking skills. Guided by four research questions, this research seeks to: determine the

extent to which technology use impacts learners' autonomy in English learning; assess the effects of technology on learners' competency across reading, writing, listening, and speaking; investigate the usage patterns of specific apps and online tools among learners; and evaluate learners' perceptions of the effectiveness and enjoyment of using technological tools for English language improvement. This comprehensive inquiry aims to provide valuable insights into the relationship between technology, learner autonomy, and language competency among Thai EFL learners, offering recommendations to enhance technology integration in English language education for Thai EFL learners.

3.2 Participants

This research was carried out in Chiang Mai, Thailand, a region specifically chosen as the research area. Convenience sampling, a non-probability sampling technique where participants are selected based on their availability and willingness to take part in the study, was employed. This method was chosen because the researcher resided in Chiang Mai, making it feasible to easily access and recruit participants from this location. This approach allowed for the efficient gathering of a diverse sample of participants who were readily available and willing to participate. Thereby, in this study, a total of 230 Thai EFL learners participated. The demographic composition of these learners, as illustrated in Table 2, demonstrates a balanced gender distribution with 103 males, 101 females, and 26 identifying with other gender identities, thereby enriching the range of perspectives. The majority of learners in the group are 17 years old and have been studying English for a duration of 11 to 15 years. This indicates a strong interest in utilizing technology for language learning, as evidenced by 98.7% of learners using smartphones and tablets.

The participants' English proficiency varies across the spectrum from beginner to advanced, highlighting the wide range of abilities among the study's sample. To classify the English proficiency levels of the participants, the students were tested on their English proficiency by the iStudy Education Center (iStudy Education Co., Ltd.), a reputable language testing organization. The results of these tests were used to categorize the students into different proficiency levels: beginner, intermediate, and advanced. This classification ensured a valid and reliable assessment of English proficiency levels, which was crucial for analyzing the impact of technology on learners with varying language abilities. Additionally, this intentional choice, guided by the Yamane formula, ensures the inclusion of diverse views and backgrounds. As part of the research methodology, the participants were requested to complete a questionnaire to gather insights into their perceptions and experiences of technology's influence on English language learning and learner autonomy.

3.3 Instruments

The questionnaire served as the primary research instrument in this study to investigate the perceptions and experiences of Thai EFL learners regarding technology's impact on their language learning autonomy. The questionnaire was structured into three main sections: the first section aimed to collect background information from the respondents, the second section focused on examining the extent of technology integration in various language skills, including reading, writing, listening, and speaking, and the third section explored the respondents' views on the effectiveness and enjoyment of specific digital tools and applications for enhancing English language skills.

To develop valid survey items, the questionnaire was grounded in established theories and previous literature relevant to EFL education and technology integration. The items were designed to assess various aspects of learner

autonomy, digital literacy, and the integration of technological, pedagogical, and content knowledge in language learning. This comprehensive approach ensured that the questionnaire covered a broad range of factors influencing EFL learning and technology use. To ensure the reliability and validity of the questionnaire, a pilot survey was conducted with 30 Thai EFL learners, and the Cronbach's alpha coefficient yielded a value of $\alpha = .778$, which was considered acceptable and indicated good internal consistency¹. Additionally, the questionnaire underwent a thorough review and refinement process involving input from two language education experts and two experienced EFL instructors. The resulting instrument was deemed both valid and reliable for data collection by established standards of research instrument assessment.

Table 2. Participants' Demographic Information (N=230)

Demographic Variables		Frequency (f)	%
Gender	Male	103	44.78
	Female	101	43.91
	Other	26	11.3
Age	16 years	1	0.43
	17 years	159	69.13
	18 years	70	30.43
English Language Learning Duration	6-10 years	50	21.74
	11-15 years	126	54.78
	16 years and over	54	23.48
The Use of Technology in Language Learning	Always	101	43.91
	Often	89	38.70
	Sometimes	37	16.09
	Rarely	3	1.30
	Never	0	0.00
Using Smartphones and Tablets for Language Learning	Yes	227	98.70
	No	3	1.30
English Proficiency Levels	Beginner (A1-A2)	42	18.26
	Intermediate (B1-B2)	164	71.30
	Advanced (C1-C2)	24	10.43

3.4 Data Collection

To ensure efficient data collection during the challenges posed by the COVID-19 pandemic, Microsoft Forms were selected for their effectiveness in designing, creating, and collecting participant responses. In addition, a QR code was also distributed to simplify the process and facilitate easy access to the questionnaire. This approach streamlined the data collection procedure. The data collection occurred in September 2023, allowing for an efficient and thorough information-gathering process within a condensed time frame. Participants were provided with clear instructions and support on how to complete the questionnaire to ensure high-quality responses. Moreover, throughout the study, the highest levels of secrecy and data privacy were maintained, thus creating confidence among participants and protecting their sensitive information.

¹ Note: George and Mallery (2003) provide the following rules of thumb: $\alpha > 0.9$ (Excellent), > 0.8 (Good), > 0.7 (Acceptable), > 0.6 (Questionable), > 0.5 (Poor), and < 0.5 (Unacceptable).

3.5 Data Analysis

After data collection, the survey responses were subjected to quantitative analysis using the Statistical Package for the Social Sciences (SPSS). The main aim of this analysis was to examine the distribution variations relevant to the closed-ended questions. To evaluate the questionnaire's reliability, the Cronbach alpha coefficient was determined. Additionally, the respondents' background information was categorized and presented in frequency (f) and percentage (%).

In the Thai educational system, the Grade Point Average (GPA) is measured on a scale ranging from 0 to 4 on a scale of 8 points. Consequently, the GPA range is subdivided into distinct categories to reflect a student's academic performance. An 'A' corresponds to an excellent grade of 4.00. A 'B+' corresponds to the range of 3.50 to 3.99, while a 'B' corresponds to 3.00 to 3.49. A 'C+' corresponds to grades between 2.50 and 2.99, while a 'C' represents grades between 2.00 and 2.49. Lower on the scale, a 'D+' corresponds to results between 1.50 and 1.99, a 'D' reflects scoring between 1.00 and 1.49, and a 'F' represents failure with scores below 1.00. This systematic grading approach, as evidenced by data from DEK-D, a renowned educational website in Thailand, and the grading system at Chiang Mai University, provides a structured method for evaluating students' academic performance, corresponding to worldwide accepted grading standards while fitting within the Thai educational context.

For the purposes of this study, when evaluating reading and writing proficiency, the GPA from the reading and writing courses was used as a benchmark. Similarly, the GPA from the listening and speaking subjects was used to evaluate their proficiency in those skills. This distinction ensured a more precise and subject-specific evaluation of students' language skills, providing a more precise understanding of their performance in each domain of English. By categorizing and analyzing GPAs specific to reading and writing or listening and speaking, the study aimed to ensure that the evaluation was relevant to the specific language skill being assessed. This approach helps account for potential variations in course difficulty and provides a more accurate representation of students' proficiency in each specific area. Additionally, the study considered the curriculum and assessment methods used in the courses to ensure they were comparable across different classes. Efforts were made to confirm that the courses followed a similar structure and evaluation criteria, thus minimizing the impact of differing course difficulties on the GPA used for analysis.

Students' agreement levels with the given statements, segmented by their GPA, were gauged using a 5-point Likert scale. In doing so, descriptive statistics, namely the mean (M) and standard deviation (SD), were employed to highlight the average agreement levels across different groups. To investigate variances in agreement levels among GPA groups, a One-way Analysis of Variance (ANOVA) was conducted. Furthermore, as the key objective of the study was specifically to determine the general variances between GPA groups, it was decided that post-hoc analyses were deemed unnecessary in this context. It is worth noting that the ANOVA method's simplicity and clarity are appropriate to align with the study objectives, ensuring that the obtained results are concise and directly relevant.

During the analysis phase, it was determined that several survey statements, such as those addressing the difficulty of using online tools for English reading, the difficulties of integrating technology for writing outside the classroom, the positive aspects of word suggestion apps, content preferences for English listening, and listening habits outside of the classroom, revealed significant variances. Particularly, the first two statements contained negative sentiments regarding integrating technology into their learning. As ANOVA assumes variance homogeneity, incorporating these complex statements could lead to inaccurate results. Due to the sensitivity of ANOVA to this assumption, it was determined that excluding these statements was necessary to ensure the validity of the findings. To maintain the analysis's integrity and accuracy, these statements were eliminated from the

ANOVA evaluation.

In addition, the utilization and perception of technology in the context of English language learning are represented using a stacked bar chart in the presented visual representation. Each section within the chart corresponds to a certain technology the students employ. The percentages (%) represented by the bars indicate the proportional adoption of each technology, collectively summing up to 100% to provide a comprehensive comprehension of technology utilization in English language learning.

4. Results

4.1 An Analysis of Technological Influence on Learner Autonomy and English Proficiency among Thai EFL Learners

In order to examine the relationship between technology and the development of four fundamental skills in Thai EFL learners, a one-way analysis of variance (ANOVA) was employed. This analysis aimed to investigate any potential correlation between these skills and the students' grade point average (GPA) results. In the dynamic academic environment where the fields of technology and education collide, it is crucial to assess the influence of technology on the domains of reading, writing, listening, and speaking. The following table presents the agreement levels of students with various statements, grouped according to their GPA. This analysis provides valuable insights into the potential relationship between different educational approaches and academic achievement.

In the survey designed to determine the relationship between students' reading strategies and their respective grade point averages, distinct patterns were observed. As depicted in Table 3, students' levels of agreement with reading strategies were categorized according to their GPA groups. The results, supported by p-values, highlight specific strategies that correlate with academic success. Significantly, students who selected English reading topics based on personal interest correlated with a p-value of $< .001$, indicating a significant relationship. Similarly, technology tools, particularly language applications, demonstrated a strong correlation with high GPA, as indicated by a p-value of $< .001$. In addition, practices such as setting up specific goals, utilizing digital tools during English reading assignments, and summarizing content using digital note-taking tools were associated with GPA variations, as noted by p-values of .019 and .001 respectively. These results strongly indicate that specific reading strategies, especially incorporating technology, correlate positively with higher GPA among Thai EFL learners.

Table 3. Results of Students' Agreement Levels with the Reading Statements by Their GPA

Reading Statements	GPA	n	Mean	SD	F	Sig. (p)
To improve my language skills, I chose topics that interest me when studying English reading materials, including online articles and resources.	A (4.00)	53	4.53	.541	8.666	< .001**
	B ⁺ (3.50-3.99)	54	4.48	.606		
	B (3.00-3.49)	52	4.21	.776		
	C ⁺ (2.50-2.99)	38	4.00	.805		
	C (2.00-2.49)	13	3.62	.768		
	D ⁺ (1.50-1.99)	14	3.57	.852		
When I do English reading assignments, I set practical objectives and use digital tools like online dictionaries or reading apps to track how well I'm doing and how much I understand.	A (4.00)	53	4.34	.678	2.586	.019*
	B ⁺ (3.50-3.99)	54	4.20	.737		
	B (3.00-3.49)	52	4.13	.817		
	C ⁺ (2.50-2.99)	38	4.05	.804		
	C (2.00-2.49)	13	3.69	.947		
	D ⁺ (1.50-1.99)	14	3.93	.917		
I summarize what I've read in English lessons using digital note-taking tools, such as note-taking apps on my smartphone or tablet, to help me remember and learn better.	A (4.00)	53	4.26	.923	3.875	.001**
	B ⁺ (3.50-3.99)	54	4.24	.751		
	B (3.00-3.49)	52	4.04	.928		
	C ⁺ (2.50-2.99)	38	3.82	1.010		
	C (2.00-2.49)	13	3.23	.832		
	D ⁺ (1.50-1.99)	14	3.57	1.158		
I use technology, such as language learning apps and online resources, to find extra reading materials that deepen my understanding in my English class.	A (4.00)	53	4.30	.774	4.967	< .001**
	B ⁺ (3.50-3.99)	54	4.33	.727		
	B (3.00-3.49)	52	4.10	.955		
	C ⁺ (2.50-2.99)	38	4.13	.844		
	C (2.00-2.49)	13	3.38	.768		
	D ⁺ (1.50-1.99)	14	3.64	1.151		
Overall	A (4.00)	53	3.84	.430	4.046	.001**
	B ⁺ (3.50-3.99)	54	3.90	.459		
	B (3.00-3.49)	52	3.67	.545		
	C ⁺ (2.50-2.99)	38	3.68	.489		
	C (2.00-2.49)	13	3.32	.480		
	D ⁺ (1.50-1.99)	14	3.56	.749		
	D (1.00-1.49)	6	3.33	.432		

Note. * $p < .05$. ** $p < .01$.

As shown in Table 4, students' levels of agreement with specific writing strategies were classified according to their GPA. The data, supported by the respective p-values, indicate distinct academic achievement-related strategies. Those who strategically set practical objectives for English writing tasks and utilized tools such as writing and language apps demonstrated a significant correlation, as indicated by a p-value of .013. Students who frequently sought writing opportunities using online platforms and tools outside of class significantly correlated with higher GPA, as indicated by a p-value of .005. Moreover, online grammar and spelling check tools, which assist students in correcting errors, demonstrated a strong correlation with academic excellence, with a significant p-value of < .001. The findings imply that targeted writing strategies, particularly when supplemented by digital tools, are positively associated with superior GPA among Thai EFL learners.

Table 4. Results of Students' Agreement Levels with the Writing Statements by Their GPA

Writing Statements	GPA	n	Mean	SD	F	Sig. (p)
When I work on English writing tasks, I set practical goals based on my skills and use tools like writing apps, language apps, or computer programs to track my progress.	A (4.00)	53	4.02	.971	2.774	.013*
	B+ (3.50-3.99)	54	4.24	.642		
	B (3.00-3.49)	52	4.06	.916		
	C+ (2.50-2.99)	38	4.03	.972		
	C (2.00-2.49)	13	3.38	.768		
	D+ (1.50-1.99)	14	4.07	.730		
I regularly look for writing opportunities using online platforms and tools, which helps me advance my English outside the classroom.	D (1.00-1.49)	6	3.17	.753	3.210	.005**
	A (4.00)	53	4.04	.919		
	B+ (3.50-3.99)	54	4.20	.711		
	B (3.00-3.49)	52	4.00	.907		
	C+ (2.50-2.99)	38	3.79	.875		
	C (2.00-2.49)	13	3.31	.855		
Online grammar and spell check tools assist me in catching mistakes and improving my writing accuracy.	D+ (1.50-1.99)	14	4.00	.679	4.630	< .001**
	D (1.00-1.49)	6	3.17	1.169		
	A (4.00)	53	4.36	.879		
	B+ (3.50-3.99)	54	4.41	.630		
	B (3.00-3.49)	52	4.23	.942		
	C+ (2.50-2.99)	38	4.11	.894		
Overall	C (2.00-2.49)	13	3.38	.870	3.086	.006**
	D+ (1.50-1.99)	14	4.14	.770		
	D (1.00-1.49)	6	3.17	.408		
	A (4.00)	53	3.71	.590		
	B+ (3.50-3.99)	54	3.90	.464		
	B (3.00-3.49)	52	3.71	.635		
	C+ (2.50-2.99)	38	3.69	.586		
	C (2.00-2.49)	13	3.23	.415		
	D+ (1.50-1.99)	14	3.77	.525		
	D (1.00-1.49)	6	3.37	.388		

Note. * $p < .05$. ** $p < .01$.

In accordance with their GPA classifications, the levels of agreement with specific listening strategies were defined in Table 5. The data, supported by the p-values, highlight specific strategies corresponding to academic achievement. As indicated by a p-value of .014, students who utilize technology to access diverse audio resources and establish specific goals for their English listening exercises have a correlation with higher GPA. In contrast, students who encountered difficulties using online audio resources to improve their English listening proficiency were significantly more likely to have lower GPA, as highlighted by a p-value of < .001. Students who actively sought diverse audio resources, such as online podcasts and language-learning applications, to improve their English listening skills demonstrated a significant correlation with higher GPA, as indicated by a p-value of < .001. In conclusion, the results demonstrate that listening strategies, particularly the judicious integration of technology, positively correlate with higher GPA among Thai EFL learners.

Table 5. Results of Students' Agreement Levels with the Listening Statements by Their GPA

Listening Statements	GPA	n	Mean	SD	F	Sig. (p)
I use technology to access various audio resources, set specific goals for my English listening exercises, and this boosts my confidence and learning outcomes.	A (4.00)	65	4.37	.821	2.735	.014*
	B ⁺ (3.50-3.99)	85	4.32	.775		
	B (3.00-3.49)	32	3.91	.963		
	C ⁺ (2.50-2.99)	15	4.00	1.134		
	C (2.00-2.49)	16	3.94	.998		
	D ⁺ (1.50-1.99)	9	3.89	.928		
<i>I have trouble using online audio resources and technology to improve my English listening skills for my English studies.</i>	D (1.00-1.49)	8	3.50	.756	4.569	< .001**
	A (4.00)	65	1.85	1.406		
	B ⁺ (3.50-3.99)	85	1.79	1.103		
	B (3.00-3.49)	32	2.69	1.447		
	C ⁺ (2.50-2.99)	15	2.60	1.454		
	C (2.00-2.49)	16	2.38	1.455		
I look for different audio resources, like online podcasts and language learning apps, to improve my English listening skills.	D ⁺ (1.50-1.99)	9	2.78	.833	7.105	< .001**
	D (1.00-1.49)	8	3.38	1.188		
	A (4.00)	65	4.35	.891		
	B ⁺ (3.50-3.99)	85	4.02	.951		
	B (3.00-3.49)	32	3.44	.914		
	C ⁺ (2.50-2.99)	15	3.80	.941		
Overall	C (2.00-2.49)	16	3.69	1.078	3.542	.002*
	D ⁺ (1.50-1.99)	9	3.22	.972		
	D (1.00-1.49)	8	2.75	.707		
	A (4.00)	65	3.90	.527		
	B ⁺ (3.50-3.99)	85	3.74	.544		
	B (3.00-3.49)	32	3.49	.570		
	C ⁺ (2.50-2.99)	15	3.65	.761		
	C (2.00-2.49)	16	3.56	.625		
	D ⁺ (1.50-1.99)	9	3.38	.380		
	D (1.00-1.49)	8	3.30	.441		

Note. * $p < .05$. ** $p < .01$.

As demonstrated in Table 6, students' levels of agreement with specific speaking strategies varied according to their GPA classifications. Although students acknowledged the benefits of online platforms for language exchange, practicing speaking through digital tools, and exploring English conversations through a variety of mediums, the data suggests there is no statistically significant correlation between these strategies and GPA. The p-values of .086, .082, and .169, respectively, indicate that these strategies have no significant correlation with academic achievement. On the other hand, two strategies stood out for their significant correlations. The correlation between students who found it difficult to use apps and online tools to enhance their speaking skills and their GPA was statistically significant ($p = .013$). In addition, the significance of receiving feedback on public speaking, particularly through technology, revealed a significant correlation with higher GPA ($p = .001$). In conclusion, while various speaking strategies were investigated, the data highlight the significance of two aspects: the positive correlation between receiving feedback on speaking and higher GPA, and the difficulties associated with using online tools that can affect academic performance.

Table 6. Results of Students' Agreement Levels with the Speaking Statements by Their GPA

Speaking Statements	GPA	n	Mean	SD	F	Sig. (p)
Online platforms that offer language exchange and opportunities like playing online games or engaging in social media discussions help me connect with native speakers and practice speaking in real conversations.	A (4.00)	65	4.15	.870	1.878	.086
	B+ (3.50-3.99)	85	4.28	.840		
	B (3.00-3.49)	32	4.09	.856		
	C+ (2.50-2.99)	15	3.80	1.146		
	C (2.00-2.49)	16	4.06	.854		
	D+ (1.50-1.99)	9	4.00	.866		
I usually practice speaking using online resources and language learning apps, which helps me become more confident and fluent in my English lessons.	D (1.00-1.49)	8	3.38	.518	1.898	.082
	A (4.00)	65	3.72	.944		
	B+ (3.50-3.99)	85	3.98	.899		
	B (3.00-3.49)	32	3.50	.984		
	C+ (2.50-2.99)	15	3.47	.640		
	C (2.00-2.49)	16	3.81	.750		
I actively look for chances to engage in English conversations outside of class, both online and offline, often using tools like social media, language apps, and video calls.	D+ (1.50-1.99)	9	3.67	.500	1.531	.169
	D (1.00-1.49)	8	3.38	.518		
	A (4.00)	65	3.97	.847		
	B+ (3.50-3.99)	85	4.04	.808		
	B (3.00-3.49)	32	3.69	.859		
	C+ (2.50-2.99)	15	3.60	.737		
<i>I find it hard to use apps and online platforms to learn a language well enough to improve my speaking confidence and fluency in my English class.</i>	C (2.00-2.49)	16	3.75	.931	2.752	.013*
	D+ (1.50-1.99)	9	3.78	.972		
	D (1.00-1.49)	8	3.50	.756		
	A (4.00)	65	2.09	1.411		
	B+ (3.50-3.99)	85	1.88	1.128		
	B (3.00-3.49)	32	2.28	1.397		
I like getting helpful feedback on how I speak, whether it's given to me directly or through technology, because it helps me improve my English pronunciation and fluency.	C+ (2.50-2.99)	15	2.73	1.387	4.173	.001**
	C (2.00-2.49)	16	2.38	1.258		
	D+ (1.50-1.99)	9	2.89	1.269		
	D (1.00-1.49)	8	3.25	1.165		
	A (4.00)	65	4.40	.766		
	B+ (3.50-3.99)	85	4.35	.782		
Overall	B (3.00-3.49)	32	3.91	.963	1.099	.364
	C+ (2.50-2.99)	15	3.67	.976		
	C (2.00-2.49)	16	3.88	.806		
	D+ (1.50-1.99)	9	4.11	.782		
	D (1.00-1.49)	8	3.50	1.069		
	A (4.00)	65	3.67	.570		
	B+ (3.50-3.99)	85	3.71	.523		
	B (3.00-3.49)	32	3.49	.581		
	C+ (2.50-2.99)	15	3.45	.723		
	C (2.00-2.49)	16	3.58	.649		
	D+ (1.50-1.99)	9	3.69	.521		
	D (1.00-1.49)	8	3.40	.595		

Note. * $p < .05$. ** $p < .01$.

4.2 Utilization and Impact of Technological Resources on English Language Learning among Thai EFL Learners

The chart presented provides insights into the preferences and perspectives of Thai EFL learners on the extent to which they utilize different apps and online resources to enhance their English competence. Each section of the chart adds up to 100 percent, representing the total percentage of students and providing a comprehensive view of their preferences. The graphic shows the distribution of students according to the tools they engage. The data reveals that some tools and applications are significantly more popular and frequently used among these learners. Including specific percentages in the graphic facilitates a thorough comprehension of the adoption rate associated with each tool. Moreover, the chart displays various colors to represent students’ perceived effectiveness and satisfaction levels. This not only emphasizes the frequency but also the quality of tool utilization. Understanding these variations is highly significant as it may provide helpful direction to educators and curriculum developers in adopting the most appropriate resources for Thai EFL learners, thereby promoting both effectiveness and active engagement.

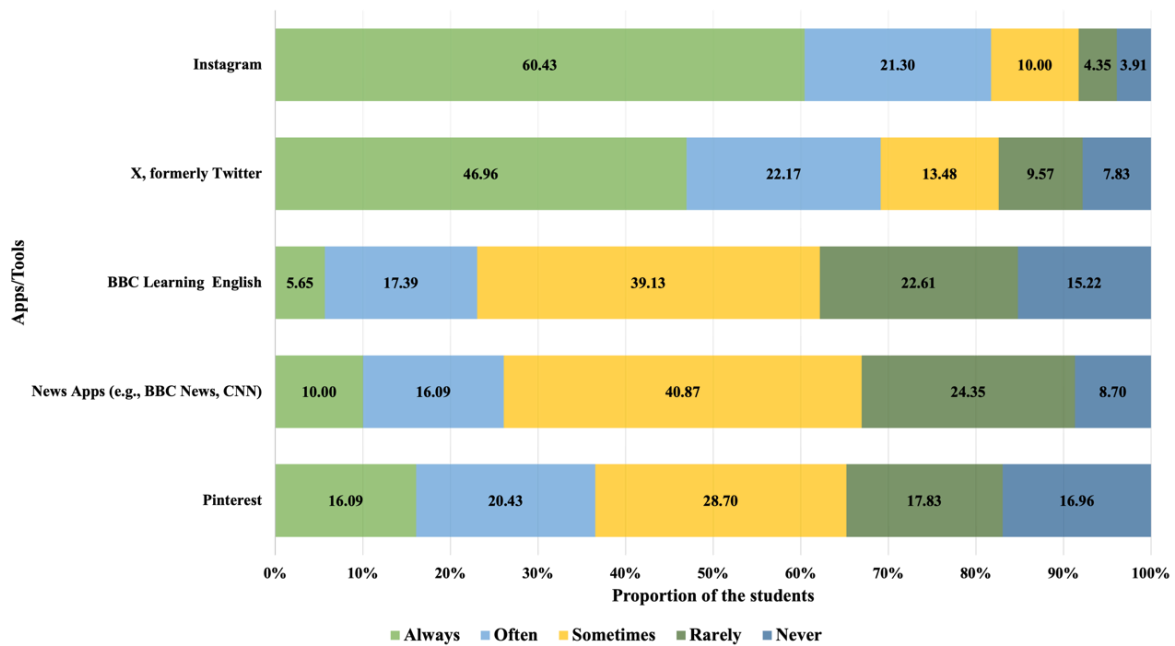


Figure 2. Usage Frequency of Apps/Tools for Enhancing English Reading Proficiency

Figure 2 highlights the utilization patterns of various digital platforms for improving English reading skills. Instagram stands out as the most popular tool, with 60.43% of users regularly using it. Twitter is a close second, with 46.96% of the participants using it regularly for reading enhancement. In contrast, Pinterest exhibits a more balanced distribution, with its highest percentage of users (28.70%) opting for it “sometimes,” closely followed by 20.43% who use it “often” and 17.83% who “rarely” engage with it. Most participants (40.87%) use news apps like BBC News and CNN “sometimes,” while 24.35% use these apps “rarely” to improve their English reading proficiency. On the other hand, BBC Learning English demonstrates a more even spread across the frequency

spectrum but leans towards the “sometimes” category with 39.13%.

Based on Figure 2, the investigation of English reading digital tool preferences indicates that Thai EFL learners strategically select tools that combine visual engagement with various forms of information to improve their language skills. The widespread use of platforms such as Instagram emphasizes a shift towards visual and interactive learning, indicating the need to incorporate multimedia aspects into language learning methods. On the other hand, the purposeful utilization of Pinterest and news applications demonstrates an intentional choice of learning materials, creating a balance between enjoyment and educational value. This usage highlights the proactive attitude of learners, who customize their digital interactions to suit their individual learning needs and preferences. These findings highlight the importance of educators adapting their teaching approaches according to the digital needs of learners to create a more dynamic and individualized learning environment.

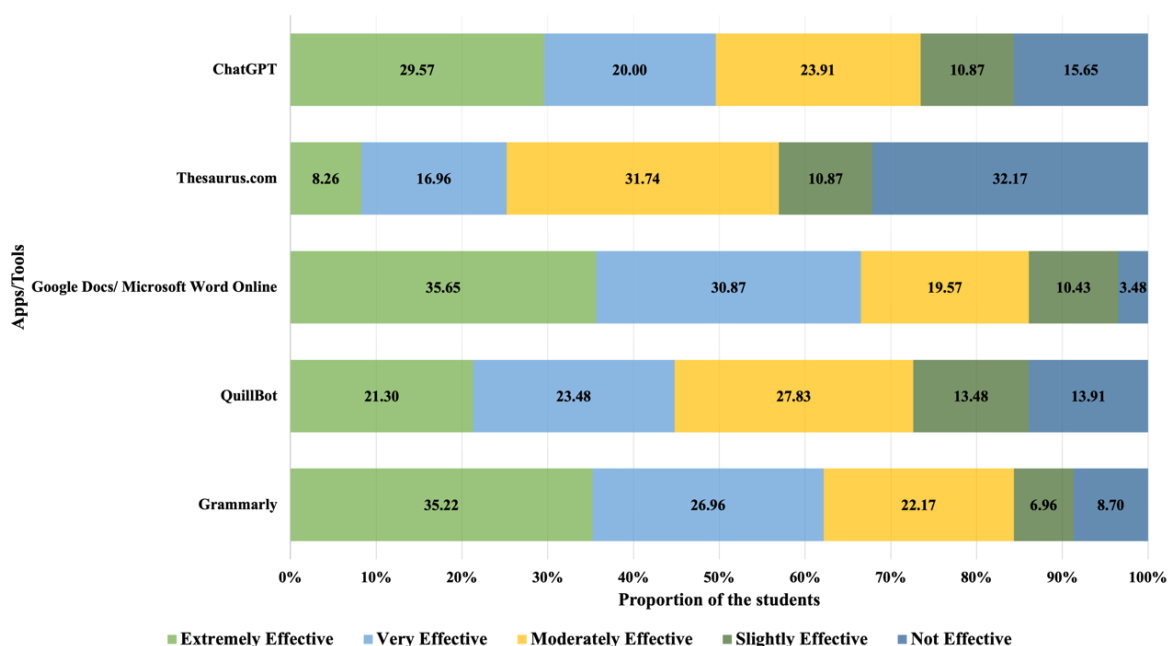


Figure 3. Effectiveness of the Apps/Tools in Enhancing English Writing Proficiency

Figure 3 investigates the effectiveness of various writing applications and tools in enhancing English writing proficiency. Google Docs/Microsoft Word Online is considered as “Extremely Effective” by 35.65% of participants followed by Grammarly with 35.22%. While 21.30% of the participants rated QuillBot as “Extremely Effective,” it has a more even distribution across the effectiveness scale, with notable percentages rating it “Very Effective” and “Moderately Effective.” On the other hand, Thesaurus.com has the highest proportion of users who consider it to be “Not Effective” (32.17%), but a significant percentage also considers it to be “Moderately Effective” (31.74%). ChatGPT is viewed as “Extremely Effective” by 29.57% of participants, demonstrating its growing importance in writing.

The preferences and views of Thai EFL learners about different writing tools demonstrate a delicate balance between traditional writing aids and the advancement of technological alternatives. The widespread regard for Google Docs/Microsoft Word Online and Grammarly highlights the fundamental significance of grammar and

spelling checks in the writing process, indicating that learners could provide priority to accuracy and coherence in their written communication. However, the growing popularity of QuillBot and ChatGPT indicates a changing trend in which learners are progressively searching for advanced resources that provide more than basic error correction. These tools, which include paraphrase and content production features, provide learners new and creative ways to improve their writing abilities. This indicates more dynamic and interactive tools for learning. Combining traditional and modern technologies suggests that students use many resources to improve their writing. In short, all of these point to the importance of incorporating both types of tools into the classroom in order to meet the needs of students with varying learning styles and to foster better writing abilities.

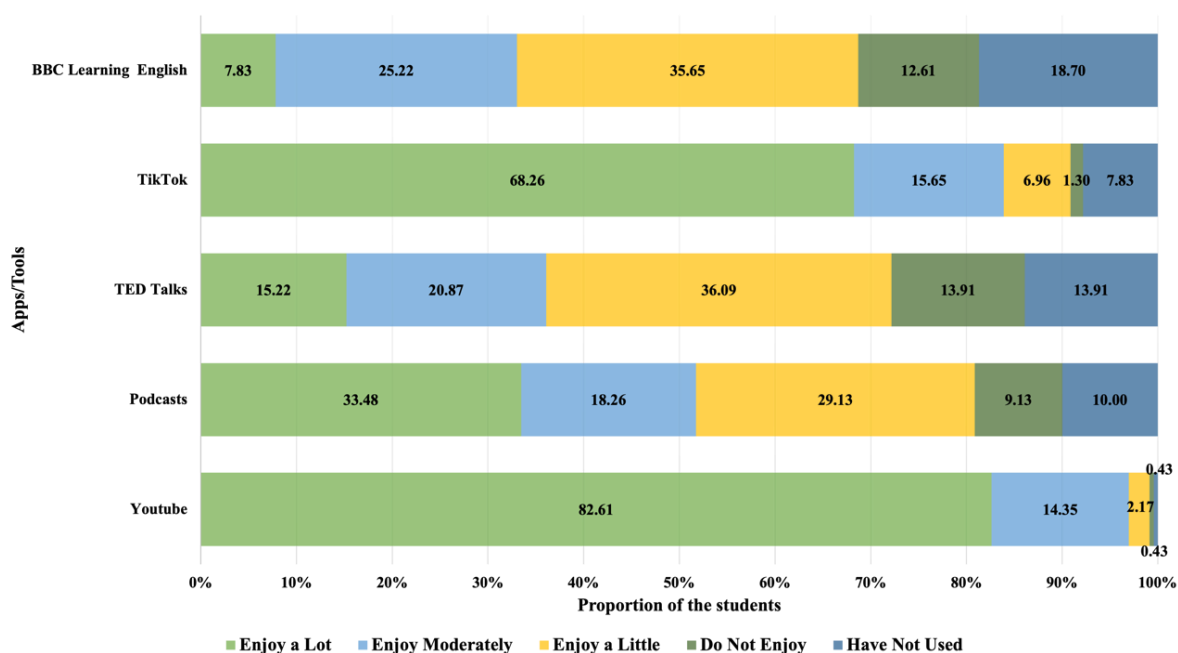


Figure 4. Enjoyment Level Using the Apps/Tools for English Listening Enhancement

Figure 4 indicates users’ preferences regarding digital platforms designed to improve English listening skills. YouTube appears to be the dominant platform, with 82.61% of users frequently browsing it. With its universal popularity, 68.26% of TikTok’s users strongly admire its content. The same applies to the popularity of podcasts, with 33.48% of participants appreciating their content considerably. While TED Talks are well-known, their engagement is more variable, with 36.09% of users finding them only somewhat enjoyable. BBC Learning English receives a mixed perception but cannot compete with the popularity of platforms such as YouTube and TikTok.

The investigation of Figure 4 indicates a significant trend towards digital platforms that provide dynamic and interactive content for improving English listening skills, with YouTube taking the lead due to its wide content diversity. The high engagement on TikTok demonstrates learners’ preference for short visually appealing videos that make learning both accessible and interesting. Podcasts, which appeal to a specific audience, highlight an increasing desire for extensive study of topics, allowing students to gain insight into topics of interest at their own pace. The moderate response of TED Talks and BBC Learning English reveals a preference for platforms that combine education and entertainment, indicating a shift away from traditional lecture-based learning methods and

toward more engaging multimedia experiences. The shift indicates that learners are looking for content that not only improves their listening abilities but also keeps them interested and motivated, highlighting the growing importance of content variety, interactivity, and personal relevance in the digital age of language learning.

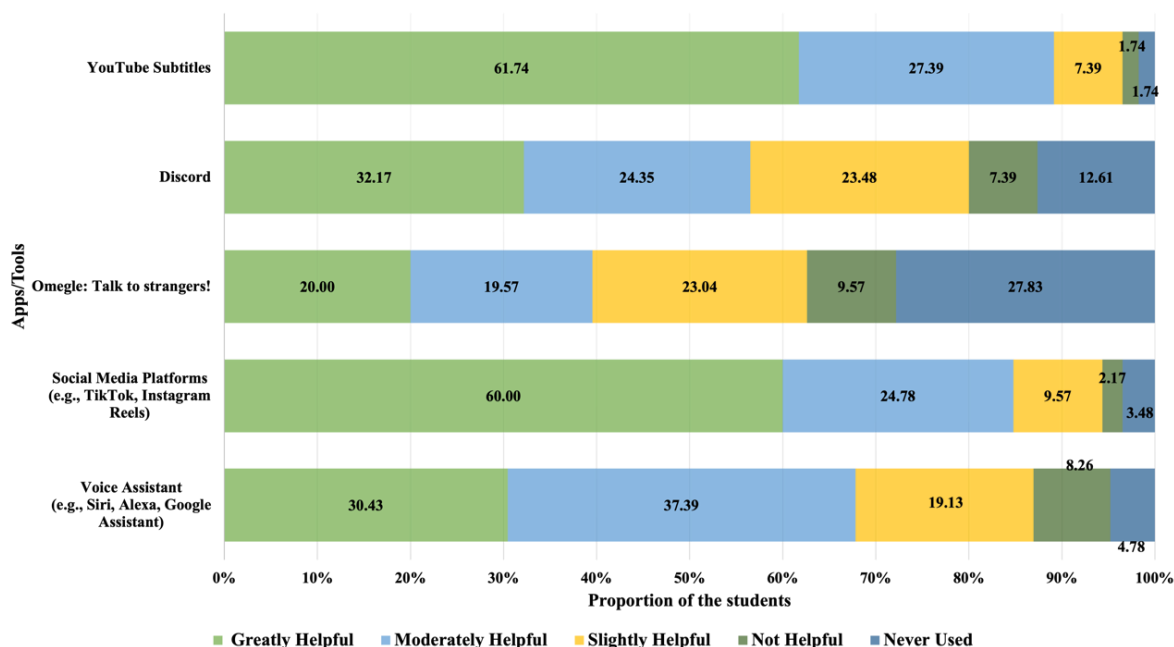


Figure 5. Apps/Tools Utility in Enhancing English Speaking Proficiency

According to Figure 5, YouTube Subtitles are perceived as a highly preferred resource, as indicated by 61.74% of participants who reported finding them greatly helpful for improving their English speaking proficiency. Social Media Platforms, such as TikTok and Instagram Reels, have gained the support of 60.00% of users, closely following the platforms mentioned earlier. Discord represents a significant position, providing substantial assistance to 32.17% of its user population. Voice Assistants, such as Siri, Alexa, and Google Assistant, are regarded as greatly helpful by 30.43% of participants. Interestingly, despite its distinctive approach of promoting conversations with strangers, Omegle greatly benefits 20.00% of participants, although 27.83% have never used it.

The preference for tools such as YouTube Subtitles and social media platforms, which is determined by the students, signifies a transition towards independent, autonomous learning approaches in digital environments, consistent with modern learning values of accessibility and relevance. The incorporation of interactive platforms like as Discord and Voice Assistants into students’ learning routine demonstrates their ability to adapt and their preference for using technology not only for consuming information, but also for engaging in active, hands-on learning. This technique emphasizes the dynamic character of language learning, in which students actively pursue a variety of immersive experiences in order to enhance their speaking abilities. In doing so, they combine traditional learning goals with the interactive capabilities of modern technology.

5. Discussion and Conclusion

Acknowledging the multifaceted influences on English language achievement, this study underscores the pivotal role of technology in enhancing learner autonomy and English competency among Thai EFL learners across reading, writing, listening, and speaking. Despite positive correlations between technology use and academic improvements, it is essential to recognize individual learner differences such as motivation and prior knowledge. Consequently, the recognition of several influential factors is an essential component of this study, emphasizing that the impact of technology is not independent but rather exists within an intricate structure of variables that influence language learning. Furthermore, this deliberate focus provides subtle insights into the influence of technology on the learner autonomy and English competency of Thai EFL learners, addressing an essential research issue. The integration of technology with language learning methodologies in Thai EFL education has been seen to have a significant impact on students' academic achievements, as quantitatively evidenced by their respective Grade Point Averages (GPA). The presence of strong and constant correlations in the areas of reading, writing, listening, and to some extent, speaking, based on the statistical analysis provided, indicates the significant impact of technology on the restructuring of EFL teaching methods. The findings from the reading and writing sections emphasize the effectiveness of tailored learning experiences. Specifically, students who engaged with English reading materials based on their interests and utilized technological tools such as language applications demonstrated a significant improvement in their academic performance, as shown by their GPA scores. Moreover, individuals who employed certain writing techniques, alongside digital resources like writing and language applications, underscored the positive connection between technology and typical language acquisition methods, with statistically significant correlations noted.

Listening and speaking, seen as interactive abilities in language acquisition, also provide valuable insights into certain significant discoveries. The application of technology to access a wide range of audio resources has been statistically proven to be a significant factor in enhancing listening skills. However, a contradiction can be seen in the employed speaking methods. Although students acknowledged the numerous advantages of technology, such as the availability of online platforms for language exchange and feedback mechanisms, some students encountered difficulties in effectively utilizing these online tools, as reflected in the data analysis. This observation implies that further support or instruction may be necessary to facilitate their proficiency in this domain. Moreover, the lack of substantial connections observed for certain speaking methods suggests the complex nature of oral proficiency and the diverse impact of independent strategies, which warrants further investigation. The study highlights the major importance of technology integration in EFL teaching and its multidimensional impact on various language skills, emphasizing the ongoing evolution of this field.

This research highlights the impact of technology, specifically mobile-assisted language tools, on advancing the four essential English language skills (reading, writing, listening, and speaking) for Thai EFL learners in the rapidly changing digital world. The discussed advancements, as referenced in the works of Benson and Reinders (2011), and Reinders and Benson (2017), offer an abundance of resources that have the potential to enhance or substitute traditional methods of instruction. The results underscore the intricate relationship between technology, learner autonomy, and the opportunities and obstacles in maximizing EFL teaching, grounded in the statistical data presented. Educators are encouraged to effectively utilize these advancements, facilitating a comprehensive language proficiency enhancement based on the insights derived from the findings. In brief, the combination of technology and learner autonomy has the potential to greatly enhance the quality of EFL instruction. This integration can effectively provide students with the necessary digital proficiency and English language competencies that are essential for their potential career paths.

The dynamic landscape of language education for Thai EFL learners is increasingly influenced by rapid advancements in technology and digital resources. The analysis of the data, specifically the percentage responses, revealed distinct patterns in how learners engage with different platforms to enhance their English language skills. Notably, platforms such as Instagram and Twitter have emerged as preferred mediums for English reading, with a significant percentage of learners utilizing them regularly. This preference may be identified due to their constantly changing character and the real-time content they provide, which facilitates interactive participation. This implies transitioning from traditional reading methods to modern, accessible platforms that align with the learners' daily digital consumption patterns. However, it is worth noting that the infrequent utilization of traditional news applications and specialized educational platforms may indicate their potential as supplementary tools employed during intensive learning sessions rather than regular activities. The continuous significance of regular grammar and spelling checks can be seen in the widespread adoption of tools like Grammarly and Microsoft Word Online, widely recognized as very effective tools for enhancing writing proficiency. However, the increasing popularity of platforms such as QuillBot and ChatGPT indicates a growing recognition of the value of advanced language models that can enhance and expand writing proficiency.

When further exploring the listening and speaking competencies domain, YouTube appears as an influential platform, reflecting its widespread popularity and wide variety of content. The increasing popularity of TikTok underscores the growing preference for concise and captivating content to strengthen student's listening skills. The integration of YouTube Subtitles and Social Media Platforms such as Instagram Reels to enhance speaking proficiency highlights the integration of entertainment and education within contemporary language learning pathways. Although highly helpful, platforms such as TED Talks and BBC Learning English appear to be tailored to a specific category of learners attracted to specific auditory learning experiences. The analyzed usage patterns of platforms such as Discord and Omegle suggest the emergence of a recognizable trend in which learners actively seek real-time interactive opportunities to engage in spoken language practice and refine their oral communication abilities. These platforms provide students with an environment that promotes real conversation, feedback, and peer engagement, thus providing a more authentic practice setting for speaking and listening skills. In conclusion, Thai EFL learners are strategically integrating traditional resources with contemporary digital platforms as they progress in their English language learning in the current period. This approach allows them to benefit from traditional language support and interactive engagement facilitated by modern technologies.

Thai EFL learners effectively integrate traditional pedagogies and modern technological instruments in the rapidly changing language education landscape. Instagram, Twitter, and YouTube engage with students who are attracted to dynamic, real-time content, indicating an evolution from traditional reading to digital platforms. With Grammarly for writing and YouTube and TikTok for listening, students utilize various resources to improve their proficiency. Interactive environments such as Discord improve speaking skills, while TED Talks and BBC Learning English provide specialized content for those who crave extensive detail. Such autonomous learners actively shape their learning environment, creating the groundwork for a customized learning ecology, as Mynard (2019) explains. Recognizing the global digital shift, educators in Thailand are utilizing technology to foster learner autonomy, going beyond classroom modernization. This concept is emphasized by Inpeng and Nomnian (2022) and Jitpaisarnwattana (2018), who demonstrate how platforms such as Facebook and digital storytelling can encourage autonomy in English learning despite obstacles and emphasize the need for an innovative approach. In essence, the study's findings thus not only confirm the adaptability of Thai EFL learners to a digitally integrated learning environment but also the evolving educational landscape towards a more learner-centered approach.

6. Limitations and Future Research

This study provides valuable insights into the impact of technology and learner autonomy on the English competency of Thai EFL learners, revealing how the integration of digital tools can significantly influence language learning processes. The exploration of technology's impact, however, is not confined solely to the Thai context; it offers observations and implications that are relevant to broader EFL learning environments worldwide. In an era marked by a global digital shift in education, understanding how technological advancements can foster learner autonomy and enhance language learning outcomes becomes imperative. Educators across the globe are thus encouraged to leverage these technological advancements, equipping learners with the necessary digital literacy and language competencies that are crucial for their future career paths.

Despite its comprehensive insights, the study acknowledges certain limitations. Primarily, the research has focused on the most popular and well-known technological tools and platforms, so it may have overlooked the impact of less well-known but equally effective technological tools that certain sections of learners may be utilizing. This oversight may limit the comprehensiveness of the findings. In addition, while the study provides a broad overview, it cannot dive thoroughly into Thailand's cultural and regional aspects. Understanding how cultural practices or local traditions influence the use of technology in English education could provide a deeper level of understanding. Another potential gap is the lack of perspectives from teachers. Teachers play an essential part in EFL learning environments, and their perceptions and observations regarding the efficiency of technology can contribute to a more balanced and comprehensive understanding of its effects. Gaining perspectives from both students and teachers could provide a clearer, more comprehensive picture of the actual implications and efficiencies of these digital tools in the learning landscape.

To gain a more extensive understanding of the role of technology in EFL learning, future research should aim to bridge these gaps. Expanding the scope of inquiry beyond the Thai context to explore the applicability of these findings to global EFL teaching strategies is crucial. Considering cultural variances and pedagogical innovations will not only enrich the discourse on the role of technology in EFL education but also contribute to the development of learner-centered, technology-enhanced language learning environments worldwide. Additionally, future studies should investigate the effectiveness of lesser-known technological tools and platforms to provide a more comprehensive understanding of available resources. Including longitudinal studies to track the long-term impact of technology integration on learner autonomy and language proficiency can yield deeper insights. Furthermore, exploring the role of teacher training in effectively utilizing these technologies can highlight ways to support educators in adapting to digital advancements. Finally, incorporating a mixed-methods approach that combines quantitative data with qualitative insights from both students and teachers can offer a more nuanced understanding of the complexities and dynamics in technology-enhanced EFL learning environments.

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Examples in: English

Applicable Languages: English

Applicable Level: Secondary

Appendix: A Survey Questionnaire

“Enhancing English Language Learning Autonomy with Technology: A Survey on High School Students’ Perspectives”

Section 1: General Information about Respondents

In the first section, we ask for some basic demographic details. Your answers will remain confidential.

1. Gender Male Female Other
2. Age 15 years 16 years 17 years 18 years
3. Grade Level Mathayom 4 (Grade 10)
 Mathayom 5 (Grade 11)
 Mathayom 6 (Grade 12)
4. English Language Learning Duration
 Less than 5 years 6-10 years
 11-15 years 16 years and over
5. How often do you use technology for language learning?
 Always Often Sometimes
 Rarely Never
6. Do you have a smartphone or tablet that you can use for language learning purposes?
 Yes No
7. How would you describe your English proficiency?
 Beginner (A1-A2) Intermediate (B1-B2) Advanced (C1-C2)

Section 2: A Four-Skilled Survey of English Language Learning Autonomy with Technology

For each statement, you’ll find a 5-point Likert scale. Please select the response that best matches your agreement or disagreement.

8. Autonomy in English Language Learning with Technology in Reading Skills

Reading Statements	Scale				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
To improve my language skills, I choose topics that interest me when studying English reading materials, including online articles and resources.					
When I do English reading assignments, I set practical objectives and use digital tools like online dictionaries or reading apps to track how well I’m doing and how much I understand.					
It is difficult for me to successfully use online tools such as language learning apps or websites to improve my understanding in my English reading classes.					

I summarize what I've read in English lessons using digital note-taking tools, such as note-taking apps on my smartphone or tablet, to help me remember and learn better.					
I use technology, such as language learning apps and online resources, to find extra reading materials that deepen my understanding in my English class.					

9. Autonomy in English Language Learning with Technology in Writing Skills

Writing Statements	Scale				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
I find it difficult to effectively integrate technology, such as online platforms and tools, to improve my writing skills beyond the classroom.					
When I work on English writing tasks, I set practical goals based on my skills and use tools like writing apps, language apps, or computer programs to track my progress.					
I regularly look for writing opportunities using online platforms and tools, which helps me advance my English outside the classroom.					
Online grammar and spell check tools assist me in catching mistakes and improving my writing accuracy.					
Using writing applications with word suggestions, such as the ones available on iPhones, increases my vocabulary and produces better writing.					

10. Autonomy in English Language Learning with Technology in Listening Skills

Listening Statements	Scale				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
When engaging with English listening materials, I select content from various online sources that align with my interests to enhance my language skills.					
I use technology to access various audio resources, set specific goals for my English listening exercises, and this boosts my confidence and learning outcomes.					
I have trouble using online audio resources and technology to improve my English listening skills for my English studies.					

Outside class, I enjoy listening to English conversations and stories through online resources.					
I look for different audio resources, like online podcasts and language learning apps, to improve my English listening skills.					

11. Autonomy in English Language Learning with Technology in Speaking Skills

Speaking Statements	Scale				
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
	5	4	3	2	1
Online platforms that offer language exchange and opportunities like playing online games or engaging in social media discussions help me connect with native speakers and practice speaking in real conversations.					
I usually practice speaking using online resources and language learning apps, which helps me become more confident and fluent in my English lesson.					
I actively look for chances to engage in English conversations outside of class, both online and offline, often using tools like social media, language apps, and video calls.					
I find it hard to use apps and online platforms to learn a language well enough to improve my speaking confidence and fluency in my English class.					
I like getting helpful feedback on how I speak, whether it's given to me directly or through technology, because it helps me improve my English pronunciation and fluency.					

Section 3: Technology Usage and Perception for English Language Learning

In this section, we would like to learn about your experiences and perceptions regarding various apps and online tools you might have used to enhance your English language skills. Please indicate your level of agreement with the provided statement using the 5-point Likert scale. Choose the response that best represents your experience and perception of the app/tool.

12. How often do you use this app/tool to improve your English reading skills?

App/Tool	Scale				
	Always	Often	Sometimes	Rarely	Never
	5	4	3	2	1
Pinterest					
News Apps (e.g., BBC News, CNN)					
BBC Learning English					
X, formerly Twitter					
Instagram					

13. How effective do you find this app/tool in helping you improve your English writing skills?

App/Tool	Scale				
	Extremely Effective	Very Effective	Moderately Effective	Slightly Effective	Not Effective
	5	4	3	2	1
Grammarly					
QuillBot					
Google Docs/ Microsoft Word Online					
Thesaurus.com					
ChatGPT					

14. How much do you enjoy using this app/tool for enhancing your English listening skills?

App/Tool	Scale				
	Enjoy a Lot	Enjoy Moderately	Enjoy a Little	Do Not Enjoy	Have Not Used
	5	4	3	2	1
YouTube					
Podcasts					
TED Talks					
TikTok					
BBC Learning English					

15. To what extent has this app/tool helped you practice speaking and improve your English speaking skills?

App/Tool	Scale				
	Greatly Helpful	Moderately Helpful	Slightly Helpful	Not Helpful	Never Used
	5	4	3	2	1
Voice Assistant (e.g., Siri, Alexa, Google Assistant)					
Social Media Platforms (e.g., TikTok, Instagram Reels)					
Omegle: Talk to strangers!					
Discord					
YouTube Subtitles					