Vol. 44, No. 1 (January – June 2026)
ปีที่ 44 ฉบับที่ 1 (มกราคม – มิถุนายน 2569)

Fostering English Grammatical Knowledge through Self-Directed Learning and ChatGPT: Evidence from EFL Students

Kritsana Su-ya-ai
Faculty of Humanities and Social Sciences, Chiang Mai Rajabhat University, Thailand
Email: kritsana_su@cmru.ac.th
Received 19 December 2025; revised 23 February 2026; accepted 24 February 2026

Abstract

This study investigated the effectiveness of integrating self-directed learning (SDL) activities with ChatGPT to enhance English grammatical knowledge, as well as students' satisfaction with this approach, over a ten-week period. The participants were 58 third-year English Education students from Chiang Mai Rajabhat University. Data were gathered through SDL activities supported by ChatGPT, an English grammatical knowledge test, and a satisfaction survey. The analysis employed descriptive statistical techniques and a paired-samples t-test.

The findings indicated a significant improvement in students' grammatical knowledge after completing the ten-week activities ($p < .001$, Cohen's $d = 2.52$), demonstrating that the integration of SDL and ChatGPT effectively supported both grammatical development and independent learning. Students also reported very high satisfaction with all components of the activities based on SDL and ChatGPT (overall Mean = 4.51). Although a few participants noted minor inaccuracies in ChatGPT's responses, these did not affect overall perceptions.

These findings suggest that a structured SDL model, combined with real-time AI feedback, can enhance linguistic skills, foster learner autonomy, and promote critical evaluation skills. The integration of clear activities, a comprehensive handbook, and interactive AI support offers a practical and scalable method for technology-assisted language education, providing valuable guidance for future learner-centered instructional innovations.

Keywords: Self-directed learning, ChatGPT, English grammatical knowledge, EFL students

1. Introduction

English grammar plays a vital role in enabling learners to use the language accurately and effectively in both academic and professional contexts. In many real-life contexts, grammatical accuracy is necessary for conveying meaning clearly and maintaining credibility. However, previous studies have indicated that many learners of English as a foreign language (EFL) encounter difficulties with English grammar. For instance, Decharotchanawirun (2015) examined the challenges Thai staff at the Classic Chairs Company encountered when writing business English and found that the primary issue in writing English emails was grammatical accuracy. Similarly, Dhammi and Ul-Haq (2018) studied the rejection of manuscripts and reported that improper grammar was one of the primary reasons for rejection. These findings suggest that grammatical difficulties remain a persistent issue among EFL learners in both professional and academic settings, even after years of formal instruction, highlighting the need for more effective and long-term approaches to grammar learning.

Although grammatical errors have long been identified as a significant issue, these persistent difficulties may partly be related to instructional practices that restrict learners' active engagement with grammatical forms. Traditional teacher-centered and lecture-based instruction can be effective for introducing basic grammatical rules. However, such approaches may not sufficiently encourage learners to actively engage with language forms, reflect on their own learning processes or apply grammatical knowledge independently. Based on Theerabunchorn (2023), passive learning, which is commonly associated with lecture-based instruction, often leads to students' boredom, disengagement, and lack of motivation. When learners rarely participate actively in the learning process, their ability to construct grammatical knowledge independently and monitor their own progress may be restricted.

These challenges highlight the need for instructional approaches that encourage active engagement and learner responsibility. To address the limitations of teacher-centered instruction, student-centered approaches have been widely recognized as effective options. Such approaches allow learners to take a more active role in constructing knowledge (Theerabunchorn, 2023). Among these, self-directed learning (SDL) serves as an effective strategy, as it allows learners to manage their learning process by identifying their needs, establishing objectives, selecting suitable resources and strategies, and assessing their own progress (Knowles, 1975). In grammar learning contexts, SDL enables students to identify grammatical weaknesses, select appropriate learning resources, engage in focused practice, and monitor their progress over time, contributing to deeper and more sustained grammatical development.

Within this framework, teachers assume the role of a consultant or facilitator, guiding and supporting learners rather than directing every aspect of their learning. In this study, the teacher did not provide explicit grammar instruction but instead guided learners in engaging with grammar-focused activities independently. This method allows students to determine their own objectives and manage their learning activities as well as evaluate their progress, while receiving guidance when necessary.

Previous studies have indicated that SDL can effectively strengthen learners' autonomy and support English language development. Research by Huda and Sulistyaningrum (2022) and Wichadee (2012) demonstrated that providing learners with SDL strategies or materials led to significant improvements in both English proficiency and learning autonomy. Although grammar learning was not the primary focus of these studies, their results suggest that SDL-oriented instruction contributes to sustained language development. More direct evidence is provided by Marlina et al. (2020), who investigated SDL in spoken grammar activities and reported that learners demonstrated autonomous behaviors in managing grammar-related tasks. However, grammatical development was not evaluated through test scores, indicating the need for further studies that systematically examine grammatical outcomes within SDL frameworks.

Self-directed learning requires learners to engage in independent practice, reflection, and self-evaluation. To meet these demands, technological tools that provide immediate feedback and flexible learning support may enhance the effectiveness of SDL implementation. In this regard, artificial intelligence (AI) technologies, including ChatGPT, represent a potential method to facilitate language learning. ChatGPT, developed by OpenAI, interacts with users through text-based communication and supports multimodal inputs, including images and voice, depending on the prompt and input type (OpenAI, 2023). By providing immediate feedback and guidance, ChatGPT has the potential to support SDL practices by enabling learners to practice language skills independently (Agustini, 2023; Xiao & Zhi, 2023). In this study, ChatGPT is viewed as a tool supporting SDL by offering grammar explanations, corrective feedback, and language examples in real time.

Despite the growing interest in SDL and AI-assisted language learning, empirical research investigating the systematic integration of SDL with AI support to develop grammatical knowledge remains limited, especially in Thai higher education settings. Most existing studies have focused either on SDL in general language learning or on AI tools as standalone supports, with limited attention to how AI can be systematically integrated with a structured SDL process for grammar learning. Considering that grammatical challenges among Thai EFL

learners are often influenced by various factors, including traditional teaching practices that emphasize rule memorization, there is a need to explore alternative approaches that foster learner autonomy and active grammatical engagement.

Based on the researcher's teaching experience in grammar-related courses for English Education students, learners' grammatical knowledge was observed to vary considerably, ranging from low to high. This variation emphasizes the need for instructional approaches that can accommodate individual differences and foster learners' responsibility for their grammar learning.

Accordingly, this study explores the integration of self-directed learning (SDL) activities supported by ChatGPT as an alternative approach to grammar learning among Thai EFL university students, with potential pedagogical implications for grammar instruction.

1.1 Objectives of the Study

This study aimed to

1.1.1 investigate the effectiveness of integrating self-directed learning (SDL) activities with ChatGPT in enhancing English grammatical knowledge among third-year English Education students; and

1.1.2 examine students' satisfaction with the use of SDL activities supported by ChatGPT in grammar learning.

2. Literature Review

2.1 Grammar Learning in EFL Contexts

Grammar plays an important role in EFL learning as it provides learners with the structural knowledge needed to use English accurately. Within the field of second language acquisition (SLA), grammar instruction has been extensively debated, especially regarding whether grammar should be taught and how it can best support language learning (Ellis, 2006). Research in SLA has shown that grammatical knowledge is particularly important for producing accurate language, especially in contexts that require accuracy, such as academic and professional settings.

Despite its importance, grammar learning remains a difficult area for many EFL learners. Ellis (2006) notes that grammar instruction involves a range of unresolved issues and no single method can adequately address the diverse needs of all learners. From a skill acquisition perspective, DeKeyser (2007) explains that language learning involves a gradual shift from explicit knowledge to more proceduralized use through repeated practice. In addition, Nassaji (2017) emphasizes that grammar acquisition requires both learners' understanding of linguistic rules and structures and their ability to use these forms communicatively, suggesting that grammar learning extends beyond rule memorization.

Grammar learning is closely connected to the ways it is assessed. In EFL instruction and research, learners' grammatical knowledge is commonly evaluated through selected-response tasks, such as multiple-choice, matching, grammaticality judgment items, as well as limited-production tasks including gap-filling and sentence completion. According to Purpura (2004), these assessment formats are widely used to examine learners' knowledge of grammatical forms and structures through clearly specified scoring criteria. Although such assessments do not fully represent spontaneous language use, they are effective for identifying learners' grammatical ability for examining progress in grammatical development over time. Accordingly, the present study focuses on learners' explicit grammatical knowledge as assessed through objective grammar assessments, which aligns with the use of multiple-choice grammar tests in the research design.

2.2 Self-Directed Learning in Grammar Learning

Self-directed learning (SDL) refers to a learning process in which learners take primary responsibility for planning, managing, and evaluating their own learning. Knowles (1975) defines SDL as a process whereby learners identify their learning needs, establish their learning objectives, choose suitable resources and strategies, and evaluate their learning progress. While learners can carry out this process independently, collaboration with others may also occur. Similarly, Brockett and Hiemstra (1991) describe SDL as a process in which learners assume control over planning, implementation, and evaluation of their learning process. Later studies also conceptualize SDL as an approach that promotes autonomy, self-management, and reflective engagement in the learning process (Candy, 1991; Dahal & Bhat, 2023; Tekkol & Demirel, 2018).

According to the perspectives above, SDL can be understood as an approach in which learners take charge of their own learning by planning, managing, and assessing it, including control over strategies, resources, and goals, while receiving support from others as needed. Within existing theoretical frameworks, learner autonomy and responsibility are commonly emphasized as key aspects of SDL.

In grammar learning contexts, SDL is relevant, as grammatical development requires sustained practice as well as learners' awareness of their own learning progress. DeKeyser (2007) explains that repeated practice plays a key role in the development of language knowledge, while Nassaji (2017) emphasizes that learners need to actively engage with grammatical forms in meaningful contexts to use them effectively. However, studies that directly investigate SDL with a specific focus on grammatical development remain relatively limited.

One study by Marlina et al. (2020) examined SDL in spoken grammar activities and found that learners demonstrated autonomous learning behaviors, including choosing learning

strategies, organizing learning materials, and managing their learning process during grammar tasks. While grammatical development was not assessed through test scores, the results suggest that SDL principles can be effectively applied in grammar learning activities.

In addition, research on SDL in broader language learning contexts offers indirect support for its pedagogical value. For instance, Yusab (2012) found that integrating SDL strategies significantly improved students' ability to learn English independently, while Papol (2022) reported positive outcomes of an SDL-based learning package on English communication skills. Although these studies did not focus specifically on grammatical knowledge, they suggest that SDL-oriented instruction fosters learner autonomy which is crucial for sustained grammar learning.

In the present study, the process of SDL proposed by Knowles (1975) is adapted into a procedural framework for guiding learners' SDL. This approach is selected because it provides a clear and systematic sequence: identifying learning needs, setting objectives, selecting resources, choosing strategies, and assessing progress, which can be practically implemented and monitored within an educational context. Such a structured process is well suited to grammar learning, as it supports learners in monitoring their grammatical improvement, and adjusting their learning strategies over time.

2.3 ChatGPT as a Learning Support Tool for Grammar Learning

ChatGPT is an artificial intelligence (AI) tool created by OpenAI that is designed to interact with users through natural language conversation. It is built upon the Generative Pre-trained Transformer (GPT) architecture, which enables it to produce human-like responses based on the information provided by users. ChatGPT can interact with users through text on both computers and mobile devices. According to OpenAI (2023), ChatGPT supports multimodal inputs, allowing users to provide images and communicate via voice. Depending on the prompt and input, responses can be delivered in text, image formats, and voice (OpenAI, 2023).

In educational settings, ChatGPT is increasingly recognized as a learning support tool rather than a replacement for classroom instruction. Its ability to deliver immediate explanations, provide grammar examples, offer corrective feedback, and suggest alternative sentence structures makes it particularly suitable for supporting grammar learning. When used independently, learners need to clarify learning goals, design effective prompts, and maintain polite communication (Chuenphitthayavut, 2023). These techniques highlight the importance of purposeful, well-structured, and ethical communication when interacting with ChatGPT. Applying these strategies can enhance the efficiency of the system while also increasing the quality of user-generated outputs, especially in educational and research contexts.

Recent research has increasingly focused on the role of AI-based tools, particularly ChatGPT, in supporting SDL within language education. For example, Wong and Nunan (2021) found that the chatbot improved learners' writing ability and fostered greater autonomy in language learning. Similarly, Agustini (2023) revealed that ChatGPT encouraged independent language learning through reflective thinking, self-monitoring, language practice, and timely feedback. In addition, Schmidt-Fajlik (2023) reported that ChatGPT outperformed Grammarly and ProWritingAid in identifying grammatical errors and providing corrective feedback. He and Xiao (2024) further highlighted that ChatGPT facilitated SDL by encouraging learners to identify their learning objectives, structure their learning activities, and assess their performance, while offering personalized feedback that improves English skills.

Accordingly, in the present study, ChatGPT is integrated into the SDL framework as a supportive tool that assists learners in identifying grammatical problems, practicing grammar independently, and evaluating outcomes. By integrating a structured SDL process with AI-assisted grammar support, the study responds to a gap in existing research, aiming to enhance grammatical knowledge while encouraging sustainable learner autonomy.

3. Data and Research Methodology

3.1 Conceptual Framework of the Study

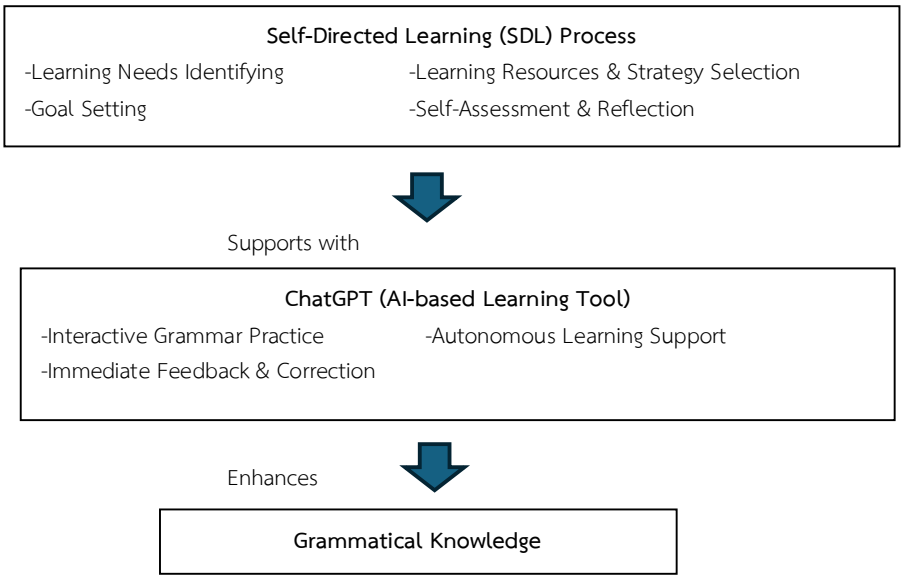
According to Knowles (1975), SDL enables learners to actively manage their learning, determine their learning needs, establish objectives, choose relevant learning resources and strategies, and monitor their own progress. In this study, these elements form the foundation of learners' autonomy and guide the design of SDL activities.

ChatGPT is incorporated as both a learning resource and a learning partner that provides grammar explanations, corrective feedback, and language examples in real time. This interaction promotes learners' reflection on their learning progress and facilitates the revision of their grammatical knowledge, which are fundamental aspects of SDL.

This study's conceptual framework is based on the process outlined by Knowles (1975) and has been adapted into a process for guiding learners' SDL. It is structured as follows:

Figure 1

The conceptual framework of this study



3.2 Participants

This study involved 58 third-year undergraduate students majoring in English Education at Chiang Mai Rajabhat University. Total population sampling was employed, as all students enrolled in the English Essay Course during the first term of the 2024 academic year participated in the study. The participants consisted of 43 female and 15 male students. All research procedures involving human participants received ethical approval (IRBCMRU 2024/260.14.06) and were conducted following established research ethical standards.

3.3 Research Instruments

The research instruments consisted of 1) SDL and ChatGPT-based learning activities implemented through a handbook (students used the free version of ChatGPT powered by GPT-3.5, developed by OpenAI, during June-September 2024), 2) an English grammatical knowledge test, and 3) a student satisfaction questionnaire.

3.3.1 SDL and ChatGPT-Based Activities and Handbook

The first instrument comprised a set of activities developed in accordance with the process of SDL proposed by Knowles (1975) and integrated with ChatGPT as a learning support tool. The activities were implemented through a single handbook designed to guide students

systematically throughout the ten-week learning process, ensuring clarity, consistency, and learner autonomy. The handbook consisted of four main components: 1) an explanation of SDL and its key steps, 2) an introduction to ChatGPT and guidelines for its use, 3) a sequence of grammar learning activities, and 4) a sample of an SDL report.

The sequence of grammar learning activities outlined in the handbook was implemented as follows. First, students took a 40-item multiple-choice grammar pretest to assess their knowledge (see Section 3.3.2 for a detailed description of the grammar test). After the pretest, the teacher marked the test and provided individual feedback by showing students their correct and incorrect responses. No explanations or grammar instruction were given at this stage, as the purpose was to allow students to independently identify their grammatical weaknesses and take responsibility for planning their own learning in accordance with the SDL framework. Subsequently, the grammar topics corresponding to all test items were presented on the board to indicate the grammatical focus of each item. Based on their individual results and the listed grammar topics, students analyzed their grammatical strengths and weaknesses independently.

Although this analysis was carried out individually, it was guided by structured prompts provided in the SDL handbook, and the teacher monitored students' work to ensure that the task requirements were met and offered clarification when needed, without providing direct grammatical instruction.

Following this analysis, students identified grammar topics for a ten-week learning plan according to their weaknesses or personal interests, set both overall learning goals and specific weekly grammar goals, selected appropriate learning resources, materials, or people who could support their learning, chose suitable learning strategies, and determined their own methods of assessing progress. As part of the SDL process, students selected additional learning materials, such as YouTube videos and textbooks, based on their own learning plans. These resources were not specified by the researcher and varied across learners. ChatGPT was integrated as a support tool and could be used for explanations, grammar practice, and checking or revising answers alongside other chosen materials. Throughout the process, students wrote reflections and documented their learning process.

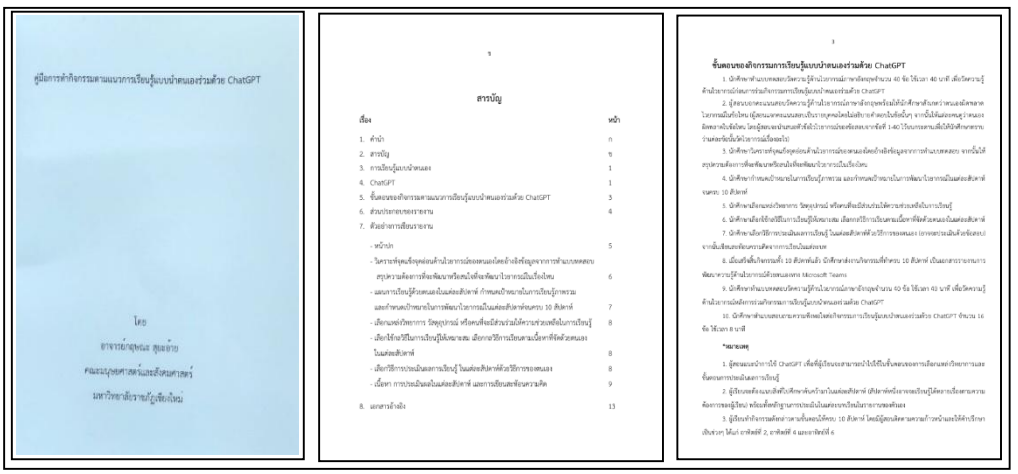
During the ten-week period, students were not restricted to a particular time or location for completing their SDL tasks. As the study followed SDL principles that emphasize learner autonomy, no minimum study hours were required. Students determined and recorded their own weekly study time in their learning plans. To support engagement while maintaining learner autonomy, students were encouraged to engage in regular weekly study outside class, such as at home or in other appropriate learning settings. They were also advised to spend

approximately one hour per week on SDL activities as a flexible guideline rather than a mandatory requirement. In practice, learners often devoted more time depending on their individual learning needs. Based on these self-reported plans, the weekly study time generally ranged from approximately 1 to 3 hours per week, resulting in an estimated total engagement of about 10 to 30 hours across the intervention. During this period, students used ChatGPT to support their ongoing grammar study and self-assessment. The teacher took on a facilitative role, observing students' progress in Weeks 2, 4, and 6 and offering consultation when necessary.

Upon completing the ten-week period, students reported their grammar development via Microsoft Teams, attaching weekly learning content and evaluation sheets. They then completed a 40-item multiple-choice grammar posttest to evaluate outcomes (see Section 3.3.2) and a questionnaire (see Section 3.3.3).

To verify the content validity and appropriateness, the activities and handbook were assessed by three specialists in English language instruction and educational research using the Index of Objective Congruence (IOC). The overall IOC value was 0.82, and revisions were made accordingly. The revised handbook and its activities were then piloted with 20 third-year English major students. They reviewed the activities in the handbook and provided comments on their clarity and relevance. Their feedback was used to further enhance the quality of the instrument.

Figures 2-7
The Handbook of Activities Based on SDL and ChatGPT


คู่มือการดำเนินกิจกรรมตามแนวการเรียนรู้แบบนำตนเองร่วมด้วย ChatGPT

โดย
อาจารย์ดุจพงษ์ สุขอ้าย
คณะมนุษยศาสตร์และสังคมศาสตร์
มหาวิทยาลัยราชภัฏเชียงใหม่

ข

สารบัญ

เรื่อง	หน้า
1. คำนำ	ก
2. สารบัญ	ข
3. การเรียนรู้แบบนำตนเอง	1
4. ChatGPT	1
5. ขั้นตอนของกิจกรรมตามแนวการเรียนรู้แบบนำตนเองร่วมด้วย ChatGPT	3
6. ตัวอย่างประกอบของรายงาน	4
7. ตัวอย่างการสืบค้นรายงาน	
- หน้าปก	5
- วิเคราะห์จุดเน้นจุดต่อยอดด้านไวยากรณ์ของตนเองโดยอ้างอิงข้อมูลจากการทำแบบทดสอบ สรุปความต้องการที่จะพัฒนาทักษะในไวยากรณ์ในเรื่องใดบ้าง	6
- แผนการเรียนรู้ด้วยตนเองในแต่ละสัปดาห์ กำหนดเป้าหมายในการเรียนรู้ภาพรวม และกำหนดเป้าหมายในการพัฒนาไวยากรณ์ในแต่ละสัปดาห์ระหว่าง 10 สัปดาห์	7
- เลือกแหล่งวิทยาการ วัสดุปรากฏ หรือคนที่จะมีส่วนร่วมให้ความช่วยเหลือในการเรียนรู้	8
- เลือกใช้กลวิธีในการเรียนรู้ให้เหมาะสม เลือกกลวิธีการเรียนตามเนื้อหาที่จัดด้วยตนเอง ในแต่ละสัปดาห์	8
- เลือกวิธีการประเมินตนเองการเรียนรู้ ในแต่ละสัปดาห์ด้วยวิธีการของตนเอง	8
- เนื้อหา การประเมินตนเองในแต่ละสัปดาห์ และการสืบสวนข้อมูลความคิด	9
8. เอกสารอ้างอิง	13

ง

ขั้นตอนของกิจกรรมการเรียนรู้แบบนำตนเองร่วมด้วย ChatGPT

1. นักศึกษาทำแบบทดสอบวัดความรู้ด้านไวยากรณ์อาทิตย์ละครั้งๆ ละ 40 ข้อ ใช้เวลา 40 นาที เพื่อวัดความรู้ด้านไวยากรณ์ก่อนการร่วมกิจกรรมการเรียนรู้แบบนำตนเองร่วมด้วย ChatGPT

2. ผู้สอนประกาศแนวทางวัดความรู้ด้านไวยากรณ์ล่วงหน้าพร้อมให้นักศึกษาสืบหาความหมายและตัวอย่างการใช้ไวยากรณ์นั้นๆ ในเว็บไซต์ต่างๆ ที่ตนเองพบเห็นมาก่อนเข้าเรียนในชั่วโมงเรียนวิชาเขียนย่อหน้าเชิงวิชาการ ทุกคนโดยไม่จดบันทึกคำศัพทเรียนใหม่ๆ จากนั้นให้แต่ละคนดูว่าตนเองมีทักษะด้านใดบ้าง โดยอ้างอิงจากผลการทดสอบทักษะด้านไวยากรณ์ของตนเองข้อที่ 1-40 ว่าจุดเน้นจุดต่อยอดของตนเองอยู่ที่ใดบ้าง ซึ่งนักศึกษาสามารถร่วมสนทนาปรึกษาซึ่งกันและกันได้ว่าจะทำการเลือกเรื่องอะไรดี

3. นักศึกษาวิเคราะห์จุดเน้นจุดต่อยอดด้านไวยากรณ์ของตนเองโดยอ้างอิงข้อมูลจากการทำแบบทดสอบ จากนั้นให้สรุปความต้องการที่จะพัฒนาทรัพยากรในการเรียนรู้ด้านไวยากรณ์ในเรื่องใดบ้าง

4. นักศึกษาทำแผนเป้าหมายในการเรียนรู้ภาพรวม และกำหนดเป้าหมายในการพัฒนาไวยากรณ์ในแต่ละสัปดาห์ระหว่าง 10 สัปดาห์

5. นักศึกษาเลือกแหล่งวิทยาการ วัสดุปรากฏ หรือคนที่จะมีส่วนร่วมให้ความช่วยเหลือในการเรียนรู้

6. นักศึกษาเลือกใช้กลวิธีในการเรียนรู้ให้เหมาะสม เลือกกลวิธีการเรียนตามเนื้อหาที่จัดด้วยตนเองในแต่ละสัปดาห์

7. นักศึกษาเลือกวิธีการประเมินตนเองการเรียนรู้ ในแต่ละสัปดาห์ด้วยวิธีการของตนเอง (อาจจดบันทึกด้วยตนเอง หรือสอบถามจากเพื่อนร่วมชั้นเรียนก็ได้) จากการเรียนในแต่ละคาบ

8. เมื่อเสร็จสิ้นกิจกรรมครั้ง 10 สัปดาห์แล้ว นักศึกษาส่งงานกิจกรรมที่กำหนด 10 สัปดาห์ เป็นเอกสารรายงานการพัฒนาความรู้ด้านไวยากรณ์ด้วยตนเองผ่าน Microsoft Teams

9. นักศึกษาทำแบบทดสอบวัดความรู้ด้านไวยากรณ์ภายหลังการปฏิบัติงานจำนวน 40 ข้อ ใช้เวลา 40 นาที เพื่อวัดความรู้ด้านไวยากรณ์หลังการร่วมกิจกรรมการเรียนรู้แบบนำตนเองร่วมด้วย ChatGPT

10. นักศึกษาทำแบบสอบถามความพึงพอใจต่อกิจกรรมการเรียนรู้แบบนำตนเองร่วมด้วย ChatGPT จำนวน 16 ข้อ ใช้เวลา 8 นาที

***หมายเหตุ**

1. ผู้สอนแนะนำการใช้ ChatGPT เพื่อที่ผู้เรียนจะสามารถนำไปใช้ในขั้นตอนของการเลือกแหล่งวิทยาการและขั้นตอนการประเมินตนเองการเรียนรู้

2. ผู้เรียนตอบข้อแบบสัมภาษณ์ในเวลาที่นักศึกษาพักครึ่งคาบในแต่ละสัปดาห์ (ศึกษาค่ำหรือจากของเรียนรู้ได้ตามเรื่องตามความต้องการของผู้เรียน) พร้อมทั้งทำฐานการประเมินในแต่ละบทเรียนในภาพรวมของทั้งหมด

3. ผู้เรียนทำกิจกรรมดังกล่าวตามขั้นตอนปีทีผ่าน 10 สัปดาห์ โดยมีผู้สอนสังเกตามความก้าวหน้าและให้คำปรึกษาเป็นช่วงๆ ได้แก่ อาทิตย์ที่ 2, อาทิตย์ที่ 4 และอาทิตย์ที่ 6

4

ส่วนประกอบของรายงาน

1. หน้าปก
2. วิเคราะห์จุดเน้นจุดอ่อนด้านไวยากรณ์ของตนเองโดยอ้างอิงข้อมูลจากการทำแบบทดสอบ สรุปความต้องการที่จะพัฒนาหรือเตรียมให้จะพัฒนาไวยากรณ์ในเรื่องใหม่
3. แผนการเรียนรู้ด้วยตนเองในแต่ละสัปดาห์ กำหนดเป้าหมายในการเรียนรู้ภาพรวม และกำหนดเป้าหมายในการพัฒนาไวยากรณ์ในแต่ละสัปดาห์จนครบ 10 สัปดาห์
4. เลือกแหล่งวิทยาการ วัสดุอุปกรณ์ หรือคนที่จะมีส่วนร่วมให้ความช่วยเหลือในการเรียนรู้
5. เลือกใช้วาทีในการเรียนรู้ที่เป็นหมายสม เลือกกลวิธีการเรียนตามเนื้อหาที่จัดด้วยตนเองในแต่ละสัปดาห์
6. เลือกวิธีการประเมินผลการเรียนรู้ ในแต่ละสัปดาห์ด้วยวิธีการของตนเอง (อาจจะประเมินด้วยข้อสอบ) จากนั้นเขียนสะท้อนความคิดจากการเรียนในแต่ละบท

5

ตัวอย่างการเขียนรายงาน

1. **หน้าปก**

รายงานการเรียนรู้ไวยากรณ์ด้วยตนเอง

โดย

.....

.....

คณะครุศาสตร์
มหาวิทยาลัยราชภัฏเชียงใหม่
ตุลาคม 2567

7

3. แผนการเรียนรู้ด้วยตนเองในแต่ละสัปดาห์ กำหนดเป้าหมายในการเรียนรู้ภาพรวม และกำหนดเป้าหมายในการพัฒนาไวยากรณ์ในแต่ละสัปดาห์จนครบ 10 สัปดาห์

เป้าหมายการเรียนรู้ระยะสั้นจนครบ.....

.....

.....

แผนการเรียนในแต่ละสัปดาห์

สัปดาห์ที่	หัวข้อ	เป้าหมาย	จำนวนชั่วโมง	หมายเหตุ
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

3.3.2 English Grammatical Knowledge Test

The test consisted of 40 multiple-choice items intended to assess students' English grammatical knowledge. In this study, grammatical knowledge refers to learners' explicit knowledge of grammatical forms as measured through a CEFR-aligned multiple-choice test, rather than their productive or communicative use of grammar. This selection followed the 2024 policy of the Ministry of Higher Education, Science, Research and Innovation on enhancing English language standards in higher education in Thailand, which sets a CEFR B2 level as the minimum requirement for undergraduate students (Ministry of Higher Education, Science, Research and Innovation, 2024). Consequently, the grammar topics in this study ranged from CEFR levels A2 to B2 and were drawn from the British Council-EAQUALS Core Inventory for General English (North et al., 2010).

The test covered a range of core grammatical features suitable for these levels, including verb tenses and aspects, modal verbs, passive voice, conditional structures, reported speech, relative clauses, and other commonly used grammatical forms expected of learners across these proficiency levels. These topics were chosen to reflect grammatical knowledge expected of university students.

To establish the validity and suitability of the test, the initial draft was reviewed by the same panel of three specialists using IOC. The overall IOC value was 0.90, and revisions were made before the pilot phase. To assess item difficulty, discrimination, and overall reliability, a pilot study was undertaken with 20 third-year English major students. Although most items demonstrated acceptable difficulty and discrimination values, 14 items required revision due to extreme difficulty levels ($p < .20$ or $p > .80$), low discrimination ($r < .20$), or

non-significant item-total correlations ($p > .05$). The initial pilot demonstrated strong internal consistency (KR-20 = .95). After revision, the test was re-administered to the same participants. The results demonstrated a clear improvement, with all items meeting acceptable criteria, and only one item identified for further consideration. The reliability coefficient increased to .96, indicating strong internal consistency across the revised instrument. Item 19 received a minor wording revision to improve clarity. Although its difficulty ($p = .75$) and discrimination ($r = .39$) were within the acceptable range, it demonstrated a non-significant result ($p = .086$). The decision to retain the item was further supported by expert judgement and the high overall reliability of the test.

3.3.3 Student Satisfaction Questionnaire

A questionnaire was developed to evaluate students' satisfaction with the activities based on SDL and ChatGPT. The questionnaire utilized a five-point Likert agreement scale ranging from *strongly disagree* to *strongly agree* to capture students' perceptions of usefulness, learning support, and overall learning experience and included one open-ended item. It consisted of two sections: Part 1 comprised 15 Likert-scale items examining students' agreement with statements related to the activities based on SDL and ChatGPT and the accompanying handbook, reflecting their overall satisfaction with the learning experience, while Part 2 consisted of a single open-ended question examining students' overall perceptions of the learning activities.

To establish the content validity and suitability of the questionnaire, the same three specialists evaluated it using IOC. The overall IOC value was 0.85, and the draft was refined for use in the pilot phase. A pilot study with 20 third-year English major students was then carried out. The participants reviewed the questionnaire and provided feedback on clarity and appropriateness. Subsequently, the questionnaire was revised as needed to enhance its overall quality. In addition, the reliability of the questionnaire was assessed using Cronbach's alpha coefficient based on data collected from the main study. The overall reliability coefficient was 0.94, reflecting a high level of internal consistency.

3.4 Data Collection Procedures

Data collection was conducted over a ten-week period and followed a structured sequence aligned with the implementation of the SDL and ChatGPT-based activities described in Section 3.3.

In Week 1, an orientation session was conducted to introduce the research objectives. During this session, students were provided with the handbook, explaining its contents to ensure that they could use it as a guideline for the ten-week learning process. Subsequently, students completed a 40-item multiple-choice English grammatical knowledge

pretest to assess their grammatical knowledge (see Section 3.3.2). Following the pretest, students engaged in an initial self-analysis of their grammatical strengths and weaknesses as part of the SDL process.

From Weeks 2 to 10, students engaged in SDL and ChatGPT-based grammar learning activities guided by the handbook (see Section 3.3.1). During this period, students developed and implemented individual learning plans, documented weekly reflections, and used ChatGPT as a learning resource. The researcher observed students' progress and offered consultation when needed.

At the end of the ten-week period, students submitted their learning reports via Microsoft Teams, completed a grammatical knowledge posttest (see Section 3.3.2). Finally, students responded to a satisfaction questionnaire to reflect on their perceptions of the SDL and ChatGPT-based activities (see Section 3.3.3)

3.5 Analysis Procedures

The data obtained from the study were examined using both qualitative and quantitative methods. The pretest and posttest scores were analyzed to determine the mean, standard deviation, and paired-samples t-test results to examine differences in students' grammatical knowledge before and after the intervention. In addition, Cohen's d was used to measure the effect size, indicating the magnitude of the difference between the pretest and posttest results. The effect size was interpreted using the criteria suggested by Cohen (1988): 0.20 = small, 0.50 = medium, and 0.80 = large.

The questionnaire responses were analyzed by calculating the mean and standard deviation to determine students' satisfaction level based on their agreement with the questionnaire items. Qualitative data from the open-ended questionnaire were analyzed thematically. Student responses were reviewed and coded, then organized into key themes representing their perceptions of the SDL and ChatGPT-based activities. To interpret the levels of satisfaction in the questionnaire, the criteria outlined by Ruangsuwan (1991) were applied as shown below:

4.50 - 5.00 = highest 3.50 - 4.49 = high 2.50 - 3.49 = moderate
1.50 - 2.49 = low 1.00 - 1.49 = lowest.

4. Research Findings

4.1 Results of the English Grammatical Knowledge Test

This section presents the findings from the English grammatical knowledge pretest and posttest administered to 58 third-year students majoring in English Education at Chiang Mai

Rajabhat University. The test consisted of 40 multiple-choice items designed to assess students' English grammatical knowledge before and after engaging in activities based on SDL and ChatGPT. The data obtained from this part are presented in Table 1.

Table 1

Mean and Standard Deviation of Students' English Grammatical Knowledge Test (N=58)

Test	Mean Score (40 Points)	SD
Pretest	18.16	4.79
Posttest	26.24	5.52

Note. The difference between pretest and posttest scores was statistically significant ($p < .001$).

As presented in Table 1, the students' mean score increased from 18.16 (SD = 4.79) on the pretest to 26.24 (SD = 5.52) on the posttest. A paired-samples t-test indicated that this improvement was statistically significant, $t(57) = 19.20$, $p < .001$. The effect size (Cohen's d) was 2.52. These results suggest that the intervention contributed to an improvement in students' grammatical knowledge.

4.2 Results of the Questionnaire

This section illustrates students' satisfaction with the activities based on SDL and ChatGPT. A five-point agreement scale (ranging from 1= *strongly disagree* to 5=*strongly agree*) was employed with a single open-ended item. The findings are summarized in Table 2.

Table 2

Mean, Standard Deviation, and Interpretation of Students' Satisfaction with Self-Directed Learning Activities (N=58)

Item	Description	Mean	SD	Level
1	Learners had the freedom to study topics of their own choice.	4.60	0.76	Highest
2	The activities helped learners recognize their weaknesses and areas for improvement.	4.60	0.69	Highest
3	The activities enabled learners to plan and set their own learning goals.	4.62	0.74	Highest
4	Learners were able to select learning strategies and resources suited to their needs.	4.45	0.72	High

Table 2
Mean, Standard Deviation, and Interpretation of Students' Satisfaction with Self-Directed Learning Activities (N=58) (cont.)

Item	Description	Mean	SD	Level
5	Learners were able to assess their learning progress and monitor improvement.	4.33	0.84	High
6	The activities enhanced learners' knowledge of English grammar.	4.27	0.86	High
7	Learners expected that this activity could be applied to other English language skills.	4.53	0.70	Highest

As shown in Table 2, students' mean scores ranged from 4.27 to 4.62, indicating high levels of satisfaction with the self-directed activities. The highest rating was for planning and setting their own learning goals (Mean = 4.62, SD = 0.74), followed by the freedom to choose study topics (Mean = 4.60, SD = 0.76), recognizing their weaknesses and areas for improvement (Mean = 4.60, SD = 0.69), and the expectation that the activities could be applied to other English language skills (Mean = 4.53, SD = 0.70). Other aspects, including selecting strategies and resources, assessing and monitoring progress, and perceived improvement in grammar learning, were also rated highly. Overall, the findings reflect students' positive perceptions of the SDL activities, especially regarding students' autonomy, goal setting, self-monitoring, and perceived usefulness of learning English.

Table 3
Mean, Standard Deviation, and Interpretation of Students' Satisfaction with the Use of ChatGPT (N=58)

Item	Description	Mean	SD	Level
1	ChatGPT accurately corrected learners' grammatical errors.	4.50	0.68	Highest
2	ChatGPT supported learners in studying English independently.	4.55	0.83	Highest
3	ChatGPT helped improve learners' English grammar knowledge.	4.45	0.77	High
4	Learners expected that ChatGPT could be applied to other English language skills.	4.62	0.61	Highest

Table 3 indicates high student satisfaction with ChatGPT, with mean scores ranging from 4.45 to 4.62. The most highly rated aspect was its applicability to other English language skills (Mean = 4.62, SD = 0.61), followed by support for independent learning (Mean = 4.55,

SD = 0.83) and accurate grammar correction (Mean = 4.50, SD = 0.68). Enhancing grammar knowledge was also rated positively (Mean = 4.45, SD = 0.77). Overall, the results suggest that students perceived ChatGPT as a useful tool for supporting self-directed learning, providing grammar-related support, and facilitating the application of knowledge to other areas of English learning.

Table 4

Mean, Standard Deviation, and Interpretation of Students' Satisfaction with the Handbook (N=58)

Item	Description	Mean	SD	Level
1	The language used in the handbook was accurate and easy to understand.	4.48	0.68	High
2	The font size used in the handbook was appropriate and easy to read.	4.33	0.75	High
3	The content and activities in the handbook were clearly organized and easy to follow.	4.52	0.65	Highest
4	The handbook supported learners in completing the activities independently.	4.65	0.58	Highest

As presented in Table 4, students' satisfaction with the handbook was generally high with mean scores ranging from 4.33 to 4.65. The handbook received its highest ratings for supporting learners in completing activities independently (Mean = 4.65, SD = 0.58) and for the clarity and organization of its content and activities (Mean = 4.52, SD = 0.65). Additionally, the accuracy and clarity of language (Mean = 4.48, SD = 0.68) and the appropriateness of the font size (Mean = 4.33, SD = 0.75) were rated positively. Overall, these scores suggest that students perceived the handbook as clear, well-organized, and supportive of independent learning, with appropriate language and formatting.

Table 5

Overall Mean, Standard Deviation, and Interpretation of Students' Satisfaction with Activities Based on Self-Directed Learning and ChatGPT (N=58)

Item	Description	Mean	SD	Level
1	Self-directed learning activities	4.49	0.76	High
2	The use of ChatGPT	4.53	0.72	Highest
3	Handbook	4.50	0.67	Highest
	Total	4.51	0.72	Highest

As presented in Table 5, the overall results reveal a consistently high level of student satisfaction with all components of the SDL model. SDL activities, ChatGPT, and the handbook obtained mean scores ranging from 4.49 to 4.53, all of which fall within the high to highest satisfaction levels. Among these, ChatGPT achieved the highest mean score (Mean = 4.53, SD = 0.72), indicating that students regarded it as a beneficial resource in supporting their learning process. The handbook (Mean = 4.50, SD = 0.67) and the self-directed learning activities (Mean = 4.49, SD = 0.76) were also rated very positively. Taken together, these results suggest that the integration of structured activities, a clear learning handbook, and AI assistance created a learning environment that students perceived as supportive and effective for learning.

5. Discussion

This study offers important pedagogical insights into language learning, particularly regarding the integration of self-directed learning and AI-assisted instruction.

The results highlight the effectiveness of a pedagogically structured SDL model that combines SDL with a comprehensive handbook and AI-based support. SDL emphasizes learner autonomy, responsibility, and active engagement (Knowles, 1975), but its success often depends on sufficient guidance and clear scaffolding. In this study, scaffolding was provided from the outset through an orientation session and the handbook, which guided learners to analyze their grammatical strengths and weaknesses, set learning objectives, and plan their learning activities across the ten-week period. In addition, the teacher provided support by observing and consulting students in Weeks 2, 4, and 6, which helped guide them through the initial stages of SDL. Throughout the intervention, the teacher functioned primarily as a facilitator rather than an instructor. The scaffolding provided was procedural rather than linguistic; the teacher did not explain grammatical rules or correct language input, but focused on monitoring progress, clarifying task procedures, and offering consultation when needed. Explicit grammar teaching was not included; instead, students were responsible for directing their own learning process.

This finding is in line with previous research showing that scaffolding facilitates the development of learners' SDL skills, particularly when they are first exposed to autonomous learning activities (Paludkong et al., 2019). The handbook provided step-by-step procedural clarity, the SDL tasks encouraged goal setting, planning, and self-monitoring, and ChatGPT provided real-time feedback for grammatical accuracy and language practice. Together, these components created a balanced learning environment in which students could work independently while maintaining clear direction. The high overall satisfaction scores across all components indicated that students valued the integrated model.

Beyond learners' engagement with the structured SDL model, students' attitudes toward SDL activities supported by ChatGPT provide significant insights into how the intervention shaped their learning experiences. Qualitative feedback reinforced these findings, with students reporting that the activities helped them identify grammatical weaknesses, correct errors effectively, and gain greater awareness of their own learning progress. For example, several students indicated that the activities enabled them to identify their grammatical errors more clearly and understand which grammar points required additional attention, allowing them to focus on improving those areas. Some students noted that ChatGPT facilitated independent review of unclear grammar areas, enabling them to revisit explanations whenever needed and study at their own pace. This process encouraged learners to monitor their own progress and reflect on their improvement over time. In addition, participants emphasized that the structured tasks promoted responsibility and self-discipline, as they began to plan their learning more systematically, manage their time more effectively, and take ownership of their language development. Taken together, these results reflect key aspects of SDL, particularly self-monitoring, reflection, and learner responsibility, as outlined by Knowles (1975). These qualitative findings help explain learners' positive responses to the integrated model and demonstrate how autonomy was realized in practice.

The improvement in students' grammatical knowledge further demonstrates the potential of SDL combined with AI feedback. Weekly SDL activities enabled students to engage in repeated grammar practice, receive timely AI-generated feedback, and actively monitor their own learning progress. Traditionally, grammar has been viewed as an area that requires extensive teacher-led correction. However, the pretest and posttest comparison indicated a significant gain in students' grammatical knowledge following the intervention. These gains reflect enhanced explicit grammatical knowledge assessed through a CEFR-aligned multiple-choice test, rather than productive or communicative grammar ability. Such improvement may be associated with learners' opportunities to notice errors, revise responses, and repeatedly engage with grammatical forms throughout the SDL process. This distinction is in line with DeKeyser's (2007) view of language learning as a process in which repeated practice contributes to language knowledge improvement.

These findings regarding students' gains in grammatical knowledge also echo previous studies emphasizing the benefits of SDL in promoting English proficiency and independent skill development (Huda & Sulistyaningrum, 2022; Wichadee, 2012) and the effectiveness of AI-based technologies in providing timely, individualized support for autonomous English practice (Agustini, 2023; Xiao & Zhi, 2023). In particular, He and Xiao (2024) demonstrated that

ChatGPT can support SDL by encouraging learners to identify their learning objectives, structure their learning activities, and assess their performance, while providing personalized feedback that further enhanced their English skills. From a pedagogical perspective, the observed gain in grammatical knowledge may be associated with learners' repeated engagement with grammar tasks, opportunities for independent practice, and ongoing self-review facilitated by AI feedback. These results suggest that when learners are provided with appropriate tools, structure, and opportunities for practice, they can achieve substantial progress without relying exclusively on teacher-directed instruction.

In addition to learning outcomes, the findings highlight the emergence of initial critical evaluation skills in students' interactions with ChatGPT. Although most students reported high satisfaction with ChatGPT, a few noted occasional inaccuracies in its responses. For instance, some students reported that ChatGPT initially provided an incorrect explanation for a tense-related item. However, by questioning the response, they obtained clarification, which encouraged critical evaluation and verification of grammatical knowledge. These observations are in line with prior studies reporting similar limitations in AI-generated outputs and highlighting learners' growing ability to monitor and question such information (Avsheniuk et al., 2024; Xiao & Zhi, 2023). This ability to question and verify AI responses promoted critical thinking and digital literacy skills during independent learning. Consequently, students became more responsible and thoughtful in their use of AI, supporting both their language development and lifelong learning competencies.

In summary, the study demonstrates that a thoughtfully designed integration of SDL and AI-based feedback can effectively enhance grammatical knowledge, strengthen learner autonomy, and foster critical evaluative skills, providing a pedagogically meaningful model for future innovations in language education.

6. Conclusion

This study demonstrates that a carefully designed integration of SDL and AI-assisted support can significantly enhance English grammatical knowledge, promote learner autonomy, and develop critical evaluative skills. The combination of structured activities, a well-organized handbook, and interactive AI feedback enabled learners to engage independently while maintaining accuracy and understanding. Although minor limitations were noted, particularly regarding occasional inaccuracies in AI responses, the overall findings provide a compelling model for future innovations in learner-centered, technology-assisted language instruction.

This approach strengthens linguistic skills while fostering reflective and responsible learning practices, offering a foundation for sustainable lifelong learning.

7. Limitations

This study was conducted with a specific group of third-year English Education students at a single institution. Therefore, the results should be interpreted with caution when generalized to other educational settings. Moreover, although the ten-week intervention was adequate for identifying immediate learning gains, it did not allow for the investigation of long-term retention effects.

In addition, the grammatical knowledge test focused on learners' recognition and understanding of grammatical forms, but did not directly assess their ability to apply grammar productively in communicative contexts. Accordingly, these findings should be interpreted as reflecting improvement in explicit grammatical knowledge rather than overall communicative competence.

8. Acknowledgements

The author would like to express sincere gratitude to the three specialists for their valuable support and insightful feedback on the development of the instrument. The author also extends appreciation to all participants for their cooperation and their willingness to take part in this study.

References

Agustini, O. (2023). Examining the role of ChatGPT as a learning tool in promoting students' English language learning autonomy relevant to Kurikulum Merdeka Belajar. EDUKASIA: *Jurnal Pendidikan dan Pembelajaran*, *4*(2), 921-934. https://doi.org/10.62775/edukasia.v4i2.373

Avsheniuk, N., Lutsenko, O., Svyrydiuk, T., & Seminikhyna, N. (2024). Empowering language learners' critical thinking: Evaluating ChatGPT's role in English course implementation. *Arab World English Journal (AWEJ)*, Special Issue on ChatGPT, 210-224. https://dx.doi.org/10.24093/awej/ChatGPT.14

Brockett, R. G., & Hiemstra, R. (1991). *Self-direction in adult learning: Perspectives on theory, research, and practice.* Routledge.

Candy, P. C. (1991). *Self-direction for lifelong learning: A comprehensive guide to theory and practice.* Jossey-Bass.

Chuenphitthayavut, K. (2023). Advances in ChatGPT and behavioral science research: Applications, benefits, risks, and ethical issues in research. *Journal of Behavioral Science*, *29*(2), 154-173. https://so06.tci-thaijo.org/index.php/BSRI/article/view/264446

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Dahal, A., & Bhat, N. (2023). Self-directed learning, its implementation, and challenges: A review. *Nepal Journal of Health Sciences*, *3*(1), 102-115. https://doi.org/10.3126/njhs.v3i1.63277

Decharotchanawirun, T. (2015). *A study of problems in business English writing skills among Thai employees at Classic Chairs Company* [Unpublished master's thesis]. Thammasat University.

DeKeyser, R. M. (2007). *Practice in a second language: Perspectives from applied linguistics and cognitive psychology.* Cambridge University Press.

Dhammi, I. K., & Ul-Haq, R. (2018). Rejection of manuscripts: Problems and solutions. *Indian Journal of Orthopaedics*, *52*(2), 97-99. https://doi.org/10.4103/ortho.IJOrtho_68_18

Ellis, R. (2006). Current issues in the teaching of grammar: An SLA perspective. *TESOL Quarterly*, *40*(1), 83–107. https://doi.org/10.2307/40264512

He, Y., & Xiao, K. (2024, October). *Exploring the role of ChatGPT in English learning among adult learners* [Paper presentation]. The American Association for Adult and Continuing Education (AAACE) 2024 Conference, Reno, NV, United States.

Huda, H. N., & Sulistyaningrum, S. D. (2022). The impact of self-directed learning on students' English reading comprehension ability. *Proceedings of English Linguistics and Literature 3,* 102-113. https://proceeding.unnes.ac.id/ELLit/article/view/1642

Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers.* Association Press.

Marlina, N., Dewi, N. S. N., & Supriyono, Y. (2020). Self-directed learning in spoken grammar activities using poster presentation. *JEES (Journal of English Educators Society)*, *5*(2), 171-176. https://doi.org/10.21070/jees.v5i2.955

Ministry of Higher Education, Science, Research and Innovation. (2024). *Announcement on the policy for raising English language standards in higher education institutions (B.E. 2567).* Ministry of Higher Education, Science, Research and Innovation. https://www.ops.go.th/th/ches-downloads/edu-standard/item/9625-2567

Nassaji, H. (2017). Grammar acquisition. In S. Loewen & M. Sato (Eds.), *The Routledge handbook of instructed second language acquisition* (pp. 205–223). Routledge.

North, B., Ortega, A., & Sheehan, S. (2010). *British Council-EAQUALS core inventory for general English.* British Council/EAQUALS. https://www.eaquals.org/wpcontent/uploads/EAQUALS_British_Council_Core_Curriculum_April2011.pdf

OpenAI. (2023, September 25). *ChatGPT can now see, hear, and speak.* https://openai.com/blog/chatgpt-can-now-see-hear-and-speak

Paludkong, N., Sombatwattana, P., & Peungposop, N. (2019). The study of applying scaffolding strategies to promote self-directed learning for learners in the distance learning system. *Journal of Education Research*, *14*(2), 74-86. https://ejournals.swu.ac.th/index.php/jre/article/view/12292

Papol, R. (2022). Development of self-access learning package to develop communicative English skills of restaurant workers in Doisaket hot spring area, Chiang Mai. *Journal of Nisit Wang*, *24*(2), 109–119. https://so06.tci-thaijo.org/index.php/jonw/article/view/259366

Purpura, J. E. (2004). *Assessing grammar.* Cambridge University Press.

Ruangsuwan, C. (1991). *Educational technology: Theory and research.* Odeon Store.

Schmidt-Fajlik, R. (2023). ChatGPT as a grammar checker for Japanese English language learners: A comparison with Grammarly and ProWritingAid. *AsiaCALL Online Journal*, *14*(1), 105-119. https://doi.org/10.54855/acoj.231417

Tekkol, İ. A., & Demirel, M. (2018). An investigation of self-directed learning skills of Undergraduate students. *Frontiers in Psychology*, *9*, Article 2324. https://doi.org/10.3389/fpsyg.2018.02324

Theerabunchorn, T. (2023). Contemporary teaching techniques learning management. *Journal of Social Sciences Mahamakut Buddhist University*, *6*(1), 182-201. https://so04.tci-thaijo.org/index.php/JSSMBU/article/view/261893

Wichadee, S. (2012). Impacts of self-directed learning activities on students' English proficiency and self-directed learning ability. *Burapha University Journal of Education*, *23*(2), 191-203. https://journal.lib.buu.ac.th/index.php/education2/article/view/9350

Wong, J. M., & Nunan, D. (2021). The effectiveness of an AI writing tutor in promoting learner autonomy among Hong Kong students. *ReCALL*, *33*(2), 211-231.

Xiao, Y., & Zhi, Y. (2023). An exploratory study of EFL learners' use of ChatGPT for language learning tasks: Experience and perceptions. *Languages*, *8*(3), Article 212. https://doi.org/10.3390/languages8030212

Yusab, B. (2012). The developing of tertiary students' English language learning autonomy through English for communication and study skills course. *Journal of Multidisciplinary in Social Sciences*, *8*(2), 189-204. https://so03.tci-thaijo.org/index.php/sduhs/article/view/5069

Appendix A

English Grammatical Knowledge Test

English Grammatical Knowledge Test

Directions: Choose the best answer.

1. I looked in the cupboard, but I couldn't find _____ sugar for the recipe.
   a. some b. any
   c. a little d. many
2. Please let me know if you need any further _____ regarding the new policy.
   a. pieces of information b. informations
   c. informative d. informing
3. She posted her photo _____ Instagram to celebrate her birthday.
   a. at b. in c. on d. by
4. The students complained that the classroom was _____ hot during the afternoon session.
   a. awful b. awfully c. awfulness d. awe
5. Among all the fruits in the market, this particular grape tastes _____.
   a. sweetly b. sweet
   c. to be sweet d. with sweetness
6. I _____ eat breakfast at home in the morning because I don't have time to prepare. So, I have it in my office.
   a. always b. often
   c. rarely d. almost
7. It is very cold. I think it is _____.
   a. cold enough to go out
   b. warm enough to go out
   c. too warm to go out
   d. too cold to go out
8. You _____ wear sunglasses. It's not a sunny day.
   a. might not b. may not
   c. must not d. don't have to
9. A: _____ I take your order, sir?
   B: Sure. I will have pizza and salad, please.
   a. Should b. May
   b. c. Might d. Must
10. I enjoy _____ football with friends.
    a. play b. played
    c. playing d. to play
11. He asked me to write _____ report that we discussed yesterday.
    a. the b. a c. an d. no article
12. The football match this evening was _____ due to the rain.
    a. call off b. call on c. call in d. call over
13. A: You'll join us for the presentation later, _____
    B: Absolutely.
    a. do you? b. don't you?
    c. will you? d. won't you?
14. Patrick _____ in Thailand in 1999.
    a. stays b. stayed
    c. has stayed d. will stay
15. My wife _____ shopping on Fridays.
    a. go b. goes c. went d. is going
16. I _____ breakfast since yesterday.
    a. didn't have b. haven't had
    c. am not having d. wasn't having
17. Look out! She _____ the tree.
    a. is going to fall off b. falls off
    c. fell off d. has fallen off
18. Tim_____to China next Thursday at 10 am, he has already bought a ticket.
    a. flies b. flew c. have flown d. is flying
19. Sammy _____ to the sea soon after finishing his exams.
    a. goes b. will go c. would go d. has gone
20. When I saw Tiny, she _____ her housework.
    a. did b. is doing
    c. was doing d. has done
21. Peter _____ his presentation before his manager came.
    a. finishes b. finished
    c. will finish d. had finished
22. At ten o'clock tomorrow, they _____ for you at CMRU.
    a. are waiting b. will be waiting
    c. have waited d. would wait

23. Kathy _____ for a new apartment for ages.
a. looks b. is looking
c. has been looking d. will look

24. I _____ how to drive these days because my driving test is next week.
a. learn b. am learning
c. learned d. have learned

25. When I was young, I _____ with my aunt every weekend.
a. stay b. would stay
c. have stayed d. will stay

26. By the end of this week, she _____ reading the entire book for her literature class.
a. finishes b. can finish
c. has finished d. will have finished

27. By the time I retire, I _____ in Chiang Mai for 20 years.
a. will live b. would live
c. will have been living d. have lived

28. _____ I was sick last night, I didn't go to the movie with you.
a. Since b. Yet c. Although d. Therefore

29. I have to take a taxi _____ I can get there on time.
a. so b. so as to
c. so that d. in order to

30. Among all the meals at the new restaurant, this was _____ dinner on the menu.
a. cheapest b. cheaper than
c. the cheapest d. more cheap

31. Among all the hotels I stayed at during the trip, Shangri-La isn't _____, but it is considerably _____ in location convenience.
a. most luxurious / more good
b. the more luxurious / most better
c. more luxurious / the best
d. the most luxurious / better

32. Traveling by train isn't _____ traveling by plane.
a. as fast as b. faster
c. the fast d. the fastest

33. I _____ 200 Baht in charges if I _____ my tuition bill by the due date.
a. had saved/pays
b. could have saved/will pay
c. could save/will pay
d. could have saved/had paid

34. She is very lazy. If I _____ her, I _____ some household shores.
a. be/ could do b. had been/ would have done
c. am / will do d. were/ would do

35. If you eat too many sweets, you _____ fat.
a. get b. have got
c. would get d. would have got

36. I _____ to the beach if it rains.
a. go b. will go
c. would go d. would have gone

37. Yesterday was such a wonderful day. I wish I _____ with you longer yesterday.
a. stay b. am staying c. had stayed d. will stay

38. The city's main bridge _____ during the renovation in 2015, and it has become a major tourist attraction since then.
a. rebuilt b. was rebuilt
c. has been rebuilt d. rebuilds

39. Silvia: "I played tennis with Kenny."
Jina: Silvia said that she _____ tennis with Kenny.
a. played b. had played
c. has played d. will play

40. Lamyai works for a company _____ fresh fruits to other countries.
a. exports b. is exporting
c. exported d. that exports

Appendix B

Student Satisfaction Questionnaire

Student Satisfaction Questionnaire on Self-Directed Learning Activities Integrated with ChatGPT for Developing English Grammatical Knowledge among EFL Learners

This questionnaire is part of the research project examining the use of self-directed learning activities with ChatGPT to develop English grammatical knowledge among learners of English as a foreign Language.

The researcher seeks to collect information for educational purposes only. Participants are kindly invited to complete the questionnaire based on your genuine feelings, opinions, and actual learning experiences. All information gathered will be used solely for research purposes and will not affect participants in any way.

The questionnaire consists of two parts:

Part 1: Satisfaction with self-directed learning activities integrated with ChatGPT

Part 2: General comments on the self-directed learning activities integrated with ChatGPT

Part 1: Satisfaction with Self-Directed Learning Activities Integrated with ChatGPT

Instructions: Please tick (✓) the option that best reflects your level of agreement. (5 = Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly disagree)

Item	Statement	Level of Agreement				
		5	4	3	2	1
1	**Self-Directed Learning Activities**					
	1.1 You had the freedom to study topics of your own choice.					
	1.2 The activities helped you recognize your weaknesses and areas for improvement.					
	1.3 The activities enabled you to plan and set your own learning goals.					
	1.4 You were able to select learning strategies and resources suited to your needs.					
	1.5 You were able to assess your learning progress and monitor improvement.					
	1.6 The activities enhanced your knowledge of English grammar					
	1.7 You expect that this activity can be applied to other English language skills.					
2	**ChatGPT**					
	2.1 ChatGPT accurately corrected your grammatical errors.					
	2.2 ChatGPT supported you in studying English independently.					

	2.3 ChatGPT helped improve your English grammar knowledge.					
	2.4 You expect that ChatGPT can be applied to other English language skills.					
3	**Handbook**					
	3.1 The language used in the handbook was accurate and easy for you to understand.					
	3.2 The font size used in the handbook was appropriate and easy for you to read.					
	3.3 The content and activities in the handbook were clearly organized and easy for you to follow.					
	3.4 The handbook supported you in completing the activities independently.					

Part 2: General Comments on the Self-Directed Learning Activities Integrated with ChatGPT

Instructions: Please write your responses in the space provided.

Please share any comments or suggestions regarding these learning activities

.....

.....

.....

.....

.....

.....

.....

.....

Thank you very much for your participation.

Appendix C

Examples of Students SDL Work (Grammar Analysis, Planning, Goal Setting, Resource Selection, Reflection, and Progress Assessment)

จากการทำแบบทดสอบ ข้าพเจ้ามีจุดแข็งในด้านไวยากรณ์เรื่อง

1. Some/Any/Much/Many 2. Count and Uncountable Nouns 3. Prepositions 4. Adjective, Adverb 5. So/Such/Enough/Too 6. Modals 7. Infinitive/Gerund 8. Question tags 9. Past simple tense 10. Present simple tense 11. Present perfect tense 12. Will/Going to for prediction 13. Present continuous tense for future 14. Future simple tense 15. Past simple tense vs Past continuous tense 16. Future continuous tense 17. Present continuous tense 18. Connecting words expressing cause and effect, contrast, etc. 19. Comparative and Superlative degrees 20. 1st conditional 21. Relative clauses

และมีข้อผิดพลาดในเรื่อง 1. Articles 2. Phrasal Verbs 3. Past perfect simple tense vs Past simple tense 4. Present perfect continuous tense 5. Would – expressing Habits in the past 6. Future perfect simple tense 7. Future perfect continuous 8. As.....As (Comparative degree) 9. 2nd conditional, 3st conditional, Zero conditional 10. Wish 11.Passive Voice 12.Reported Speech

ข้าพเจ้ามีความสนใจและต้องการที่จะพัฒนาไวยากรณ์ในเรื่องดังต่อไปนี้

1. Articles
2. Phrasal Verbs
3. Past perfect simple tense vs Past simple tense
4. Present perfect continuous tense
5. Would – expressing Habits in the past
6. Future perfect simple tense
7. Future perfect continuous
8. As.....As (Comparative degree)
9. 2nd conditional
10. 3st conditional,
11. Zero conditional
12. Wish
13. Passive Voice
14. Reported Speech

เป้าหมายการเรียนรู้ของข้าพเจ้าในครั้งนี้คือ เพื่อปรับปรุงความสามารถในด้านไวยากรณ์ที่ข้าพเจ้านั้นมีข้อผิดพลาดอยู่ให้ดียิ่งขึ้น และสามารถนำไปต่อยอดและปรับใช้ในการเรียนในรายวิชา ENG 3714 Essay Writing

แผนการเรียนในแต่ละสัปดาห์

สัปดาห์ที่	หัวข้อ	เป้าหมาย	จำนวนชั่วโมง	หมายเหตุ
1	Some/ Any/ Much/ Many	เพื่อทำความเข้าใจหลักการใช้ Some/ Any/ Much/ Many ให้มากขึ้น	1	เรียนรู้ทำความเข้าใจกับ Some/ Any/ Much/ Many หัวข้อละ 15 นาที
2	Present Simple Tense	เพื่อทำความเข้าใจหลักการใช้ Present simple tense ให้มากยิ่งขึ้น	1	เรียนรู้ Present Simple Tense สร้างประโยครูปแบบต่างๆ
3	Past Simple Tense	เพื่อทำความเข้าใจหลักการใช้ Past simple tense ให้มากยิ่งขึ้น	1	เรียนรู้ Past Simple Tense สร้างประโยครูปแบบต่างๆ
4	Present Continuous Tense	เพื่อทำความเข้าใจหลักการใช้ Present Continuous tense ให้มากยิ่งขึ้น	1	เรียนรู้ Present Continuous Tense สร้างประโยครูปแบบต่างๆ
5	Future Perfect Continuous Tense	เพื่อทำความเข้าใจหลักการใช้ Future Perfect Continuous Tense ให้มากยิ่งขึ้น	1	เรียนรู้ Present Continuous Tense สร้างประโยครูปแบบต่างๆ
6	Modal Verbs	เพื่อทำความเข้าใจหลักการใช้ Modal Verbs ให้มากยิ่งขึ้น	1	เรียนรู้ทำความเข้าใจกับ Modal verbs การใช้แต่ละตัว
7	Phrasal Verbs	เพื่อทำความเข้าใจหลักการใช้ Phrasal Verbs ต่างๆ ให้มากยิ่งขึ้น	1	เรียนรู้ทำความเข้าใจกับ Phrasal Verbs การใช้แต่ละตัว
8	Will/ Going to for prediction	เพื่อทำความเข้าใจหลักการใช้ Will/ Going to for prediction ให้มากยิ่งขึ้น	1	เรียนรู้ทำความเข้าใจกับ Will/ Going to for prediction หัวข้อละ 30 นาที

9	Would-Expressing habits	เพื่อทำความเข้าใจหลักการใช้ Would-Expressing habits ให้มากยิ่งขึ้น	1	ทำความเข้าใจการใช้ Would-Expressing habits ในรูปแบบต่างๆ
10	Connecting Cause & Effect	เพื่อทำความเข้าใจหลักการใช้ Connecting cause & Effect ให้มากยิ่งขึ้น	1	ทำความเข้าใจการใช้ Would-Expressing habits ในรูปแบบต่างๆ

แหล่งที่จะไปศึกษาค้นคว้าข้อมูล ได้แก่ หนังสือเรียนภาษาอังกฤษ ไฟล์หนังสือในอุปกรณ์ Apple iPad และเว็บไซต์ต่างๆ

อุปกรณ์ในการช่วยศึกษาค้นคว้าได้แก่ Apple iPad & Application ChatGPT

ผู้ที่จะมีส่วนร่วมในการให้ความช่วยเหลือ (อาจจะมีหรือไม่มีก็ได้) ได้แก่ นางสาว ซึ่งทำหน้าที่เป็นผู้ช่วยในการตรวจแบบทดสอบก่อนเรียน เพื่อที่จะไม่ให้ข้าพเจ้าได้รู้เฉลยแบบทดสอบ และรับรู้ว่าข้าพเจ้านั้นถูกหรือผิดข้อใดในแบบทดสอบก่อนเรียน

กลวิธีการเรียนรู้ของข้าพเจ้า ได้แก่ กลวิธีการเรียนรู้ของข้าพเจ้าแบ่งออกเป็น 3 ขั้น ดังต่อไปนี้

ขั้นที่1 Pre test

คือการทำแบบทดสอบก่อนที่จะทำการศึกษาเรียนรู้เนื้อหาไวยากรณ์ในหัวข้อนั้นๆ จากเว็บไซต์ต่างๆ หรือจาก Application ChatGPT เพื่อให้รู้ว่ามีพื้นฐานมากน้อยเพียงใด

ขั้นที่2 ศึกษาเรียนรู้

คือการศึกษาเรียนรู้เกี่ยวกับเนื้อหาไวยากรณ์ในหัวข้อนั้นๆ รวมไปถึงการฝึกทำโจทย์และนำไปใช้โดยการฝึกแต่งประโยค

ขั้นที่3 Post test

คือการทำแบบทดสอบหลังจากทำการศึกษาเรียนรู้เนื้อหาไวยากรณ์ในหัวข้อนั้นๆ และตรวจคำตอบด้วยตัวเองว่ายังมีข้อใดที่ข้าพเจ้านั้นผิดพลาดอยู่หรือไม่ และผิดพลาดเพราะเหตุใด

วิธีการประเมินผลของข้าพเจ้า ได้แก่ การทำแบบทดสอบก่อนการศึกษาเรียนรู้ และหลังการศึกษาเรียนรู้เกี่ยวกับเนื้อหาไวยากรณ์ในเรื่องนั้นๆ แล้วนำคะแนนที่ได้จากแบบทดสอบทั้งสองมาเทียบกัน ว่าคะแนนที่ได้จากแบบทดสอบหลังการเรียนรู้นั้น ได้เยอะกว่า หรือ เท่ากับ คะแนนที่ได้จากแบบทดสอบก่อนการเรียนรู้ ถ้าได้เยอะกว่านั่นหมายความว่า ข้าพเจ้าผ่านตรงตามเป้าหมาย แต่ถ้าน้อยกว่าหรือเท่ากับ นั่นก็หมายความว่า ยังไม่ผ่าน และข้าพเจ้าต้องย้อนกลับไปศึกษาเรียนรู้เนื้อหาไวยากรณ์ในเรื่องนั้นๆใหม่อีกครั้ง จนกว่าจะทำแบบทดสอบหลังการเรียนรู้ให้ได้คะแนนเยอะกว่าแบบทดสอบก่อนการเรียนรู้

สัปดาห์ที่ 3

เรื่อง Future perfect tense

แหล่งที่ศึกษาข้อมูล : YouTube, Google and ChatGPT

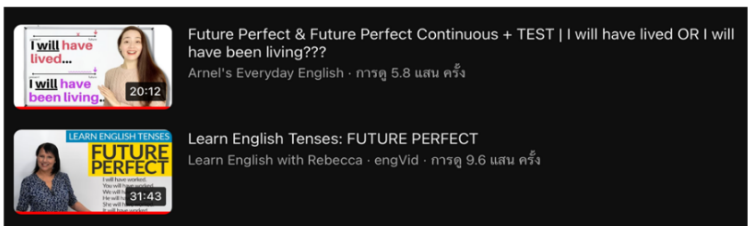
อุปกรณ์ในการช่วยศึกษา : IPad

ผู้มีส่วนร่วม/ผู้ให้ความช่วยเหลือ : -

กลวิธีการเรียนรู้ : ดูคลิปวิดิโอสอนเกี่ยวกับการใช้ Future perfect tense

วิธีประเมินผล : แต่งประโดยใช้โครงสร้าง Future perfect tense จากนั้นนำไปตรวจสอบความถูกต้องใน ChatGPT

เนื้อหาในสัปดาห์ที่ 3



เนื้อหาที่ศึกษาในสัปดาห์ที่ 5

Future Perfect Continuous Tense ใช้กล่าวถึงเหตุการณ์ในอนาคตได้ **2 แบบ**

1. พูดถึงเหตุการณ์หนึ่งเหตุการณ์ที่เกิดขึ้นในอนาคต ซึ่งได้ดำเนินต่อเนื่องมาแล้วเป็นระยะเวลาหนึ่ง และในเวลาอนาคตที่อ้างอิงนั้นก็ดำเนินไปต่ออีกสักพัก มีการระบุระยะเวลาอย่างชัดเจนว่า ได้ดำเนินมาแล้วนานเพียงใด เช่น for five minutes, for one hour, for two weeks

Example. I will have been studying Chinese for two years next month.

(ฉันคงจะได้เรียนภาษาจีนมาครบ 2 ปีเต็มแล้ว ในเดือนหน้า ก็คือถ้านับถึงแค่เดือนนี้จะยังไม่ครบ 2 ปีและได้เรียนต่อเนื่องมาได้ระยะหนึ่งแล้ว ซึ่งก็จะยังคงน่าจะเรียนต่อไปอีก)

โครงสร้างและตัวอย่างประโยค

ประโยคบอกเล่า	Subject + will + have + been + V.ing	I will have been studying Chinese for two years next month.
ประโยคปฏิเสธ	Subject + will not + have + been + V.ing	I will not have been studying Chinese for two years next month.
ประโยคคำถาม	Will + Subject + have + been + V.ing	Will I not have been studying Chinese for two years next month?

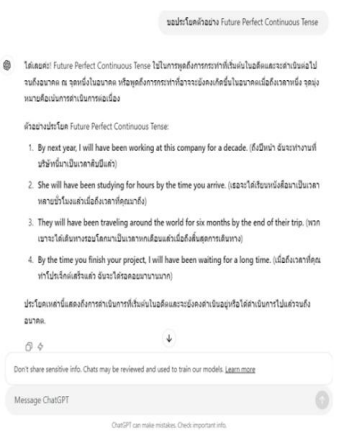
2. ใช้พูดถึงสองเหตุการณ์ในอนาคต โดยมีข้อสังเกตว่า ในประโยคจะระบุอย่างชัดเจนว่าเหตุการณ์แรกเกิดขึ้นมานานเพียงใดแล้ว จากนั้นจึงเกิดเหตุการณ์ที่ 2 ตามมา

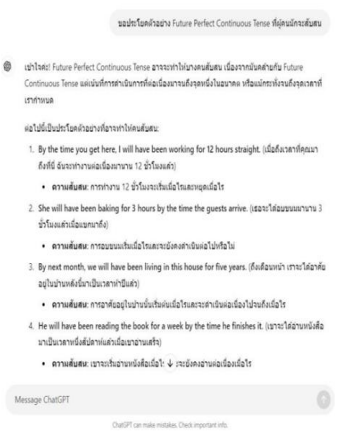
Example. My friend will have been reading for three hours by the time I get library.
(เพื่อนของฉันคงจะได้กำลังอ่านหนังสือเป็นเวลา 3 ชั่วโมงแล้ว ตอนที่ฉันมาถึงห้องสมุด

โครงสร้างและตัวอย่างประโยคของสองเหตุการณ์

เหตุการณ์ ที่ 1	ใช้ Future Perfect	S. + will + have	My friend will have been

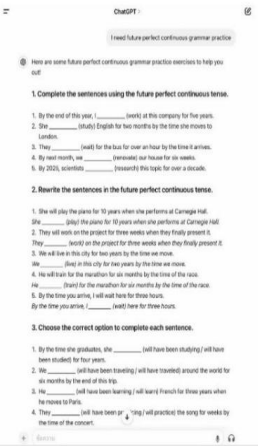
ใช้ ChatGPT ช่วยหาตัวอย่างประโยคอธิบายเพิ่มเติมเพื่อความเข้าใจที่มากขึ้น





ประเมินผลการเรียนในบทที่ 5

ใช้ ChatGPT ช่วยในการหาแบบทดสอบเพื่อเอาไว้ใช้ประเมินผลการเรียน



Pre Test

Post Test

จากการทำแบบทดสอบก่อน และหลังการศึกษาเรียนรู้เรื่อง Future Perfect Continuous Tense จะเห็นได้ว่า ข้าพเจ้าได้คะแนนแบบทดสอบหลังเรียนมากกว่าคะแนนการทำแบบทดสอบก่อนเรียน หมายความว่า ข้าพเจ้ามีความเข้าใจ และหลักการใช้ Future Perfect Continuous Tense ที่ดีขึ้นมากกว่าก่อนหน้านี้ ซึ่งผ่านตรงตามเป้าหมาย

เขียนสะท้อนความคิด

1. ได้เรียนหลักการและการใช้ So, Such, Enough และ Too ทั้งใรความหมาย Also, As well และการบ่องบอกถึงความมากเกินไป

2. ได้เรียนรู้ถึงข้อจำกัดของ ChatGPT และสังเกตุข้อผิดพลาดของตอเองและของ ChatGPT เพราะระหว่างการเฉลยมีความผิดพลาด เช่นระหว่างการเฉลยข้อที่ 18

Which sentence correctly uses "enough"?

A. He didn't study enough for the exam.

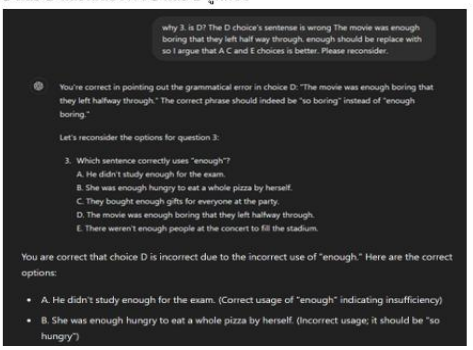
B. She was enough hungry to eat a whole pizza by herself.

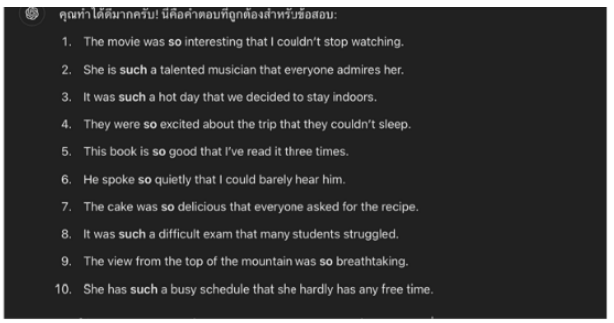
C. They bought enough gifts for everyone at the party.

D. The movie was enough boring that they left halfway through.

E. There weren't enough people at the concert to fill the stadium.

ChatGPT เฉลยข้อ D แต่ข้อ D ผิดจึงขอเสนอ A C และ E ทำให้ ChatGPT ยอมรับข้อผิดพลาดในข้อ B และ D และเฉลยว่า A C และ E ถูกต้อง





เขียนสะท้อนความคิด

ได้เข้าใจว่าSo และ Such เป็นคำกริยาวิเศษณ์บอกระดับ (Adverb of Degree) มีความหมายคล้าย Very คือ มาก, อย่างมาก แม้จะใช้ขยายคำกริยา, คำคุณศัพท์, คำกริยาวิเศษณ์ ตามหลักของกริยาวิเศษณ์ก็ตาม แต่ทั้ง So และ Such มีกฎการใช้ที่แตกต่างกัน ดังนี้ So ตามด้วยคำคุณศัพท์ (Adjective) หรือคำกริยาวิเศษณ์ (Adverb) โดยปกติ so ใช้กับคำนามไม่ได้ นอกจากต้องมีคำบอกปริมาณ much/many/few/little แล้วถึงตามด้วยคำนาม โดยคำนามจะต้องเป็นนามนับได้พหูพจน์หรือนามนับไม่ได้ ในโครงสร้าง So + much/many/few/little + Noun แต่ Such จะตามด้วยคำนามหรือกลุ่มคำนาม