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The Role of YouTube Grammar Tutorials in Enhancing EFL Learners' Grammar Competence and Self-Regulated Learning

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Abstract

This study investigates the dual role of YouTube grammar tutorials in enhancing grammatical competence and fostering self-regulated learning (SRL) among Thai EFL learners. This area remains underexplored in digital-assisted language learning research. The study employed a quasi-experimental design involving 86 Thai freshmen non-English majors at Chiang Mai University, divided into an experimental group receiving YouTube-based grammar instruction and a control group taught through traditional methods. Grammar proficiency was assessed through pre- and post-tests, while SRL development was measured using self-regulation checklists and perception surveys. The experimental group demonstrated higher mean scores in grammar proficiency alongside reduced variability, indicating more consistent performance. In contrast, the control group showed only marginal gains, indicating a positive trend toward improvement, though not statistically significant. The self-regulation checklists revealed that sustained use of YouTube tutorials improved students' self-regulated learning (SRL) skills over five sessions. Perception surveys indicate high satisfaction with comprehension, accessibility, and autonomy, demonstrating that engagement correlated with grammatical gains and SRL development. Despite these promising results, limitations such as sample size and reliance on self-reported SRL data highlight the need for further research. The study concludes that integrating YouTube grammar tutorials with traditional instruction can enhance language proficiency and learner autonomy, though careful implementation is essential to maximize benefits and address challenges.

Keywords: YouTube grammar tutorials, Self-Regulated Learning (SRL), EFL (English as a Foreign Language), YouTube-assisted language learning, Learner autonomy

Introduction

Launched initially as a platform for sharing entertainment content, YouTube has rapidly evolved into one of the world's most influential educational resources, hosting millions of instructional videos that support English language learning (Jalaluddin, 2016). The platform's vast repository includes comprehensive EFL materials covering grammar, pronunciation, and all four language skills, with many videos created by native speakers to provide authentic language exposure (Watkins & Wilkins, 2011). Research has demonstrated YouTube's effectiveness in reducing language anxiety while improving fluency and motivation by presenting real-world language use in accessible, self-paced formats (Meinawati et al., 2020). As a result, YouTube has become a transformative force in contemporary language education, offering a learner-centered approach that fosters engagement and autonomy. This shift toward learner autonomy aligns with self-regulated learning (SRL) principles, which are crucial in maximizing the benefits of digital tools like YouTube.

The integration of digital tools, particularly YouTube, has revolutionized English as a Foreign Language (EFL) education by promoting self-regulated learning (SRL) and learner autonomy (Abbas & Qassim, 2020; Al-Jarf, 2022). As one of the most accessible and versatile social media platforms, YouTube provides authentic language content enriched with visual and auditory elements, significantly enhancing engagement

and comprehension (Albahiri & Alhaj, 2020; Almoswai & Rashid, 2017). Its diverse repository of videos—ranging from tutorials and lectures to informal vlogs and cultural exchanges—exposes learners to varied accents, idiomatic expressions, and real-world language use, improving listening comprehension, speaking fluency, and overall proficiency (Chien et al., 2020; Husmann et al., 2019; Moghavvemi et al., 2018).

Regionally, Southeast Asia has witnessed a growing emphasis on integrating technology into education to address disparities in access and quality. Countries such as Thailand have adopted digital tools to supplement traditional teaching methods, recognizing the potential of platforms like YouTube to democratize learning. Research in Thailand highlights the growing impact of YouTube as an educational tool, particularly in EFL instruction. As Thai classrooms increasingly integrate digital resources, YouTube has become a key platform for addressing listening comprehension and engagement challenges. Supophak (2021) found that a significant majority (63%) of Thai undergraduate students perceived YouTube videos as highly effective in improving listening skills by exposing them to authentic language use and diverse native speaker accents. However, limitations such as inconsistent internet access and the length of instructional videos suggest the need for strategic content curation and institutional support to enhance its effectiveness. Similarly, Boonmoh et al. (2022) observed that all participating Thai secondary teachers (12/12) incorporated YouTube in their classrooms, leveraging its accessibility to provide authentic materials and increase student motivation. However, disparities in technological infrastructure, particularly in rural areas, posed challenges to equitable implementation.

While Thai students benefit from YouTube's potential in improving listening skills, its effectiveness in addressing other linguistic challenges, particularly grammar, remains underexplored. Many Thai learners struggle with grammatical accuracy, which is crucial in academic and professional communication. Studies by Khumphee and Yodkamlue (2017) and Saengboon (2017) highlight widespread grammatical errors involving tenses, articles, prepositions, and sentence structures, many of which stem from first-language (L1) interference, such as the omission of plural markers and incorrect sentence formation influenced by Thai syntactic patterns. Although students acknowledge the significance of grammar in language learning, conventional teaching methods often fail to strike a balance between rigid memorization drills and overly communicative approaches. This inconsistency leaves learners without structured, explicit grammar practice, hindering their ability to achieve long-term proficiency (Khumphee & Yodkamlue, 2017).

The objectives of this research are as follows:

1. To evaluate the effectiveness of integrating YouTube grammar tutorials into the curriculum for Thai first-year students, non-English majors at Chiang Mai University, focusing on enhancing their self-regulated learning (SRL) abilities.

2. To examine the role of YouTube grammar tutorials in improving grammar comprehension and retention in an English as a Foreign Language (EFL) learning environment.

3. To investigate the impact of YouTube tutorials on learner engagement, motivation, and the development of autonomous learning behaviors.

Although YouTube is increasingly used in Thai EFL classrooms, there is limited empirical research on its dual role in enhancing grammar skills and promoting self-regulated learning behaviors—two critical yet underdeveloped areas in language instruction. This study addresses that gap by evaluating the pedagogical value of YouTube grammar tutorials as both linguistic and metacognitive tools. By aligning digital content with learner autonomy principles and structured instructional support, the research aims to advance grammar teaching practices in Thai university contexts. The following literature review explores key theoretical frameworks, prior research on YouTube in EFL instruction, and studies on SRL and grammar acquisition to establish a foundation for the current investigation.

Review of the literature

YouTube as a digital learning platform in EFL education

Integrating digital technologies into English as a Foreign Language (EFL) instruction has transformed traditional learning environments, offering new avenues for student engagement and autonomy. Among these technologies, YouTube has emerged as a widely used platform that supports language development through

multimodal, learner-centered content. Its capacity to support independent learning aligns closely with self-regulated learning (SRL) principles, making it an essential tool in modern language education.

Beyond skill development, YouTube's self-paced learning model empowers students to take control of their educational journey, a cornerstone of self-regulated learning (SRL). By allowing learners to set goals, monitor progress, and reflect on their performance, the platform cultivates essential metacognitive strategies linked to academic success (Lai et al., 2018; Pintrich, 2000). This flexibility enables students to revisit challenging materials, practice pronunciation through imitation, and expand vocabulary in context—activities that traditional classroom settings often lack (Lamb & Arisandy, 2020; Nguyen & Tran, 2020). Moreover, YouTube's interactive features, such as subtitles, playback speed adjustments, and comment discussions, further personalize the learning experience, catering to individual needs and preferences (Botero et al., 2019; Imsri & Sangpoom, 2022).

Challenges and pedagogical considerations of YouTube integration

However, research also highlights several challenges associated with YouTube integration in EFL contexts. While learners may face difficulties selecting pedagogically comprehensive content due to the platform's unstructured nature (Al-Jarf, 2022; Kim & Kim, 2021), YouTube also offers many high-quality, engaging resources that can enhance learning. Without structured guidance, students may become passive viewers, lose focus, or consume content unrelated to their learning goals (Carter et al., 2020). This has prompted researchers to call for teacher-curated resources and structured scaffolding to align digital materials with classroom objectives. Teachers, therefore, play a critical role in curating appropriate materials and training students in digital literacy skills to ensure effective and focused engagement (Huang, 2022; Lamb & Arisandy, 2020).

Self-Regulated Learning (SRL) in EFL contexts

Self-regulated learning (SRL), which emphasizes learners' control over their learning processes by actively planning, monitoring, and evaluating their learning activities, is particularly relevant in EFL contexts where students often study independently outside the classroom (Alavi, 2024; Lai & Gu, 2011). YouTube supports SRL by enabling learners to set goals, monitor progress, and adopt personalized strategies for language learning (Botero et al., 2019; Lai et al., 2018). Features such as video subtitles, comment sections, and recommendations enhance learner interaction and engagement, bridging the gap between formal education and self-directed study (Kim & Kim, 2021; Greenhow et al., 2019). Despite these benefits, educators face challenges in effectively integrating YouTube into EFL learning, including selecting appropriate content and aligning materials with curriculum objectives (Al-Omari & Alhaddad, 2020; Hamad et al., 2019).

Building on this foundation, research has consistently highlighted that SRL significantly enhances language achievement, motivation, and long-term academic success among EFL learners (Abe et al., 2021; Carter et al., 2020; Mahmud & German, 2021). Specifically, learners who apply cognitive strategies such as rehearsal, elaboration, and organization—alongside metacognitive strategies like planning, self-monitoring, and self-evaluation—demonstrate greater resilience when navigating complex grammar, unfamiliar vocabulary, and cultural nuances in English-language content (Lai et al., 2018; Zimmerman, 2000). YouTube, with its multimodal and learner-controlled format, naturally complements these SRL processes. The ability to pause, replay, adjust playback speed, and explore related content encourages learners to engage in recursive learning cycles tailored to their needs (Ilyas & Putri, 2020; Lai & Gu, 2011).

Research indicates that learners with higher self-regulation abilities gain more from technology-assisted learning (Abe et al., 2021). Platforms like YouTube provide an interactive environment that promotes vocabulary retention, pronunciation practice, and critical thinking through authentic materials and dynamic learning experiences (Heriyanto, 2018; Kumaravadivelu, 2006). These interactive experiences not only improve comprehension but also strengthen learner autonomy and motivation, key traits for sustained language development (Balapumi et al., 2016; Jeong, 2022).

Addressing grammar instruction through YouTube tutorials

In recent years, technology-assisted learning platforms have gained increasing attention for their potential to address gaps in EFL instruction. YouTube has emerged as a widely used resource among these platforms due to its accessibility, multimodal content, and interactive potential. While existing research highlights YouTube's effectiveness in improving listening, speaking, and vocabulary acquisition (Moghavvemi et al., 2018; Nguyen & Tran, 2020), its role in grammar instruction remains underexplored, particularly among Thai EFL learners. This gap calls for a closer investigation into how digital platforms can facilitate explicit grammar learning in autonomous learning environments.

Educators are increasingly exploring technology-enhanced strategies that integrate interactive resources with self-directed learning opportunities in response to these challenges. One promising approach is using YouTube grammar tutorials, which offer clear, contextualized explanations of grammar rules and foster learner autonomy by encouraging repeated practice and self-monitoring beyond the classroom (Almurashi, 2016).

Digital integration in Thai EFL education: General adoption and pedagogical gaps

In Southeast Asia, particularly in Thailand, integrating digital tools like YouTube into language instruction has gained momentum. Research in Thailand highlights the growing impact of YouTube as an educational tool, particularly in EFL instruction. Suphophak (2021) found that a significant majority (63%) of Thai undergraduate students perceived YouTube videos as highly effective in improving listening skills by exposing them to authentic language use and diverse native speaker accents. However, limitations such as inconsistent internet access and the length of instructional videos suggest the need for strategic content curation and institutional support to enhance its effectiveness. Similarly, Boonmoh et al. (2022) observed that all participating Thai secondary teachers (12/12) incorporated YouTube in their classrooms, leveraging its accessibility to provide authentic materials and increase student motivation. However, disparities in technological infrastructure, particularly in rural areas, posed challenges to equitable implementation.

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Empirical support and theoretical foundations

The integration of digital technologies, particularly YouTube, has significantly transformed language education, offering innovative ways to enhance English as a Foreign Language (EFL) learning. Studies have demonstrated YouTube's effectiveness in improving listening, speaking, and self-regulated learning (SRL) skills. For instance, Phumsit (2024) investigated the use of YouTube videos combined with Communicative Language Teaching (CLT) to develop listening and speaking skills among Thai secondary school students. The study found that students' listening and speaking skills improved significantly after using YouTube videos, and their opinions toward this learning approach were highly positive, highlighting its effectiveness in fostering meaningful language practice and confidence. Similarly, Al-Jarf (2022) emphasized YouTube's role in promoting SRL and its accessibility for learners in rural or resource-limited settings. Albahiri and Alhaj (2020) also underscored the value of visual elements in YouTube videos for enhancing spoken English skills, which is particularly relevant for Thai learners aiming to improve conversational fluency.

Research has further highlighted YouTube's alignment with SRL principles, enabling learners to set goals, monitor progress, and adapt strategies. Al-Jarf

and Jeong (2022) demonstrated how YouTube supports SRL in distance education and mobile-assisted learning, offering flexibility and autonomy. These findings are especially pertinent for Thailand, where high mobile internet penetration facilitates the integration of such platforms. Nguyen and Tran (2020) validated YouTube's effectiveness in fostering SRL among Vietnamese learners, with implications for Thai learners due to shared regional and cultural contexts.

Additionally, studies have emphasized YouTube's ability to enhance motivation, engagement, and learner autonomy. Novawan et al. (2021) noted that YouTube provides real-world language exposure, bridging the gap between classroom instruction and practical use. Kim and Kim (2021) highlighted the importance of culturally relevant content in sustaining learner interest, a strategy that could benefit Thai learners. Jo and Lee (2023) found that well-structured YouTube tutorials improve comprehension and retention, aligning with the needs of Thai learners who often struggle with language mastery. Comparative studies, such as those by Jeong (2022) and Nguyen and Tran (2020), offer valuable cross-cultural insights into YouTube's adaptability across diverse educational settings. These findings suggest that YouTube's flexibility and accessibility make it a promising tool for enhancing EFL instruction in Thailand, particularly in addressing self-regulation, engagement, and language skill development challenges.

Theoretical framework specific to this study

To guide such integration meaningfully, this study employs the Participatory Action Research (PAR) model, which emphasizes collaboration, reflection, and continuous improvement. By involving learners in goal setting, evaluating digital resources, and reflecting on their learning process, PAR creates a structured yet flexible approach for incorporating YouTube tutorials into formal instruction (Lai et al., 2022; Moghavvemi et al., 2018).

This study is grounded in two foundational theories: Mayer's Cognitive Theory of Multimedia Learning and Zimmerman's Self-Regulated Learning (SRL) theory. Mayer's (2005) Cognitive Theory of Multimedia Learning explains how individuals learn more effectively when information is presented through visual and auditory channels rather than through a single modality. Learners can process complex information more efficiently by distributing cognitive load between these channels. Well-designed multimedia content reduces overload and enhances understanding through images, animations, spoken explanations, and written text. In language learning, platforms like YouTube, which combine audio, visuals, and captions, align well with CTML principles and support learners in grasping abstract grammar concepts.

Zimmerman's (2000) Self-Regulated Learning Theory emphasizes learners' active roles in setting goals, monitoring progress, and reflecting on outcomes. Successful self-regulated learners manage their motivation and learning strategies, adapting them to achieve better results. SRL is particularly important in language learning, where consistent practice and reflection are key. Digital platforms, such as YouTube, encourage these behaviors by allowing learners to control the pace of their learning, revisit content, and apply strategies that foster autonomy and promote long-term improvement. By integrating these two theoretical perspectives, this study examines how YouTube grammar tutorials enhance grammatical competence and encourage self-directed learning behaviors among Thai EFL students, addressing cognitive processing and autonomous learning development.

Research gap and rationale

While YouTube has shown promise in supporting various EFL skills and fostering SRL, its specific impact on grammar instruction among Thai university students remains underexplored, especially in terms of its ability to develop SRL behaviors alongside grammatical competence. This study addresses these gaps by employing a quasi-experimental design to compare grammar proficiency gains between students receiving YouTube-assisted instruction and those following regular CLT method. It also measures SRL growth exclusively in the experimental group. By isolating the dual impact of YouTube tutorials on grammatical competence and SRL development, the study contributes to a better understanding of how digital platforms can be strategically integrated into EFL instruction in Thailand. These insights aim to inform educators and curriculum designers seeking to enhance learner autonomy and academic performance through multimedia resources.

Research methodology

This study employed a quasi-experimental design to examine the effectiveness of YouTube grammar tutorials as a supplementary tool for grammar instruction among Thai first-year students and non-English majors at Chiang Mai University. The research aimed to assess the impact of video-based tutorials on learners' grammar proficiency and their ability to engage in self-regulated learning (SRL).

The methodology consisted of four main components: a pre-test to establish baseline grammar competence, a structured intervention involving YouTube-based instruction, a post-test to evaluate learning gains, and a series of self-observation checklists administered to assess SRL behaviors. In addition, a student perception questionnaire was used to gather insights into learners' attitudes toward using YouTube as a grammar learning tool.

Participants

The study involved 86 freshmen non-English major students from six sections of the English 1 (001101) course at Chiang Mai University. Each class originally consisted of 40 to 45 students. After the instructor introduced the research project and outlined the procedures, students were allowed to participate voluntarily—those who agreed filled out a consent form, which also required parental approval. To ensure complete comprehension, the researcher provided the research information in Thai, enabling parents to clearly understand the study's goals, procedures, and ethical safeguards. Participants were selected using a purposive sampling technique based on specific inclusion criteria: first-year students with CEFR A1-A2 English proficiency levels, enrolled in the targeted course sections, and committed to meeting the study requirements. The experimental group consisted of 50 students selected from three different course sections. Specifically, 26 students came from the first section, 14 from the second, and 10 from the third. These participants engaged with seven selected YouTube grammar tutorials that complemented the grammar content in their coursebook.

The control group consisted of 36 students from three sections: 12 from the first section, 14 from the second, and 10 from the third. These students received regular classroom instruction, covering the same grammar content through a communicative language teaching (CLT) approach, without exposure to YouTube tutorials. Although some students initially expressed interest in the study, some were later excluded due to irregular attendance, failure to complete required tasks, or voluntary withdrawal. These students were not included in the final participant count of 86. Their exclusion followed the study's predefined termination criteria and was essential to ensure the reliability and consistency of the data analyzed. Throughout the study, all participants received equal access to grammar instruction and classroom support, and ethical standards were strictly followed. Participation was voluntary, anonymity was maintained, and students were informed of their right to withdraw from the study at any point without academic penalty.

Instruments

To assess the impact of YouTube grammar tutorials on students' grammar competence and self-regulated learning (SRL), as well as to explore their perceptions of this digital learning tool, four instruments were employed: a pre-test, a post-test, a self-regulated learning (SRL) checklist, and a participant's perception questionnaire. The researcher designed and validated all instruments, and their reliability was confirmed through a pilot study conducted before the intervention.

Before the intervention, participants completed a grammar pre-test to establish their baseline knowledge. The test consisted of 20 items, including multiple-choice questions, sentence completion tasks, and error correction, to evaluate students' understanding and application of the grammar points covered in their coursebook. The items were developed based on the English File (4th editions) and aligned with CEFR A1–A2 grammar content. Example multiple-choice items included:

*"*She ___ her homework already.*"* A) did B) do C) has done D) have done

For the sentence completion section, sample items included: *"*They ____(visit) their grandparents next week."

The grammar error correction section required students to identify and correct grammatical mistakes in sentences such as:

*"*If I was you, I would accept the offer.*"*

The pre- and post-tests were developed by the researcher based on the grammar content from the participants' coursebook, ensuring alignment with the curriculum and relevance to the participants' learning context. The validity and reliability were reviewed and confirmed through pilot testing before implementation.

The instructional phase was organized into five instructional cycles, each corresponding to a specific grammar topic in the coursebook. Although the study was organized into five cycles, seven YouTube grammar tutorials were used. This is because the grammar unit on prepositions was supported by three separate video tutorials to better cover subtopics—prepositions of place, movement, and dependent prepositions.

To assess whether replacing regular classroom grammar instruction with YouTube grammar tutorials fostered self-regulation in EFL learners, participants watched seven carefully curated YouTube videos in five cycles, each aligned with a specific grammar topic from their coursebook.

Each YouTube video was selected following a careful review process. The researcher evaluated multiple tutorial options for each grammar topic and selected the most suitable based on several pedagogical and practical criteria. These included a clear and well-paced teaching style, high audio and visual quality, effective use of visual aids and on-screen examples, and alignment with the specific grammar objectives in the coursebook. Additionally, videos were chosen for their concise length to ensure that learners remained engaged without becoming overwhelmed or bored.

The YouTube videos were selected based on pedagogical relevance, visual clarity, duration, and production quality. The grammar topics and their video links were:

– Prepositions of Place: https://youtu.be/kq65VGkVwC8

– Prepositions of Movement: https://youtu.be/Rai_E2EjOBw

– Dependent Prepositions: https://youtu.be/J6PoHmv8yEw

– Future Forms: https://youtu.be/qAiZ2YdjaeQ

– Conditional Sentences (1st and 2nd): https://youtu.be/RB8cDdvj5uc

– Present Perfect: https://youtu.be/cBCqDRX5YfA

– Present perfect or present perfect continuous?: https://youtu.be/ncQ_PSr_TEo

Each cycle started with sharing the relevant video with participants in the experimental group via a LINE group. Students were instructed to watch the video before class. During the corresponding in-class session, the instructor reviewed the grammar point and facilitated follow-up practice activities and exercises.

To measure changes in learners' self-regulation skills during the intervention, a structured Likert-scale Self-Regulated Learning (SRL) Checklist was used. At the end of each cycle, participants were asked to complete an SRL Checklist related to the corresponding YouTube tutorial and follow-up activities and exercises in the classroom. The checklist was adapted from Zimmerman' s model and included five domains: engagement, participation, peer interaction, technical interaction, and reflective learning. Sample items from the checklist included:

- " *I watched the video attentively without distractions.*" (from the engagement domain)
- "*I complete tasks and exercises related to the video.*" (from the participation domain)
- " *I collaborate with peers during group activities.*" (from the peer interaction domain)
- "*I navigate YouTube to find/use similar or related videos.*" (from the technical interaction domain)
- " I demonstrate enthusiasm and interest in learning." (From the reflective learning domain)

Participants in the experimental group completed the checklist five times, once at the end of each instructional cycle—after watching the video, attending the in-class lesson, and completing related exercises. This instrument helped capture how students planned, monitored, and reflected on their learning experiences in a technology-enhanced environment.

At the end of the intervention, participants completed a grammar post-test structurally equivalent to the pre-test, containing the same number and types of items. The post-test measured the extent of students' grammar improvement across the five instructional cycles. Test content focused on the grammar points covered during the intervention, allowing for direct comparison with pre-test scores. Sample items from the post-test included:

Multiple choice: "*They ___ here for five years." A) has lived B) have lived C) lived D) live*

Fill-in-the-blank example: *"He ____(travel) to Japan next month."*

Error correction example: *"If I was a bird, I would fly high."*

To explore students' experiences and attitudes toward using YouTube as a grammar learning tool, a 20-item perception questionnaire was administered to the experimental group after completing all five cycles. The questionnaire, structured on a 5-point Likert scale, assessed learners' engagement, comprehension, accessibility, interactivity, and the development of self-regulation skills with the YouTube-based learning approach. Sample items included:

- *" I enjoy using YouTube to learn English grammar."*
- *" YouTube grammar tutorials are more engaging than traditional textbooks."*
- *"I find it easy to follow along with YouTube grammar tutorials."*
- *"YouTube videos help me remember grammar rules more effectively."*

Data collection

Data collection was conducted over 10 weeks and followed a structured process to ensure consistency and reliability across both experimental and control groups. The procedure was designed to track changes in grammar proficiency, self-regulated learning behaviors, and learners' perceptions of YouTube-based instruction.

The process began with a pre-test administered to all participants to assess their baseline grammar knowledge. This was followed by the intervention phase, during which the experimental group engaged with seven YouTube grammar tutorials aligned with five grammar units in the coursebook. These videos were viewed before class, followed by instructor-led review sessions and practice activities. At the end of each cycle, students in the experimental group completed a self-regulated learning (SRL) checklist to reflect on their engagement and learning strategies.

In contrast, the control group received regular instruction based on the same coursebook content, using the Communicative Language Teaching (CLT) approach, without access to video tutorials or additional digital materials. After completing the five instructional cycles, a post-test was administered to both groups to evaluate grammar improvement. Finally, the experimental group completed a perception questionnaire to provide feedback on their learning experience with the YouTube tutorials. Ethical standards were upheld throughout the data collection process, including voluntary participation, parental consent, and confidentiality of participant data.

Data analysis

Descriptive statistics summarized central tendencies and variability in grammar proficiency and self-regulation scores. A paired t-test evaluated the significance of pre- and post-test differences. The Shapiro-Wilk test assessed data normality, and one-way ANOVA analyzed variations in self-regulation behaviors over time, with Tukey's HSD post-hoc test identifying specific differences. Visualization tools, such as box plots and line graphs, aided in interpreting trends and patterns. By integrating these methods, the study comprehensively evaluated the impact of YouTube-based grammar instruction on learners' grammatical proficiency and self-regulation over the specified 10-week period.

Results

This study investigated the effectiveness of integrating YouTube grammar tutorials into the curriculum for Thai first-year students who are non-English majors at Chiang Mai University. The results are presented for both the control group, which had regular in-class grammar instructions, and the experimental group, which benefited from YouTube-based instructions. The investigation focuses on three key areas: grammar proficiency, self-regulated learning (SRL), and students' perceptions regarding their learning experience.

Control group results

The control group, which received the regular grammar instruction, showed modest improvements in grammar proficiency. Descriptive statistics revealed an increase in mean scores from 11.72 (pre-test) to 12.83 (post-test), with a slight reduction in standard deviation (4.42 to 4.01), indicating more consistent performance. However, the overlapping density curves and

histograms (Figure 1) suggest that the improvement was not substantial across all students. The median score increased from 11.5 to 13, and the interquartile range (IQR) narrowed, reflecting reduced variability. However, the paired t-test results ($t = -1.6161$, $p = 0.115$) indicate that the improvement was not statistically significant, suggesting that the observed changes may be due to random variation rather than the intervention.

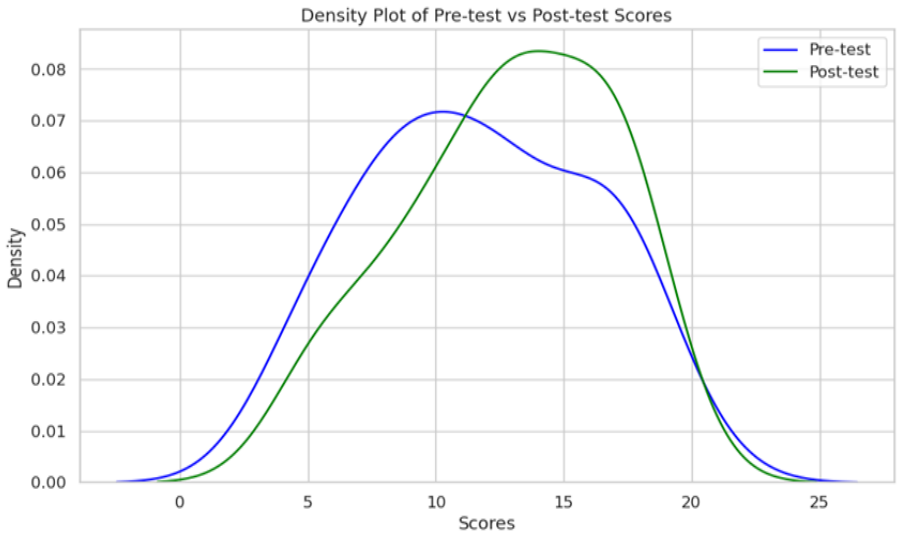

Figure 1 Density plot comparing pre-test and post-test distributions

Experimental group results

The experimental group that used YouTube grammar tutorials showed significant improvements in grammar proficiency and consistency. The mean score increased from 13.08 in the pre-test to 16.08 in the post-test. Additionally, there was a notable decrease in the standard deviation, dropping from 3.66 to 2.73, which indicates that the scores clustered more closely together. The median score also rose from 13 to 17, and the minimum score improved from 4 to 6, reflecting progress even among lower-performing students.

Table 1 Descriptive statistics of pre- and post-test grammar scores for the experimental group

Statistic	Pre-test	Post-test
Count	50.00	50.00
Mean	13.08	16.08
Std Dev	3.66	2.73
Min	4.00	6.00
25% (Q1)	11.00	15.00
Median (Q2)	13.00	17.00
75% (Q3)	16.00	18.00
Max	19.00	19.00

The descriptive statistics in Table 1 show a clear improvement in grammar performance among the experimental group following the intervention. The mean score increased from 13.08 in the pre-test to 16.08 in the post-test, while the median rose from 13 to 17, reflecting a substantial upward shift in overall performance. The interquartile range also shifted upward, from 11.00-16.00 in the pre-test to 15.00-18.00 in the post-test, indicating that the middle 50% of students achieved higher and more consistent scores. Additionally, the reduction in standard deviation from 3.66 to 2.73 highlights a decrease in score variability, suggesting improved consistency across the group.

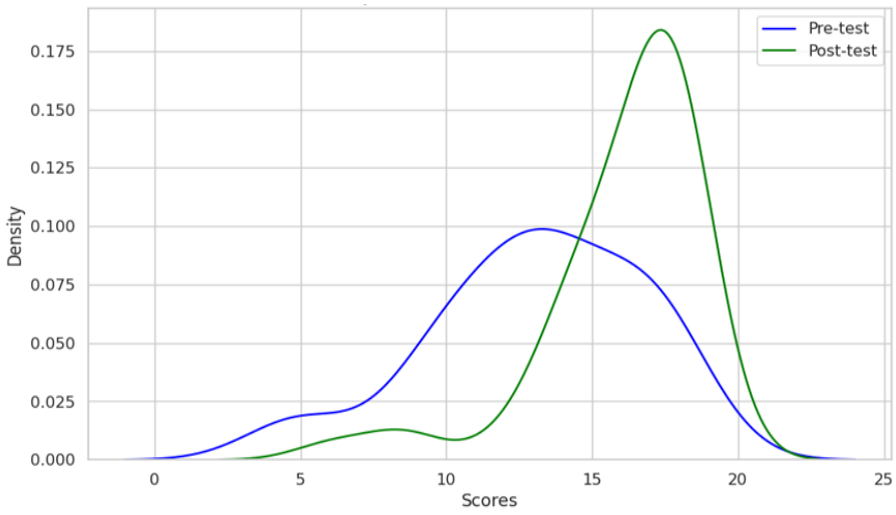

Figure 2 Density plot comparing pre-test and post-test distributions

To determine whether these improvements were statistically significant, a paired t-test was conducted. The results ($t = -5.56$, $p = 1.087 \times 10^{-6}$) indicate a highly significant difference between pre-test and post-test scores (Figure 2). Since the p-value is far below the conventional threshold of 0.05, the null hypothesis is rejected, confirming that the observed improvement was not due to chance.

These findings directly address Research Objective 2 (RO2), which examines the role of YouTube grammar tutorials in improving grammar comprehension and retention. The statistically significant gains in post-test scores (mean increase of 3 points, $p < 0.001$), along with reduced score variability, suggest improved understanding and long-term retention of grammar knowledge.

Self-Regulated Learning (SRL) and student perceptions

While Table 2 summarizes the perceptual data, the quantitative improvements in grammar (Table 1) and SRL checklist mean scores (Figure 3) provide complementary evidence of the intervention's effectiveness. The study also examined the role of YouTube tutorials in fostering self-regulated learning (SRL). Self-assessment data revealed gradual improvements in SRL behaviors over five cycles. In each cycle, participants were instructed to engage with a specific YouTube video that presented a grammar lesson before attending the subsequent class. Then, the instructor conducted a comprehensive review of the grammar lesson and led related in-class exercises. Following the class activities, participants completed a self-observation checklist called the SRL checklist. This checklist encouraged them to reflect critically on their planning, monitoring, and learning experiences within a technology-enhanced learning environment. The reflections were organized according to five iterations of the SRL checklist, labeled from SRL checklist 1 to SRL checklist 5.

As shown in Figure 3, the overall progression in mean scores from 3.44 in SRL checklist 1 to 3.86 in SRL checklist 5 reflects the cumulative benefits of digital learning tools. While the initial periods (SRL checklist

1 and SRL checklist 2) showed minimal improvement (mean difference = 0.05, p = 0.991), significant gains were observed by SRL checklist 5 (mean difference = 0.41, p = 0.0018). The steady rise in SRL scores (Figure 3) correlates with improved grammar retention (Table 1), suggesting that self-regulated learning behaviors reinforced comprehension. In summary, while immediate improvements between the first two self-assessments were negligible, significant gains in grammar comprehension, retention, and self-regulation were observed over the study period, particularly between the early and later sessions. This suggests that continuous engagement with digital resources enhances SRL skills in the long term.

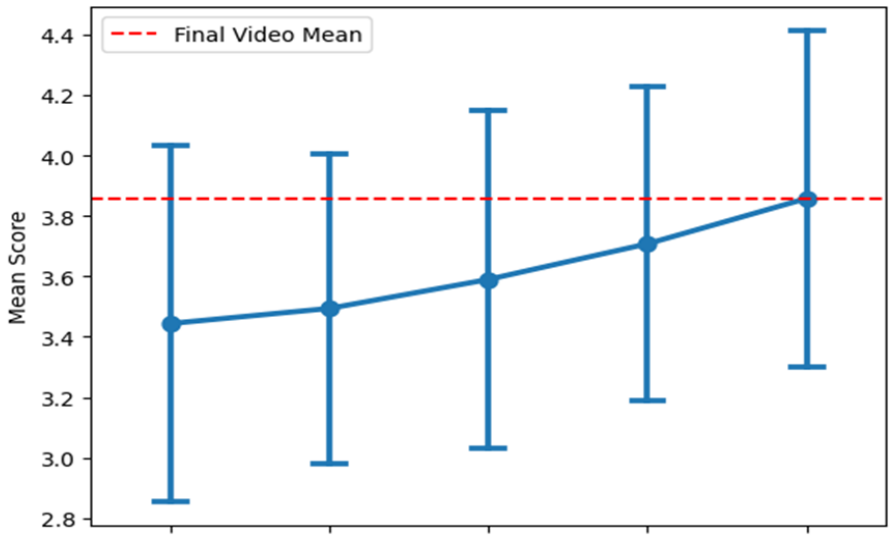

Figure 3 SRL checklist mean scores across instructional cycles

These results respond directly to Research Objective 1 (RO1), which concerns the effectiveness of YouTube tutorials in enhancing self-regulated learning. The significant improvement in SRL behaviors over time—especially in reflective learning, peer interaction, and task engagement— demonstrates that students became more autonomous and strategic learners through repeated digital exposure and guided reflection.

The students' perception report, as presented in Table 2, indicates that students positively received the integration of YouTube tutorials into grammar learning. Perceptions of self-regulated learning and autonomy (M = 4.13, SD = 0.48) were favorable and consistently rated, suggesting that most students felt the videos helped foster independent learning strategies. By contrast, while interactivity (M = 4.13) was also rated positively, its higher variability (SD = 0.56) indicates that students' experiences with interactive features were more diverse and inconsistent. Engagement and motivation (M = 3.97) were generally positive, though some students reported less consistent levels of interest and connection with the material. Students reported the highest satisfaction with comprehension and retention (M = 4.23), reflecting strong confidence in understanding and recalling the material. Ease of learning and accessibility also received consistently positive ratings (M = 4.17), showing that the digital resources were user-friendly and supportive of self-directed learning.

These findings also contribute to Research Objective 3 (RO3), which examines the broader impact of YouTube grammar tutorials on learner motivation, engagement, and autonomy. High mean scores across comprehension (4.23), interactivity (4.13), and autonomy (4.13) categories suggest that the intervention fostered a positive overall learning experience. However, the noted variability in some domains (e.g., engagement, SD = 0.52) also highlights areas for instructional improvement.

Table 2 Participants' perception results

Category	mean	var	std
Engagement and Motivation	3.972	0.27	0.52
Comprehension and Retention	4.232	0.27	0.52
Ease of Learning and Accessibility	4.172	0.18	0.43
Interactivity and Learning Experience	4.130	0.32	0.56
Self-Regulated Learning and Autonomy	4.130	0.23	0.48

In summary, the results of this quasi-experimental study revealed that integrating YouTube grammar tutorials significantly enhanced the grammar proficiency and self-regulated learning (SRL) of Thai first-year students compared to regular CLT instruction. In addressing the research objectives, the study found: (RO1) YouTube tutorials fostered SRL and autonomy, as reflected in positive perceptions ($M = 4.13$) and gradual progression in SRL checklist scores ($3.44 \rightarrow 3.86$, $p = 0.0018$); (RO2) grammar comprehension improved significantly, with post-test scores increasing to a mean of 16.08 ($p < 0.001$); and (RO3) the intervention's overall impact was positive with high satisfaction reported in comprehension, interactivity, and learner autonomy, though variability in interactivity indicates a need for refinement in future implementations. While the control group showed only modest, statistically insignificant gains, the experimental group demonstrated substantial improvements in mean grammar scores and score consistency, confirmed by a highly significant t-test. SRL skills also improved progressively over five instructional cycles, highlighting the value of sustained digital engagement. Student perception data further supported the effectiveness of the intervention, with high satisfaction reported in comprehension, accessibility, and learner autonomy. However, some variability in engagement and interactivity suggests the need for more structured support in future implementations.

Discussion

This study investigated the effectiveness of integrating YouTube grammar tutorials into the curriculum for Thai first-year students, non-English majors at Chiang Mai University. Guided by the research question—*How do YouTube grammar tutorials influence learners' grammar knowledge and their ability to self-regulate their learning?*— The study employed a quasi-experimental design comparing an experimental group using YouTube tutorials with a control group following the regular CLT approach instruction. Pre- and post-tests, self-regulation checklists, and perception surveys were used to assess grammar proficiency, self-regulated learning (SRL), and student feedback.

The results revealed significant improvements in grammar comprehension and SRL skills among the experimental group, with mean scores increasing from 13.08 (pre-test) to 16.08 (post-test) and reduced variability indicating more consistent performance. In contrast, the control group showed only marginal gains (11.72 to 12.83), which were not statistically significant ($t = -1.6161$, $p = 0.115$). These findings align with prior research (Albahiri & Alhaj, 2020; Nguyen & Tran, 2020), highlighting YouTube's role as a flexible, multimodal resource that fosters learner autonomy and engagement. The iterative nature of self-assessments further demonstrated the importance of SRL strategies, with students exhibiting enhanced goal-setting and progress-monitoring behaviors (Botero et al., 2019; Zimmerman, 2000). The progression in self-regulation checklist scores indicates that self-regulated learning develops gradually through consistent exposure to digital learning tools. The initial lack of significant improvement suggests students need time and structured support to adapt to self-directed learning. However, the notable improvement over time confirms that sustained and well-designed digital interventions can effectively enhance grammar proficiency and autonomous learning. These findings highlight the importance of repeated practice, scaffolding, and reflective activities in helping students build essential self-regulation skills.

However, challenges such as variability in individual performance, technical literacy, and the need for structured guidance were identified, particularly

during the initial adaptation phase (Al-Jarf, 2022). These findings underscore the importance of integrating digital tools with traditional methods to ensure a balanced learning experience. In the Thai context, where English instruction is often rigid and exam-focused, YouTube tutorials offer a practical solution by providing accessible, interactive content that caters to diverse learning preferences (Lai et al., 2018; Nguyen & Tran, 2020). Students' perceptions of using YouTube tutorials for grammar learning revealed overall positive feedback, with high scores for comprehension and retention, ease of use, and the development of self-regulation skills. These results indicate that digital tools effectively supported grammar understanding and encouraged independent learning, consistent with findings from previous research (Al-Jarf, 2022; Lai et al., 2018). While accessibility was rated consistently well, some variation was noted in engagement, motivation, and interactivity, suggesting that not all students fully connected with the interactive elements. This highlights the need for more structured interactive activities to maintain consistent engagement. Additionally, although students generally felt more autonomous in their learning, some required more guidance to adapt to self-directed learning, emphasizing the importance of continued scaffolding and reflection in future instructional design.

Despite the promising results, this study has several limitations that should be acknowledged. First, the sample size was relatively small and was taken from a single public university in northern Thailand. This limited demographic and institutional reach may affect the generalizability of the findings to broader or more diverse educational settings. Second, the study focused on short-term outcomes, measuring improvements in grammar and SRL behaviors over a five-cycle intervention. It did not examine long-term retention of grammar knowledge or the continued development of self-regulated learning skills beyond the intervention period. Third, relying on self-reported instruments—such as the SRL checklists and perception questionnaires—may have introduced social desirability bias or caused inconsistencies in how students understood and responded to the items. Fourth, differences in digital literacy and internet access among participants could have affected their ability to engage fully with the YouTube tutorials. Although most students were familiar with online learning, disparities in device quality, connectivity, or technical skills may have influenced how deeply they interacted with the digital content.

Additionally, a design-related limitation appeared in the form of limited preparatory instruction on self-regulated learning strategies. While the intervention included SRL-oriented checklists and reflective activities, it did not feature an explicit pre-intervention training phase to introduce or support key SRL concepts such as goal-setting, planning, self-monitoring, and self-evaluation. As a result, some students may have lacked the metacognitive foundation to engage with these strategies effectively, potentially affecting the consistency of their SRL development. Future research should consider adding structured SRL training sessions at the beginning of digital interventions to ensure students are properly prepared for autonomous learning.

Despite these limitations, the findings offer preliminary evidence supporting the role of YouTube grammar tutorials in promoting both linguistic competence and learner autonomy. With carefully selected content, reflective tasks, and pedagogical scaffolding, digital tools such as YouTube can be meaningfully integrated into EFL instruction to support grammar acquisition and self-regulated learning in university contexts.

The findings of this study suggest that YouTube grammar tutorials can serve as a valuable supplement to classroom instruction, particularly in EFL contexts where student engagement and self-regulation are ongoing challenges. Educators are encouraged to incorporate curated video content into blended learning models, allowing students to engage with grammar topics independently and in guided class activities. To maximize effectiveness, teachers should provide structured support, such as pre-viewing tasks, follow-up discussions, and reflection prompts, to help students navigate digital resources meaningfully. Furthermore, building learners' digital literacy and self-monitoring strategies is essential, especially in contexts where self-regulated learning is underdeveloped. Given the study's design-related limitation, future implementations should also include explicit SRL training before the use of digital tools to ensure learners are adequately equipped to apply metacognitive strategies. With thoughtful integration, YouTube can help create more autonomous,

flexible, and learner-centered environments that support long-term skill development.

Conclusion

The findings of this study confirm that YouTube grammar tutorials can play a significant role in improving grammar proficiency and fostering self-regulated learning (SRL) among university-level EFL students. By promoting learner autonomy and offering flexible, multimodal content, YouTube emerges as an effective educational tool, especially in contexts where traditional grammar instruction alone may not address diverse learner needs. The positive outcomes observed among Thai first-year students, non-English majors, suggest that carefully curated YouTube tutorials can successfully supplement textbook-based instruction, providing repeated exposure, clear explanations, and opportunities for independent engagement.

Beyond grammar gains, the study revealed that the integration of YouTube tutorials encouraged students to adopt essential SRL strategies, such as goal-setting, self-monitoring, and reflection. These metacognitive behaviors, evidenced through self-regulation checklists and perception surveys, indicate that sustained interaction with digital resources supports students in managing their learning more effectively over time. This is especially beneficial in Thai EFL contexts, where opportunities for autonomous practice are often limited and teacher-centered methods dominate.

Students' positive perceptions— particularly in terms of comprehension, accessibility, and autonomy—further reinforce the value of YouTube as a motivating and supportive tool. However, the development of SRL did not occur automatically. Some students initially struggled to apply these strategies independently, highlighting the importance of instructor scaffolding. Guided support, including reflective prompts and strategy modeling, is essential to help learners fully benefit from digital tools' flexibility.

While the study produced encouraging results, certain limitations must be acknowledged. These include the relatively small and context-specific sample, the short duration of the intervention, and the reliance on self-reported data, which limit the generalizability of the findings. Future research should consider longitudinal studies, broader participant demographics, and the inclusion of explicit SRL training to explore sustained outcomes more comprehensively.

In conclusion, this study affirms the pedagogical value of YouTube grammar tutorials as a supplement to classroom instruction. When thoughtfully implemented alongside structured guidance, these digital resources can simultaneously enhance grammar proficiency and promote self-directed learning. For educators and curriculum developers, the findings support a shift toward blended models that integrate traditional instruction with accessible, engaging digital content, empowering students to become more autonomous, motivated, and lifelong learners in EFL settings.

Declaration of generative AI in scientific writing

The generative AI tool (Gemini) has been used (only for proofreading). That is, to improve the readability and language of the manuscript.

CRediT author statement

Mohammad Pakbaz: Conceptualization; Methodology; Investigation; Data Curation; Formal Analysis; Visualization; Writing, Original Draft; Writing – Review & Editing; Project Administration; Supervision.

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