

A Pilot Study on Bridging EFL Writing and Speaking Skills through AI-enhanced Authentic Short Video-Making

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Abstract: *The integration of technology in English as a Foreign Language (EFL) instruction offers significant potential to enhance writing and speaking proficiency. Among technological applications, authentic tasks like short video production have proven effective in promoting real-world language use and learner engagement. While prior research highlights the benefits of video-based learning for specific skills such as speaking fluency and writing coherence, limited attention has been paid to the interplay between these competencies or the role of video quality in comprehensive language outcomes. This study investigates the impact of Artificial Intelligence-enhanced authentic short video-making (AI-eSV) on the integrated development of EFL writing and speaking skills. Conducted over two weeks, the study engaged 20 first-year university students from a public university in central Taiwan in a structured process of collaborative scriptwriting and video recording in authentic contexts. Using a pretest-posttest design, video quality assessments, and participant interviews, the study provided a holistic evaluation of the intervention. Results showed significant improvements in writing and speaking skills, including enhanced creativity, content organization, and communicative confidence. The collaborative and authentic nature of the tasks further fostered learner engagement and skill integration. These findings highlight the pedagogical value of AI-enhanced short video-making as a bridge between theoretical instruction and practical language application, emphasizing the importance of incorporating technology-driven, authentic activities in EFL curricula. Future research should explore the long-term impact and scalability of this innovative approach.*

Keywords: EFL writing and speaking, AI-enhanced authentic short video-making, writing and speaking skills, technology-enhanced learning, collaborative learning

1. Introduction

The integration of technology into EFL instruction has demonstrated significant potential in enhancing writing and speaking skills through innovative pedagogical approaches. Authentic tasks, such as video-making, establish real-world contexts for language use, enabling learners to bridge the gap between classroom instruction and practical communication (Ouyang, 2024). The use of multimedia tools has further supported iterative language practice, promoting vocabulary acquisition, grammatical accuracy, and communicative confidence (Abdolmanafi-Rokni & Qarajeh, 2014). Learner-generated content, such as short videos, has been linked to increased engagement and motivation, fostering creativity and collaboration during language practice (Huang, 2021). Video-based tasks, particularly those incorporating scriptwriting and performance, provide structured opportunities for meaningful language application, improving both writing and speaking skills (Hafner & Miller, 2021).

Existing research underscores the efficacy of video-based learning in specific language domains. Menggo et al. (2022) observed that video-making tasks enhance speaking performance through practical language use, while Göktürk (2016) reported improvements in fluency and grammatical accuracy via digital video recordings. Similarly, Jiang et al. (2021) highlighted gains in speaking and listening skills through automatic speech recognition, though these outcomes were not consistently reflected in overall proficiency metrics. Cahyono and Astuti (2019) emphasized the creative and organizational benefits of video tasks in writing, while Yeh et al. (2020) demonstrated that project-based video-making enhanced critical thinking, collaboration, and holistic language development. Despite these advancements, gaps persist in understanding how video quality correlates with integrated skill development and overall proficiency, highlighting the need for further investigation.

To address these gaps, this study developed the AI-enhanced Short Video-making (AI-eSV) system, a learning tool based on communicative language teaching (CLT) principles (Rahman, Singh, & Pandian, 2018). AI-eSV uses artificial intelligence to give real-time, personalized feedback during scriptwriting and video production. It helps improve fluency, coherence, and grammar by providing feedback that allows students to make changes and improve their work (Huang, 2021; Yeh et al., 2020). By engaging students in video-making with real-world contexts, AI-eSV supports the development of both writing and speaking skills. This study explores two main research questions: (1) Is there any improvement in students' EFL writing and speaking skills after using AI-eSV? and (2) Is there any correlation between students' short video quality and their EFL writing and speaking skills? These questions guide the study's goals of evaluating AI-eSV's effectiveness and understanding the link between video quality and language learning.

2. Literature Review

2.1. *The Role of AI-Driven Technology in Enhancing EFL Skills*

Artificial Intelligence (AI) has increasingly influenced EFL education, particularly in enhancing writing and speaking skills. AI-powered tools, such as chatbots and intelligent tutoring systems, provide learners with interactive platforms to practice language skills, offering immediate feedback and personalized learning experiences. For instance, AI chatbots have been shown to improve oral communication skills by simulating authentic conversational contexts, thereby increasing learners' engagement and proficiency (Wu & Li, 2024). Additionally, AI-driven writing assistants help students develop their writing abilities by providing real-time corrections and suggestions, which can reduce anxiety and improve overall writing quality (Song & Song, 2023). Despite these advancements, the integration of AI in EFL teaching presents challenges, including educators' skepticism and the need for effective implementation strategies (Zhang & Umeanowai, 2024). Moreover, while AI tools like ChatGPT offer personalized learning experiences, concerns about academic dishonesty and over-reliance on technology have been raised (Lo et al., 2024). Therefore, while AI offers promising tools for EFL instruction, further research is necessary to fully understand its impact and optimize its application in language learning environments.

2.2. *EFL Writing and Speaking Enhancement with Video-Making*

Video-making has emerged as an effective pedagogical tool for enhancing English as a Foreign Language (EFL) learners' skills, particularly in writing and speaking. Engaging students in video production fosters active learning and authentic language use, leading to improved proficiency. For instance, Yeh et al. (2021) found that EFL students participating in video-making projects demonstrated significant advancements in writing skills, attributed to increased motivation and the necessity to organize content coherently. Similarly, Göktürk (2016) reported that digital video recordings positively impacted learners' oral fluency, providing opportunities for self-assessment and iterative improvement. Moreover, the use of English-subtitled videos has been shown to enhance listening and vocabulary skills, contributing to overall language competence (Bahtiar, 2023). Implementing animated videos in instruction also resulted in higher vocabulary retention among learners, indicating the versatility of video-based methods in language education (Almurashi, 2016). Furthermore, utilizing platforms like YouTube for video-making projects has facilitated improvements in speaking skills, offering learners authentic contexts to practice and refine their language abilities.

(Melisa et al., 2023). These studies collectively underscore the multifaceted benefits of incorporating video-making into EFL curricula to bolster language proficiency.

2.3. AI-Driven Video-Making in Authentic Contexts for EFL Skill Enhancement

Integrating AI into video-making within authentic contexts has shown significant potential for enhancing EFL skills. AI-driven tools, such as intelligent tutoring systems and virtual reality environments, provide immersive and interactive platforms that facilitate authentic language use and contextual learning. For instance, Jiang (2022) highlights the application of AI in creating realistic conversational agents, enabling learners to practice speaking in lifelike scenarios. Similarly, Lee et al. (2024) demonstrate that immersive virtual reality can situate learners in authentic settings, promoting natural language acquisition through contextualized experiences. Moreover, Zhang and Umeanowai (2024) discuss the transformative influence of AI in EFL contexts, emphasizing its role in providing personalized feedback and adaptive learning pathways. However, challenges such as educators' skepticism toward AI integration and the need for effective implementation strategies persist, as noted by Alshumaimeri and Alshememry (2023). Despite these challenges, the convergence of AI and video-making in authentic contexts offers promising avenues for EFL skill enhancement, warranting further exploration and empirical validation.

3. AI-Enhanced Authentic Short Video Making

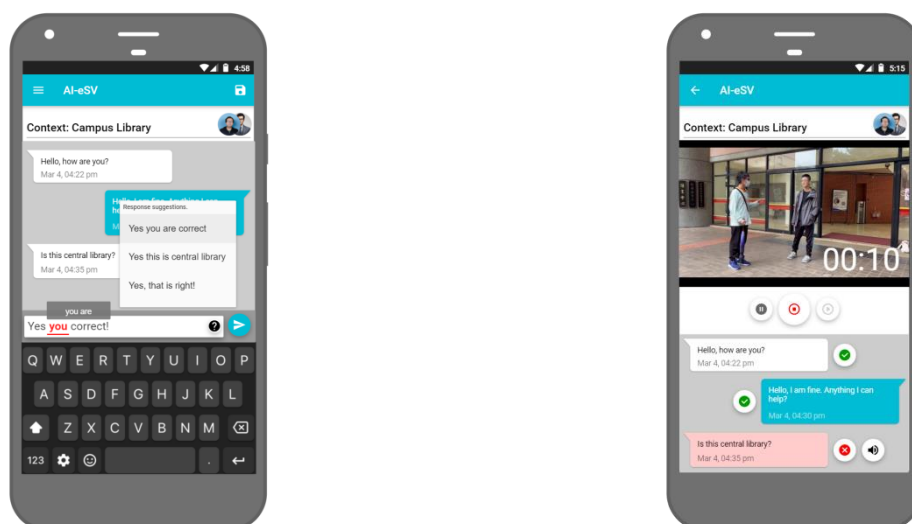


Fig.1 User Interface of AI-eSV to help Students Enhance Their EFL Writing and Speaking Through Creation of Short Video in Authentic Context; Left Side: Short Video Script Writing; Right Side: Authentic Short Video Recording

The AI-enhanced Authentic Short Video-Making (AI-eSV) system is explicitly designed based on the principles of Communicative Language Teaching (CLT), emphasizing interaction, real-world context, and learner engagement as key components of language acquisition. By integrating these principles, the AI-eSV system creates an effective and authentic language learning environment that aligns with CLT methodologies. Initially, students worked in pairs to plan the content of their videos, with a focus on scriptwriting as a foundational step. During this planning phase, students utilized AI-driven writing assistance to refine their scripts collaboratively (Figure 1). The AI-eSV system provided real-time feedback on grammatical accuracy, sentence coherence, and contextual relevance, allowing students to iteratively enhance their writing. The AI system flagged syntactic errors, suggested alternative phrasing, and analyzed vocabulary choices to help students improve the clarity and expressiveness of their scripts. This integration of AI technology ensured that the scripts met high linguistic standards while maintaining authenticity and contextual relevance to the video projects. The collaborative planning phase further promoted critical thinking and meaningful language practice, strengthening the foundation for the subsequent stages of video production.

Following the planning stage, students produced 30-second videos in authentic contexts, leveraging their campus environment to align their content with academic themes. The use of real-world settings, such as libraries, lecture halls, and study areas, reinforced the practical application of their language skills while integrating their academic environment into the task (Figure 2). During the recording process, students were required to speak loudly and clearly, ensuring their oral communication could be effectively evaluated by the teacher. The AI-eSV further supported this process by analyzing speech clarity and pronunciation in real-time. If the system detected unclear speech, mispronunciations, or unnatural pauses, it automatically paused the recording and prompted students to listen to a Text-to-Speech (TTS) playback of the correct pronunciation. Students were then required to practice and re-record their lines until the system confirmed their speech clarity and accuracy. The AI-eSV system utilized speech recognition algorithms to assess intonation, rhythm, and articulation, helping students refine their pronunciation and fluency. This iterative learning process ensured that students produced high-quality spoken content while reinforcing proper pronunciation, fluency, and confidence in their spoken language. The integration of AI-driven feedback allowed students to self-correct, make multiple attempts, and progressively refine their speaking skills, making the learning process more interactive and adaptive.

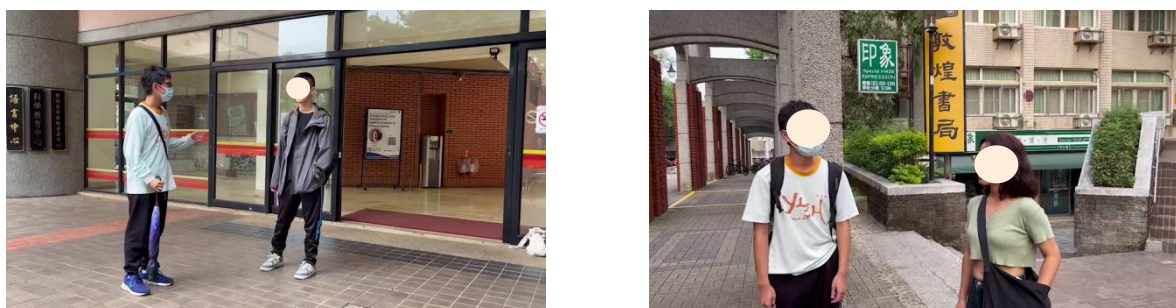


Fig.2 Students Making Short Videos in Authentic Context; Left Side: Two Students Discuss about Teaching Center Building; Right Side: Two Students Discuss about Campus Book Store.

4. Method

4.1. Participant

The study involved 20 first-year university students from a public university in central Taiwan, encompassing diverse educational backgrounds, linguistic proficiency, and cultural perspectives. This diversity provided a robust foundation for evaluating the impact of the short video-making intervention on learners with varying levels of preparedness. Integrated into their first-year academic curriculum, the intervention aligned closely with their educational context, while voluntary participation demonstrated students' genuine interest in improving their EFL writing and speaking skills. This participant composition offered critical insights into how collaborative and authentic tasks can address challenges faced by diverse learners, ensuring the relevance and applicability of the findings to similar educational settings.

4.2. Data Collection and Analysis

The study implemented a structured research procedure consisting of a pretest, study introduction, video planning (script writing), short video creation in authentic contexts, video sharing, posttest, and participant interviews. The pretest and posttest assessed students' EFL writing and speaking skills using a short conversation test and a video description writing task, with evaluations conducted by two English teachers achieving a Cohen's kappa reliability coefficient of 0.782. Creativity, organization, and confidence were assessed using detailed rubrics developed in collaboration with experienced EFL instructors. The rubrics included criteria such as the originality of ideas, logical flow and structure, and self-assurance in delivery, each rated on a 5-point Likert scale. These assessment tools were piloted prior to the study to establish validity and reliability, ensuring alignment with the study's objectives. During the

video-making phase, students collaboratively produced 30-second videos in authentic academic contexts, integrating practical language use, while video sharing facilitated collaborative learning. Video quality was assessed through a questionnaire focusing on EFL writing development, speaking development, and video-making engagement, with a Cohen's kappa value of 0.814, indicating high inter-rater reliability. Combined with qualitative data from participant interviews, these evaluations provided a comprehensive analysis of the intervention's effectiveness in enhancing EFL writing and speaking skills through AI-supported authentic video-making tasks.

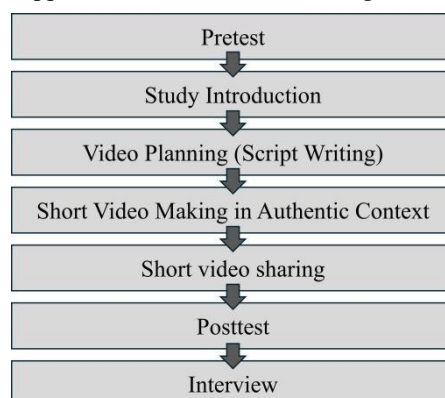


Fig.3 Research Design

The data analysis utilized multiple methods to ensure reliability and accuracy. Descriptive statistics summarized data from pretests, posttests, video scripts, and video quality evaluations. Independent sample t-tests revealed significant improvements in students' EFL writing and speaking skills between pretest and posttest scores. Pearson correlation analysis examined relationships between video quality metrics and skill development, identifying significant correlations between video-making engagement and specific skill areas. The reliability of the creativity, organization, and confidence measures was verified through inter-rater agreement, while the validity was established by aligning the rubrics with established pedagogical frameworks. Cohen's kappa confirmed consistency in assessment and questionnaire ratings. This comprehensive approach, integrating quantitative analysis with qualitative insights, provided a robust evaluation of the impact of authentic short video-making tasks on EFL skill enhancement.

Table 1. Research Variable

#	Variable	Description
1	Pretest/Posttest Score	Measures students' EFL writing and speaking skills before and after the intervention.
2	Development of Writing Skills	Assesses the quality and content of the written script created during video planning.
3	Demonstration of Speaking Skills	Evaluates students' spoken performance during the video-making process.
4	Engagement in Collaborative and Creative Language Use	Analyzes the video quality based on participant engagement.

4. Analysis of Students EFL Writing and Speaking Skills

The analysis of students' EFL writing and speaking skills reveals significant improvement following the implementation of the short video-making intervention (Table 2). Pretest scores ($M = 51.00$, $SD = 2.34$) reflected basic sentence structures, frequent grammatical errors, and limited vocabulary in writing, as well as speaking marked by hesitation, monotony, and restricted lexical choices. Posttest scores ($M = 95.95$, $SD = 2.28$) demonstrated substantial progress, with a statistically significant mean difference of 44.95 ($p < 0.001$). Writing skills showed notable enhancements in complexity, grammatical accuracy, and lexical diversity, while speaking performance improved in fluency, confidence, and expressive range. These results underscore the effectiveness of the intervention in fostering integrated language skills through authentic, iterative video-making tasks.

Table 2. Comparison of Pretest and Posttest Score

	N	Mean	Std. Dev	Sig. (2-tailed)
Pretest	20	51.00	2.340	<0.001
Posttest	20	95.95	2.282	

These findings are consistent with prior research in EFL education. Ouyang (2024) reported significant enhancements in writing and speaking skills through video-based tasks, emphasizing how authentic activities facilitate vocabulary acquisition and communication fluency. Kessler (2018) observed that collaborative video production fosters speaking confidence and grammatical accuracy in writing, with iterative processes such as planning and drafting reinforcing language acquisition. Similarly, Abdolmanafi-Rokni and Qarajeh (2014) demonstrated that video-making improves writing coherence and speaking fluency, supported by multimodal elements that enhance retention and the application of language structures. Huang (2021) highlighted the importance of collaboration and peer feedback in refining writing organization and speaking fluency, while Hafner and Miller (2021) emphasized the role of contextual video projects in fostering purposeful and precise language use. Yeh et al. (2020) further illustrated that project-based video-making promotes critical thinking, writing depth, and speaking clarity, aligning with this study's findings of improved grammatical precision, coherence, and expressiveness. Qualitative data from participant interviews corroborate these findings, with students reporting that scriptwriting expanded their vocabulary and improved sentence structure, while repeated rehearsals boosted confidence and fluency. Peer feedback during rehearsals further refined pronunciation and delivery, demonstrating the effectiveness of video-making in promoting linguistic accuracy and communicative competence, consistent with observed test score improvements.

5. Analysis of Students' Video Quality Toward EFL Writing and Speaking Skills

The analysis of students' video quality in relation to EFL writing and speaking skills revealed significant relationships between key variables, while also highlighting notable limitations (Table 3). A strong correlation was observed between speaking skills demonstrated in video tasks and writing skill development in authentic contexts ($r = .739$, $p < 0.01$), indicating that students who performed well in oral presentations also exhibited higher proficiency in writing. Additionally, engagement in collaborative and creative efforts during video production significantly correlated with speaking skills ($r = .646$, $p < 0.01$), emphasizing the positive impact of collaboration on oral communication abilities. However, no significant correlations were found between posttest scores and video quality metrics, including writing and speaking skill development, collaborative engagement, and creativity. These findings suggest that while video-making activities effectively enhanced isolated skill areas, they did not directly translate into measurable improvements in overall posttest performance, potentially due to external factors such as test design or other mediating influences.

Table 3. Analysis of Students' Video Quality Toward EFL Writing and Speaking Skills

#	(1)	(2)	(3).	(4)
1 Posttest Score	1			
2 Development of Writing Skills	0.190	1		
3 Demonstration of Speaking Skills	0.257	0.739**	1	
4 Engagement in Collaborative and Creative Language Use	0.352	0.250	0.646**	1

***. Correlation is significant at the 0.01 level (2-tailed).*

These findings align with prior research on the benefits and limitations of video-based tasks in EFL learning. Menggo et al. (2022) highlighted that video-based tasks significantly enhance speaking skills through meaningful language use, consistent with this study's findings on improved speaking and collaboration. Göktürk (2016) observed that digital video recordings improved overall speaking performance but had limited impact on fluency, supporting the conclusion that video tasks target specific skills rather than comprehensive outcomes. Similarly, Jiang et al. (2021)

noted that ASR-supported video activities enhanced perceived speaking abilities, though these gains were not consistently reflected in standardized assessments, reinforcing the lack of correlation between video quality and posttest scores. Cahyono and Astuti (2019) emphasized that video tasks fostered creativity and content development in writing, despite limited improvements in grammatical accuracy, highlighting the complementary role of video-based learning alongside traditional methods. Interviews corroborated these findings, with participants reporting improvements in writing organization, vocabulary use, fluency, and confidence. One student stated, "Writing for the videos made me think about how to connect my ideas better," while another noted, "Practicing my lines repeatedly helped me become more confident and fluent." Peer feedback further refined pronunciation and delivery. Some participants, however, cited challenges in balancing creativity and accuracy, which may explain the limited correlation with test scores. These results demonstrate how video-making tasks promote targeted skill development through iterative practice and collaboration.

6. Conclusion

This study demonstrates the efficacy of AI-eSV in enhancing EFL writing and speaking skills, with quantitative results showing significant improvements in grammatical accuracy, lexical diversity, and fluency in both written and oral communication. Significant correlations between video quality metrics and specific language skills further highlight the effectiveness of video-making tasks in fostering targeted linguistic development. Qualitative insights from participant interviews corroborate these findings, with students reporting increased confidence, creativity, and collaborative engagement. However, the small sample size and reliance on standardized assessments limit the generalizability of the findings and may overlook nuanced improvements, such as creativity and authentic language use. Participants also faced technical challenges, such as time constraints and limited equipment access, underscoring the need for enhanced support in future implementations. To address these limitations, future research should include larger, more diverse samples, multidimensional assessment tools, and longitudinal designs to evaluate the sustained impact of such interventions. Integrating advanced technologies, such as automated feedback systems and adaptive learning platforms, could further optimize instructional design, ensuring scalability and accessibility across varied educational contexts. By fostering integrated language development through real-world engagement, AI-driven authentic video-making aligns with communicative language teaching principles and equips learners with essential skills for effective communication, paving the way for innovative, collaborative, and learner-centered methodologies in EFL education.

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