A Case Study on Generative AI-empowered Teaching of Vietnamese as a Foreign Language

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Abstract: This study aims to explore the potential applications of generative artificial intelligence (Generative AI - Gen AI) in enhancing the effectiveness of teaching Vietnamese for foreigners. The research methods employed include experimental design to create study samples (lessons, assessment tests) using various Gen AI tools, a combination of quantitative and qualitative methods to survey learner feedback, and an analysis of the effectiveness of selected Gen AI tools in Vietnamese language teaching. The results demonstrate the efficacy of using Gen AI tools combined with the SCAMPER model to develop ideas and contents for teaching Vietnamese as a foreign language, automating lesson planning, creating multimedia materials, and building a system for assessing Vietnamese language proficiency. Based on these findings, the study proposes a process for integrating Gen AI into teaching Vietnamese for foreigners, with an initial application scope at Thai Nguyen University of Education.

Keywords: Generative AI; Vietnamese as a foreign language; teaching Vietnamese; Vietnamese proficiency; SCAMPER technique

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1 Introduction

In the digital era, the development of generative AI (Gen AI) has revolutionized education, particularly in language teaching. Recent studies have provided new insights into AI applications in digital transformation, especially in educational technology, supporting teachers in lesson preparation, question generation, content suggestions, and answering queries, thereby optimizing teaching and assessment processes. Luckin (2018) compares AI to a "conductor" orchestrating a "symphony of knowledge," helping learners systematically access information. Warschauer (2020) emphasizes Gen AI's role as a "map and guide," offering personalized learning paths and supporting learners in exploring language according to their needs. Wei Xu, Xiaoxiao Wang & Chee-Kit Looi (2021) liken AI to an "architect" designing curriculum frameworks, while Gen AI acts as an "interior designer" to personalize learning experiences. Gwo-Jen Hwang et al. (2020) describe the combination of AI and Gen AI as creating a "symphony of knowledge," enabling learners to acquire language naturally and effectively. In language education, Gen AI is not only a support tool but also an "intelligent teaching assistant," capable of automatically generating lessons tailored to learners' levels, building automated grading systems, and developing 24/7 chatbots to answer questions (Huang et al., 2022); creating diverse question banks and automated grading systems (Chen & Li, 2021); analyzing pronunciation and grammar errors (Wang et al., 2023); and providing immediate feedback (Luckin, 2023).

Amidst the rapid development of AI technology, integrating the creative thinking technique SCAMPER (Eberle, 1971) with Gen AI tools (such as ChatGPT, Claude, Gemini) is opening new directions in language education. Globally, preliminary studies highlight the significant potential of this combination. Gustavo et al. (2023) demonstrated that applying the SCAMPER technique with ChatGPT helps high school students in Brazil significantly improve creative writing skills in English

classes. Similarly, Ruangjaroon & Techataweewan (2023) in Thailand implemented a writing teaching model using SCAMPER to stimulate ideas, combined with AI for feedback and editing. The British Council's EdTech Labs (2023) also experimented with integrating SCAMPER into second-language conversation practice using Gen AI, showing positive results in expanding language reflexes and dialogue adaptability. Overall, integrating SCAMPER and Gen AI shows promise in developing critical thinking, creativity, and personalized learning for language learners. However, to maximize effectiveness, further research is needed on activity design, teacher training, and the development of teaching tools tailored to diverse learner groups, especially foreigners learning Vietnamese.

Vietnam is becoming an attractive destination, attracting over 5 million foreigners (General Statistics Office, 2023), leading to a growing demand for Vietnamese language learning. However, teaching Vietnamese as a foreign language currently faces three main challenges:

(1). Linguistic characteristics of Vietnamese: The complex tone system (6 tones) makes it difficult for learners, especially speakers of non-tone languages; Vietnamese syntax is flexible but difficult to grasp, for example: the difference between "I eat rice" and "Rice I eat"; polysemous words and regional dialects.

(2). Lack of digital support tools: Only 12.0% of training institutions use AI (Ministry of Education & Training, 2023). Most teachers still rely on traditional methods, underutilizing tools like ChatGPT, Bing AI, or other AI content platforms.

(3). Subjective assessment: Variance among teachers' assessments can reach 23% (VIETEST, 2022). There is a lack of automated systems for grading pronunciation and grammar.

Thus, the research context highlights the significant potential of Gen AI in addressing these challenges in teaching Vietnamese as a foreign language.

This study aims to experimentally develop research samples using selected Gen AI tools, analyze their effectiveness in automating lesson design, creating multimedia materials, and building a system for assessing Vietnamese language proficiency for foreigners. It then proposes models for applying Gen AI tools combined with the SCAMPER technique to develop ideas and content for teaching Vietnamese as a foreign language and suggests a process for integrating Gen AI into teaching and assessing Vietnamese language proficiency at Thai Nguyen University of Education.

2 Research method

This study employed the following methods:

- Experimental method: Used to create research samples (lessons, assessment tests) with selected Gen AI tools to evaluate their effectiveness in automating lesson design, creating multimedia materials, and building a Vietnamese language proficiency assessment system.

- Quantitative and qualitative methods: Used to survey learner feedback and analyze the effectiveness of selected Gen AI tools in Vietnamese language teaching.

The research samples (lessons, assessment tests) were coded as [Mnc + serial number]. A total of 20 samples were created, coded from [Mnc01] to [Mnc20]. Corresponding prompts used in the study were coded as [Pr + serial number], sequentially from [Pr01].

The survey sample included 21 foreigners from Laos, Mongolia, Mozambique, and Mexico enrolled in the Vietnamese Language Class K59B at Thai Nguyen University of Education.

3 Research results

3.1 Experimental development of research samples (lessons, assessment tests) using popular Gen AI tools

3.1.1 Basis for sample development

The research samples were developed using popular Gen AI tools such as ChatGPT, Gemini, DeepSeek, Copilot, Canva AI, Quizizz AI, HeyGen AI, and AI Form Builder. These tools were selected based on criteria such as popularity, user interaction flexibility, content generation capability suitable for language education, integration into digital teaching environments, and direct support for creating materials, lessons, and assessments.

The theoretical foundation for sample development was the integration of the communicative approach in language

teaching with the SCAMPER model to promote creative thinking in teaching Vietnamese as a foreign language.

All samples were designed based on the content of Lesson 2 -- Culture (topics: Vietnamese Lunar New Year customs, Temple of Literature -- Imperial Academy, grammar structures, vocabulary, and sentence patterns at Level B2). This lesson included vocabulary on cultural topics, grammar related to emotional verbs, common sentence patterns, dialogues, reading passages, and exercises for listening, speaking, reading, and writing skills.

The exercises and assessment tests were developed in compliance with the Vietnamese Language Proficiency Framework for Foreigners issued under Circular No. 17/2015/TT-BGDĐT.

3.1.2 Sample development process

The experimental process for developing research samples involved four steps:

Step 1: Define the objective of each sample. The samples were designed to simulate typical pedagogical activities such as lesson planning, creating electronic lessons, designing exercises based on proficiency levels, developing tests for four skills (listening, speaking, reading, writing), creating multimedia materials (video clips, images), and designing assessment forms.

Step 2 : Set up prompts. Each AI tool is provided with specific prompts, including: [AI's role], [implementation context], [output requirements], and [illustrative examples]. The prompts were designed using prompt engineering techniques suitable for teaching Vietnamese as a foreign language.

Step 3 : Execute with Gen AI. The AI tools were used according to technical guidelines to generate content (e.g., Canva AI for slides illustrating Vietnamese culture, Quizizz AI for reading quizzes about Tet customs, Gamma AI for automated slides on traditional Vietnamese festivals, ChatGPT and Gemini for Vietnamese proficiency tests).

Step 4 : Review, adjust, and store. The products, in the form of research samples, were reviewed, adjusted, coded, and stored in folders for later analysis.

3.1.3 Results of research sample development

A total of 20 products/samples were developed using popular Gen AI tools, based on the content of Lesson 2 -- Culture (topics: Vietnamese Lunar New Year customs, Temple of Literature -- Imperial Academy, grammar structures, vocabulary, and sentence patterns at Level 4). The products were divided into four functional groups:

1. Automated lesson products [Mnc01 -- Mnc09]
2. Learning material products [Mnc10 -- Mnc12]
3. Automated exercises and quiz questions [Mnc16]
4. Vietnamese proficiency assessment test products[Mnc13 -- Mnc15], [Mnc17 -- Mnc20].

3.1.4 Evaluation of advantages and limitations of selected Gen AI tools from experimental sample development

Integrating AI tools into Vietnamese language teaching helps instructors save time on lesson preparation, generates diverse content, and allows for manual adjustments to suit lesson objectives and learner levels. Gen AI serves as a creative inspiration source, supporting flexible and effective question and test design.

Despite its advantages, Gen AI has limitations, such as content that may lack pedagogical depth, requiring manual adjustments for classroom contexts. Some tools also have constraints regarding cultural imagery, language, and require users to have effective prompt-building skills and clear teaching objectives.

Based on the analysis of the samples/products created by Gen AI tools, preliminary evaluations of the advantages and limitations of the tools used in this study are as follows:

Tools	Main application	Advantage	Limitation
GPT Chat	Design lessons; create exercises and questions	- Create content quickly and in detail (vocabulary, grammar, conversations, exercises) with clear prompts. - Flexible, easy to edit and expand the script.	- The result is mostly pure text, lacking visuals, requiring additional image/ design editing. - Depends on prompt quality (needs detail, specificity).

Gemini	Design lessons; create exams	- Propose logical lesson structure, large working space, maintain continuous content flow. - Create test questions that closely follow the Vietnamese Language Proficiency Framework.	– Need complex, detailed prompts to get good results – Lack of deep pedagogical elements, illustrations need further correction
Quizizz AI	Convert content into quiz games, interactive exercises	- Quickly turn content into games/interactive learning. - Automatically generate interference options and adjust difficulty based on learner feedback.	- Questions need to be reviewed and edited to ensure clarity and appropriateness to the objectives. - Limited in assessing higher order thinking skills.
AI Form Builder	Create quizzes and multiple choice questions	- Suggest diverse questions, create a rich question bank	- Some questions are not convincing and need manual correction.
Gamma	Create lesson slides automatically	- Slide creation speed is very fast (3–10 minutes for basic slide set). Friendly drag and drop interface, many available templates.	– Pedagogical content and default knowledge are still rudimentary, needing lessons to deeply edit content and design.
Canva AI	Create lesson slides; text- to- image illustrations	- Lots of templates, text- to- image create creative illustrations that fit the context. - Easy to operate, no need for specialized design skills.	– Limited image library, need to be carefully selected for cultural appropriateness; illustration prompt needs further adjustment.
D- ID	Create video avatar	- Quickly create simple, engaging videos with moving images and sound. - Useful for illustrating dialogues, listening scripts.	- Vietnamese voice is still mechanical, intonation is not natural; avatar lacks subtle expression; need to use other tools to improve sound.

Table 1. Evaluation of advantages and limitations of selected Gen AI tools

from experimental sample development

3.2 Survey of learners' feedback on the experience of lessons and Vietnamese proficiency tests using Gen AI tool

3.2.1 Survey design

Survey purpose: To evaluate the effectiveness of Gen AI tools in supporting Vietnamese language teaching and learning for foreigners and to collect feedback on learners' experiences with Gen AI-assisted lessons.

Survey method: Combined quantitative questions using a Likert scale (1-5: Very dissatisfied; Dissatisfied; Neutral; Satisfied; Very satisfied) and qualitative open-ended questions to understand learner needs and experiences with AI-supported learning.

Survey tool: A multilingual questionnaire (Vietnamese, English, Lao) on Google Form.

Survey content

(1) Lesson evaluation: Clarity and engagement of Gen AI-assisted lessons.

(2) Satisfaction with Gen AI tools.

(3) Preferred Gen AI tools: Select up to 3 tools (ChatGPT, Gemini, DeepSeek, Canva AI, etc.).

(4) Improvement suggestions: Open-ended questions on areas needing improvement in Gen AI-assisted lessons.

Survey sample: 21 international students from Vietnamese Language Class K59B, Thai Nguyen University of Education, including students from Laos (52.4%), Mongolia (33.3%), Mozambique (9.5%), and Mexico (4.8%).

3.2.2 Survey process

The survey process was rigorously implemented through the following steps:

Step 1: Preparation

Before the class, instructors informed foreigners about the learning content, noting that lessons, materials, and exercises were developed with Gen AI support. Learners were asked to focus on the lesson content under instructor`s guidance.

Step 2: Data collection

Conducted via Google Form. The survey link was shared via Zalo group with detailed instructions. Explanations were provided in class if needed. Data collection took place on May 12, 2025, immediately after learners experienced the Gen AI-assisted lesson and proficiency test.

Step 3: Analysis

Quantitative results were provided by Google Form in percentages based on learner responses. Qualitative results were analyzed based on open-ended responses and keywords (e.g., "PPT hard to read" appeared 5 times). The process ensured objectivity (anonymous responses) and transparency (clear purpose of data use).

3.2.3 Survey results and analysis

(a) Evaluation of lesson clarity

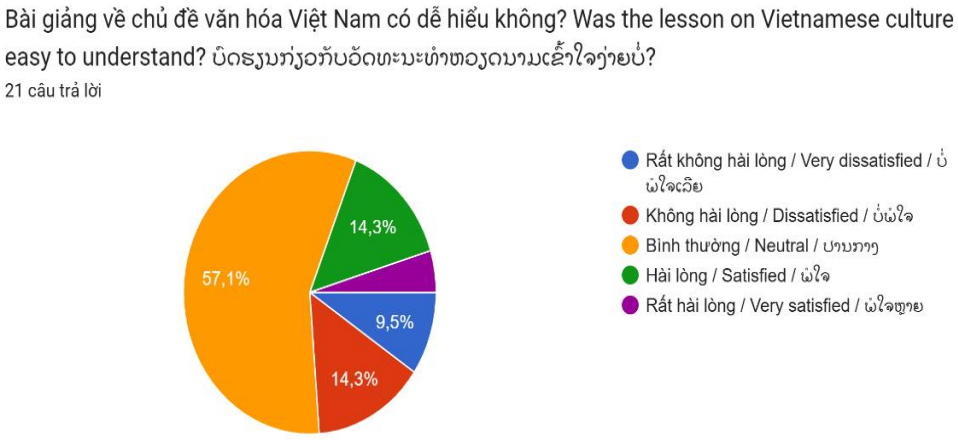

Chart 1. Evaluation of lesson clarity

(b) Evaluation of lesson engagement

Chart 2. Evaluation of lesson engagement

(c) Satisfaction with Gen AI tools

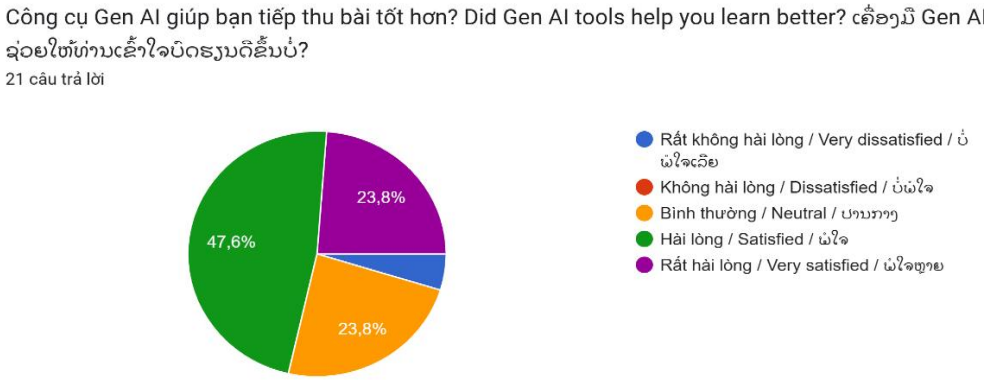

Chart 3. Evaluation of satisfaction with Gen AI tools

(d) Preferred Gen AI tools

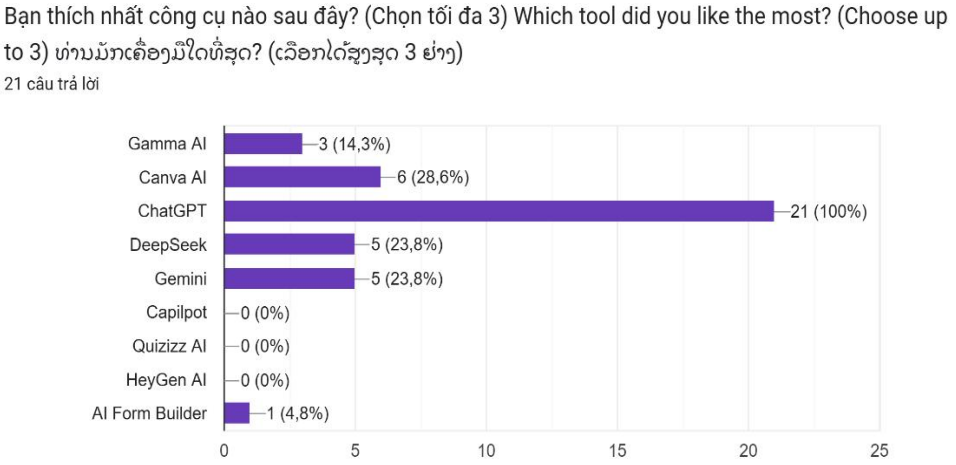

Chart 4. Preferred Gen AI tools

The survey results show that foreigners did not highly rate the clarity of Gen AI-assisted lessons, with 57% finding them "Neutral" [Chart 1]. However, 70% expressed interest in Gen AI-assisted lessons [Chart 2], and 71.4% felt that Gen AI support improved their learning [Chart 3]. ChatGPT was the most preferred Gen AI tool (100%), followed by Canva AI, DeepSeek, and Gemini [Chart 4].

To create high-quality lessons and materials, instructors must optimize prompts ([Pr01]--[Pr07]) to improve Gen AI output quality. While Gen AI has great potential in Vietnamese language teaching, lesson design must cater to diverse learner levels and styles. Some limitations of Gen AI-generated products highlight that technology supports but cannot fully replace the pedagogical role of instructors.

4 Discussion

4.1 Creative method with Gen AI tool in teaching Vietnamese to foreigners using SCAMPER technique

In modern education, teaching Vietnamese as a foreign language requires flexibility and creativity to meet diverse learner needs. Traditional methods face limitations in lesson preparation and assessment. By applying Gen AI and SCAMPER as a creative thinking technique, instructors can optimize teaching processes, personalize content, and enhance learning experiences for foreigners.

Some SCAMPER + AI solutions include:

(1). Substitute → Replace rigid textbooks with AI-generated, up-to-date content.

- Problem: Traditional textbooks are difficult to update and lack vitality.
- AI solution: Use ChatGPT or Gamma.app to create automated slides.
- E.g.: "Vietnamese Lunar New Year customs"; Canva AI for contextual illustrations.

(2) Combine → Integrate AI to create multimedia teaching materials (text, video, quizzes).

- Problem: lessons based only on paper documents make learners easily bored.

- AI solution: Combine text, audio, and quizzes on one platform.

- E.g.: Tome AI for interactive lessons; Runway AI to convert readings into animated videos.

(3) Modify → Use AI to adjust exercises & personalize assessments for learners.

- Problem: Students have different levels but receive the same exercises.

- AI solution: ChatGPT adjusts exercise difficulty based on learner levels.

- E.g.: A1: simple sentences; B2: complex sentences; Perplexity AI analyzes learner feedback for additional content suggestions.

(4) Eliminate → Remove redundant content, focusing on essentials.

- Problem: Traditional tests don't measure real-world skills.

- AI solution: Kahoot AI generates quizzes from lesson content; Speechify grades pronunciation via learner recordings.

(5) Reverse → Experiment with AI-supported flipped classrooms for self-paced learning.

- Problem: Passive classroom, teacher-centered.

- AI solution: Learners study via AI-generated videos (Synthesia) before class discussions; ChatGPT acts as a virtual assistant for after-class queries.

Applying AI with SCAMPER not only addresses traditional teaching limitations but also opens new approaches to teaching Vietnamese as a foreign language—flexible, creative, and learner-centered. To implement this effectively, instructors should select AI tools aligned with lesson objectives, systematically apply SCAMPER, and continuously update feedback from learners.

4.2 Advantages, challenges, and expected outcomes

Integrating Gen AI into teaching Vietnamese to foreigners offers advantages such as saving time on lesson preparation and grading, enabling 24/7 practice with AI, and personalizing learning paths through data analysis. However, challenges include Gen AI's limited understanding of Vietnamese cultural contexts, difficulties in recognizing regional accents, and costs for high-quality software.

Expected outcomes include a 30-50% increase in learning speed due to regular AI practice, instructors focusing on advanced skills rather than basic error correction, and the creation of a diverse, accessible Vietnamese language resource repository.

During implementation, balance between Gen AI and human roles is crucial - AI should support, not replace, instructors. Ensure AI accuracy, protect learner data, and update technology to leverage new Gen AI models, especially multimodal AI. Integrating Gen AI into teaching and assessing Vietnamese language proficiency for foreigners, aligned with the Vietnamese Language Proficiency Framework for Foreigners, offers transformative opportunities in language education. However, adherence to Circular No. 17/2015/TT-BGDĐT and close collaboration with traditional teaching methods are essential for effectiveness, relevance, and sustainability.

5 Conclusion and recommendations

Integrating generative AI tools into teaching and assessing Vietnamese as a foreign language holds significant pedagogical and technological potential. The study confirms that Gen AI-generated content—from conversational exercises to adaptive assessments—can meet diverse learner needs and support higher-order thinking skills. Notably, lesson designs based on the SCAMPER technique combined with Gen AI stimulate creativity, critical thinking, and autonomous learning.

The results show that integrating Gen AI into teaching Vietnamese as a foreign language not only saves instructors' time and effort but also innovates learner-centered, personalized teaching methods. Gen AI's ability to create materials across six proficiency levels (A1 to C2), design flexible lessons, and provide immediate feedback can enhance self-learning and self-assessment.

However, to ensure Gen AI effectively supports teaching and assessing Vietnamese language proficiency for foreigners, instructors must master high-quality prompt-building skills, multimedia material design, and the ability to analyze and adjust AI-generated products. Therefore, teacher training programs should integrate technological

competencies—especially generative AI applications—into professional development for Vietnamese language instructors.

Beyond these contributions, the study highlights challenges for future research. Personalizing materials and assessments via Gen AI still heavily depends on input prompt quality. Additionally, AI-generated voice and intonation in videos or audio lack the standards required for tonal languages like Vietnamese, potentially impacting listening and speaking practice. Future research should focus on developing Gen AI tools specialized for Vietnamese, integrating phonetics, semantics, and local culture while building instructors' AI pedagogical competencies.

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