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GenAI-Enabled Project-Based English Teaching Design for Intangible Cultural Heritage in Higher Vocational Education: A Case Study of Chinese Paper-Cutting

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Abstract

Against the backdrop of globalization and China's "vocational education going global" strategy, English instruction in higher vocational education must balance the development of practical language competence with the mission of promoting Chinese culture internationally. However, traditional instructional models have proven insufficient in meeting these dual objectives. This study takes Chinese paper-cutting, a representative form of intangible cultural heritage (ICH), as its thematic focus and explores the integration of Generative Artificial Intelligence (GenAI) with Project-Based Learning (PBL) in higher vocational English instruction. It proposes a practice-oriented instructional design framework centered on the goal of "telling the story of Chinese paper-cutting well in English." The study targets first-year non-English majors in higher vocational institutions. Drawing on domestic large language models such as DeepSeek, Doubao, and KIMI, the research develops a comprehensive teaching design encompassing: (1) instructional objectives across four dimensions—knowledge acquisition, skill development, collaborative communication, and learning competence; (2) project scenario design, including a simulated interview transcript with master paper-cutting artist Shen Songbai, planning experiential activities for international visitors, and producing English short videos; (3) AI-supported project implementation, covering information retrieval, terminology translation, and script generation; and (4) multimodal presentation and assessment, incorporating automated formative evaluation and human–AI collaborative feedback mechanisms.

The findings suggest that GenAI effectively alleviates teachers' workload in scenario creation, task design, and process evaluation, while providing students with personalized and cross-cultural language learning support. The integration significantly enhances students' comprehensive English proficiency, awareness of ICH dissemination, and teamwork competencies, thereby achieving an organic integration of the instrumental function of language learning and its broader cultural-educational role in vocational English education. Nevertheless, the study also identifies several limitations, including insufficient comparative analysis of output quality across different GenAI models and limited depth in cultural interpretation. Future research may explore multimodal GenAI integration, expand empirical sample sizes, and further refine human–AI collaborative assessment systems to provide more robust pedagogical guidance for ICH-oriented vocational English instruction in the intelligent era.

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Keywords
Generative Artificial Intelligence (GenAI); Higher Vocational English; Intangible Cultural Heritage (ICH); Project-Based Learning (PBL)

1. Introduction

Amid accelerating globalization and increasingly frequent cross-cultural exchanges, English, as an international lingua franca, plays a crucial role in higher vocational education by enhancing students' professional language competence and intercultural communication skills. The English Curriculum Standards for Higher Vocational Education (2021 Edition) explicitly emphasize core competencies such as workplace-related foreign communication and multicultural interaction, and call for cultivating students' ability to "tell China's stories well in English and promote Chinese culture globally" [1]. This policy directive provides a clear orientation for reform in vocational English teaching. At the same time, national strategies promoting the global expansion of vocational education—such as the Education Action Plan for Jointly Advancing the Belt and Road Initiative and the Opinions on Promoting the High-Quality Development of Modern Vocational Education—explicitly encourage cooperation between Chinese vocational institutions and overseas partners. These policies aim to cultivate professionals equipped with both technical expertise and intercultural competence, thereby creating institutional support for the international dissemination of intangible cultural heritage (ICH) through vocational education platforms [2][3]. Despite these favorable policy conditions, traditional English teaching models in vocational institutions remain relatively rigid and content-limited, making it difficult to meet students' evolving professional needs and the broader demands of the times.

As a vital component of China's cultural legacy, intangible cultural heritage embodies rich cultural meanings and distinctive artistic value. Integrating ICH elements into higher vocational English instruction can stimulate students' interest, strengthen cultural confidence, and enhance intercultural communicative competence. Project-Based Learning (PBL), which emphasizes student-centered inquiry through the planning and implementation of authentic projects, cultivates learners' ability to apply knowledge comprehensively to solve real-world problems while fostering teamwork skills [4]. The emergence of Generative Artificial Intelligence (GenAI) offers new opportunities for ICH-oriented English teaching in vocational education. With its strong capabilities in language generation and knowledge integration, GenAI can provide abundant resources and creative support for instructional design, enabling teachers to construct more dynamic and effective ICH-focused English classrooms. In doing so, it facilitates the organic integration of the instrumental function of language learning with its broader cultural-educational mission [5].

2. The Necessity of Integrating PBL-Based ICH English Teaching with Generative AI

2.1 Challenges in Designing Project-Based English Instruction

Within foreign language education, PBL emphasizes authenticity of learning contexts, immersive situation-

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al engagement, and meaningful teacher–student interaction. However, in practice, vocational English teachers often encounter multiple challenges when designing project-based instruction. These challenges can be summarized into four major areas.

First, there is often a lack of innovation in scenario construction. Effective PBL requires teachers to design authentic contexts that closely relate to students' real-life experiences. In practice, however, scenario design frequently lacks motivational depth and creative engagement, which directly affects student participation and overall instructional effectiveness.

Second, the formulation of project objectives demands a high level of professional expertise. Teachers must thoroughly analyze instructional content while simultaneously considering students' language proficiency, learning needs, institutional resources, and program orientations. Establishing scientifically grounded project objectives therefore requires strong analytical skills and sound professional judgment.

Third, the design of scaffolding activities is inherently complex. PBL activities must be clearly goal-oriented, logically sequenced, and multidimensional. Teachers are required to carefully structure each instructional stage, ensure coherence among subtasks, and provide sufficient language input and developmental opportunities. This process places considerable demands on teachers' time and cognitive resources.

Fourth, timely formative assessment and feedback are essential yet challenging. During project implementation, teachers must continuously monitor and collect evidence of student learning, analyze outcomes within limited time frames, and provide effective feedback. This requires not only professional competence but also thoughtful design and implementation of evaluation criteria.

In summary, high-quality PBL instructional design constitutes a systematic endeavor that integrates theoretical depth with pedagogical innovation, placing substantial demands on foreign language teachers' comprehensive competencies.

2.2 The Necessity of Empowering Project-Based English Teaching with Generative AI

Since the emergence of ChatGPT, a growing body of research has demonstrated the application potential of generative AI in vocational English education. Some scholars have applied ChatGPT to vocational English writing instruction, finding that it supports improvements in content development, structural organization, and linguistic expression [6]. These studies highlight GenAI's capacity to provide personalized and differentiated learning support. Other researchers have explored the use of large language models (LLMs), such as ChatGPT and Claude, to reconstruct reading course content and pedagogical approaches in vocational English education [7]. Findings suggest that LLMs are capable of analyzing complex sentence structures and narrative patterns within texts, thereby enhancing reading comprehension instruction. Additional studies have incorporated GPT-4 into PBL-oriented instructional design, using it for scenario construction, language task development, and the analysis of student learning samples [8]. Collectively, these studies demonstrate that LLMs—represented by ChatGPT—possess notable advantages in processing and interpreting language input materials, generating instructional activities, and supporting learning assessment. These insights provide valuable references for empowering vocational English education through generative AI. Nevertheless, there remains a lack of research integrating LLMs into authentic instructional designs specifically focused on intro-

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ducing Chinese ICH in English. Few studies have examined how human–AI collaboration can be structured to create a comprehensive, feasible, and process-oriented vocational English teaching framework centered on traditional Chinese culture. In response to this gap, the present study explores the application of multiple domestic large language models to various stages of PBL design, including scenario construction for language output tasks, learning objective formulation, task development, and assessment indicator generation. By leveraging the complementary strengths of human expertise and AI capabilities, this study aims to enhance the scientific rigor and innovative quality of instructional design and thereby empower vocational English education in the intelligent era.

3. A Case Study of Generative AI–Assisted Project-Based English Instruction for Intangible Cultural Heritage

3.1 Instructional Design Context

The author teaches a public foundational English extension module—Introducing Chinese Intangible Cultural Heritage in English—to first-year non-English majors at a higher vocational institution. This study selects Chinese paper-cutting as the thematic focus and collaborates with Generative Artificial Intelligence (GenAI) to design a four-session project-based instructional unit. Centered on the project task of "introducing Chinese paper-cutting in English," the instructional design aims to enhance students' integrated English skills in listening, speaking, reading, and writing. At the same time, it seeks to cultivate students' ability to tell Chinese cultural stories in English, promote China's outstanding traditional culture internationally, and strengthen their sense of cultural pride and identity.

3.2 Design of the Objective Framework

In accordance with the principles of Project-Based Learning (PBL), the first step in instructional design involves constructing a comprehensive objective framework aligned with the selected theme. Compared with traditional language courses, iPBL (integrated Project-Based Learning) courses adopt a more multidimensional set of learning objectives, encompassing four domains: knowledge objectives, skill objectives, collaboration and communication objectives, and learning competence objectives [9]. To formulate these objectives, the instructor provided structured prompts to several domestic large language models, including DeepSeek, Doubao, and KIMI. By synthesizing and refining the outputs generated by these models, a consolidated and context-appropriate set of instructional objectives was developed.

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Table 1

Prompt	
Assume you are an English instructor at a vocational and technical college teaching a public English course with a cultural extension module titled Introducing Intangible Cultural Heritage in English. One of the themes is Chinese paper-cutting. The course adopts a Project-Based Learning (PBL) approach. Please generate the course objectives, including knowledge objectives, skill objectives, collaboration and communication objectives, and learning competence objectives	
Model-Generated Objectives	
Objective Category	Specific Objectives
Knowledge Objectives	1. Develop a solid command of English vocabulary and sentence structures related to Chinese paper-cutting, including its history, classifications, production techniques, and cultural symbolism (e.g., "originate from," "folk customs," "paper-cut patterns"). 2. Understand the structure and logical organization of English expository texts and learn to use cohesive devices—such as connectors and transitional sentences—to enhance coherence and fluency.
Skill Objectives	1. Demonstrate the ability to independently complete tasks related to the theme of paper-cutting, including writing descriptive texts, delivering oral presentations, and recording English voice-overs for videos. 2. Learn to use generative AI tools for information retrieval, text generation, content refinement, and creative brainstorming to support effective project implementation.
Collaboration and Communication	1. Work collaboratively in groups to complete a paper-cutting–themed project, including research, preparation, and final presentation, thereby strengthening teamwork skills. 2. Enhance English communication skills through group discussions, presentations, and interactive exchanges with peers and instructors.
Learning Competence	1. Develop the ability to collect and synthesize information about paper-cutting from diverse sources, such as books, websites, interviews, and AI-assisted tools. 2. Engage in reflective learning by evaluating personal strengths and areas for improvement in both English language skills and understanding of Chinese intangible cultural heritage.

3.3 Project Preparation and Initiation Phase: Topic Selection and Group Formation Under Teacher Guidance

During the project preparation and initiation phase, the instructor plays a facilitative role by first identifying and listening to students' interests, then collaboratively refining potential project topics and providing formative feedback. Students, working either individually or in groups, are required to consult relevant sources, propose preliminary project topics, and articulate their intentions. Final project themes are determined through teacher–student consultation to ensure both academic rigor and practical feasibility. At this stage, generative artificial intelligence can be effectively utilized to support topic development. By submitting structured prompts to multiple large language models, the instructor can generate a range of potential project themes aligned with course objectives. After comparing the outputs of several models, it was found that the results generated by Doubao were more closely aligned with students' language proficiency levels and the practical realities of the classroom context. From these AI-generated suggestions, three project scenarios were selected as particularly suitable for implementation.

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Table 2

Prompt
Assume you are an English instructor at a vocational and technical college responsible for the cultural extension module of a public foundational English course. In the thematic unit on Chinese paper-cutting, the Project-Based Learning (PBL) approach is adopted. Please design several concrete and context-rich instructional projects. Special note: The institution is home to the nationally and internationally renowned paper-cutting master Shen Songbai.
Model-Generated Project Scenarios
Project 1: "An Interview with Master Shen Songbai on the Art of Paper-Cutting and Its English Documentation" **Project Context:** The college plans to produce an English-language promotional brochure on Chinese paper-cutting culture, which will feature the artistic journey and creative philosophy of Master Shen Songbai. As a practical component of the cultural extension module, students will work in groups to conduct an interview with Master Shen and compile an English transcript and narrative account. The final product will serve as core material for the promotional publication.
Project 2: "Designing a Paper-Cutting Cultural Experience for International Visitors—Centered on the Techniques of Master Shen Songbai" **Project Context:** The local Bureau of Culture and Tourism intends to launch an "Intangible Cultural Heritage Paper-Cutting Experience Day" and has invited the college to serve as a partner institution. Highlighting the distinctive techniques of Master Shen Songbai, the event aims to attract international tourists. Students will work in groups to design a comprehensive activity proposal, including an English-language program outline and simplified instructional guidelines in English for teaching basic paper-cutting techniques.
Project 3: "Producing an English Short Video on Paper-Cutting Culture: Folk Narratives Reflected in Master Shen Songbai's Works" **Project Context:** The college's official English-language short-video platform plans to launch a series titled "Chinese Stories in Intangible Cultural Heritage Paper-Cutting," with the inaugural episode focusing on the folk traditions embedded in Master Shen Songbai's works (e.g., symbolic meanings of paper-cutting designs for the Spring Festival or wedding celebrations). Students will collaborate in groups to develop a 1–2 minute English video script and complete the filming and editing process.

Based on the three proposed project scenarios, students selected one project according to their individual interests and English proficiency levels. They then formed three corresponding groups to carry out the selected tasks.

3.4 Project Implementation Phase: Data Collection, Analysis, and Production of Project Outcomes

During the implementation phase, large language models (LLMs) were employed to generate task-specific instructions aligned with each project scenario. In addition to outlining concrete task procedures, Doubao also identified targeted English skill foci, specifying the particular language competencies students would develop through each activity.

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Table 3

Project	Project Context	Task	Focus
Interview with Master Shen Songbai on the Art of Paper-Cutting and Its English Documentation **Project Context**	The college plans to produce an English-language promotional brochure on paper-cutting culture, which will include the artistic journey and creative philosophy of Master Shen Songbai. As a practical component of the cultural extension module, students will work in groups to conduct an interview with Master Shen and compile the content in English, providing core material for the brochure.	1. Collaboratively design a bilingual (Chinese–English) interview outline covering Master Shen's artistic career, distinctive paper-cutting techniques, the cultural symbolism of representative works, and his advice for younger generations regarding the inheritance of the craft. 2. Schedule and conduct the interview with Master Shen, audio- or video-recording the session with prior consent and documenting key information. 3. Organize the interview content into a polished English manuscript that is linguistically accurate and fluent, highlighting both the master's artistic characteristics and the cultural connotations of paper-cutting. For example: "Mr. Shen's paper-cutting works integrate traditional folk patterns with modern aesthetics, as seen in his 'Dragon and Phoenix' series, which symbolizes harmony and prosperity." 4. Incorporate images of Master Shen's works with concise English captions to produce a preliminary illustrated interview transcript.	English narration writing; oral English expression (including pronunciation and fluency); intercultural communicative response skills (e.g., addressing questions from international students).
Designing a Paper-Cutting Cultural Experience for International Visitors—Centered on the Techniques of Master Shen Songbai	The local Bureau of Culture and Tourism plans to launch an "Intangible Cultural Heritage Paper-Cutting Experience Day" and has invited the college to serve as a partner institution. Featuring the distinctive techniques of Master Shen Songbai, the event aims to attract international visitors. Students will work in groups to design an activity plan, including an English-language program outline and simplified instructional guidelines for teaching basic paper-cutting skills.	1. Study Master Shen's foundational techniques (e.g., symmetrical cutting, yin-cutting and yang-cutting) and master the English expressions for key procedural steps, such as *"fold the paper along the dotted line"* and *"cut along the outer edge first."* 2. Design the activity flow (including registration, demonstration of techniques, visitor participation, and group photo session) and compose a clear English program description to ensure comprehensibility for international visitors. 3. Create English labels for tools (e.g., scissors, colored paper) and develop step-by-step English instructional guidelines—with illustrative diagrams—for three to five basic paper-cutting patterns (e.g., five-pointed stars, flowers). 4. Simulate the event setting by guiding "visitors" in English through the activity, evaluate feasibility, and revise the plan based on feedback.	English activity proposal writing; procedural instructional writing; practical spoken English (giving instructions and answering questions).

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Producing an English Short Video on Paper-Cutting Culture—Folk Narratives Reflected in Master Shen Songbai's Works	The college's official English-language short-video platform plans to launch a series titled "Chinese Stories in Intangible Cultural Heritage Paper-Cutting." The inaugural episode will focus on the folk traditions embedded in Master Shen Songbai's works (e.g., the symbolism of Spring Festival and wedding paper-cut designs). Students will collaborate in groups to create a 1–2 minute English short video script and complete the filming and editing process.	1. Select three to five of Master Shen's works related to folk customs (e.g., *"Abundance Year After Year"* and *"Double Happiness"* designs), conduct background research, and confirm with the master the associated folk stories and symbolic meanings. 2. Write an English short-video script including narration (explaining the relationship between the artwork and folk traditions) and subtitles (highlighting key vocabulary and sentences). For example: *"In Chinese weddings, red paper-cuts of 'double happiness' are essential decorations, representing the couple's love and good fortune, as shown in Mr. Shen's work."* 3. Film relevant footage (e.g., studio environment, close-ups of artworks, scenes of the master at work) and integrate English narration and subtitles during the editing process. 4. Present the video in class, collect feedback for revision, and recommend outstanding works for publication on the college's official platform.	English scriptwriting; English voice-over recording; intercultural narrative competence (explaining folk traditions in concise and accessible English).

After grouping, each team initiated its preparatory work in accordance with the assigned tasks. Throughout this stage, the instructor organized mini-workshops to provide targeted guidance on the effective use of LLMs for information retrieval and preliminary analysis. For example, students were shown how AI tools could rapidly synthesize the historical development of paper-cutting, summarize its core techniques, or outline the artistic features of Master Shen Songbai, thereby enabling them to construct a foundational knowledge framework efficiently. At the same time, the instructor demonstrated how to formulate precise prompts when interacting with different language models—such as clearly specifying the required structure of an English script or identifying key terminology to be included. Students then engaged in hands-on practice, using AI tools to generate initial drafts of scripts and learning to critically evaluate the accuracy and cultural appropriateness of AI-generated content. The instructor further guided students in utilizing the translation and terminology query functions of LLMs to address culture-specific expressions encountered during project preparation—such as yin carving, yang carving, and auspicious motifs—thereby ensuring linguistic precision and quality in subsequent output tasks. Students were encouraged to refine translations of ICH-related terminology to ensure idiomatic English expression consistent with project objectives. For the group responsible for interviewing Master Shen, the instructor introduced AI-assisted simulation techniques. By prompting LLMs to generate potential interview questions in English and simulate realistic responses, students were able to rehearse interview scenarios in advance. This process effectively enhanced their preparedness, spontaneous speaking ability, and intercultural communicative competence.

During the autonomous task-execution stage of Project-Based Learning, generative AI further transcended traditional temporal and spatial constraints through several mechanisms. First, it enabled intelligent optimization of project deliverables and presentation materials. This included multimodal consistency verification and automated generation of dynamic presentation content. For consistency verification, students uploaded

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drafts to platforms such as Doubao or KIMI and entered prompts such as: “Please review the terminology consistency (e.g., ‘yin-cutting’) and cultural accuracy in this English paper-cutting event proposal. Identify potential issues and provide revision suggestions.” For presentation production, tools such as Gamma.ai were used to automatically generate PowerPoint outlines based on finalized scripts, seamlessly embedding images of Master Shen’s works alongside AI-generated English annotations to achieve multimodal integration. Second, generative AI supported intelligent management of the presentation process, including task coordination and virtual rehearsal simulation. AI collaboration tools—such as DingTalk AI Assistant or Notion AI—were used to automatically generate Gantt charts and assign tasks to group members (e.g., “Revise the voice-over script by Wednesday”), while tracking progress in real time. In addition, virtual rehearsal scenarios were created through VR platforms such as ClassVR. In these simulated environments, GenAI could assume the role of “international visitors” and pose real-time questions, thereby providing targeted training in impromptu speaking and intercultural communication. Through these applications, generative AI functioned not merely as a linguistic support tool but as an integrated cognitive partner in the design, execution, and refinement of project-based ICH English instruction.

3.5 Activity Design and Content Optimization in the Project Presentation Phase

3.5.1 Teacher-Guided Activities Supported by Generative Artificial Intelligence

During the project presentation phase, instructors can leverage generative artificial intelligence (GenAI) tools to facilitate efficient guidance and dynamic feedback. The implementation procedures are outlined as follows.

(1) Guiding the Design of Project Presentations

AI-assisted optimization of presentation materials.

Students upload their project outputs—such as interview transcripts, event proposals, or short-video scripts—to large language models (e.g., Doubao or KIMI) and input prompts such as:

“Please optimize the logical structure and cultural accuracy of the following English presentation materials to ensure they meet the needs of intercultural communication: [paste content].”

The models can automatically refine sentence structures, supplement cultural annotations (e.g., explaining the symbolic meaning of yin–yang cutting techniques), and generate multiple presentation frameworks for students to compare and select.

Visual design support: GenAI tools (e.g., Canva with AI plugins) can be used to generate visually integrated posters, presentation slides, or multimedia templates. For short videos, AI tools may assist in adding English subtitles and visual effects, thereby enhancing the professionalism and multimodal coherence of the final products.

(2) Guiding the Use of Presentation Language

Simulated rehearsal and real-time feedback: Students record their English presentations using speech-input tools and submit the recordings to language models (e.g., DeepSeek) for analysis. The system generates diag-

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nostic reports identifying pronunciation errors, grammatical issues, and coherence ratings, along with targeted revision suggestions—such as simplifying overly complex vocabulary or incorporating clearer transitional devices.

Intercultural expression training: Students may input prompts such as:

"Design three culturally adaptive commentary strategies for explaining Chinese paper-cutting folk stories to international audiences."

The model can then propose context-sensitive translations and explanations—for instance, rendering the cultural expression fu dao as "an upside-down 'fu' character symbolizing the arrival of good fortune."

(3) Organizing the Viewing and Analysis of Presentation Videos

Instructors may use GenAI to rapidly generate targeted observation checklists. For example, by entering the prompt:

"Generate an English observation checklist for evaluating a project presentation video, focusing on speech structure (introduction–body–conclusion), use of body language, and effectiveness of visual aids."

Students can then analyze exemplar videos using the checklist and extract transferable presentation strategies.

3.5.2 A Multi-Dimensional Evaluation and Feedback System Supported by Generative Artificial Intelligence

To uphold the principle of integrating process-oriented and outcome-based assessment, a multidimensional evaluation framework centered on GenAI can be established.

(1) Automation of Formative Assessment

GenAI systems can automatically aggregate students' multimodal data generated at various stages (e.g., comparisons between draft and final versions of scripts or recordings). Based on these data, the system can generate competency radar charts encompassing dimensions such as linguistic proficiency, collaborative effectiveness, and cultural understanding, thereby visualizing developmental trajectories.

(2) Multi-Dimensional Quantification of Outcome Assessment

Instructors may input evaluation criteria into GenAI systems, such as:

"Based on vocational college English curriculum standards, design a scoring rubric for an English short video on paper-cutting, with the following weight distribution: language accuracy 30%, cultural communication effectiveness 40%, creativity 30%."

The model can instantly generate a quantitative rubric with annotated benchmark examples—for instance, describing a full-score case in cultural communication as one that clearly contrasts auspicious symbols in Chinese and Western traditions.

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(3) Human–AI Collaborative Feedback Loop

After AI completes preliminary grading and diagnostic analysis, the instructor provides in-depth qualitative feedback. Students then re-enter the integrated feedback into the model to generate personalized improvement plans—for example:

"To improve oral coherence, practice shadowing AI-generated paper-cutting story recordings twice daily."

This process establishes a closed-loop mechanism of "diagnosis–feedback–revision," enhancing both instructional precision and learner autonomy.

(4)Structured Observation and Analysis of Presentation Videos

Instructors can also use GenAI to create structured observation forms for analyzing project presentation videos. With prompts focusing on speech organization (introduction–development–conclusion), body language, and the effectiveness of visual aids, students conduct systematic evaluations of demonstration videos and extract replicable presentation techniques.

Table 4 AI-Supported Project Evaluation Rubric (Excerpt)

Evaluation Dimension	AI-Generated Criteria (Optimized by DeepSeek)	Weight
Language Accuracy	Accurate use of professional terminology (e.g., "paper-cutting techniques");Sentence structures conform to conventions of English expository discourse	30%
Effectiveness of Cultural Communication	Clear explanation of folk symbolism (e.g., translating "Double Happiness" as "marital bliss");Avoidance of potential points of cultural misunderstanding	40%
Innovation and Task Completion	Creative presentation format (e.g., interactive H5 design);Full coverage (100%) of required project components	30%

4. Conclusion

This study integrates generative artificial intelligence (GenAI) into project-based English instruction for vocational colleges, constructing a practice-oriented PBL instructional framework centered on the theme of Chinese paper-cutting and guided by the overarching objective of "telling China's stories well in English." Within this framework, GenAI not only alleviates instructors' workload in areas such as scenario innovation, precise objective formulation, scaffolded task design, and formative assessment, but also—through a human–AI collaborative model—provides students with personalized, intercultural, and multimodal support throughout the entire learning process. From improving the efficiency of information retrieval, to ensuring accurate translation of intangible cultural heritage (ICH) terminology, to optimizing the quality of English output, GenAI facilitates the comprehensive development of students' language proficiency, cultural communication awareness, and collaborative competence. Classroom implementation demonstrates that domestic large lan-

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guage models such as DeepSeek, Doubao, and KIMI enable instructors to efficiently generate teaching objectives, project scenarios, and task procedures aligned with the distinctive features of vocational education and students' cognitive levels. This approach effectively addresses common shortcomings of traditional instructional design, including monotonous scenarios and ambiguous objectives. With AI assistance, students are able to complete the full learning cycle—from organizing background materials and drafting English scripts to refining presentation outcomes—thereby concretizing the vocational education principle of "learning by doing and understanding through application."

Particularly during the presentation and evaluation phases, GenAI enhances student performance through intelligent dynamic feedback (e.g., diagnostic analysis of linguistic accuracy), multimodal content generation (e.g., automated slide formatting and subtitle optimization), and culturally adaptive explanation of key concepts (e.g., culturally embedded expressions such as the inverted fu character symbolizing the arrival of good fortune, or yin–yang cutting techniques). As a result, students produce project outcomes that demonstrate greater professionalism, cultural communicative impact, and creativity, achieving a meaningful integration of the instrumental function of English as a language tool and its broader role in cultural education within vocational contexts.

Nevertheless, several limitations must be acknowledged. First, this study does not provide a systematic comparative analysis of the output quality of different large language models in terms of content accuracy, cultural appropriateness, and prompt responsiveness; therefore, no definitive model-selection criteria for ICH-oriented English instruction have been established. Second, despite its pedagogical utility, GenAI remains limited in emotional interaction and in the nuanced interpretation of deeper cultural connotations—such as regional variations in symbolic motifs underlying paper-cut patterns—and thus cannot fully replace the teacher's humanistic guidance.

Future research may proceed in three directions. First, scholars may further explore the integration of multimodal GenAI tools—such as VR-enhanced virtual experiences and AI-driven speech interaction—into ICH-focused English instruction to enhance immersion and contextual authenticity. Second, longitudinal studies with larger sample sizes are needed to validate the stability and replicability of the proposed instructional design and to extend its application to other ICH themes, such as embroidery or shadow puppetry. Third, a more systematic and operational human–AI collaborative assessment framework should be developed, integrating AI-generated quantitative indicators (e.g., language error rates, coverage of cultural terminology) with teachers' qualitative evaluations (e.g., intercultural coherence of expression, initiative in teamwork) to strengthen the closed-loop mechanism of "instruction–learning–assessment." Through sustained exploration, this line of inquiry seeks to provide stronger theoretical grounding and practical guidance for the innovative development and quality enhancement of vocational college English education in the age of intelligent technologies.

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