

# Practical Exploration of Generative AI in Enhancing Speech Writing Instruction for Higher Vocational Education: A Case Study of Deepseek

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**Abstract.** The ability to produce practical documents represents a crucial professional competency for high-calibre skilled professionals in today's rapidly evolving workforce. Among various forms of professional writing, speech writing holds particular significance, as it not only enhances communication skills but also strengthens students' overall employability and core competitiveness. This paper investigates the current state of speech writing instruction in higher vocational education, focusing on four central dimensions: teaching objectives, curricular content, pedagogical approaches, and assessment methods. Additionally, it examines the potential of integrating generative AI technologies to enhance teaching effectiveness and student engagement. By employing DeepSeek as a primary technological tool, the paper proposes a framework for human-computer collaborative instruction, detailing strategies designed to help students develop lifelong learning habits, simulate authentic professional writing scenarios, construct structured critical thinking frameworks, and receive personalized assessment feedback. Ultimately, this approach aims to optimize instructional efficiency, enhance learning outcomes, and equip students with the practical speech-writing skills necessary to succeed across diverse professional contexts.

**Keywords:** Generative Artificial Intelligence, Higher vocational education, Speech writing, DeepSeek, Human-Machine collaborative teaching.

## 1. Introduction

The written texts encountered in daily life are predominantly practical documents, which are intrinsically linked to our real-world experiences. Proficiency in practical writing, alongside computer literacy and foreign language skills, is increasingly regarded as one of the three essential competencies for contemporary students and professionals [1]. The ability to express oneself precisely and write coherently plays a crucial supporting role in cultivating vocational competencies and professional qualities among higher vocational students. A speech manuscript is a written document that articulates personal views, insights, and propositions in public forums, requiring advanced logical reasoning skills from students. Presently, vocational college students commonly exhibit deficiencies in speech writing, manifesting as inadequate language application, formulaic structural templates, and superficial content. The teaching of speech writing proves largely ineffective, leaving students ill-equipped to meet authentic workplace demands. The Outline of the National Education Development Plan (2024– 2035) explicitly advocates "promoting AI-driven educational transformation." Consequently, the integration of AI technology by teachers to transform classroom teaching models carries significant practical implications and applicative value. This approach not only facilitates the optimization of teaching resource allocation but also substantially enhances teaching efficiency and students' learning experiences. Generative AI, represented by DeepSeek, can assist teachers in integrating teaching resources, creating classroom scenarios, innovating teaching methods, and implementing personalized stratified instruction. As the focus of practical writing teaching shifts from skill training to thinking cultivation, the generative features of DeepSeek can promote the development of students' critical thinking, creative expression, and logical argumentation abilities. This empowers students to flexibly adapt to diverse professional scenarios and demonstrate confidence and professional literacy in real-life speeches.

## 2. Challenges in Vocational Speech Writing

In today's digital era, knowledge renewal cycles have significantly shortened, with cutting-edge industry knowledge and technologies evolving at an unprecedented pace. Vocational students must cultivate a lifelong learning mindset to continuously and proactively update their professional expertise and core skills. Currently, the teaching objectives of speech writing in higher vocational colleges often place excessive emphasis on mastering stylistic knowledge and training application skills of speeches, focusing on cultivating students' ability to complete single or periodic writing tasks. There is a clear lack of sustainable support for students' lifelong development. This approach falls markedly short in providing sustainable support for students' lifelong development. Over time, this approach has resulted in classroom instruction that fails to deeply awaken students' intrinsic motivation for lifelong learning or systematically cultivate independent study habits. Consequently, a significant disconnect exists between teaching objectives and the sustained learning and development capabilities students must possess in the workplace. Speech writing constitutes a core component of applied writing courses, typically delivered as large-group electives with diverse student cohorts across disciplines. Nevertheless, the instructional content delivered by educators predominantly centers on textbook-based cases, exhibiting insufficient alignment with students' disciplinary expertise. For instance, higher vocational students in transport-related disciplines will require skills for delivering presentations on new technology implementation, workplace safety reports, and tender proposal pitches in their future careers. Beyond foundational writing knowledge, they must address specific job requirements. However, the textbook predominantly offers generic model essays with a narrow scope of subject matter. Tailoring training to specific industry roles for students from different disciplines proves challenging, leading to a disconnect where students struggle to apply the industry knowledge accumulated in their specialized courses and find it difficult to translate applied writing techniques into workplace communication tools. The traditional teaching model of "knowledge exposition—case analysis—student practice" also diminishes student engagement. As "digital natives," vocational students have grown alongside rapid internet advancements, demonstrating proficiency in digital learning tools and a preference for authentic, personalized expression. The traditional teaching method dominated by teacher lectures is no longer compatible with students' cognitive habits and restricts the development of students' higher-order thinking. Writing is not a one-off product, it requires continuous revision and refinement to enhance proficiency. In current vocational writing classrooms, teachers often compare exemplary model essays with typical problematic compositions to help students grasp writing techniques. This evaluation method provides feedback to all students based on a single standard. Teachers focus solely on outcome-based assessment, using scores to gauge composition quality while neglecting process evaluation. They fail to provide individualized feedback for each student's work, preventing students from accurately identifying their writing issues. Consequently, teacher evaluations fall short of meeting students' individual needs.

## 3. Generative AI in Vocational Speech Writing

Current AI technology has permeated the entire educational chain, encompassing instructional design, learning processes, assessment feedback, and management decisions. Generative AI enables the dynamic generation and optimization of educational resources. DeepSeek's open-source nature significantly reduces API (Application Programming Interface) call costs while supporting local deployment and vertical knowledge graph construction [2], enhancing data security while ensuring system stability independent of network connectivity. This facilitates on-demand configuration and localized deployment by higher vocational institutions according to course requirements. DeepSeek employs a Model of Expert (MoE) approach, where domain specialists handle specific tasks. These models undergo pre-training on vast corpora, followed by supervised fine-tuning and reinforcement learning through human feedback to construct deep neural networks. Its robust human-machine interaction capabilities, inference speed, and text generation proficiency effectively enhance user

experience and educational engagement [3]. Consequently, this paper uses DeepSeek as a case study to explore the value of technology-enabled speech writing instruction. Lifelong learning is a learning activity that runs through the entire course of one's life, takes the comprehensive and sustainable development of individuals as its goal, and relies on practice as its generation mechanism. Digital lifelong learning offers advantages, including resource sharing, flexible learning, data visualization, and easily verifiable outcomes. Generative AI empowers personalized lifelong learning by automatically recommending tailored courses and resources based on learners' needs, progress, and preferences. It enables intelligent learning diagnostics and assessments, facilitating the creation of individualized learning plans [4]. Generative AI transcends temporal and spatial constraints, facilitating knowledge transfer through real-time interaction. It provides online resources for continuous learning, creating multidimensional and dynamic learning environments that reinforce the practical orientation of educational objectives.

The limited selection of speech examples in textbooks restricts students' reading exposure, failing to meet their learning demands. Generative AI enhances information retrieval efficiency, deepens content comprehension, offers timely updates, and enables cross-disciplinary gathering of writing resources [5]. Educators may utilize DeepSeek to gather speeches aligned with textbook examples in both theme and author, thereby deepening students' foundational knowledge of speech composition. Curating speech materials by subject enhances lesson preparation efficiency. Creating authentic scenarios aids students in grasping assignment requirements and stimulates writing motivation. Teachers may survey students' professional disciplines beforehand, using DeepSeek to gather real-world speech scenarios from industry roles aligned with different fields. This enables the design of speech topics tailored to students' professional backgrounds. Vocational students often lack social experience, resulting in relatively limited perspectives and an inability to grasp the essence of issues. Generative AI can provide precisely matched resources in real-time based on learners' questions and needs [5]. Students can use Deepseek to access multimodal contextual backgrounds. For example, when writing a speech on the theme of "Civilized Travel", students can input prompts to obtain the latest traffic laws and regulations, video materials of traffic rule violations, and other resources, allowing them to quickly immerse themselves in the writing context. Meanwhile, they can build a personal material library based on their search history, which provides convenience for future writing. Traditional teaching models follow a "teacher-led, student-centered" approach. In practice, students passively receive knowledge imparted by teachers, lacking initiative in exploration. Learners often hesitate to engage proactively with teachers due to reverence for their authoritative status [6]. By leveraging generative AI, a tripartite "teacher-student-machine" teaching model can be established, enabling "human-machine collaborative teaching." Here, teachers utilize AI as instructional assistants while students employ it as learning companions, fostering deep thinking through human-machine dialogue. Within this framework, DeepSeek serves as a neutral third-party interactive medium, effectively alleviating communication pressures between teachers and students. Students may first engage in personalized questioning and trial-and-error exercises, such as inputting speech outlines to receive AI-generated structural optimization suggestions and linguistic style adjustments. Teachers, based on the dialogue records generated by the platform and students' practice trajectories, can accurately identify common weak points, transforming the traditional one-way "teaching-receiving" path into a spiral ascending closed loop of "human-computer interaction - data analysis - teacher-student co-research - dynamic optimization".

Generative AI delivers real-time, dynamic, multi-dimensional writing assessments. Leveraging multimodal analysis and deep learning, it tracks students' thought processes, evaluates cognitive levels and emotional states in real time, and provides continuous personalized feedback. It generates detailed diagnostic reports on core speech-writing elements, overcoming the limitations of traditional single-score grading or vague comments. For instance, at the structural level, AI identifies gaps in argument chains and prompts supplementary data support. At the expression level, it analyses affective vocabulary density and rhetorical technique effectiveness, flagging paragraphs requiring enhanced persuasiveness. At the adaptability level, it simulates audience receptivity to guide students

in adjusting technical terminology frequency and case selection. This intelligent assessment, embedded throughout the writing process, offers students immediate directions for improvement, reducing frustration caused by delayed feedback. Simultaneously, it accumulates personalized learning records for teachers, enabling more targeted tiered instructional interventions. By establishing a personalised "writing-feedback-revision" cycle, students gain clear visibility of their progress trajectory through dynamic assessment, thereby stimulating intrinsic motivation for continuous refinement.

#### **4. AI Strategies for Enhancing Vocational Speech Writing (DeepSeek Example)**

DeepSeek can function as a "co-creation partner," facilitating real-time interaction tailored to career development and personal needs. It enables timely adaptation to national policy shifts and market dynamics, aligning with diverse professional writing requirements to enhance lifelong learning capabilities and employability. For instance, automotive service and management students may follow this career progression: Automotive Sales Consultant → Sales Supervisor → Sales Manager → Sales Director → Regional Sales General Manager. Achieving career advancement requires not only solid professional knowledge and outstanding performance but also excelling in promotion presentations. DeepSeek intelligently pushes the latest presentation scenario analysis reports, updated industry terminology databases, and benchmark public presentation cases from leading enterprises based on the user's defined career path. This helps students keenly grasp the shifts in expression paradigms required at different developmental stages. Applied writing styles are characterised by their dynamic, practical, and workplace-oriented nature. As emerging industries continually evolve, the scope and standards for applying written communication are constantly updated. Deepseek's real-time learning support enables students to continuously access cutting-edge industry insights, policy interpretations, and updated exemplary application documents. This establishes a three-dimensional learning mechanism encompassing "industry-role-market", dynamically constructing a discourse system aligned with career progression needs. It fosters lifelong learning habits, achieving synchronised development of writing proficiency and professional advancement.

Speeches are characterized by pertinence, standardization, accuracy, and persuasiveness, distinguishing them from other argumentative genres. When writing speeches, students must not only express their viewpoints accurately and organize language in a standardized manner but also analyze the specific audience and context of the speech. Students can use DeepSeek to simulate real scenarios: during human-computer interactions, they can refine the writing context and complete the drafting of speeches for specific work scenarios. For instance, when an e-commerce major student is tasked with writing a speech for a post-livestream sales project review meeting, they can input a scenario prompt like "Suppose you are the boss of an e-commerce company, and I am your employee" along with a task objective: "Please specify what content you expect your employee to present in the project review meeting". Based on DeepSeek's response, the student can confirm the main content of the speech. Additionally, students can use DeepSeek to simulate interactions with team leaders or clients, summarize feedback and requirements, adjust the persuasiveness of the speech, and make up for their lack of practical experience. The quality of AI-generated content hinges on the questioner's expressive ability and logical reasoning. Initially, students may encounter issues such as information overload, lack of focus, deviation from the task context, or neglect of the target audience. Teachers should monitor the human-machine interaction process in real-time, assisting students in refining their prompts. Concurrently, teachers can conduct formative assessments of students' questioning quality based on their prompt modification process.

In the AI era, digital technologies can recreate knowledge formation processes and methodologies, providing learners with environments for deep exploration [7]. The process of drafting a speech typically involves four stages: topic analysis, conceptualisation, drafting, and revision. The introduction of generative AI technology transforms the teacher from classroom director

to facilitator of deep student thinking. Human-machine dialogue creates a more liberated space for student brainstorming, freeing them from teacher authority and enabling greater creative expression and critical thinking development. Teachers should guide learners to think critically about AI-generated content to enhance the depth of cognitive engagement [8].

After defining the topic, students establish their argumentative angle. DeepSeek supplements argumentative perspectives, broadening students' dimensions of thought. Students then engage in deep reflection to refine their angle, determine the article's structure, organize their writing approach, select materials relevant to the speech theme, and arrange speech content according to logical coherence. For instance, when tasked with composing a speech on "The Importance of Emotional Intelligence," most students might consider perspectives such as interpersonal relations, emotional regulation, or job interviews. However, these three angles essentially revolve around demonstrating the function of emotional intelligence and can be summarised as one point. Students could instead pose questions regarding the definition of emotional intelligence and its significance for vocational students. DeepSeek supplements argumentative angles to help students transcend the limitations of student-centric thinking and the entrenched mindset of "skills-only theory". Three distinct thematic dimensions are introduced: firstly, emotional intelligence can serve as a differentiating competitive advantage for vocational students in the workplace; secondly, emotional labor can translate into tangible performance outcomes; thirdly, while AI replaces numerous repetitive roles, emotional labor remains irreplaceable. Students then refined these AI-generated angles, ultimately selecting three argumentative approaches: high EQ fosters positive interpersonal relationships, enhances competitiveness, and safeguards against job displacement by AI. The essay's scope expanded to encompass three distinct dimensions—daily life, professional settings, and human development—rendering its argumentation both novel and comprehensive.

In the pre-writing phase, generative AI empowers humans to achieve efficient, interdisciplinary, and deep information processing. During the writing process, it engages in multidimensional, real-time, and personalized interactions with human writers. In the post-writing phase, it provides precise, dynamic, and diverse writing evaluations [9]. The students' speeches are formed through interactive dialogue between each student and the machine. After completing the first draft, students utilize AI to check grammar and formatting, enhancing the linguistic accuracy of their writing. They may then pose follow-up questions regarding structural completeness, logical coherence, and smooth paragraph transitions, revising the text further based on the generated evaluation report. Through this iterative process, they develop self-reflection and evaluation skills. Teachers arrange classroom presentation sessions, requiring students to submit both the final speech draft and the version iteratively revised through AI questioning. The quality of students' engagement in the writing process is assessed based on their revision history.

## 5. Conclusion

Generative AI leverages algorithms to rapidly produce text, deliver vast amounts of information, and create human-machine collaborative learning models, effectively enhancing teaching efficiency. However, while utilizing AI to assist education and teaching, attention must be paid to the limitations and potential issues associated with generative AI applications. First, the originality of AI-generated text is difficult to assess. Content and structure often exhibit homogenization tendencies, undermining students' independent thinking and fostering cognitive laziness. The authenticity of the generated material cannot be fully guaranteed, potentially introducing misleading information. Second, it poses challenges to teacher-student ethics, weakening emotional bonds between educators and learners while complicating the teacher-student dynamic. Therefore, no matter how advanced AI technology becomes, it cannot comprehend or express human emotions. For writing tasks like speeches, which demand a deep understanding of specific audiences, students must engage in value judgments. AI cannot replace the humanistic care teachers provide during the writing process. Educators should

encourage students to share personal experiences to evoke emotional resonance among listeners, thereby achieving persuasive arguments with genuine warmth.

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