



An Empirical Study on Enhancing the Course-Work Integration in Vocational Chinese through Generative AI

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Abstract. Deepening the integration of curriculum and workplace requirements is currently a key focus for enhancing the quality of higher vocational education. The rapid development of Generative Artificial Intelligence (GenAI) has introduced new approaches and tools into this field. Focusing on Chinese language teaching in vocational early childhood education programs, this study addresses critical issues in course-work integration, such as the inadequate vocational orientation of teaching materials and inaccurate job competency analyses. Based on the Outcome-Based Education (OBE) framework and supported by GenAI, a "dual-drive, triple-center" teaching model was constructed and implemented via a four-step strategy: 1) developing a precise Chinese language competency map for early childhood education roles; 2) restructuring modularized teaching content; 3) establishing a knowledge and competency transfer mechanism driven by professional scenarios; 4) creating a collaborative human-machine evaluation system based on the theory of multiple intelligences. Empirical results demonstrate that this model significantly improves students' knowledge and skill acquisition, competency transferability to professional roles, and overall learning outcomes, thereby providing a replicable pathway for deepening course-work integration in higher vocational Chinese language education.

Keywords: course-work integration; higher vocational Chinese; teaching reform; generative AI

1 Introduction

In 2021, the National Vocational Education Conference first put forward the new requirement of 'integrated talent cultivation through the integration of posts, courses, competitions, and certifications.' That same year, the General Office of the State Council issued Opinions on Promoting the High-Quality Development of Modern Vocational Education, which further clarified the requirement to 'improve the

integrated talent cultivation mechanism of "posts-courses-competitions-certifications," design and develop courses based on actual production and post demands, and enhance students' practical abilities.' In 2022, the Ministry of Education released documents twice, vigorously advancing the construction of this integrated talent cultivation mechanism and promoting the development of related teaching materials.^[10] The successive rollouts of these policies highlight the core position of 'posts-courses-competitions-certifications' integrated talent cultivation in improving vocational education quality.

Against this backdrop, 'course-work integration,' 'course-certification alignment,' and 'competition-teaching fusion' have not only become mainstream directions for the teaching reform of Chinese courses in higher vocational colleges but also key indicators for evaluating teaching quality. Meanwhile, since 2023, the technological wave represented by Generative Artificial Intelligence (GenAI) has boomed, reconstructing the educational ecosystem and innovating teaching models with unprecedented depth and breadth. This wave has injected strong innovative impetus into the new round of teaching reform of Chinese courses in vocational colleges, especially in deepening 'course-work integration.'^[6]

Focusing on early childhood education and preschool education majors, this paper explores the effective application of GenAI technology under the perspective of 'course-work integration' to construct a 'dual-driven, triple-centered' teaching model for Chinese courses in higher vocational education. This model takes 'the learning of Chinese knowledge and abilities, and the acquisition of applied skills in workplace scenarios' as the dual drivers, and 'student development, student learning, and learning outcomes' as the three centers, and verifies its application effectiveness through empirical research.

2 Current Research and Problem Identification

In recent years, frontline educators and scholars have explored the reform of higher vocational Chinese courses from multiple dimensions, generating a wealth of theoretical and practical outcomes. Multiple studies have revealed common issues prevalent in current teaching practices. Scholars such as Chen Jie, Fan Dongmei, Zhang Ling, and Yu Jiguo have successively identified problems including an overemphasis on teacher-led instruction at the expense of student experience, a lack of vocational orientation, and a focus on final outcomes over the learning process.^{[4][5]} These deficiencies are primarily concentrated in the areas of teaching content, instructional methods, and evaluation systems.

Based on field investigations at three higher vocational institutions in H City and a comprehensive literature review, this study identifies several persistent challenges in Chinese language teaching reform for the early childhood education major, specifically within the context of course-work integration:

The underlying logic of textbook compilation remains predominantly confined to the paradigm of disseminating disciplinary knowledge, failing to transition towards the domain of vocational action. An analysis of five national-level planned textbooks reveals two primary compilation approaches: one perpetuates the logic of the

disciplinary knowledge system, organizing content according to literary history or genre types, thereby failing to connect teaching content with professional practice scenarios (i.e., the content is not modularized based on vocational practice contexts). The other, while attempting to construct a modular system centred on general competencies such as language expression and literary appreciation, fails to effectively integrate these into specific professional contexts.

This incongruity manifests in two specific aspects within Chinese language teaching for the early childhood education major: Firstly, the content is disconnected from vocational demands, making it difficult for students to train their professional competencies through textual study. Secondly, the volume of discipline-oriented knowledge is substantial, with numerous selected texts, rendering the "whole-book teaching approach" difficult to implement. A survey indicates that a significant proportion of higher vocational institutions allocate insufficient credit hours to Chinese courses.^[4] Taking H City as an example, only one of the three investigated institutions offers a Chinese course, with a total duration of merely 72 credit hours. Constrained by this limited course schedule, teachers are unable to implement the "whole-book teaching approach." Most instructors resort to prioritizing foundational knowledge at the expense of practical application, resulting in superficial or inadequate coverage of the practical modules within the textbooks.

The analysis of Chinese language competencies required for target positions exhibits limitations and subjectivity.^{[7][8]} The core prerequisite for curriculum reform is the precise identification of the key competencies demanded by these positions. However, when determining teaching objectives and designing instructional content for the Chinese course in early childhood education majors, there is a prevalent reliance on instructors' personal preconceptions or generalized assumptions about job requirements, rather than on systematic, empirical analysis of the actual language application needs in kindergarten work settings. There is a lack of advanced methodologies and tools to scientifically delineate a specific Chinese language competency framework for students' future roles. This inaccuracy in needs analysis directly leads to misaligned instructional design, resulting in a foundation for "course-work integration" that is unstable and lacks specificity.

Classroom interaction patterns remain rigid, with insufficient integration of vocational scenarios. The current Chinese language classroom in early childhood education majors still predominantly adheres to the traditional teacher-centered instructional model. Although some classes have incorporated information-based platforms such as "Xuexitong" as auxiliary tools, the core interactive methods—such as teacher-student Q&A and classroom discussions—continue to rely heavily on teacher direction. The design of questions predominantly focuses on the reading, comprehension, and literary appreciation of the texts themselves, failing to deeply embed the specific language application contexts required in early childhood professional settings. This rigidity in interaction patterns and the absence of vocational scenarios result in a mismatch between the content of classroom training and the practical Chinese language competencies needed for students' future roles, thereby impeding the effective articulation of "course-work integration" and the transfer of competencies.

The existing assessment methods primarily rely on instructors' subjective judgment, lacking operable and objective evaluation criteria and specialized tools grounded in the professional characteristics of early childhood education.^[1] This reliance results in the evaluation of students' acquisition of vocational Chinese language competencies becoming ambiguous and arbitrary, thereby impeding the accurate diagnosis of learning outcomes and failing to provide data-driven support for instructional improvement. Consequently, it constrains both the verification of the achievement and the continuous optimization of the "course-work integration" teaching objectives.

3 Theoretical Basis and Design Logic of the "Dual-Drive, Triple-Center" Teaching Model

Outcomes-Based Education (OBE) is an educational theory first proposed by American scholar William G. Spady in the 1980s. In his work *Outcome-Based Education: Key Issues and Responses*, Spady defined the theory as "clearly focusing and organizing all elements of an educational system around the essential competencies that all students must successfully master upon completing their learning experiences."^[2] According to this theory, the entire educational process begins with the clear definition and predetermination of the knowledge, competencies, and qualities that learners are ultimately expected to master. Based on this, the curriculum system, teaching strategies, and evaluation mechanisms are then designed in reverse. Its core principles are embodied in three fundamental concepts: "student-centeredness, outcome orientation, and continuous improvement." Specifically, the implementation of Outcomes-Based Education typically encompasses five key phases: 1) *Defining Learning Outcomes*: This is both the starting point and endpoint of OBE. It requires fully reflecting the expectations and needs of educational stakeholders (including society, industry, and students themselves) to clearly define and articulate measurable final outcomes. 2) *Restructuring the Curriculum*: The curriculum must establish explicit alignment with the predefined competency structure, ensuring that each course makes an identifiable contribution to the attainment of specific competencies, to ensure students inherently acquire the targeted competencies upon course completion. 3) *Optimizing Teaching Strategies*: Instruction emphasizes the learner as the main agent. The teacher's role shifts to that of a guide and facilitator, who must design learning paths and provide targeted support based on individual student differences. 4) *Implementing Competency-Oriented Assessment*: Evaluation focuses on the degree of achievement of learning outcomes. It employs multiple, self-referenced assessment criteria, de-emphasizing peer comparison, and aims to diagnose the learner's progress and provide a basis for instructional improvement. 5) *Phasing the Learning Process*: The learning process is divided into progressive stages. Setting phased goals allows different learners to progress along differentiated paths and at varying paces, ultimately achieving the predefined outcomes together.

(2) Design Logic of the OBE-Based Teaching Model

The OBE concept is highly consistent with the comprehensive talent cultivation mechanism of "integration of jobs, courses, competitions, and certifications" in

vocational education.^{[7][8]} Both take job competencies as the starting point and emphasize the vocational nature of knowledge and the measurability of abilities, which provides appropriate theoretical support for the reform of "integration of courses and jobs" in Chinese courses at higher vocational colleges. In the design of the "dual-drive and three-center" teaching model, the OBE concept offers three key supports: firstly, the "dual-drive" adheres to the "outcome-focused principle," focusing on the needs and expectations of relevant stakeholders such as certification authorities, employers, and schools, and predefining the Chinese knowledge and applied skills that students must master; secondly, constructing teaching paths based on the "reverse design principle," deriving competency maps and reorganizing teaching content in a reverse manner starting from job competency requirements; thirdly, establishing an evaluation and optimization mechanism relying on the "competency-based and continuous improvement principles." The learning effects are verified through a multi-evaluation system, and Generative Artificial Intelligence (GenAI) tools are leveraged to dynamically adjust teaching strategies.

4 Practical Strategies of the "Dual-Drive and Three-Center" Teaching Model Supported by GenAI

To address the key challenges faced by the "integration of courses and jobs" in Chinese teaching for the preschool education major, this study constructs a "dual-drive and three-center" teaching model based on the "outcome-based" teaching philosophy. Specifically, the model takes two aspects as the "dual drive": the learning of Chinese knowledge and competencies, and the acquisition of applied skills in job scenarios. It designs progressive task groups, adopts teaching methods such as task-driven teaching, and learning approaches including independent learning and group inquiry. With "student development, student learning, and learning outcomes" as the three centers (As shown in Figure 1), a four-step teaching process is implemented. The implementation strategies for each step are elaborated as follows.

(1) Constructing a Vocational Chinese Competence Framework for Preschool Education Positions

The core of the "dual-drive" model lies in task groups. Both "knowledge-based tasks" aimed at enhancing students' academic literacy and "application-oriented tasks" facilitating the acquisition of vocational skills need to align with job requirements. Therefore, it is crucial to obtain and predict sufficiently accurate job information. The research team employs advanced artificial intelligence (AI) technology, using web crawler software to collect job data of childcare workers, preschool teachers, preschool education researchers, and other related positions from recruitment websites. Based on the collected job data, AI algorithms are applied to identify the current and future talent demands of preschool education positions, thereby constructing a vocational Chinese application competence framework for preschool education roles. (As shown in Figure 2)

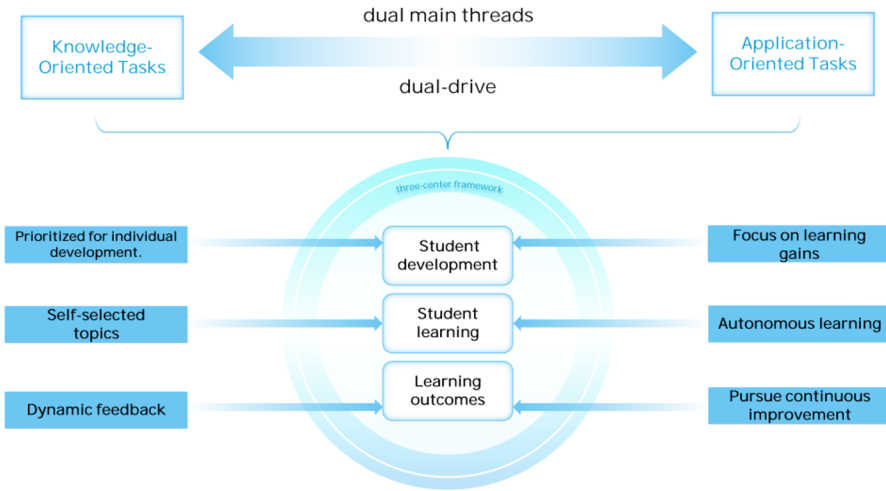


Fig. 1. Dual-Threaded (Knowledge-Application) Dual-Drive: Student-Centered Learning Framework

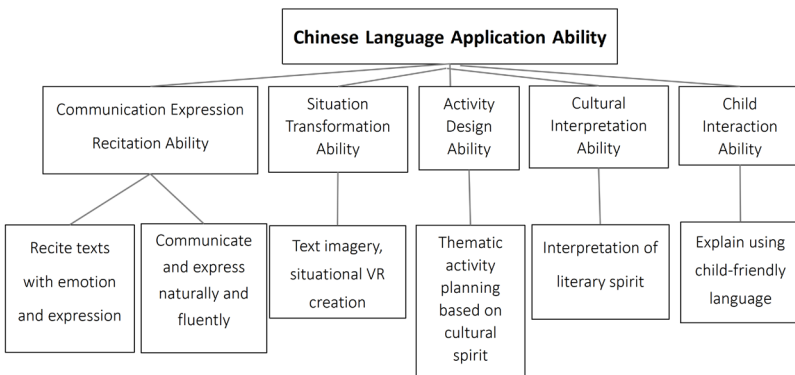


Fig. 2. Chinese Language Ability Map

(2) Reconstructing Modular Teaching Content

Based on the vocational Chinese competence framework for preschool education positions, the research team deconstructs and reconstructs College Chinese textbooks, breaking the original work-centered structure to build a "four-link and four-stage" system. [3][4]Horizontally integrated with professional scenarios, it includes three core modules: Basic Reading (modern prose appreciation, novel analysis, etc.), Vocational Training (communication and language expression skills, etc.), and Comprehensive Practice (story retelling competitions, etc.). Vertically aligned with talent training programs, it integrates preschool teaching scenarios and conducts sequential teaching following the "reading-appreciation, communication, writing, presentation-practice" competence progression.

(3) Constructing a Vocational Scenario-Driven Transfer Mechanism

To address insufficient vocational integration in traditional classrooms, a transfer mechanism is built via dynamic scenarios and intelligent platforms. AI technology generates immersive vocational scenarios, shifting students from "audiences" to "practitioners" and realizing in-depth course-position integration. Additionally, an intelligent interactive platform is established, with AI-driven adaptive games and virtual children's feedback to guide students in adjusting expression strategies, embodying the "three centers" of student development, learning, and outcomes.

(4) Establishing a Multiple Intelligence Evaluation System

Relying on AI, a human-machine collaborative evaluation system centered on vocational competence is constructed. First, abstract competence requirements (e.g., childlike expression) are transformed into quantified scales with vocational-oriented observation indicators. Second, process-oriented evaluation is embedded, such as an intelligent ancient poetry recitation scoring system that provides diagnostic feedback. Third, a multi-dimensional network is formed with teacher evaluations, peer reviews, and industry mentor comments, ensuring objective, professional assessment of both hard and soft competencies.

5 Introduction to Practical Results

This study selected 32 second-year students from the Preschool Education major of City College of Huizhou as the research subjects, and verified the effectiveness of the model through pre-test (T1) and post-test (T2) quantitative data and practical outcomes.

5.1 Goal Achievement: Quantitative Validation of Knowledge and Skill Acquisition: The introduction of GenAI technology (dynamic vocational scenarios, intelligent interactive platforms, and multi-dimensional evaluation systems) effectively improved students' mastery of knowledge and vocational skills: regarding platform proficiency score changes, the Cloud Classroom platform recorded the first (T1) and third (T2) proficiency scores of 32 students (covering Chinese knowledge and vocational skill application), with statistical results shown in Table 1:

Table 1. Comparison of Students' First and Third Proficiency Scores

| Indicator | T1 (Pre-test) | T2 (Post-test) | Change Value |
|-------------------------|------------------|-------------------|----------------------|
| Average score | 80.1 | 87.3 | +7.2 |
| 80 points and below (%) | 24% (8 students) | 0% (0 students) | -24% |
| 90 points and above (%) | 15% (5 students) | 58% (19 students) | +43% |
| Score range (min-max) | 68-92 | 78-95 | Narrowed by 5 points |

As shown in Table 1, all 32 students achieved score improvements (no decline or stagnation), with an average increase of 7.2 points; the proportion of students with scores below 80 decreased to 0, and the proportion of top students (90+) increased by 43 percentage points, indicating a significant improvement in overall proficiency. For Chinese Basic Knowledge Test Outcomes, the team conducted a closed-book test on

Chinese basic knowledge (covering reading comprehension, language expression, etc.) before and after the teaching intervention, with score segment distribution changes shown in Table 2:

Table 2. Changes in Chinese Basic Knowledge Test Score Segments

| Score Segment | Pre-intervention (%) | Post-intervention (%) | Absolute Change |
|---------------------|----------------------|-----------------------|-----------------|
| 90 points and above | 56% | 87% | +31% |
| 80-89 points | 23% | 11% | -12% |
| 70-79 points | 16% | 2% | -14% |
| 60-69 points | 5% | 0% | -5% |

Table 2 shows that the excellent rate (90+) of the basic knowledge test increased by 31 percentage points, and the low-score segment (60-69) was completely eliminated, indicating that the modular teaching content effectively improved students' mastery of basic knowledge. Regarding Preschool Poetry Activity Design Ability, after the teaching intervention, the team investigated students' ability to design preschool poetry activity classes, with results shown in Table 3:

Table 3. Distribution of Students' Poetry Activity Design Ability

| Ability Level | Proportion (%) |
|---------------------------------|-------------------|
| No idea | 0% |
| Have ideas but cannot implement | 5% (2 students) |
| Have ideas and can implement | 95% (30 students) |

Table 3 shows that 95% of students have the ability to design and implement preschool poetry activities, and no students have no ideas, which fully verifies the effectiveness of the vocational scenario-driven transfer mechanism. 5.2 Learning Transfer Ability: Competency Transfer Validation via Quantitative and Practical Outcomes: Beyond the improvement of knowledge and skills, students' vocational competency transfer ability was also verified through competitions and social practices: 1) In the Preschool Education Major Vocational Skills Competition of Guangdong Province, 3 participating students won 1 first prize, 1 second prize, and 1 third prize (the award rate was 100%, which was 40 percentage points higher than the average award rate of 60% in previous years); 2) In the social practice of 5 kindergartens in Huizhou, 100% of the 32 students' designed activities received positive feedback from over 90% of parents, and 8 kindergartens issued invitations for long-term cooperation.

6 Conclusion

Against the backdrop of the continuous advancement of the "integration of positions, courses, competitions, and certificates" comprehensive talent cultivation policy and the rapid development of generative artificial intelligence (GenAI), we directly address the unresolved issues in current teaching reforms. We propose the "dual-drive and three-

center" teaching model, with a key focus on introducing GenAI as a critical enabling tool, thereby providing a practical solution to overcome the existing dilemmas.^[9]

In the future, we will expand the applicability of this model to other majors and further explore the application of GenAI in areas such as personalized learning support.

Acknowledgments

This study was financially supported by the Guangdong Provincial University Young Innovative Talents Project (Grant No. 2024WQNCX154) titled "Research on the Development and Practice of Poetry Teaching Resources for Preschool Education Majors Empowered by Digital Technology" and the Guangdong Provincial Education Science Planning Project (Higher Education Special Project) (Grant No. 2025GXJK0934) titled "Research on the 'Five-Dimensional Collaborative' Training Model of Interdisciplinary Talents in Preschool Education from the Perspective of AI Empowerment". The authors sincerely acknowledge the academic and financial support provided by these funding initiatives.

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