The Innovative Path and Practice of Artificial Intelligence Enabling College Language Teaching in Vocational Colleges and Universities

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Abstract: The rapid development of artificial intelligence technology has brought unprecedented opportunities for change in the field of education, especially in the teaching of college language in higher vocational colleges and universities, and its innovative application has become a key path to improve the quality of teaching and students' learning experience. Constructivist learning theory points out that AI can create immersive learning scenarios to help students realize the transfer and construction of knowledge. Blended learning theory emphasizes the combination of traditional face-to-face teaching and online teaching, and AI provides strong support for this model. The theory of big data in education, on the other hand, suggests that AI technology can efficiently collect, organize and analyze data in the teaching process, providing a strong basis for teaching decisions. This study delves into the application of artificial intelligence in college language teaching in higher vocational colleges, aiming to provide useful reference for educational practice.

Keywords: Artificial Intelligence; Higher Vocational; Language Teaching; Educational Practice

1. Introduction

The digital transformation of vocational education is a key trend in the current development of education. Studies have shown that the deep integration of intelligent technology and education teaching can effectively promote the innovation of teaching mode, improve the quality and efficiency of teaching, provide students with a more personalized and diversified learning experience, meet the needs of education in the new era, and become an important driving force for the digital transformation of education [1]. As a public foundation course required for all majors in higher vocational colleges and universities, college language is both humanistic and instrumental, and bears the task of improving students' language expression and application ability, cultural cognition, literary literacy and humanistic quality. However, the traditional university language teaching mode has certain limitations and reveals many problems and deficiencies. In terms of meeting students' individual needs, traditional teaching usually adopts a one-size-fits-all approach, making it difficult to provide targeted guidance according to students' different foundations, interests and learning styles [2]. In terms of the integration of teaching resources, the traditional model is limited to paper textbooks and limited teaching materials, and is unable to fully explore and utilize the rich online resources, resulting in a relatively single teaching content. In addition, the current education is developing in the direction of informatization and personalization, and the traditional teaching mode is incompetent in adapting to these trends, making it difficult to effectively improve the quality of teaching and students' learning experience [3]. The application of artificial intelligence technology has brought new opportunities and challenges for college language teaching in vocational colleges, and it is of great practical significance to explore the innovative path of college language teaching in vocational colleges empowered by artificial intelligence. On the one hand, the rapid development of artificial intelligence forces the traditional university language to seek changes in teaching content, teaching methods and teaching evaluation [4]; on the other hand, artificial intelligence technology

brings the possibility of innovative teaching mode, which can be used to realize the personalized teaching of university language courses [5].

2. The Current Situation of University Language Teaching In Vocational Colleges and the Necessity of AI Application

2.1 The Heterogeneous Dilemma of Students' Language Literacy

The diversification of the student source structure of vocational colleges and universities has led to a significant stratification of the students' language ability base, and some of the students' language core literacy reserves are insufficient, which is specifically manifested in the weak language use ability, the sluggishness of the literary and aesthetic perception and the lack of depth of cultural understanding, and this difference directly dissolves the universal effectiveness of the traditional teaching paradigm [6].

2.2 Path Dependence of Teaching Mode

The current language classroom is deeply trapped in the “one-way knowledge inculcation”, the teacher-centered teaching field inhibits the active generation of the main body of learning [7]. The double lack of classroom interaction mechanism and personalized learning support system forms a structural break between “receptive learning” and “creative cultivation”.

2.3 Supply Contradiction of Teaching Resources

The language teaching resource system faces structural shortages, the updating and iteration of teaching materials lags behind the cultural ecological changes in the digital era, the allocation of high-quality digital teaching resources is not balanced, and the integration of traditional paper media carriers and emerging media technology is insufficient, making it difficult to build a resource ecosystem that supports blended learning [8].

3. The Theoretical Foundation of Artificial Intelligence-Enabled College Language Teaching in Vocational Colleges and Universities

The theoretical foundation of artificial intelligence-enabled college language teaching in vocational colleges is the cornerstone of practical exploration. Constructivist learning theory, blended learning theory and educational big data theory together constitute a supportive framework for teaching innovation, which provides a solid theoretical guarantee for the construction of intelligent teaching system. The following are the specific theoretical elaborations.

3.1 Constructivist Learning Theory

Constructivist learning theory emphasizes student-centeredness and believes that learning is acquired by students in a certain context, with the help of others, using the necessary learning materials, and through the construction of meaning. Artificial intelligence technology can create a more authentic and rich learning context for students, provide personalized learning support and feedback, and thus promote students' meaning construction.

3.2 Blended Learning Theory

Blended learning theory is a learning method that combines traditional face-to-face teaching with online teaching (e.g., catechism, digital library). Artificial intelligence technology can provide technical support for blended learning, such as online course platforms, intelligent tutoring systems, etc., to realize the organic integration of online and offline teaching and to improve the teaching effect.

3.3 Education Big Data Theory

The theory of big data in education holds that by analyzing and mining a large amount of data generated in the education process, it is possible to understand the learning situation and learning needs of students and provide a basis for teaching decisions. Artificial intelligence technology can analyze and process educational big data in real time to provide teachers and students with accurate learning suggestions and teaching feedback. The application of artificial intelligence technology in the field of education makes the collection, organization and analysis of educational big data more efficient and accurate, so as to better support teaching practice and decision-making [9].

4. Innovation Path and Practical Exploration

In the context of the deep integration of artificial intelligence technology into vocational education, this paper constructs an innovation framework for artificial intelligence-enabled language teaching in higher vocational institutions (shown in Figure 1), and systematically explains the implementation paths for the restructuring of teaching content, innovation of teaching methods, and optimization of teaching evaluation, to provide theoretical support and practical references for promoting the modernization of language teaching in higher vocational institutions.

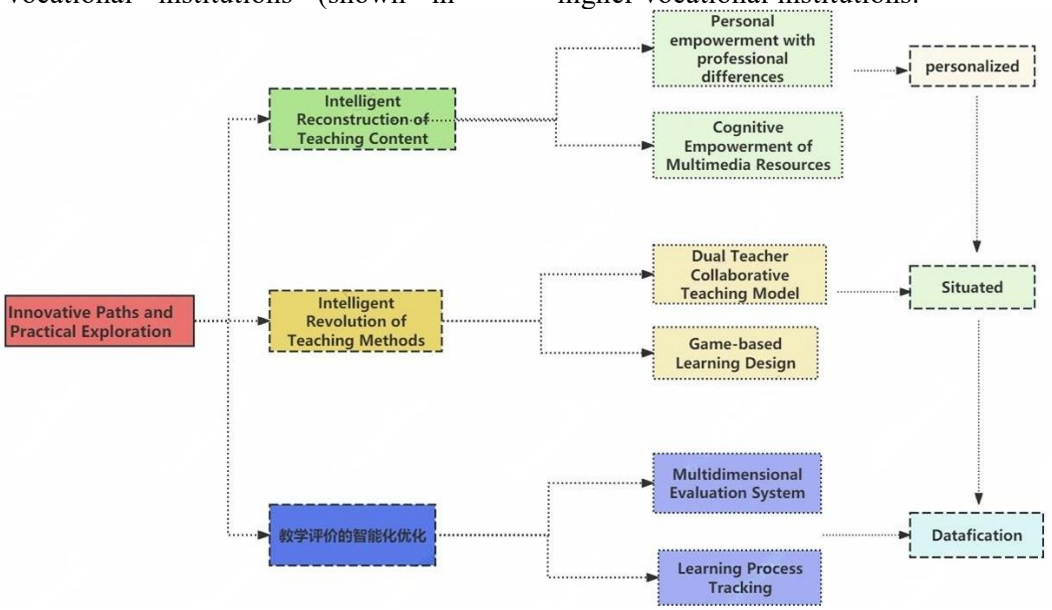

Figure 1. Trinity's Innovative Path and Practical Exploration

4.1 Intelligent Reconstruction of Teaching Content: Resource Optimization and Contextual Innovation

4.1.1 Personalized empowerment of professional differences

Teaching design is the basic basis for classroom teaching. Based on the actual needs of different majors, we generate personalized programs and construct a dual-track intelligent teaching design of "major + language" to stimulate students' learning potential. Taking the electromechanical specialty as an example, AI is used to analyze the chapter "Knowledge of Things" in the University, intelligently generating a case base for the integration of "Craftsmanship and Modern Technological Ethics", restoring precision manufacturing scenes through virtual simulation technology, and guiding the students to embed classical cultural interpretations when writing technical practice reports. For computer application majors, an intelligent tutor system for application writing is developed: based on NLP technology, it parses technical documents and project plans written by students, automatically compares them with industry standard text databases, and generates three-dimensional evaluation reports containing terminology specification, logical framework, and cultural penetration. The practice of the two groups shows that AI realizes dynamic adaptation of teaching design through professional corpus training, makes language elements resonate with professional literacy training, and solves the chronic problem of "deprofessionalization" of vocational education language, and the model has improved the pass rate of relevant professional students' application essays by 27%, and the cognition of traditional culture by 41%.

4.1.2 Cognitive empowerment of multimedia resources

At the level of multimedia resources, artificial intelligence technology has injected new vitality into the teaching of college language in vocational colleges. Through specific scene construction, dynamic process simulation and emotional speech synthesis and other technologies, an immersive learning environment has been created: using

AI drawing and 3D modeling technology, the vicissitudes of the "slanting sun over the city and painting horns in mourning" in Lu You's "Two Songs from the Shen Garden" has been transformed into an interactive virtual scene; the use of the VR teaching system reproduces the historical dynamic picture scroll of the "Song of Everlasting Hatred", and students can enjoy the traditional culture of the city by using the VR teaching system. Using the VR teaching system to recreate the historical dynamic scroll of "The Song of Long Hate", students can walk into "Chang'an City" and interact with Tang Xuanzong and Yang Guifei in the poem; based on the emotional computing technology, the read-aloud version with multiple emotional tones can be generated for the "Poetry Scripture - Wang Feng - Kibi Li", so that the students can feel the bleakness of "Those who know me say that they are worried" and "Those who know me say that I am worried" through the comparison of the two. This allows students to feel the complex state of mind intertwined with the bleakness of "He who knows me is worried about me" and the vicissitudes of space and time of "Kibi Li Li" through comparison.

4.2 Intelligent Innovation of Teaching Methods: Dual-Teacher Collaboration and Game-based Learning

4.2.1 In-depth practice of dual-teacher collaborative teaching mode: from division of labor to symbiosis

The university language teaching in vocational colleges and universities can realize the deep reconstruction of the teaching process through the construction of the collaborative mechanism of "human teachers + AI teaching assistants". The intelligent teaching system undertakes structured tasks such as the construction of knowledge maps, the pushing of personalized exercises, and the correction of standardized tests, for example, dynamically adjusting the training difficulty of leave notes, notices, and other application formats in the course of Application Writing based on the writing data of the students; the teachers focus on the cultivation of higher-order abilities, and through the design of the "Multi-dimensional Interpretation of Sun's Elderly Figure in the Gun of the Broken Spirit Teachers focus on the cultivation of higher-order abilities by designing seminars such as "Multi-dimensional Interpretation of the Image of Sun Laojie in The Broken Soul Gun" and "Metaphors for the Passing of Traditional Martial Virtues in Lao She's Writings", which guide students to develop critical thinking and value analysis.

4.2.2 Ecological construction of game-based learning design: from interest stimulation to ability migration

The core concept of game-based learning design is to transform the cultivation of language literacy into quantifiable and competitive learning objectives, and at the same time build a bridge from literary literacy to workplace competence. In practice, the "Flying Flower Order AI Match" system integrates poetry training into workplace situations, simulates real-life scenarios such as business negotiations, and the AI intelligently generates response challenges in line with workplace etiquette, and guides students to realize in-depth learning through progressive difficulty design." The "Literary Sentence Breaking Challenge" scans the images of ancient books, combines intelligent recognition and comparison with the database of ancient books, and provides real-time sentence breaking verification and analysis of the historical and cultural background, forming a closed learning loop of "instant feedback and cultural traceability". In the immersive scenario, the classroom of "Literary Sea Mystery" combines virtual reality and intelligent generation technology, and students complete specific application writing tasks (such as designing a letter for Bao Yu to express his repentance to Jia Zheng, which is required to reflect the literary quality and meet the character) in the context of "Dream of the Red Mansions" (Bao Yu was beaten), and the AI evaluates the precision of the diction and stylistic standardization through semantic analysis and generates "Literary Aesthetics - Literary Aesthetics - Cultural Background" by combining with the post competency model. The AI evaluates the accuracy of diction and stylistic standardization through semantic analysis, and generates a two-dimensional report on "Literary Aesthetics - Occupational

Suitability", realizing the visualization of the transformation from literacy to competence.

4.3 Intelligent Optimization of Teaching Evaluation: Accurate Diagnosis and Dynamic Adaptation

Intelligent teaching evaluation emphasizes the comprehensive reflection of learning effectiveness through multi-dimensional evaluation. Through data integration, intelligent analysis and dynamic feedback, artificial intelligence technology has built a three-dimensional evaluation system for college language teaching in vocational colleges and universities, realizing the transformation from "single result-oriented" to "process and result-oriented".

4.3.1 Multi-dimensional evaluation system: from single score to panoramic diagnosis

In the essay correction section, teachers can complete real-time grammatical proofreading and logical optimization through the Doubao Intelligent Body "Academic Assistant", generating a three-dimensional evaluation report that includes "language specification - depth of thinking - value intention". For example, in the analysis of Dream of the Red Chamber, AI can accurately identify whether students break through the surface narrative and touch the critical dimension of the family system.

By combining Xunfei Hear Speech Recognition and Doubao Semantic Analysis to generate a multi-dimensional report that includes speech rhythm, logical articulation, and cross-cultural understanding, teachers can effectively analyze students' emotional tension and cultural translation ability in oral expression.

In the assessment of creative ability, teachers can use Notion AI's "Creative Scoring" function to assess students' digital works (such as short video texts) from the dimensions of narrative tension and visual metaphor, and generate a "Cultural Communication Effectiveness Index" to help visualize digital literacy.

4.3.2 Learning process tracking and developmental evaluation: from static portrait to dynamic adaptation

By creating AI intelligences with role attributes (e.g., simulating the philosophical interlocutor in Zhuangzi), teachers can record the interactive data of students in the appreciation of classical literature, including the frequency of questions in the seminar on the chapters of The University, and the innovativeness of the interpretations of Two Songs from the Garden of Shen, etc. Based on these process data, the system generates a "cultural communication effectiveness index" to help visualize the digital literacy. Based on these process data, the system generates multi-dimensional portraits that include knowledge mastery, ability development, and emotional attitude, for example, by analyzing the study records of Dream of Red Mansions, the system draws the "development curve of classical literature sense of language".

In addition, teachers can also analyze students' homework submission, test performance and other behaviors in the course of The Song of Eternal Hatred through Smart Vocational Education Big Data to generate two-dimensional growth profiles of "textual reading ability" and "cultural critical thinking"; the Mucous Class platform can intelligently recommend the "study of martial arts culture" or the "topic of poetry in the Tang Dynasty" expansion resources based on the data of the length of time spent in chapters of The Smiling Pride of the Wanderer and the degree of participation in the discussion forums to realize the accurate matching of teaching resources and learning needs. The teaching resources are accurately matched with the learning needs.

5. Successful Cases in AI-Enabled College Language Teaching in Vocational Colleges and Universities

Case 1: Changbaishan institute of vocational technology - ai-enabled teaching and research to promote language classroom innovation

The Information Department of Changbaishan Institute of Vocational Technology, in cooperation with the language teaching and research team, introduced AI technology to develop an "intelligent teaching assistant system", which realizes three core functions through a large model: first, automated generation of teaching resources, such as inputting the theme of "Red Cliff Fugue", the AI can be associated with the biography of Su Shi, the appreciation of Song lyrics, and cases of

stress management in the workplace; second, based on the learning situation and data to design personalized learning paths for the literature, and to provide a better learning environment for the students to learn the language. The second is to design personalized learning paths based on learning data, provide intensive reading tasks with annotations for those who are weak in the literary language and recommend academic journals for those who are good at learning; the third is to adopt "semantic analysis + rule engine" technology to intelligently correct essays and generate multi-dimensional evaluation reports with logical loopholes and citation deviations. The system has shortened teachers' lesson preparation time by 40%, and the coverage rate of AI courseware resources has reached 65%; students in the experimental class have increased their scores on logical rigor of essays by 28%, and their average scores on reading comprehension of the Chinese language have increased by 15%. The teaching and research group published three CSSCI papers based on AI data analysis, among which "Research on Cultivation of Critical Thinking Ability of Higher Vocational Languages with the Assistance of AI" was awarded the National Teaching Achievement Prize, and the scientific research results feed the teaching practice. Students' vocational ability has been significantly enhanced, and the workplace communication attainment rate of experimental class graduates has increased by 22%, and the teaching innovation directly serves the needs of regional industrial development.

Case 2: Guiyang institute of vocational technology - digital intelligence enabled teaching evaluation and talent cultivation innovation

Since 2021, Guiyang Institute of Vocational Technology has joined hands with Henan Fengspeed Technology Co., Ltd. to build the "Digital Intelligence Infused Curriculum Evaluation System and Talent Cultivation Data Platform", which innovates the hybrid mode of "Teacher Evaluation (60%) + Student Self-Assessment (20%) + Peer Mutual Evaluation (20%)". "The system relies on NLP and speech. Relying on NLP and voice recognition technology, the system analyzes classroom interaction, speed of speech, duration and other indicators in real time, and dynamically compares the curriculum standards to achieve accurate monitoring. The "Growth Tree" function records students' growth trajectory and builds a closed loop of personalized feedback. Before class, we push the pre-study resources and generate the learning situation report; during class, AI analyzes the matching degree of the curriculum; after class, we automatically summarize the high-frequency wrong questions and assist teachers in targeted explanations. The introduction of video inspection system, combined with AI analysis of classroom discipline and interaction frequency, to achieve full coverage of supervision. After the implementation of this system, the quality of teaching has been significantly improved: 2024 data shows that the student achievement gap has been reduced by 15%, post-class feedback reaches 17,000 comments, and the frequency of teacher-student interactions has been increased by 30%; the management efficiency has been significantly optimized, with AI corrections shortening the feedback time of teachers by 60%, and the coverage rate of supervision has been increased from 50% to 100%. The case was selected as an excellent case of education evaluation reform in Guizhou Province, and completed the data docking with the Ministry of Education's "National Vocational Education Intelligent Brain Institutions Center", with remarkable reform results.

The success of the above two cases lies in the fact that both institutions have reconstructed the teaching process through AI technology to realize personalized learning and accurate evaluation, and have achieved remarkable results in the process of practice, as students' learning performance generally improves, their interest in learning college language significantly increases, and their participation in the classroom is enhanced. At the same time, the scientific research results feed the practice and serve the regional industrial needs, providing an innovative paradigm for the reform of vocational education.

6. Challenges and Coping Strategies of

Artificial Intelligence in College Language Teaching in Vocational Colleges and Universities

Although there are many successful practices of AI-enabled teaching, AI-enabled college language teaching in vocational colleges and universities inevitably encounters some problems. From the teachers' point of view, some teachers either have difficulty adapting to the new technology and are difficult to master the AI teaching tools; or over-reliance on the technology may neglect the students' emotional cultivation, resulting in poor implementation of teaching methods. In addition, the fit and accuracy of some teaching resources generated by artificial intelligence with the teaching content needs to be improved, and teachers still need to spend more time on secondary screening and organizing [10]. From the students' point of view, over-reliance on AI tools in the learning process may lead to the decline of students' independent learning ability and independent thinking ability. Sukhomlinsky once said, “There is never an abstract student.” Each student is a unique individual, and in actual teaching, it will also be found that for some students with particularly poor learning foundations or serious lack of learning motivation, it is difficult to achieve ideal learning results simply by relying on existing programs.

To address the above challenges, vocational colleges and universities should strengthen IT training for teachers, incorporate AI technology into the teacher training curriculum system, and regularly organize teachers to participate in relevant training and seminar activities to improve teachers' cognitive level and application ability of AI technology. Teachers are encouraged to actively participate in AI teaching practice, accumulate experience, and constantly explore innovative teaching methods to improve teaching quality.

In the teaching process, teachers should guide students to use AI tools correctly and avoid excessive dependence. Focusing on cultivating students' independent learning ability and independent thinking ability, students are encouraged to use AI to assist their learning, and at the same time, they should carry out secondary assessment of the generated content to ensure its accuracy and applicability. Teachers can also design corresponding teaching content for students to try to discover its problems. For example, students are encouraged to question and validate the content provided by generative AI in their teaching. Teachers can design writing tasks that require students to complete a writing task with the generative AI, allowing students to analyze and comment on the text it generates, pointing out its strengths and weaknesses [11].

7. Conclusion

Artificial intelligence empowers college language teaching in vocational colleges and universities to meet students' diverse learning needs and significantly improve learners' engagement and experience quality through innovative teaching methods, the development of personalized learning plans and the creation of teaching situations with the help of data analysis. In terms of teaching mode, the traditional teacher-centered didactic teaching will be further transformed to student-centered interactive and inquiry teaching. With the help of intelligent algorithms, teachers can formulate exclusive teaching programs based on the individual differences of students to realize accurate teaching. In terms of teaching content, artificial intelligence will make the university language teaching content no longer limited to traditional textbooks, but can be integrated with rich real cases and cultural hotspots in real time, so that the teaching content can keep abreast of the times and be integrated with real cases and cultural hotspots, which significantly improves its contemporary relevance and attractiveness. In terms of teaching evaluation, it realizes comprehensive evaluation of students' learning outcomes from multiple dimensions and process evaluation based on real-time recording of the learning process, so as to adjust the teaching strategy in time. Practice cases show that these innovative paths effectively enhance students' academic performance, learning interest and ability. These experiences emphasize the achievements and value of AI-enabled teaching in improving teaching quality and cultivating students' language literacy, and provide important practical references and theoretical support for the reform and

development of college language teaching in vocational colleges and universities. However, there are some challenges in the process of practice, such as the limitations of technology application, the lack of teachers' information literacy and students' over-reliance on AI. In response to these challenges, it is necessary to improve teachers' information literacy and cultivate students' independent learning ability, in order to give full play to the advantages of artificial intelligence in college language teaching in vocational colleges and universities, to promote the innovation and development of college language teaching, and to contribute to the cultivation of high-quality vocational education talents adapted to the development needs of the times.

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