A STUDY ON THE CURRENT STATE AND IMPROVEMENT STRATEGIES OF TEACHING METHODS FOR TEACHERS AT CHONGQING BUSINESS VOCATIONAL COLLEGE

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BY

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HAS BEEN APPROVED BY THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTER OF EDUCATION IN DEVELOPMENT AND MANAGEMENT OF EDUCATION AT SRINAKHARINWIROT UNIVERSITY

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This study examines the current state of teaching methods at Chongqing Business Vocational College across six key areas: instructional design, teaching practices, practical knowledge acquisition, classroom atmosphere, instructional resources and technology, and assessment methods. A combination of quantitative and qualitative research methods was employed. In the quantitative phase, descriptive statistics and t-tests were were used. Whole-cluster sampling was used to survey all 57 full-time faculty members in the College of Artificial Intelligence, along with isobaric stratified sampling for a questionnaire survey of 60 students from the same college. The results indicated that the lowest levels of satisfaction among both faculty and students were related to the classroom atmosphere (M = 3.97), followed by instructional tools (M = 4.01), and assessment methods (M = 4.11). The qualitative component involved focus group interviews with instructional administrators at various levels, revealing that the primary challenge was the design of teaching and learning. The study concludes by recommending the adoption of student-centered teaching approaches and the effective integration of information technologies such as big data and artificial intelligence (AI) to support instructional management and personalized learning.

Keyword : teaching methods, teaching quality, strategies, vocational education, current situation

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XU JINGHUI

TABLE OF CONTENTS

Page

List of table

Page

CHAPTER 1
INTRODUCTION

1.1 Background of the Study

1.1.1 The strategic value and mission of the times of the teaching methods of teachers in higher vocational education

In the critical period of China's economic transformation and upgrading, vocational education, as an important position for talent cultivation, bears the important responsibility of delivering high-quality skilled talents to society. The National Implementation Plan for Vocational Education Reform clearly points out that higher vocational education is the core path to optimise the structure of higher education and to cultivate great master craftsmen and skilled craftsmen, and stresses that by implementing the fundamental task of establishing moral education, constructing a nurturing system that combines moral and technical skills with work and study, and perfecting the evaluation mechanism, we can achieve standardisation and scientification in the whole process of talent cultivation. This strategic deployment not only highlights the great importance the state attaches to vocational education, but also highlights the urgent demand for skilled and applied talents in society.

Teaching methods are a vital link between teachers, students, and learning materials. They play an essential role in the learning process. These methods are what turn passive content into active learning. The success of a lesson often depends on how it is taught. When teachers use thoughtful and effective methods, students become more interested in learning. This can improve both the quality and results of teaching. But poor teaching methods can harm student engagement and lower learning outcomes.

While course content usually stays the same, teaching methods often change. This depends on the subject, the teacher's approach, and the students' learning styles. Because of this, teaching methods are the most flexible part of the classroom and play a key role in improving teaching quality. Experts in education agree

that new ideas and progress in this field often start with changes in how we teach. Any teaching goal can only be achieved if the method matches the goal.

In higher vocational education, teaching methods matter even more. Whether teachers use creative and effective methods affects how well they can train skilled workers who meet national and social needs.

Take the manufacturing field, for example. With advanced technologies like smart factories and Industry 4.0 becoming common, the industry needs workers who understand theory and can also work with their hands. If schools keep using old-fashioned "spoon-feeding" methods, students may struggle to understand complicated concepts. Even worse, they may fail to apply what they learn in real-world settings.

Newer approaches like project-based learning and case studies help solve this problem. These methods encourage students to learn by doing. They improve practical skills, support creative thinking, and teach teamwork. As a result, students are better prepared for jobs in modern industries.

Clearly, in higher vocational education, how teachers teach is no longer a small matter. It has become a key part of the national plan to train talent and is now a major force behind the growth of quality education.

1.1.2 The realistic dilemmas and challenges of teaching methods for teachers in China's higher vocational education

China has made many attempts to improve teaching methods in higher vocational colleges. However, several challenges still remain. Many reforms focus too much on the surface—such as classroom format or how content is delivered. They often ignore whether the teaching methods match the goals. These efforts also tend to overlook the special needs of vocational students. As a result, teaching lacks a clear structure and a well-organized method system.

Some schools even show signs of "method worship." They copy the teaching approaches used in regular universities or borrow foreign vocational methods without adjusting them for China's local context. This mismatch leads to a disconnect between how students are taught and what real-world jobs require.

These problems are specifically reflected in the following six aspects:

(i) Teaching design: misalignment of supply and demand, lack of vitality

The rollout of the "One Million Enrollment Expansion" policy in higher vocational education has led to a sharp rise in the number of teachers at vocational colleges. Many of these teachers joined the profession straight after graduating from university. While they have solid academic foundations, most of them lack real teaching experience and have limited exposure to industry practices. Their understanding of current trends in related industries and the types of professionals those industries need is often incomplete. This imbalance in the knowledge structure makes it difficult for the teaching design to accurately match the market demand. For example, in the teaching of big data technology, some teachers still focus on traditional theoretical courses, failing to timely incorporate the knowledge and skills of generative big models, the cutting-edge application of real-time data processing frameworks (e.g., Flink, Spark Streaming), the latest regulations and technological means of data security and privacy protection, and the in-depth solutions of big data in vertical industries (e.g., financial risk control, medical and healthcare prediction), as well as the enterprise-level big data platforms. solutions in vertical industries (e.g., financial risk control, medical and healthcare prediction), and the real-world operational processes of enterprise-level big data platforms (e.g., AliCloud DataWorks, Huawei FusionInsight) are integrated into the teaching content. As a result, students' knowledge stays at the basic theoretical level, they lack knowledge of mainstream industry technologies and actual business scenarios, and it is difficult for them to independently complete the whole process of enterprise-level big data project development, and they face the dilemma of lack of competitiveness in employment due to the gap between their practical ability and the needs of the enterprises when they seek for jobs, and the classroom teaching lacks attractiveness and vitality due to the detachment from the practical application.

(ii) Teaching activities: heavy ‘lecture’ light ‘do’, insufficient innovation

Right now, many higher vocational colleges still focus mainly on classroom lectures. Practical training is often limited. Even more, there is a lack of clear

goals and organized methods for building students' creativity and problem-solving skills.

Take the teaching of intelligent product development and application technology as an example, teachers in the classroom often spend a lot of time explaining the circuit principles of intelligent products, programming language syntax rules, and the theoretical characteristics of various types of sensors and chips. At the same time, the development platforms and frameworks required for smart product development, such as the architectural principles of the Internet of Things development platform, the operation mechanism of the mobile application development framework, etc., are also subjected to long theoretical analyses. And there are fewer opportunities for students to actually build smart product hardware circuits, write complete functional programs, and debug and optimise product performance. In hardware practice, students rarely have the opportunity to independently complete the whole process from component selection, circuit welding, to hardware system integration; in software practice, it is difficult to really participate in the intelligent product from the demand analysis, functional module development, and then to the complete project development process of system testing. This teaching mode is not only difficult to meet the requirements of vocational education for skills training, but also limits the development of students' innovative thinking and practical ability, which makes it difficult for students to quickly adapt to the actual needs of enterprises after graduation.

(iii) Practical knowledge: fragmentation of schools and enterprises and shortage of resources

Weak cooperation between vocational colleges and businesses has become a major barrier to improving hands-on teaching quality. On one side, many teachers only spend a short time in companies. Some just take brief visits instead of truly engaging in real production work. As a result, they gain little useful experience. This limited knowledge is hard to apply in class. Because of that, the gap between what is taught and what is used in practice remains wide. On the other hand, students have insufficient opportunities for internship training, and the quality of internship varies. The

internship programmes of some institutions in cooperation with enterprises lack systematicity and professionalism, and students are only engaged in simple and repetitive work during internships, unable to come into contact with core technologies and business processes, making it difficult for them to achieve effective enhancement of their vocational abilities.

(iv) Teaching environment: rigid atmosphere and neglect of individuality

The traditional teaching environment focuses on the one-way transmission of knowledge and lacks interactivity and innovation, making it difficult to stimulate students' interest and potential in learning. At the same time, the lack of attention to students' individual needs makes it difficult for teaching activities to meet the learning characteristics and development needs of different students. For example, in classroom teaching, teachers often adopt a uniform teaching progress and evaluation standards, ignoring the differences in students' learning ability, interests and hobbies, resulting in some students' boredom due to their inability to keep up with the teaching progress, which affects the overall teaching effect.

(E) Teaching tools and media: lagging behind in technology and insufficient application

As information technology advances quickly, digital teaching tools have become much more common in education. However, some higher vocational colleges and universities still have obvious deficiencies in the application of teaching tools and media, and there is a serious shortage of technical support and resource input. For example, the multimedia classroom equipment in some institutions is outdated and cannot meet the demand for online and offline blended teaching; the construction of teaching resource platforms is lagging behind, and there is a lack of high-quality digital teaching resources, which makes it difficult for teachers to obtain rich teaching materials, and students lack effective channels for independent learning. This situation greatly limits how much teaching quality and efficiency can improve. It also makes it hard to meet the new demands of education in the information technology era.

(F) Teaching Evaluation: Lagging System, Weak Feedback

The current system for evaluating teaching struggles to keep up with the needs of new teaching methods. Its use of results and feedback is also incomplete. In many vocational colleges, assessments still rely mainly on traditional exams and teacher ratings. They often overlook students' learning processes and practical skills. Moreover, the feedback from these assessments is not shared quickly with teachers and students. This lack of timely information limits its usefulness in improving teaching. Because of these issues, the outdated evaluation system makes it hard to accurately judge teaching quality and student learning outcomes. It can also cause teaching to drift away from the goals of training skilled professionals, which harms the long-term growth of vocational education.

1.1.3 Policy Orientation and Practical Path of Teachers' Teaching Method Reform in Chinese Higher Vocational Education

(1) National Policy Orientation

In response to the above problems, the state has pointed out the direction for the reform of teaching methods of teachers in higher vocational education from the policy level. The Implementation Plan of National Vocational Education Reform clearly requires the deep integration of vocational education and industrial development, encourages higher vocational colleges and universities to dynamically adjust their professional settings and course contents according to industrial demands, and realises the organic connection between the education chain, talent chain, industrial chain and innovation chain. The Action Plan for Improving the Quality and Excellence of Vocational Education places great emphasis on improving the quality of teachers, promoting the synergistic development of teachers' theoretical knowledge and practical ability, and creating a high-quality team of teachers capable of imparting theoretical knowledge as well as guiding practical operations. At the same time, the state through the improvement of vocational education examination and enrollment system, the establishment of a sound system of higher vocational classified examination and enrollment, to provide students with a diversified pathway to enter the school, but also puts forward higher requirements for teachers' teaching methods. Teachers need to

flexibly use diversified teaching methods according to the different backgrounds and needs of students to adapt to the requirements of the classified examination and achieve personalised teaching.

Today, fast advances in technology like big data and artificial intelligence offer fresh chances to change how teaching is done. By using big data to analyse students‘ learning behaviour and learning effects, teachers can accurately grasp students’ learning needs and weaknesses to achieve personalised teaching; the development of an intelligent teaching platform with the help of artificial intelligence technology provides students with intelligent learning support and counselling to improve learning efficiency and quality. For example, the use of artificial intelligence technology to build a virtual simulation experimental platform, students can carry out complex experimental operations and skills training in the virtual environment, effectively making up for the lack of practical teaching resources; through the analysis of the students' online learning data through big data, teachers can adjust teaching strategies in a timely manner to provide students with personalized learning advice, and truly realize the concept of student-centered teaching.

Moreover, strengthening cooperation between schools and businesses is key to improving teaching methods. Vocational colleges and universities need to work closely with industries and companies. Together, they can build industrial colleges and training centers. This collaboration allows schools and businesses to share resources and make the most of each other’s strengths. Teachers can accumulate rich practical experience by participating in enterprise project research and development, technical services and other activities, and integrate the actual cases and technical applications of enterprises into the teaching content; enterprise technicians can also come into the classroom to teach students cutting-edge knowledge and practical skills of the industry, and work together to create a ‘dual-teacher’ teaching team. At the same time, school-enterprise co-operation in the development of curricula and teaching materials, so that the teaching content is closer to the actual needs of enterprises, and more high-quality skilled personnel in line with market demand are trained.

In the future, as the reform of vocational education continues to deepen, the innovation and development of teaching methods for teachers in higher vocational education will become the key to promoting the high-quality development of vocational education. Through policy guidance, technological empowerment and school-enterprise collaboration, the construction of a new teaching method system that is student-centred and adapts to the development needs of the times will surely cultivate more high-quality skilled and applied talents for our country, and provide solid talent support for economic and social development.

(2) Explore related literature

The national initiative to "promote the digitalization of education" has elevated digital education to a key component of national strategic development. Digital technology has been thoroughly integrated into the realms of the economy, politics, and education, introducing new concepts, modes, and energy (Yeqin Chen et al., 2024) . This initiative has set the course for vocational education reform. Teaching is a complex endeavor, blending both art and science. Teaching methods, which serve as tools for educators to reach their educational objectives, are the most direct representation of their teaching practice. While the content of teaching remains relatively 'stable,' teaching methods offer a range of possibilities due to varying content, teachers, and students, making them the dynamic and adaptable elements in teaching and crucial for enhancing educational quality. These methods are the means to achieve teaching goals and the 'internal resources' for improving teaching quality, directly influencing talent development. A correct teaching method ensures that students are not mere bystanders; instead, the teaching material is designed for a performance where students take center stage (Qiquan, 2017). Training future educators to address common teaching challenges in a reflective, comprehensive, and innovative manner is essential and will undoubtedly be one of the educational challenges of the 21st century (González Pérez et al., 2023). By integrating artificial intelligence with vocational education through research and analysis, it is possible to identify gaps in students' professional skills, propose and implement solutions, and incorporate vocational

education tasks into actual teaching (Hui, 2020). Knowledge, skills, and positive attitudes are crucial elements that influence teachers' ability to adapt their teaching practices (Kamran et al., 2023) .

Many educators in higher vocational colleges have graduated from advanced educational institutions. While they possess strong theoretical knowledge, they often lack practical experience, particularly in industries related to their field of expertise. Consequently, their teaching tends to emphasize theory over practice, resulting in a minimal focus on hands-on training. This deficiency in practical instruction hinders students from fully acquiring professional skills and techniques, as well as developing their practical abilities (Tingting, 2018). The use of multimedia as a teaching tool enhances student interaction and supports mastery learning. Learning that incorporates multimedia can create a dynamic and effective teaching and learning environment (Affero Ismail et al., 2019). It is essential for teachers to be skilled in evaluating students' higher-order cognitive skills, enabling them to utilize a wider range of teaching methods (M. Yusop et al., 2024)

In a word, the teaching methods of teachers in higher vocational education have a decisive influence on realizing the goal of national vocational education reform and meeting the social demand for skilled talents. Effective teaching methods that are scientific, creative, and practical directly impact students' skills and future careers. Teachers should update their lessons and approaches based on national policies and the latest industry trends. This helps develop students' hands-on skills and innovative thinking. At the same time, teachers must keep improving their own expertise and teaching skills. By working closely with companies and providing real work experiences, teachers can make sure their lessons meet the needs of vocational skills.In addition, teachers should actively participate in the improvement of the evaluation mechanism of vocational education, adopt diversified evaluation methods, comprehensively monitor and improve the teaching quality, so as to better serve the regional economic development and cultivate more high-quality technical and technical talents for the society.

Existing studies have identified common problems and needs related to teachers' teaching methods in six major areas: instructional design, instructional activities, knowledge based on practical experience, the climate of the teaching environment, the medium of teaching tools and teaching evaluation. Improving and developing teaching methods is essentially a learning process for teachers. This means we need to prioritize teachers' professional growth and strengthen their teaching skills.

1.2 Objectives of the Study

This study attempts to examine the current status of teachers' teaching methods in Chongqing Business and Vocational College from six aspects, namely, instructional design, instructional activities, knowledge based on practical experience, instructional environment atmosphere, instructional tools and media, and instructional evaluation, and proposes strategies for improvement based on the problems identified, aiming to promote teachers' professional growth and enhance the quality of teaching in the school.

1.2.1 To study the teaching methods of teachers in Chongqing Business Vocational College.

It mainly involves six aspects: teachers' teaching design, teaching activities, knowledge gained through practical experience, teaching environment atmosphere, teaching tools and media, and teaching evaluation.

1.2.2 A study of guidelines for promoting improved teaching methods among teachers at Chongqing Business and Vocational College.

Based on the investigation and research on the teaching methods of the teachers of Chongqing Business Vocational College, this paper further thinks about the problems of the teaching methods of the teachers in this school, combines the spirit of the document 'China Education Modernisation 2035', puts forward the corresponding opinions and suggestions from the above six aspects, and gives a specific guidance programme.

1.3 Significance of the Study

As vocational education grows rapidly, studying teaching methods used by teachers in vocational colleges is both important in theory and useful in practice. This

research plays a key role in improving the quality of vocational education and achieving the goal of training skilled talent.

1.3.1 Theoretical significance: filling academic gaps and promoting theoretical innovation

As vocational education gains importance, changing teaching methods in vocational colleges has become a key topic in both research and education practice. Although the academic community has initially explored the connotation, system and form of teaching methods, the existing research mostly stays at the level of conceptual elaboration and empirical summary, with insufficient theoretical construction depth and lack of systematicity, and has not yet formed a set of mature theoretical system that fits the characteristics of China's higher vocational education. The classification of teaching methods in some studies still follows the traditional framework, which fails to fully consider the characteristics of vocational education of 'combining work and study, knowing and doing'; there is also an obvious lag in the theoretical exploration of interdisciplinary teaching and the integration of industry and education teaching modes.

Based on the in-depth integration of theory and practice, this study takes Chongqing Business Vocational College as a research sample, and reconstructs the connotation and extension of teaching methods of teachers in higher vocational colleges and universities. Through in-depth analysis of the intrinsic correlation between teaching methods and vocational education goals, industrial needs, and students' characteristics, the study digs into the deep logic of the problems of the current teaching methods and proposes targeted optimisation strategies. At the same time, combining the impact of big data, artificial intelligence and other new technologies on education and teaching, prospectively exploring the modern development trend of teaching methods, filling the gaps in theoretical research in the field of technology-enabled teaching, providing new perspectives and new ideas for the construction of a localised and scientific theoretical system of teaching methods in higher vocational education, and enriching the theoretical research results of vocational education.

1.3.2 Practical significance: driving multi-party development and empowering education ecology

(I) Helping teachers' professional growth and enhancing core competitiveness of teaching

The exploration and innovation of teaching methods is essentially a process of continuous learning and self-improvement for teachers. This study analyses the current status of teaching methods of teachers in Chongqing Business College, and provides teachers with diversified and operable teaching strategies by combining the cutting-edge industry dynamics and the development trend of education technology. For example, new teaching methods like project-based learning and flipped classrooms can help teachers move away from old ways of thinking. To address the issue of teachers lacking practical experience, schools can cooperate with businesses. This cooperation can include developing courses together and involving teachers in real enterprise projects. This way, teachers can bring new industry technologies and processes into the classroom. While improving their teaching methods, teachers can also boost their skills in lesson planning, classroom management, and evaluation. At the same time, they strengthen their "dual-teacher" role — shifting from simply sharing knowledge to training vocational skills. This change also opens up more chances for career growth.

(ii) Optimising students' learning experience and enhancing competitiveness in the job market

The main aim of vocational education is to train skilled workers who meet society's needs. This study focuses on students' learning needs and habits, and through research and analysis, it finds that students have urgent demands for practical ability cultivation and personalised learning support. Based on this, the study proposes student-centered teaching method improvement solutions, such as the use of big data analysis of student learning behaviour to achieve accurate learning recommendations; the introduction of enterprise real projects to carry out practical teaching, so that students can master professional skills in the field. In the intelligent product

development programme, through project-driven teaching, students are not only able to use development tools to complete product design, but also cultivate teamwork, problem solving and other comprehensive professional qualities. This change in teaching methodology significantly improves students' learning experience, improves learning results, and enables students to seamlessly connect what they learn in school with the job requirements of enterprises, so that they can stand out in the job market and enhance the competitiveness of their career development.

(iii) Promoting school quality improvement and achieving talent cultivation goals

Teaching methodology is a key influence on the quality of teaching in schools. This study provides schools with an objective and accurate teaching diagnostic report by comprehensively evaluating the teaching methods of Chongqing Business Vocational College. Based on the results of the study, the school can pinpoint the problems in teaching, such as the disconnection between the curriculum system and industrial demand, and the lack of practical teaching resources, etc. The school can formulate targeted policies and documents, increase the investment in teaching resources, improve the mechanism of school-enterprise cooperation, and optimise the teaching management and evaluation system. Taking the reform of teaching methods as a breakthrough, we will promote the synergistic development of professional construction, curriculum reform, and teacher team building to form a benign education ecology, ensure that the school's talent cultivation objectives resonate with the national vocational education strategy and the regional economic development needs, enhance the school's influence and competitiveness in the field of vocational education, and deliver more high-quality skilled talents to the society.

1.4 Scope of the Study

1.4.1 Scope regarding the sample group

1. The sample group for the qualitative study was 50 teaching managers of Chongqing Business Vocational College, specifically five people in different management positions were selected.

2. The population of the quantitative study was 600 teachers of Chongqing Business Vocational College, selected as the purposive sampling as sample group 57 teachers in School of Artificial Intelligence College and the population of the quantitative study was 3,023 students, selected as the stratified sampling method as sample group 60 students in School of Artificial Intelligence.

Subject allocation, the research participants were divided into 3 groups: Teaching managers, Teachers and Students.

1.4.2 Scope related to variables to be studied

The independent variables in this paper are teachers' instructional design, instructional activities, knowledge gained through practical experience, the climate of the instructional environment, the medium of instructional tools, and the assessment of instructional. The dependent variable in this paper is the quality of teaching.

1.5 Definition of Terms

1.5.1 Teaching methods

Teaching methods are the strategies teachers use during lessons. Their main purpose is to help students learn knowledge and develop skills. This concept includes four key parts: first, the setting of teaching objectives, teachers need to establish quantifiable and achievable learning objectives based on the curriculum standards and the analysis of learning conditions; second, the organisation of teaching content, involving the screening, integration and presentation of the knowledge system; third, the design of teaching activities, covering the form of classroom interactions, the arrangement of practical aspects of the specific implementation of the path; and fourth, the evaluation of teaching, diagnostic and feedback on the results of learning through a variety of means. The fourth is teaching evaluation, through a variety of means of diagnosis and feedback on learning outcomes. Teaching methods are the key connection between teaching and learning. Choosing the right methods directly affects how effective teaching is and how well students learn. When selecting methods, it's important to consider the subject's nature, students' understanding, and other factors.

1.5.2 Teaching competence

Teaching competence is the concrete manifestation of teachers' professionalism in teaching practice, which consists of five core skills. Classroom organisation requires teachers to reasonably control the pace of teaching and create an orderly learning environment; teaching design emphasises the construction of a scientific curriculum framework based on the teaching objectives; the use of teaching methods tests teachers' flexibility in choosing and implementing different teaching strategies; teaching evaluation refers to the accurate grasp of teaching effectiveness through multi-dimensional assessment; and teacher-student interaction focuses on the establishment of a benign communication mechanism in order to stimulate the motivation of learning. These skills work together to ensure knowledge is passed on effectively and students stay motivated to learn. In the end, they help achieve teaching goals. How well these skills develop directly impacts teaching quality and how much students learn.

1.5.3 Teaching Quality

Teaching quality is a comprehensive indicator for measuring the effectiveness of teaching activities, covering five dimensions: achievement of teaching goals, improvement of student learning, effectiveness of the teaching process, adequacy of resource utilisation and appropriateness of the teaching environment. Achieving teaching goals means students fully master the required knowledge and skills. Enhancing student learning focuses on the steady growth of their abilities and understanding. Evaluating the teaching process checks whether the chosen methods and their coordination are suitable. Measuring resource use looks at how efficiently teaching materials and time are used. The teaching environment's suitability considers how the physical space and supportive atmosphere aid learning. By combining numbers, such as test results and survey scores, with observations and reflections, teachers can thoroughly analyze the strengths and weaknesses of their teaching. This detailed evaluation helps guide improvements in teaching quality.

1.5.4 Teachers' personal professional development

Teachers' personal professional development is a dynamic process of continuous optimisation of teachers' professional quality during their career. The process is guided by the updating of educational concepts and promotes the innovation of teaching methods and the iteration of skills. By participating in professional training, academic seminars, enterprise practice and other activities, teachers continuously absorb the cutting-edge knowledge of the industry and the achievements of education technology, and adapt to the reform of vocational education and social development needs. The core objective is threefold: to directly promote the optimisation of teaching quality through the enhancement of teaching ability; to support the comprehensive development of students with more professional education strategies; to promote the sustainable progress of the education and teaching system through continuous self-innovation, forming a virtuous cycle of teacher growth and education development.

1.5.5 Students' Employment Competitiveness

The competitiveness of students in employment is a collection of comprehensive abilities of graduates to gain advantages in the labour market, which consists of professional literacy and general abilities. At the level of professionalism, students are required to have solid theoretical knowledge system and skilled job operation skills; the dimension of general competence covers the core professional qualities such as innovative thinking, communication and collaboration, problem solving and so on. The synergistic development of these abilities enables students to quickly adapt to job requirements and establish a comparative advantage in career development. Employment competitiveness not only directly determines the initial employment quality and career advancement of graduates, but also serves as an important external feedback indicator to reverse check the quality of teaching and the effectiveness of talent cultivation.

CHAPTER 2
LITERATURE REVIEW

2.1 Conceptual theory

Using teaching method theory, TPACK, and PCK, this study builds a theoretical framework to support research on the current status and improvement of teaching methods in vocational colleges.

2.1.1 Teaching Method Theory

Teaching method theory is the core knowledge system guiding teaching practice, covering a variety of theoretical paradigms, the essence of which is to promote students' learning and development through differentiated strategies and techniques.

Behaviourist teaching theory focuses on the shaping of learning behaviours by external stimuli, and advocates that learning is a conditioned reflex process of individuals to environmental stimuli. Under this theory, teachers assume the roles of instructors and behaviour shapers, and achieve targeted changes in students' behaviour by setting clear learning goals, designing reinforcement procedures, and applying positive rewards and negative punishments. The core teaching methods include direct teaching, imitation teaching and reinforcement learning, which emphasise the mechanical repetition of knowledge and standardised training of behaviour.

Cognitive teaching theory emphasises the cognitive process inherent in learning, believing that students construct knowledge systems through active thought processing, knowledge comprehension and memory encoding. In teaching practice, teachers focus on creating cognitive conflict situations, using heuristic questioning, concept mapping, problem solving tasks and other strategies to stimulate students' higher-order thinking and to promote in-depth internalisation and flexible transfer of knowledge.

Constructivist theory defines learning as the process of constructing knowledge based on an individual's prior experience. Teachers change their roles into learning guides and facilitators, and through the design of inquiry learning, project-based learning, cooperative learning and other activities, they support students to

actively construct knowledge in real problem solving, and cultivate critical thinking and independent learning ability.

Socio-cultural theory highlights the social and cultural context of learning, and advocates that learning is essentially a product of social and cultural activities. Teaching attaches importance to the intermediary role of teacher-student and student-student interaction, and helps students achieve cognitive development and cultural adaptation in the use of cultural tools and social interaction through apprenticeship teaching, collaborative learning, social practice and other forms.

The theory of technology-integrated teaching highlights how information technology can be deeply combined with teaching to improve the teaching process using digital tools and resources. Teachers make use of network teaching platform, multimedia courseware, intelligent learning system and other technological carriers to innovate the teaching mode, enhance students' motivation to learn, and achieve personalised learning support and optimisation of teaching effect.

2.1.2 TPACK Theory

TPACK (Technology Pedagogical Content Knowledge) theory, proposed by Punya Mishra and Matthew J. Koehler in 2006, is an important framework for explaining the structure of teachers' professional knowledge. The theory suggests that effective teaching by teachers depends on the deep integration and dynamic transformation of technological knowledge (TK), pedagogical knowledge (PK) and subject content knowledge (CK).

Technical knowledge covers digital teaching abilities such as the operation of hardware equipment, the application of software tools, and the development of network resources; pedagogical knowledge includes the system of teaching strategies such as instructional design, classroom management, and evaluation and feedback; and subject content knowledge refers to the teacher's systematic mastery of the concepts, principles, and theories of the subject. The overlap of these three areas creates the core of TPACK. Teachers need to combine technology features, teaching principles, and subject knowledge based on specific lessons. They design tailored

teaching plans, solve difficult problems, and in the end, improve teaching quality and help students learn better. This theory provides theoretical guidance for the development of teachers' IT application ability, which has important guiding value in the practice of education informatisation.

2.1.3 PCK Theory

PCK (Pedagogical Content Knowledge) theory was firstly proposed by Schulman in 1986, which is the core explanation of teachers' professional ability to transform subject knowledge into effective teaching content. The theory emphasises the two-way interaction between pedagogical knowledge and subject matter knowledge and contains five key dimensions:

The dimension of teaching methods and strategies requires teachers to choose appropriate teaching modes according to the characteristics of the subject to achieve efficient transfer of knowledge; the dimension of students‘ cognitive analysis requires teachers to accurately grasp the students’ knowledge base, difficulties in understanding and learning patterns, and to formulate differentiated teaching strategies; the dimension of the organisation of subject knowledge emphasises the structuring of the subject's content and logical system, and the construction of hierarchical knowledge networks; the dimension of teaching resource development requires teachers to filter, integrate and integrate subject knowledge into effective teaching content; and the dimension of the development of teaching resources. In the dimension of teaching knowledge organisation, teachers need to filter and integrate quality teaching resources to support teaching activities; in the dimension of teaching evaluation and feedback, they need to monitor the learning progress through diversified evaluation means and provide targeted feedback to promote learning improvement. PCK theory points out the direction for teachers' professional development, which is of great significance in enhancing the professionalism and effectiveness of teaching practice.

2.2 Related Literature

2.2.1 Teaching theory related literature

According to Lee Shulman's study,(Aydın et al., 2015) introduced the science education community to pedagogical content knowledge (PCK).(Shulman,

1987) defined PCK as 'an understanding of how the particular topics, problems, or issues that teachers present for instruction are organized, arranged, and adapted to the diverse interests and abilities of learners in particular contexts for instruction.' Since then, the focus on the role of PCK in science teaching and the development of PCK context has increased (Nilsson et al., 2012). At the same time, research indicates that novice teachers' professional and PCK development are integral in the first few years of the teaching career, although the importance of teaching is complex (Edmonson et al., 1989). Thus, the importance of the quality of preservice teacher education is evident for individuals to enter the teaching profession with more experience in the classroom and deeper knowledge. There is a need for teachers to have knowledge of all PCK components (e.g., knowledge of learners and instructional strategies). Secondly, to plan and implement instruction effectively for a specific group in a given situation, as scholars note, teachers must integrate these components into their PCK in a coherent way (Loughran et al., 2006; van Driel et al., 2002). According to (Selcuk Dogan, 2020), perceived technology skills were identified as the most important factor in teachers' use of instructional and application software. Thus, professional development for skills or technology competencies perceived by teachers might assist in enhancing the use of instructional and application software by teachers. Direct and positive effects were seen in terms of confidence and comfort when using technology for instructional and application software. Additionally, the level of support from technology specialists for instructional software use is greater than for application software use. The results shown in this research's models indicated that for 1) teachers' perceived technology skills for instructional and application software use, and 2) teachers' beliefs on the usefulness.

2.2.2 Main classification of research literature

Technology-Enhanced Inquiry-Based Learning

Technology-enhanced inquiry-based learning has gained significant attention in recent years, particularly in its ability to foster cognitive skills among students. (Yusra Jadallah Abed Khasawneh, 2024) conducted a study that revealed a significant positive relationship between technology-enhanced inquiry-based learning

and the development of cognitive skills among students. Their findings suggest that integrating technology into inquiry-based learning not only enhances cognitive abilities but also plays a crucial role in students' professional growth and advancement. This aligns with the broader trend of utilizing technology to create more engaging and effective learning environments, which is essential in preparing students for the demands of the modern workforce. Furthermore, (Nurdaulet Shektibayev, 2024) explored the integration of artificial intelligence technologies in teaching, demonstrating that such innovations can significantly enhance the educational process by improving students' engagement and understanding of complex concepts. This highlights the potential of technology to transform traditional inquiry-based learning into a more dynamic and effective educational approach. Additionally, (Indiani, 2022) emphasized the transformative effects of data-driven strategies on personalized learning experiences, indicating that such strategies can significantly improve students' mastery and learning outcomes, further supporting the integration of technology in educational practices. Moreover, the impact of artificial intelligence on vocational education has been noted, with studies suggesting that AI can enhance teaching quality and adapt to the evolving needs of students, thus fostering a more effective learning environment(Kong et al., 2024).

Apprenticeship Programs and Collaborative Dynamics

The dynamics within apprenticeship programs, particularly the collaboration between educational institutions and enterprises, are critical for enhancing learning outcomes. (Jing Bo, 2023) emphasized the importance of school-enterprise collaboration in their examination of contemporary apprenticeship practices. Their research highlights that effective apprenticeship programs involve the development and transfer of skills, critical thinking abilities, and the alignment of curriculum with industry expectations. This collaborative approach not only benefits apprentices by providing them with practical experience but also ensures that educational institutions remain relevant to industry needs, ultimately leading to better employment outcomes for graduates. Additionally, (Wanrong Meng, 2022) discussed how the integration of

information technology and emerging technologies in vocational education can further enhance the effectiveness of apprenticeship programs by aligning educational practices with the evolving demands of the job market. This underscores the necessity for continuous adaptation and innovation in apprenticeship frameworks to meet industry standards. Furthermore, (Yeqin Chen et al., 2024) analyzed the digital transformation of vocational education, suggesting that precise teaching and intelligent management modes can significantly enhance the effectiveness of apprenticeship programs in meeting contemporary educational goals. The challenges faced in adapting to these changes, particularly in the context of the rapid advancement of technology, necessitate a reevaluation of traditional apprenticeship models to ensure they meet the needs of both students and employers(Abdullah* et al., 2019).

Teacher Support and Emotional Intelligence

The role of teacher support, learning motivation, and emotional intelligence is pivotal in shaping educational self-efficacy and addressing academic procrastination among students. (Mohanad Mohammed Sufyan Ghaleb, 2024)explored these relationships and found that teacher support significantly impacts students' educational self-efficacy, which in turn influences their self-regulation and procrastination behaviors. This suggests that fostering a supportive learning environment, where teachers are emotionally intelligent and motivated, can enhance students' academic performance and reduce procrastination, thereby improving overall educational outcomes. In a related study, (Alhazmi, 2023) identified the importance of university facilities and support systems in influencing academic achievement, further emphasizing the need for a nurturing educational environment that promotes student success. This highlights the interconnectedness of teacher support, emotional intelligence, and institutional resources in fostering a conducive learning atmosphere. Additionally, (Y. Chen et al., 2023) discussed the impact of teachers' digital literacy on their ability to support students effectively, indicating that enhancing teachers' skills in technology can further bolster educational self-efficacy among students. The integration of technology in teaching practices, particularly through the use of artificial intelligence,

has also been shown to improve educational outcomes by providing personalized learning experiences that cater to individual student needs(Hui, 2020).

Interactive Visual Communication in Online Learning

The design of interactive visual communication plays a crucial role in online learning engagement and knowledge retention.(Baorong Lu, 2024) and investigated how such designs can enhance the learning experience in digital education. Their study indicates that incorporating interactive visual elements into online courses significantly boosts student engagement and facilitates better knowledge retention. This finding underscores the importance of thoughtful design in online learning environments, particularly as education increasingly shifts towards digital platforms. Moreover, (Desy Safitri, 2023) demonstrated that the use of augmented reality in interactive learning media positively impacts students' interest and engagement in educational content, further supporting the notion that innovative visual communication strategies can enhance learning outcomes. This suggests that leveraging advanced technologies in online learning can create more immersive and effective educational experiences. Furthermore, (Nadir Aliane, 2023) and highlighted the role of Education 4.0 technologies, such as blockchain, in enhancing educational management and creating dynamic learning environments, which can also contribute to improved online learning experiences. The integration of immersive technologies, such as virtual reality, has also been explored, revealing significant benefits in terms of learner motivation and engagement, which are critical for effective online education(Lee et al., 2024).

Classroom Assessment Practices in TVET

Classroom assessment practices in Technical and Vocational Education and Training (TVET) are essential for evaluating vocational skills and ensuring alignment with educational objectives. (R. M. Zulkifli, 2022) examined the assessment methods used by instructors in vocational colleges and identified several challenges associated with classroom-based assessments. Their findings suggest that there is often a disconnect between assessment methods and the intended learning outcomes, highlighting the need for more effective assessment strategies that accurately reflect

students' skills and competencies. Furthermore, (M. Yusop et al., 2024) emphasized the importance of addressing these challenges to improve the relevance and effectiveness of classroom assessments in TVET contexts. In addition, (Wanrong Meng, 2022) pointed out that the integration of big data and digital media technologies in vocational education can enhance assessment practices by providing more accurate and comprehensive evaluations of student performance. This indicates a growing need for innovative assessment approaches that leverage technology to better meet the demands of vocational education. Moreover, (Tian, 2023)discussed the construction of a classroom teaching quality management system, emphasizing the need for continuous improvement in assessment practices to ensure high-quality educational outcomes in vocational settings. The challenges posed by the rapid changes in the job market and the increasing complexity of vocational skills necessitate a reevaluation of assessment methods to ensure they remain relevant and effective in preparing students for future employment(Cao, 2024).

Specialty focuses on innovative teaching methods

Through the literature review of teaching methods in higher vocational education, we can find that all kinds of research focus on innovative teaching methods in vocational colleges.

(Huo et al., 2010) emphasize the importance of breaking traditional teaching modes and exploring a "teacher-guidance & student-centered" approach to address challenges in higher vocational education.(Xiaoxia, 2014) highlights the need for innovative teaching methods in legal professions, such as case studies and practical teaching, to enhance vocational characteristics and bridge theory with reality.

Similarly, (Songjie GONG, 2015) talks about developing innovative, highly skilled talents in e-commerce by boosting interest, changing teaching styles, and improving teaching methods. Furthermore, (Shujing Liu, 2014) highlights the importance of cooperation between schools and businesses for practical teaching in vocational colleges. (Yuling, 2017) examines how digital multimedia technology can be used to improve traditional teaching in film and television media courses. Additionally, (Baochun

Zhao, 2017) innovate modern apprenticeship systems in vocational colleges, exemplified by cartoon creation, to foster a new approach to vocational education.

Moreover, (Jing Zhao, 2020) explores practical teaching methods for oil and gas storage and transportation technology in vocational colleges, aiming to raise teaching quality under the new engineering framework. (Y. Li, 2020) studies how cloud computing can support teaching in vocational courses to improve students' learning experience. Finally, (Xu, 2019) looks at reforms in vocational education during the Internet+ era, focusing on updating teaching methods to fit the digital age.

This literature review confirms the importance of innovative teaching methods, such as student-centered approaches, practical teaching, multimedia technology, and industry collaboration, in enhancing the quality of higher vocational education. These insights shed light on ongoing efforts to improve teaching methods in vocational colleges, which are essential for preparing the modern workforce.

2.3 Current Challenges and Needs in Teaching Methods

The landscape of vocational education in China is undergoing significant transformation, driven by technological advancements and evolving educational policies. However, several challenges persist in the teaching methods employed by vocational educators. This section critically analyzes the prevalent issues and demands concerning teaching design, instructional activities, experiential knowledge, classroom atmosphere, teaching tools and media, and assessment practices, while proposing relevant improvement strategies.

One of the primary challenges in vocational education is the effective implementation of innovative teaching methods. The "1+X" certificate policy, aimed at enhancing instructors' core competencies, has highlighted the need for a robust management model for innovation processes in vocational colleges. Research indicates that the successful implementation of this policy is contingent upon effective knowledge transfer and continuous skill development among educators (M. S. Khan et al., 2024). This underscores the necessity for vocational educators to engage in ongoing professional development to adapt to new teaching methodologies. Furthermore, the

fast growth of computer technology has changed how teaching is managed in vocational colleges. This calls for new approaches to handle challenges brought by the "one million enrollment" policy (Ou, 2021).

Moreover, the integration of digital technologies into vocational education remains a critical area of concern. The rapid advancement of information technology, including artificial intelligence and big data, necessitates a reevaluation of teaching practices. Educators must not only update their teaching concepts but also enhance their digital literacy to effectively incorporate these technologies into their instructional strategies (Wanrong Meng, 2022). The digital transformation of higher vocational education is essential for improving teaching quality and meeting the demands of the modern workforce(Y. Chen et al., 2023). Additionally, the emergence of artificial intelligence has increased the pressure on vocational education graduates, necessitating a focus on high-quality talent cultivation that aligns with industry needs(Hui, 2020). The "Internet + education" model has also been proposed as a means to innovate talent training in the educational industry, which emphasizes the importance of optimizing educational resources and enhancing teaching methods (Fang et al., 2018). Furthermore, the need for educators to adapt to these changes is underscored by the findings of (J. Li, 2023), which highlight the importance of continuous adaptation in teaching methodologies to meet the evolving demands of vocational education.

Another significant challenge is the classroom atmosphere and the need for inclusive educational practices. Research has shown that teachers' attitudes towards students with special educational needs can significantly impact the effectiveness of inclusive education. It is crucial for educators to develop a positive attitude and self-efficacy to create an inclusive environment that accommodates all learners (Kamran et al., 2023). This highlights the importance of training programs that focus on fostering inclusive teaching practices among vocational educators. Furthermore, the implementation of blended learning (BL) during the COVID-19 pandemic has revealed challenges in its application, emphasizing the need for effective teaching resources and teacher-student interaction to enhance learning outcomes(Lin Wang, 2023).

Assessment practices in vocational education also require attention. Traditional assessment methods may not adequately reflect students' competencies and readiness for the workforce. There is a growing need for diversified assessment strategies that align with the practical skills required in various industries (I. A. Khan et al., 2023) . Implementing formative assessments and project-based evaluations can provide a more comprehensive understanding of student learning outcomes. Additionally, the integration of technology in assessment practices can further enhance the effectiveness of evaluations(González Pérez et al., 2023) .

In conclusion, addressing the challenges in teaching methods among vocational educators in China requires a multifaceted approach. Continuous professional development, integration of digital technologies, fostering inclusive practices, and diversifying assessment methods are essential strategies for improving the quality of vocational education. By focusing on these areas, vocational educators can enhance their teaching effectiveness and better prepare students for the demands of the labor market.

2.4 Main Findings

2.4.1 Impact of Teacher Support on Student Performance

Empirical findings indicate that teacher support plays a crucial role in enhancing student performance by fostering educational self-efficacy.(Mohanad Mohammed Sufyan Ghaleb, 2024) found that teacher support, along with learning motivation and emotional intelligence, significantly influences educational self-efficacy, which in turn affects self-regulation and academic procrastination. The study highlights that students who perceive higher levels of teacher support are more likely to exhibit improved self-efficacy, leading to better academic outcomes and reduced procrastination behaviors. This relationship underscores the importance of supportive teaching environments in vocational education, where students often face unique challenges in their learning journeys. Additionally, research by (Alhazmi, 2023) emphasizes that the facilities provided by educational institutions also play a significant role in academic achievement, suggesting that a comprehensive support system, including both teacher support and institutional resources, is essential for fostering

student success. Furthermore, the findings of (Lokman et al., 2023) indicate that classroom-based assessment practices can enhance student motivation and achievement, thereby reinforcing the positive impacts of teacher support on student performance. The challenges associated with classroom-based assessment practices in vocational education, as highlighted by (M. Yusop et al., 2024), further emphasize the need for effective assessment methods that align with learning outcomes to ensure students' acquired skills are adequately evaluated.

2.4.2 Cognitive Skill Development Through Inquiry-Based Learning

Technology-enhanced inquiry-based learning has been shown to significantly contribute to the development of cognitive skills among students. (Yusra Jadallah Abed Khasawneh, 2024) conducted a study that revealed a positive correlation between technology-enhanced inquiry-based learning and cognitive skill development. The research utilized a survey method involving 200 students and employed statistical analyses to confirm that such pedagogical approaches are essential for fostering cognitive skills necessary for professional growth. This finding emphasizes the need for vocational educators to integrate technology into their teaching practices to enhance cognitive skill development effectively. Furthermore, the integration of artificial intelligence in educational settings, as explored by(Yusra Jadallah Abed Khasawneh, 2024), demonstrates how innovative technologies can improve teaching effectiveness and student engagement, thereby further supporting cognitive skill development. Additionally, (Indiani, 2022) highlights the transformative effects of data-driven strategies on personalized learning experiences, which can further enhance cognitive skill development by tailoring educational approaches to individual student needs. The significance of digital transformation in vocational education, as discussed by (Y. Chen et al., 2023), also underscores the necessity for continuous improvement in teaching methods to adapt to the evolving educational landscape.

2.4.3 Competencies in Apprenticeship Settings

The dynamics of contemporary apprenticeship programs have led to the acquisition of new competencies through enhanced collaborative learning experiences.

(Jing Bo, 2023)explored the transformative practices within apprenticeship settings, emphasizing the importance of school-enterprise collaboration. Their findings indicate that effective apprenticeship programs foster the development and transfer of skills, critical thinking abilities, and collaborative curriculum design, which are essential for adapting to the evolving job market. This highlights the necessity for vocational education institutions to align their curricula with industry expectations and to cultivate an environment that promotes creativity and entrepreneurship among apprentices. Additionally, research by (Wanrong Meng, 2022) and points out that the integration of emerging technologies in vocational education is crucial for developing competencies that meet the demands of the modern workforce, further reinforcing the need for adaptive learning environments in apprenticeship settings. Moreover, (Yeqin Chen et al., 2024) discuss the importance of digital transformation in vocational education, emphasizing the need for innovative teaching methods and evaluation strategies to enhance the competencies of students in apprenticeship contexts. The role of technology in enhancing vocational education, as noted by (Abdullah* et al., 2019), also highlights the importance of updating teaching methods to include mobile learning and other technological advancements to better prepare students for the job market.

2.5 Consistency and Differentiation Analysis

In recent years, vocational education in China has changed a lot, thanks to the use of technology and new teaching methods. This section analyzes the consistency and differences found in the main findings across various research studies, highlighting the application and impact variations.

A common theme across multiple studies is the emphasis on the integration of technology in vocational education. For instance, (Baorong Lu, 2024) explored the effects of interactive visual communication design on online learning, revealing that such integration enhances student engagement and knowledge retention. Similarly, (Wanrong Meng, 2022) noted that the development of information technology has provided new impetus for the reform of vocational education, emphasizing the need for continuous updates in teaching methods to meet the demands of the digital era. This consistency

underscores a shared recognition of technology's role in enhancing educational outcomes. Additionally, (Yusra Jadallah Abed Khasawneh, 2024) found a significant positive relationship between technology-enhanced inquiry-based learning and the development of cognitive skills, further affirming the importance of technology in fostering student growth. Furthermore, (Selcuk Dogan, 2020)highlighted that teachers' perceived technology skills significantly affect their use of instructional software, suggesting that enhancing these skills through professional development is crucial for effective technology integration in education.

However, differences arise in the specific strategies and frameworks proposed for implementing these technological advancements. For example, (Cao, 2024) focused on the reform of the "Three Teachings" in higher vocational education, advocating for a practical approach to enhance the quality of education in the digital age. In contrast, (Nadir Aliane, 2023) highlighted the transformative impact of Education4.0, particularly through the integration of Blockchain Technology, which they argue creates a dynamic educational environment. This divergence illustrates that while the overarching goal of improving vocational education through technology is consistent, the pathways to achieving this goal can vary significantly. Moreover, (ERGASHOVICH, 2020) emphasized the importance of problem-based learning, which encourages students to engage in research to solve real-world problems, thus fostering a deeper understanding of the subject matter. Additionally, (Y. Chen et al., 2023) emphasized the necessity of continuous improvement in teachers' digital literacy to adapt to the demands of digital transformation in vocational education, suggesting a focus on teacher development as a critical component of educational reform.

Moreover, the studies also differ in their emphasis on the role of teacher development.(Mohanad Mohammed Sufyan Ghaleb, 2024) emphasized the importance of teacher support and emotional intelligence in fostering educational self-efficacy among students, which in turn affects self-regulation and academic performance. On the other hand, (Zhao et al., 2024) conducted a systematic review that identified major directions in vocational education reform, including teacher enhancement as a critical

factor but did not delve deeply into the specifics of teacher training methodologies. This indicates a variation in focus, where some studies prioritize the teacher's role in the educational process while others concentrate on broader systemic reforms. Additionally, (Khaled Mohammed Ahmed Alqasa, 2023) investigated the dynamics between teaching, learning, and evaluation within technology-enhanced environments, highlighting the intricate relationships among technology integration, pedagogical strategies, and student engagement.

Furthermore, the implications for practice also vary across studies. For instance, (Jing Bo, 2023) highlighted the need for legislative frameworks to promote collaboration between educational institutions and enterprises, suggesting that such partnerships are crucial for effective apprenticeship programs. In contrast,(Nian Meng, 2024) discussed the barriers to integrating Big Data and AI in educational leadership, emphasizing the need for a culture of data literacy among educational leaders to navigate these challenges effectively. This difference in implications suggests that while the studies agree on the necessity of collaboration and innovation, they propose different mechanisms for achieving these ends. Moreover, the findings of (Lokman et al., 2023) on classroom-based assessment indicate that continuous assessment practices can enhance student motivation and achievement, further supporting the need for innovative approaches in vocational education. (Fang et al., 2018) also contributed to this discourse by proposing an "Internet + education" model that emphasizes the integration of technology in training innovative talents, which aligns with the broader goals of vocational education reform.

In summary, while there is a consistent recognition of the importance of technology and innovative pedagogical strategies in enhancing vocational education in China, the studies exhibit notable differences in their approaches, emphases, and implications for practice. This analysis highlights the need for a multifaceted approach to vocational education reform that considers various perspectives and strategies to effectively address the challenges and opportunities presented by the digital age.

2.6 Limitations and Critical Analysis

The current state of vocational education in China has been extensively studied, revealing both contributions and limitations in existing research. One significant contribution is the exploration of innovative teaching methods influenced by policies such as the "1+X" certificate policy. (M. S. Khan et al., 2024) highlight the importance of stakeholder perspectives in implementing this policy, which aims to enhance instructors' core competencies through innovative management processes. Their findings suggest that effective policy implementation, training, and knowledge transfer are crucial for improving teaching methods in vocational colleges. However, the study's reliance on qualitative data from a limited sample size may restrict the generalizability of its findings.

Another critical aspect of vocational education reform is the adaptation to the digital era. (Cao, 2024)emphasizes the necessity of reforming the "Three Teachings" to meet the demands of digitalization. The study employs a composite system model to assess the growth of higher vocational schools, revealing a downward trend in the effectiveness of these reforms from 2013 to 2022. This indicates ongoing challenges in achieving high-quality development in vocational education, suggesting that while the reform strategies are well-intentioned, their practical application may be lacking. Additionally, (Y. Chen et al., 2023)argue that the digital transformation of higher vocational education is essential for its high-quality development, highlighting the need for continuous improvement in teachers' digital literacy to adapt to the new digital normal.

Furthermore, the integration of artificial intelligence in vocational education presents both opportunities and challenges. (Hui, 2020) discusses the impact of AI on vocational education, advocating for a rational application of AI teaching methods to cultivate high-quality talent. However, the study does not provide empirical evidence to support the effectiveness of these methods in enhancing teaching quality, which raises questions about the practical implications of such innovations. In a related study, (J. Li, 2023) explores the role of technology in enhancing educational outcomes, emphasizing that while technological integration can improve engagement, it must be implemented

thoughtfully to avoid exacerbating existing disparities in educational access. Moreover, (Jia, 2024) compares the characteristics and methods of informatization teaching in higher vocational education with traditional teaching modes, constructing a preliminary evaluation index system for higher vocational informatization teaching quality. This study highlights the factors affecting teaching quality, yet it also points to the need for more empirical validation of these methods.

The literature also highlights the importance of teacher enhancement and multi-skilling as key directions for vocational education reform. (Zhao et al., 2024)conducted a systematic review of vocational education reform literature, identifying these areas as critical for improving educational outcomes. However, the review lacks a comprehensive analysis of the barriers teachers face in implementing these reforms, which could provide valuable insights into the limitations of current practices. Additionally, Fatemah (Alhazmi, 2023) emphasizes the role of university facilities in influencing academic achievement, suggesting that the physical and technological resources available to students can significantly impact their learning outcomes. This perspective underscores the importance of considering environmental factors in vocational education reform. Additionally, (Affero Ismail et al., 2019) carried out an experiment that showed using multimedia tools in teaching greatly boosts student engagement and understanding. This finding highlights the important role that modern teaching aids can have in improving vocational education.

In a related context, the work by (Lokman et al., 2023)on classroom-based assessment (CBA) highlights its positive impact on student self-achievement and motivation. Their metasynthesis study indicates that CBA can enhance pedagogical practices, yet it also points out issues in knowledge and implementation that need to be addressed for effective application. This finding aligns with the need for comprehensive strategies in vocational education reform, emphasizing the importance of continuous assessment in fostering student development.

In summary, while existing research contributes valuable insights into the state of vocational education in China, it also reveals significant limitations. The reliance on

qualitative data, the lack of empirical evidence for innovative methods, and insufficient exploration of barriers to reform implementation suggest that further research is needed. Future studies should focus on quantitative assessments and comprehensive analyses of the challenges faced by vocational educators to develop more effective strategies for improvement.

This research offers a thorough examination of how teachers currently approach their teaching methods at Chongqing Business Vocational College. It provides a foundation for reforming teaching methods for teachers and administrators at this school, improving teaching quality, and serving as a reference for other higher vocational colleges seeking to enhance their teaching methods.

CHAPTER 3

Research Methodology

In order to achieve the research goal, the researchers adopted the description-analysis method. Descriptive methods focus on data collection, classification and tabulation, so as to draw meaningful conclusions and summarize the investigated phenomena. This study adopts mixed method, combining qualitative research with quantitative research, and using Excel and SPSS for descriptive analysis. The research object is limited to teachers, students and teaching administrators of Chongqing Commercial Vocational and Technical College, which is mainly divided into two forms: questionnaire survey and interview.

1. Questionnaire survey

Teachers: 600 full-time teachers were selected from 10 colleges, of which 57 teachers from the Institute of Artificial Intelligence participated in the questionnaire survey. The student part adopts stratified sampling. From 3023 students, 24 students in grades 2021, 2022 and 2023 were selected according to the ratio of 1:50. The number of boys is 14, 10 and 9 respectively, and the number of girls is 10, 9 and 8 respectively, making a total of 60. According to the number of students in each grade and major, 60 male and female students were randomly selected to answer questions according to the ratio of 1:50. According to the collected data, descriptive statistical analysis, correlation analysis, regression analysis and difference relationship analysis are carried out.

2. Interview survey

Interview with 5 school teaching administrators, including 1 director of teaching and research section, 1 deputy director of academic affairs office, 1 chief of quality management department, 1 school-level supervision expert and 1 chief of academic affairs office.

3.1 Research and design

3.1.1 Quantitative survey

Design an appropriate questionnaire to collect data on teachers' teaching methods in Chongqing Business Vocational College, including teaching design, teaching activities, knowledge gained through practical experience, teaching environment, teaching tools and media, and teaching evaluation, so as to ensure the effectiveness and reliability of the questionnaire. By analyzing the questionnaire data, this paper collects and analyzes the characteristics and present situation of teachers' teaching methods in Chongqing Business Vocational College.

3.1.2 Qualitative interview

In-depth interviews were conducted with teaching managers to understand their understanding of the teaching methods of Chongqing Business Vocational College, to analyse the current problems, and to make suggestions for the reform of teachers' teaching methods.

3.1.3 Data analysis

Through SPSS data analysis, this paper draws a conclusion, analyzes the main problems existing in teachers' teaching methods in Chongqing Business Vocational College, and explores the relationship between teachers' teaching methods and teaching quality.

The survey objects of this study are limited to teachers, students and teaching administrators of Chongqing Business Vocational College, which are mainly divided into questionnaire survey and interview survey.

Questionnaires: This study uses the platform of Questionnaires, taking teachers and students in Chongqing Business Vocational College as the survey objects. Use WeChat, QQ, etc. to distribute and recycle electronic questionnaires. A total of 117 questionnaires were collected.

Interview Survey: Interview five teaching administrators in Chongqing Business Vocational College.

After obtaining the consent of the reporting personnel, ensure the anonymity and confidentiality of the data, ensure that the research process conforms to ethical standards, and protect the privacy and rights of participants.

By reviewing and analyzing past research, this study summarizes the key factors that influence teaching methods. Among these influencing factors, according to the research scope, we focus on six aspects: teachers' teaching design, teaching activities, knowledge gained from practical experience, teaching environment atmosphere, teaching tools and media, and teaching evaluation, and design a questionnaire accordingly, using a five-level Likert scale.

Before putting the questionnaire, the reliability and validity were analyzed by SPSS 26.0. After being reviewed and adjusted by IOC experts, it was submitted online through the platform of Questionnaires.

After collecting data, SPSS 26.0 was used for data analysis.

3.2 Research participants

The survey objects of this study are limited to teachers, students and teaching administrators of Chongqing Business Vocational College, which are mainly divided into questionnaire survey and interview survey.

Questionnaires: This study uses the platform of Questionnaires, taking teachers and students in Chongqing Business Vocational College as the survey objects. Use WeChat, QQ, etc. to distribute and recycle electronic questionnaires. A total of 117 questionnaires were collected.

Interview Survey: Interview five teaching administrators in Chongqing Business Vocational College.

After obtaining the consent of the reporting personnel, ensure the anonymity and confidentiality of the data, ensure that the research process conforms to ethical standards, and protect the privacy and rights of participants.

3.3 Research tools

This study summarizes the main factors influencing teaching methods by reviewing and analyzing earlier research. Among these influencing factors, according to the research scope, we focus on six aspects: teachers' teaching design, teaching

activities, knowledge gained from practical experience, teaching environment atmosphere, teaching tools and media, and teaching evaluation, and design a questionnaire accordingly, using a five-level Likert scale.

Before putting the questionnaire, the reliability and validity were analyzed by SPSS 26.0. After being reviewed and adjusted by IOC experts, it was submitted online through the platform of Questionnaires.

After collecting data, SPSS 26.0 was used for data analysis.

3.4 Data collection

1. Passed the school ethics examination, the examination number is SWUEC-672494.

2. Put the questionnaire online and collect data through the test paper star platform.

3. Evaluate whether the questionnaire results are consistent and valid to confirm that the data gathered is both accurate and dependable.

4. According to the interview outline, conduct face-to-face interviews with teaching administrators in Chongqing Business Vocational College, and form interview records.

3.5 Data analysis

A mainly descriptive-analytical approach was used. The descriptive approach focuses on the collection, classification and tabulation of data to draw meaningful conclusions and to generalise the phenomenon under investigation. This study used a mixed-method approach, combining qualitative and quantitative research, and descriptive analyses using Excel and SPSS. For quantitative research, descriptive analyses and t-tests are mainly employed. The whole cluster sampling method was adopted to survey all 57 full-time teachers in the college of Artificial Intelligence at the university, as well as questionnaire surveys of 60 students in the college using the isobaric stratified sampling method.

3.6 IOC Analysis

Rovinelli and Hambleton proposed IOC as a quantitative method for content validity validation, in which expert ratings are used to determine the extent to which

items match the target construct. In academic research, IOC (Item Objective Congruence) is a commonly used indicator for assessing the content validity of measurement instruments (e.g., questionnaires, scales, test items, etc.). It determines how well each item fits the objectives of the study by means of expert review.

IOC scoring is used by domain experts to rate each item to determine whether it is consistent with the research objectives, and is often used in the questionnaire design or scale development stage to ensure the validity of the measurement tool. The purpose is to exclude the items that are irrelevant to the research objectives or unclearly stated, and to improve the content validity of the research instrument.

IOC (Item-Objective Congruence) Formula

The IOC is calculated for each individual item in a measurement tool (e.g., questionnaire, test, or scale) to assess its alignment with the research objectives.

Formula:

$$\text{IOC} = \frac{\sum_{i=1}^{N} S_i}{N}$$

Where:

- Si = Score given by the i-th expert for the item (typically -1, 0, or +1).
- N = Total number of experts (usually 3–5).

Scoring Criteria for Experts:

- +1 = The item strongly aligns with the research objective.
- 0 = The item's relevance is unclear or neutral.
- -1 = The item does not align with the research objective.

Threshold for Acceptance:

- IOC $\geqslant$ 0.5 $\longrightarrow$ Keep the item.
- IOC < 0.5 $\longrightarrow$ Revise or discard the item.

The IOC values of 45 questions designed in this questionnaire are all greater than 0.5, and the questions are related to the research objectives and can be retained.

Reliability indicates the degree of consistency of the results obtained after repeated measurements of the same variable with the same measurement method. The higher the reliability, the more reasonable the design of the questionnaire, the higher the reliability of the questionnaire.

table 1 IOC score reliability analysis

Reliability Statistics	
Cronbach's Alpha	N of Items
.731	45

Reliability indicates the degree of consistency of the results obtained after repeated measurements of the same variable with the same measurement method. The higher the reliability, the more reasonable the design of the questionnaire, the higher the reliability of the questionnaire. Cronbach's alpha reliability coefficient is between 0 and 1, which is the most commonly used reliability coefficient. Cronbach alpha coefficient between 0-1 is the most commonly used reliability coefficient, and the discriminative criteria are: Cronbach alpha coefficient below 0.6 means that the questionnaire has low reliability and cannot be used, while the value is greater than 0.7 indicates that the questionnaire has a considerable degree of reliability, and the value is greater than 0.8 means that the questionnaire has a high degree of reliability. In practical research, Cronbach α coefficient of 0.6 can be used. The Cronbach's coefficient Alpha value for the scoring of the questions of the three experts was 0.731, which is a valid Responses.

By analyzing the IOC values and the Alpha values of the scored responses, the questionnaire design is more reasonable and is a valid questionnaire.

3.7 Reliability and validity analysis

3.7.1 Reliability analysis

table 2 Scale Overall Cronbach's Alpha Statistic

Reliability Statistics	
Cronbach's Alpha	N of Items
.939	36

table 3 Reliability test results for each dimension

Variable (dimension)	N of Items	Cronbach's Alpha
D (Instructional Design)	6	0.750
A (Teaching activity)	6	0.647
K (Knowledge acquired through practical experience)	6	0.683
C (Climate of the teaching environment)	6	0.707
M (Medium of Instructional Tools)	6	0.688
E (Teaching Evaluation)	6	0.731

According to the collected questionnaires, SPSS software was used to analyse the questionnaires, and the Cronbach alpha coefficient was 0.939, which was greater than 0.9, and the reliability of each dimension measured was greater than 0.6, so the questionnaire was a questionnaire with high credibility, and the design was more reasonable.

3.7.2 Validity analysis

Validity indicates the degree to which a measure can effectively and correctly measure the desired measurement variable. The closer the measurement result is to the desired measurement variable, the higher the validity is; conversely, the lower the validity is. Factor analysis is performed using spss software, and its detection indexes include KM0 and Bartlett's test. the value of KM0 ranges from 0 to 1, and the closer the value is to 1, the more suitable it is for factor analysis. The KM0 value obtained from this questionnaire was 0.726 with a degree of freedom of 630, and the Bartlett's test of sphericity had a significance level of 0.000, which is smaller than 0.001. The validity of each dimension measured was greater than 0.6 and the level of significance was less than 0.001. this indicates that the questionnaire data can be factor analysed.

table 4 Validity analysis table

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.726
Bartlett's Test of Sphericity	Approx. Chi-Square	2084.377
	df	630
	P-value	.000

table 5 Results of the validity test for each dimension

Variable (dimension)	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	P-value
D (Instructional Design)	0.717	235.730	15	<0.001
A (Teaching activity)	0.660	136.026	15	<0.001
K (Knowledge acquired through practical experience)	0.606	158.742	15	<0.001
C (Climate of the teaching environment)	0.639	148.633	15	<0.001
M (Medium of Instructional Tools)	0.651	107.565	15	<0.001
E (Teaching Evaluation)	0.663	146.496	15	<0.001

CHAPTER 4
FINDINGS

By using SPSS 26.0 and EXCEL, this paper analyzes the problems existing in teachers' teaching methods in Chongqing Business Vocational College, and the main findings are as follows:

4.1 Basic Information Description

The main findings from the questionnaire and interview surveys are as follows:

table 6 Basic information of teachers

Variable	Attribute	Frequency	Percentage
Gender	Man	20	35.09
	Woman	37	64.91
Academic degree	Undergraduate course	11	19.30
	master	43	75.44
	Doctor	3	5.26
Age bracket	Aged between 25 to 35 years	34	59.65
	Aged between 36 to 45 years	19	33.33
	Aged above 50 years	4	7.02
Length of service as a teacher	Less than 5 years	20	35.09
	5 to 10 years	27	47.37
	11-20 years	7	12.28
	20 years experience	3	5.26
Teaching method	Method of lecture	18	31.58
	Discussion method	3	5.26
	Practical method	35	61.40
	other	1	1.76

Table 6: Basic information of teachers such as gender, education background and teaching experience (n=57)

The results in Table 6 show that most of the respondents in this study are female teachers, accounting for 64.91%, and their academic qualifications are concentrated in master's degrees, with fewer doctors. The number of people with teaching experience of 10 years or less is the largest, accounting for 82.46%. This is because the age of teachers is mainly between 25-45 years old, accounting for 92.98%, which shows that the teachers in the artificial intelligence college of this school are mainly young and middle-aged teachers, and most of them are young teachers. Teachers mainly adopt a single teaching method, focusing on practice.

table 7 Basic information of students

Variable	Attribute	Frequency	Percentage
Gender	Man	33	55
	Woman	27	45
Grade	Class of 2021	24	40.0
	Class of 2022	19	31.7
	Class 2023	17	28.3
Major	Big data technology	9	15.0
	Computer network Technology	12	20.0
	software technology	4	6.7
	Embedded technology application	1	1.7
	Application of cloud computing technology	7	11.7
	Internet of things application technology	8	13.3

table 7 (Continued)

Variable	Attribute	Frequency	Percentage
	Intelligent product development and application	6	10.0
	Digital media technology	13	21.7

Table 7: Basic information of students such as gender and grade (n=60)

The results in Table 7 show that slightly more male students were interviewed in this study, accounting for 55%. There are more students in 2021, accounting for 40%, and there are more students majoring in digital media technology and computer network technology, accounting for 41.7%. This pertains to the count of students in each grade and field of study.

4.2 Correlation analysis

table 8 Correlation analysis of teaching quality

Variable	M	SD	1	2	3	4	5	6
Instructional Design	4.48	0.72	1					
Teaching activity	4.32	0.68	.702**	1				
Knowledge acquired through practical experience	4.19	0.808	.779**	.763**	1			
Climate of the teaching environment	3.97	0.858	.540**	.637**	.622**	1		
Medium of Instructional Tools	4.05	0.78	.463**	.622**	.576**	.816**	1	
Teaching Evaluation	4.11	0.74	.605**	.728**	.735**	.843**	.814**	1

Note: * *. The correlation is significant at the 0.01 level (two-tailed).

Table 8 shows that Pearson correlation coefficient is above 0.5, which indicates that the teaching quality is related to the following six factors (teaching design, teaching activities, knowledge gained through practical experience, teaching environment, teaching tools and media, and teaching evaluation).

4.3 Regression analysis

table 9 Regression analysis

Variable	B	SE	β	t	P	VIF	F	R^2 (adj R^2)
(Constant)	5.882	2.955		1.990	.049			
Instructional Design	2.76	0.973	0.169	2.837	.005	2.734		
Teaching activity	7.35	1.005	0.423	7.321	<.001	2.573	219.592	0.854 (0.850)
Knowledge acquired through practical experience	6.05	0.960	0.413	6.303	<.001	3.319		

Table 9: Regression of teaching design, teaching activities and knowledge gained through practical experience to teaching quality

It can be concluded from Table 9 that the regression results of teaching design, teaching activities and knowledge gained through practical experience on teaching quality are significant (f (3,113) = 219.592, P < 0.001, R2 = 0.854). Teaching design [β=0.169, t=2.837, P=0.005], teaching activities [β=0.423, t=7.321, P<0.001], knowledge gained through practical experience [β= 0.413, t=6.303, P<0.001].

table 10 Regression analysis

Variable	B	SE	β	t	P	VIF	F	R^2 (adj R^2)
(Constant)	13.863	2.149		6.450	<.001			
Climate of the teaching environment	3.680	0.886	0.267	4.156	<.001	4.183	299.623	0.888 (0.885)
Medium of Instructional Tools	2.487	0.900	0.164	2.764	.007	3.579		
Teaching Evaluation	8.955	1.021	0.561	8.768	<.001	4.146		

Table 10: Regression of teaching environment atmosphere, teaching tools and media, and teaching evaluation to teaching quality

It can be concluded from Table 10 that the regression results reflect the influence of the teaching environment atmosphere, teaching tools and media and teaching evaluation on teaching quality are significant (f (3,113) = 299.623, P < 0.001, R2 = 0.858). Teaching environment atmosphere [β=0.267, t=4.156, P<0.001], teaching tools and media [β=0.164, t=2.764, P=0.007], teaching evaluation [β=0.561, t=8.768, P<0.001].

The focus was on the descriptive statistical analysis of the data (Form 12) and independent samples t-tests (Form 13), while the results of the interviews were as follows:

4.4 Descriptive statistical analysis and difference relationship analysis

table 11 Mean and standard deviation analysis

Target		Teacher			Student		Gather		
Variable	Problem	Mean	Standard deviation	Problem	Mean	Standard deviation	Mean （TD）	Mean （SD）	Mean value of both
Instructional	TD1	4.58	.596	SD19	4.33	0.896	4.63	4.35	4.49
Design	TD2	4.67	.577	SD20	4.38	0.904			
	TD3	4.63	.587	SD21	4.33	0.914			

table 11 (Continued)

Target		Teacher		Student			Gather		
Variable	Problem	Mean	Standard deviation	Problem	Mean	Standard deviation	Mean （TD）	Mean （SD）	Mean value of both
Teaching activity	TA4	4.35	.719	SA22	4.3	0.83	4.27	4.37	4.32
	TA5	4.16	.862	SA23	4.4	0.741			
	TA6	4.30	.755	SA24	4.42	0.809			
Knowledge acquired through practical experience	TK7	4.23	.866	SK25	4.43	0.745	4.23	4.14	4.19
	TK8	4.14	.743	SK26	4.25	0.932			
	TK9	4.32	.686	SK27	3.75	1.445			
Climate of the teaching environment	TC10	3.39	.978	SC28	4.32	0.873	3.63	4.3	3.97
	TC11	3.40	.997	SC29	4.13	1.065			
	TC12	4.11	.699	SC30	4.45	0.832			
Medium of Instructional Tools	TM13	3.26	.973	SM31	4.13	1.016	3.73	4.34	4.04
	TM14	3.67	.913	SM32	4.45	0.79			
	TM15	4.26	.791	SM33	4.45	0.769			
Teaching Evaluation	TE16	4.04	.706	SE34	4.23	0.909	3.87	4.34	4.11
	TE17	4.09	.739	SE35	4.42	0.809			
	TE18	3.49	.947	SE36	4.37	0.802			

Table 11: Mean and standard deviation of questionnaire statements and research variables

It can be seen from Table 11 that the standard deviation of all the studied variables is not greater than 1, and the data is more accurate. The atmosphere of teaching environment is M=3.97, with the smallest average value, followed by the medium of teaching tools M=4.04. (Climate of the teaching environment < Medium of Instructional Tools < Teaching Evaluation< Knowledge acquired through practical experience< Teaching activity< Instructional Design).

It shows that the teachers and students of Chongqing Business Vocational College Institute of Artificial Intelligence think that there are obvious deficiencies in the teaching environment, atmosphere and teaching tools and media, which need to be improved.

table 12 Teacher-Student Difference Analysis

Variable	Personnel category	M	SD	t	df	P-value
Instructional Design	Teacher	4.63	0.50	2.13	94.99	0.04
	Student	4.35	0.86			
Teaching activity	Teacher	4.27	0.64	(0.82)	115.00	0.41
	Student	4.37	0.71			
Knowledge acquired through practical experience	Teacher	4.23	0.66	0.57	107.03	0.57
	Student	4.14	0.92			
Climate of the teaching environment	Teacher	3.63	0.73	(4.60)	114.12	0.00
	Student	4.30	0.84			
Medium of Instructional Tools	Teacher	3.73	0.67	(4.64)	114.29	0.00
	Student	4.34	0.76			
Teaching Evaluation	Teacher	3.87	0.66	(3.60)	115.00	0.00
	Student	4.34	0.74			

Table 12: Differences between teachers and students in areas such as instructional design and instructional activities.

Table 12 points out that there is no significant difference between teachers and students in teaching activities (sig=0.41) and knowledge gained through practical experience (sig=0.57), which is greater than 0.05. The instructional design (sig=0.04) is less than 0.05, and there is a significant difference. There are significant differences when sig is less than 0.01 in teaching environment, teaching tools and media, and teaching evaluation.

4.5 Summary of interview content

table 13 Interview findings

Question	Summary from Interviews
1. What do you think are the main problems with the current teaching methods of the faculty of the college?	The teaching approach relies solely on lectures, lacks a sufficient blend of theory and practice, and does not adequately address the individual differences among students. Lack of information-based teaching methods; inadequate use of student-centred teaching strategies; lack of interaction and feedback; Single assessment method; Lack of awareness of innovative teaching.
2. Do you think the current practical curriculum in teachers' teaching meets the needs?	It is basically satisfied, but there is a disconnect between the content of some professional courses and the ability needs of vocational positions, and the effectiveness of practical courses needs to be improved.
3. What challenges do you think teachers face in terms of instructional design and curriculum design?	In terms of instructional design, the challenges are demand grasp and strategy design, content update and structure optimization, resource constraints and personalization challenges; Tailor teaching methods to meet the individual needs of students and apply varied instructional approaches; Stay current and continually enhance your professional skills. When it comes to curriculum design, the challenges include ensuring the curriculum is logically structured, updating and integrating content, implementing diverse teaching methods, and conducting evaluations that are scientifically sound.

table 13 (Continued)

Question	Summary from Interviews
4. How do you think of the use of interactive, discussion and multimedia tools in your teaching activities?	Multimedia tools are used to varying degrees, but the use is not sufficient, flexible enough, and sometimes there is a phenomenon of using for the sake of use, ignoring the goal of tool use. It is not sufficient and extensive, and only a small number of teachers pay attention to interactive teaching, and there are many traditional teaching modes.
5. Does the current teaching environment contribute to effective teaching? What could be improved?	It is necessary to improve the network conditions of classrooms and improve teachers' digital teaching literacy. Foster better communication between teachers and students, make the most of educational resources, and consider individual differences; Use teaching tools and resources wisely without becoming overly dependent on them.
6. Are you satisfied with the teaching tools and resources provided by the school? What do you think could be improved?	Mostly satisfied. Updates and upgrades of tools, teacher training and support, student feedback and assessment, resource integration and optimization.
7. Do you think the current way of teaching assessment is effective? Is it an accurate reflection of students' learning?	Mostly effective. At present, the school's teaching evaluation method basically implements the concept of student-oriented, but it is still necessary to improve the quality of students, take this method more seriously, and improve the efficiency of teaching evaluation data. It is necessary to optimize the evaluation indicators, enrich the evaluation methods, reduce the subjective influence, and strengthen the feedback mechanism to have a more comprehensive understanding of students' learning and promote the improvement of teaching effectiveness.
8. What are your specific suggestions for improving teachers' teaching methods?	1. Strengthen practical teaching. 2. Make full use of information technology such as artificial intelligence. 3. Update the teaching concept and pay attention to student feedback. 4. Strengthen cooperation with enterprises and introduce industry experts to participate in teaching; 5. Introduce more diversified teaching strategies, enrich teaching methods and teaching methods, improve teaching effectiveness, and continuously reflect on and improve teaching methods.

table 13 (Continued)

Question	Summary from Interviews
9. What teaching management measures do you think can further improve teachers' teaching ability and teaching quality?	1. Enhance the development of educators and elevate their professional standards through ongoing learning and training, while also creating records of teacher growth. 2. Refine the teaching management and evaluation frameworks by establishing a comprehensive management system and a scientific evaluation method. 3. Improve classroom teaching management and foster innovation by optimizing classroom teaching strategies and reinforcing classroom oversight. 4. Encourage collaboration and interaction among educators, engage in teaching and research initiatives, and set up a system for mentorship and leadership among teachers. 5. Pay attention to student feedback and participation, establish a student feedback mechanism, and encourage students to participate in teaching.

Based on the analysis of data from Form 11 and Form 12, it is evident that the current faculty and students at Chongqing Business Vocational College are not highly satisfied with the teaching environment, instructional tools and media, and the evaluation methods. There is a need to enhance these three areas. Additionally, the data from Table 12 and Table 13 indicate that the teaching design at the college lacks student-centered strategies, interaction, and feedback. The content of the courses does not align well with the skills required for vocational roles, and information technology is not being utilized effectively or appropriately.

CHAPTER 5
DISCUSSION AND CONCLUSION

5.1 Overview of the research

5.1.1 Importance of the study

The current state of teaching methods among vocational educators in China is a critical area of study, particularly in light of the rapid advancements in technology and the evolving demands of the labor market. This study aimed to examine the current teaching approaches adopted by instructors at Chongqing Business Vocational College and to suggest practical ways to improve them. The research holds value because vocational education now faces urgent pressure to adapt to digital transformation. New technologies like artificial intelligence (AI) and big data are reshaping how learning happens. Therefore, this study helps address those challenges while also contributing to better teaching quality and more effective student learning at the college.

Recent literature highlights the inadequacies of traditional vocational education in meeting the needs of a digital economy. For example, (Cao, 2024) points out that updating the "three teachings"——curriculum, teaching methods, and materials——is key to improving vocational education, especially in today's digital era. The research highlights that using hands-on and realistic approaches is necessary to ensure long-term progress in China's vocational training system. In addition, bringing digital tools into the classroom is seen as a major driver of education reform. Similarly, (Wanrong Meng, 2022) stresses that teachers must build strong skills in using technology if vocational education is to keep improving. In line with this, (Wang et al., 2024) highlight the importance of enriching multimedia teaching methods and strengthening diversified assessment methods to continuously improve teaching practices and enhance the overall quality of vocational education.

Moreover, the impact of artificial intelligence on vocational education cannot be overlooked. (Hui, 2020) discusses how the rise of AI has created new challenges and

opportunities for vocational education, necessitating a reevaluation of teaching methods to cultivate high-quality talents that meet the demands of the modern workforce. This sentiment is echoed by(Y. Chen et al., 2023), who assert that the digital transformation of higher vocational education is essential for enhancing teaching effectiveness and adapting to the new digital landscape.

In addition to technological advancements, the role of policy in shaping teaching methods is also significant. The "1+X" certificate policy, as explored by (M. S. Khan et al., 2024) , illustrates the importance of stakeholder perspectives in implementing innovative teaching methods that enhance educators' core competencies. This policy framework aims to foster a management model that supports the continuous development of teachers' skills, thereby improving the overall quality of vocational education. Furthermore, a systematic review conducted by (Zhao et al., 2024) analyzes the major directions of vocational education reform, emphasizing the combination of teaching and practice, multi-skilling, teacher enhancement, and policy reform as critical areas for development.

In conclusion, the current state of teaching methods among vocational educators in China is influenced by various factors, including technological advancements, policy reforms, and the need for continuous professional development. Addressing these factors is crucial for enhancing the effectiveness of vocational education and ensuring that it meets the evolving needs of the labor market. The results of this study offer helpful ideas for improving teaching practices. These strategies can help boost the overall quality of vocational education in China. More specifically, they can support the ongoing growth and development of Chongqing Business and Vocational College.

5.1.2 Core concepts of teaching methods

In the context of vocational education, teaching methods are pivotal in shaping the learning experiences and outcomes of students. The core concepts surrounding these methods include pedagogical strategies, technology integration, and assessment techniques, which are essential for fostering effective learning environments.

One significant aspect of teaching methods in vocational education is the integration of innovative technologies.(Turaevich, 2021) emphasizes the necessity of developing comprehensive teaching aids based on educational technologies to enhance pedagogical methods. This integration not only modernizes the teaching approach but also aligns with the evolving needs of the workforce, ensuring that students acquire relevant skills.

Furthermore, the dynamics between teaching, learning, and evaluation are crucial in understanding the effectiveness of these methods. (Khaled Mohammed Ahmed Alqasa, 2023) explore how technology integration, pedagogical strategies, and formative assessment methods interact to influence student engagement and learning outcomes. Their findings suggest that a well-structured approach to these elements can significantly enhance student satisfaction and academic performance.

The role of data-driven strategies in personalizing learning experiences is another critical area of focus. (Indiani, 2022)investigates how data-informed instructional decision-making can lead to improved academic performance by providing individualized learning opportunities. This approach highlights the importance of content sequencing and pacing, which can mediate and moderate the relationship between teaching methods and student mastery.

Moreover, the digital transformation of vocational education is reshaping traditional teaching methods. (Yeqin Chen et al., 2024) analyze the ontological connotation of this transformation, identifying key areas such as precise teaching and intelligent management modes that can enhance the educational experience. Their research indicates that many educators still rely on traditional methods, underscoring the need for reform in teaching practices to meet contemporary educational demands. This is echoed by(Jia, 2024), who compares the characteristics of informatization teaching with traditional methods, emphasizing the need for a comprehensive evaluation system to improve the quality of vocational education.

Artificial intelligence (AI) is also emerging as a transformative force in vocational education. (Kong et al., 2024) propose a wisdom teaching model that

leverages AI to create engaging learning environments. Their study demonstrates that AI-enhanced teaching methods significantly outperform traditional approaches in fostering problem-solving abilities and student interest. This aligns with the findings of(González Pérez et al., 2023), who highlight the importance of improving teachers' digital competence to effectively integrate technology into teaching practices.

Additionally, the integration of Big Data and AI into educational leadership and management presents both opportunities and challenges. (Nian Meng, 2024)discuss how these technologies can enhance educational outcomes through personalized learning and data-driven decision-making, while also addressing the barriers that impede their effective use. They emphasize the need for educational leaders to cultivate a data literacy culture, focusing on ethical awareness and technological proficiency to navigate the complexities of modern educational environments.

In summary, the theoretical and conceptual framework surrounding teaching methods in vocational education encompasses a range of innovative strategies and technologies. The integration of these elements is essential for improving educational outcomes and preparing students for the demands of the modern workforce. As the field continues to evolve, ongoing research and adaptation of teaching methods will be crucial in addressing the challenges and opportunities presented by technological advancements.

Therefore, under the urgent need to adapt to the digital era and the challenges of emerging technologies such as artificial intelligence and big data, vocational education, especially higher vocational colleges and universities, should identify the pain points in the development of school teaching and learning, and comply with policy documents such as the Outline of the Plan for the Construction of a Stronger Education Nation (2024-2035) and the Modernisation of China's Education 2035, to complete the ‘ Double High’ construction. That is, to complete the construction of high-level high-vocational schools and specialities with Chinese characteristics. The second stage of China’s national "Double High" program, scheduled for 2025 to 2029, focuses on supporting national plans and boosting local economic and social growth. It aims to

strengthen the abilities of higher vocational colleges and improve how well education aligns with industry needs. The main goals of this phase include:

Enhancement of key school-running capabilities: to create high-level professional clusters by optimising majors, curricula, teaching materials, practical training bases and teaching staff.

Serving industrial development: professional construction is closely aligned with industrial needs, and promote the deep integration of vocational education and industrial economy.

Promote digital transformation: build an intelligent base for virtual-real integration, reshape the teaching mode of human-machine collaboration, and establish a value-oriented intelligent governance framework.

5.2 Key findings

The study's findings indicate that Chongqing Business Vocational College faces varying levels of challenges in six key areas: the design of instructional plans by teachers, the execution of instructional activities, the acquisition of knowledge through hands-on experience, the overall atmosphere of the teaching environment, the mediums used for teaching tools, and the evaluation of teaching methods. Notably, there is a pressing need for enhancement in the teaching environment's atmosphere, the tools and media used for teaching, and the assessment methods. Furthermore, issues in teachers' instructional design are particularly significant and require immediate attention. This observation aligns with the findings of (Alhazmi, 2023) It is crucial for leaders, professors, and educators to consistently implement initiatives and strategies to innovate new facilities and resources, thereby fostering beneficial changes and achieving the institution's mission, vision, and objectives. Enhancing facilities and resources boosts the knowledge and skills of faculty and staff, transforming the university into a vibrant learning environment that promotes academic success for students. This observation is consistent with the findings of (Wanrong Meng, 2022). The advancement of information technology, including artificial intelligence, big data, cloud platforms, and intelligent terminals, has provided new momentum for the reform and

development of vocational education teaching. In the context of "Internet + education," the deep integration of educational teaching with emerging technologies has reached a new level, facilitating the continuous updating and enhancement of education. It is essential for senior teachers to continually refresh their educational and teaching concepts, redefine their roles as educators in the modern era, and develop practical skills in information technology teaching to build curriculum resources. The findings of (R. M. Zulkifli, 2022) align with this observation. The research revealed that educators often rely on the traditional lecture method, commonly known as "chalk and talk," in classrooms. It is essential to encourage teachers to adopt a range of instructional strategies. Educators should implement student-centered teaching techniques and incorporate technology to engage students in the learning process. It is recommended that the Ministry of Education, through the Technical and Vocational Education Division, offer training on 21st-century teaching methods to vocational college instructors and ensure that all vocational colleges are equipped with comprehensive information and communication technology infrastructure to enhance teaching practices among educators.

In order to achieve the goal of improving the quality of teaching, this study investigates and identifies the current status of teaching methods of the teachers in Chongqing Business Vocational College, identifying their need to be improved particularly with respect to the teaching environment atmosphere, teaching tools and media, the way of teaching, and teaching assessment, etc. Quantitative and qualitative research methods were selected. In this case, descriptive analysis and t-test were used for quantitative research, and a questionnaire survey was used for collecting questionnaires. The results of the study were analyzed with the SPSS program, and some results were obtained. One of the most important findings concerned the mean value of teacher and student satisfaction. The mean value of the teaching environment atmosphere (M=3.97) is the smallest mean value, as well as the mean value of teaching tools (M=4.01) and the mean value of teaching assessment (M=4.11). In relation to the qualitative research, the main interviews were conducted with teaching administration at

different levels of the school, and the problems were seen to be related to the design of teaching and learning.

It is recommended that Chongqing Business Vocational College needs to further enhance the quality of teaching facilities to build a place provided with good teaching and learning space for teachers and students. According to (Ibrahim et al., 2017), school facilities are engines of learning growth that assist the teacher and the learner in effective learning that is responsive to the goals of education. Additionally, the use of teaching methods will be more diversified and complex through the application of an open, interactive, multi-directional communication teaching mode. When teachers adapt their teaching methods, they should conform to the laws of teaching, apply them to the content, object, and purpose to meet the needs of innovative design and application, move away from the traditional teaching mode of passive learning where students only accept information, establish and create a teaching environment to promote knowledge application and thinking, and establish a new system of teaching methodology based on the development of the main body of students. According to (M. S. Khan et al., 2024), improving the overall quality of education can be achieved through better training to enable teachers to adapt to the changing educational landscape, adopt innovative teaching methodologies, and accommodate the different needs of students.

It is known that any pedagogical technology is developed based on new principles of education, and it should be directed towards the formation of the student's personality. (Turaevich, 2021) stated that the teacher and the student are at the center of new pedagogical technology, serving as the subject and object of the process. Therefore, the interactions and cooperation between these two individuals must be at a high level and aligned with modern and national requirements. Today, innovative technologies and information technologies are the primary tools for teaching, as they enable active student participation in the learning process. It is essential to develop a concept around integrated teaching aids for education based on educational technologies and to utilize new information technologies in the learning process.

Teaching and learning should adopt a student-centered approach, and the use of new technology in education, such as big data and artificial intelligence (AI), should be effectively applied in management teaching and personalized learning.

5.3 Theoretical and practical contributions

This study reveals that teaching theory is not isolated or fixed. In practice, educators should respond to the demands of social change by actively integrating multiple frameworks, such as social and cultural theory, PCK (Pedagogical Content Knowledge), and TPACK (Technological Pedagogical Content Knowledge). These theories must be applied in a way that fits the school's actual context. Based on the vocational undergraduate development at Chongqing Business Vocational College, this paper proposes targeted strategies. These suggestions aim to raise teaching quality, boost students' job readiness, and support teachers' professional growth. Overall, the findings offer meaningful and practical guidance for improving vocational education.

Teachers' teaching method improvement strategies in Chongqing Business Vocational College:

Based on the study of six key areas of teaching design and teaching activities in Chongqing Business Vocational College, it is found that the atmosphere of the teaching environment, teaching tools and media, and teaching evaluation methods are in urgent need of improvement, and the problem of teaching design is particularly prominent. In view of these problems, a systematic improvement strategy is proposed from the following seven dimensions, aiming at comprehensively improving the quality of teaching and promoting the school to achieve high-quality development.

I. Innovative teaching methods, cracking the traditional mode of predicament

(i) Promote the diversification of teaching mode

Change the status quo of over-reliance on the lecture method and build a diversified teaching mode system. According to the nature of the course, the project-based learning is fully implemented in professional courses, driven by real projects in enterprises, so that students can master knowledge and skills in practice;

theoretical courses use case teaching, seminar teaching, guiding students to think actively. By building a flexible mechanism for choosing teaching methods, teachers can adapt their approach based on lesson topics, student needs, and specific learning goals. This flexible use of different teaching styles helps overcome the limits of using only one method and brings more energy and engagement into the classroom.

(ii) Speed up the integration of digital technology into teaching

To address the lack of modern teaching tools and resources, schools should increase the use of digital technology in classrooms. This includes building smart learning environments, upgrading to advanced instructional equipment, and improving the usability of online course platforms. Teachers can also use virtual and augmented reality tools to create engaging, immersive lessons. Additionally, artificial intelligence can help track student learning patterns and provide tailored learning suggestions. By deeply embedding technology into the teaching process, schools can boost classroom interaction, spark student interest, and support ongoing teaching innovation.

(iii)Strengthen the practical teaching system

Aiming at the problem of weak practical teaching, optimise the design of the practical teaching system. Define the objectives of practical teaching, increase the proportion of practical teaching hours, and construct progressive practical teaching links of basic practice, professional practice, comprehensive practice and enterprise internship. Strengthen school-enterprise cooperation, build internship training bases, introduce real projects and production processes in enterprises, so that students can improve their practical ability in real work scenarios, and realise seamless docking from schools to enterprises.

II. Strengthen the construction of the teaching team and consolidate the foundation of teaching development

(i) Enhance the professionalism of teachers

Aiming at the problem of insufficient teaching experience and industry practice of some teachers, improve the teacher training system. Carry out

stratified training, with new teachers focusing on teaching skills training and in-service teachers focusing on industry practice and new technology training. Encourage teachers to participate in enterprise practice, industry exchanges and academic research, and obtain industry-related professional qualification certificates, so as to improve teachers' practical teaching ability and professional level, and create a “dual-teacher” teaching team.

(ii) Strengthening Teacher Ethics

Make teacher ethics and morality the primary task of teacher team building, and establish a sound assessment and evaluation mechanism for teacher ethics and morality. Carry out educational activities on teacher ethics and morality, publicise the deeds of outstanding teachers and set up role models of teacher ethics. Strictly implement the ‘one-vote veto system’ for teacher ethics and morality, and incorporate the performance of teacher ethics into the important indexes of teacher assessment, merit assessment and title promotion, so as to create a clean and positive teaching atmosphere.

(iii)Improving teacher incentive mechanisms

Establish a scientific and reasonable incentive mechanism for teachers to stimulate teachers' enthusiasm for teaching innovation. Set up special rewards for teaching reform, and give recognition and rewards to teachers who have made outstanding achievements in teaching method innovation, curriculum construction, student training and other aspects. Optimise the system of title appraisal and performance allocation, increase the weight of teaching performance in the appraisal, and tilt it towards the front-line teachers in teaching, so that the teachers' efforts can be fully recognised and rewarded.

III. Optimise the design and implementation of the curriculum to meet the needs of industrial talents

(i) Dynamically adjust the curriculum

Based on the industrial development needs and the requirements of vocational positions, establish a dynamic adjustment mechanism for the curriculum.

Regularly carry out industry research, invite enterprise experts to participate in curriculum demonstration, timely elimination of courses that are out of touch with the industry, and add cutting-edge courses in line with industry development trends. Optimise the structure of the curriculum, build a modular curriculum system, enhance the flexibility and adaptability of the curriculum, and ensure that the training of talents is closely aligned with the market demand.

(ii)Strengthen the updating of curriculum content

Promote the in-depth integration of curriculum content with industry standards and requirements of vocational qualification certificates. Organise teachers and enterprise personnel to jointly develop the curriculum and introduce new technologies, processes and specifications in the industry. Encourage teachers to prepare school-based teaching materials and integrate actual cases and project experiences of enterprises into the teaching content, so as to make the teaching materials more practical and relevant. Establish a system of regular updating of the curriculum content to ensure the timeliness and advancement of the teaching content.

(iii) Promote innovation in curriculum implementation

Actively investigate varied approaches to course delivery, promoting blended teaching methods such as online-offline hybrid models and flipped classrooms. Enhance the teaching process by integrating information technology effectively. Strengthen course management by establishing a system to monitor teaching quality closely. By combining teaching supervision with student feedback, educators can promptly assess how courses are being implemented. Based on this feedback, teaching strategies can be adjusted to continuously improve the overall quality of instruction.

IV. Improve the teaching evaluation system and achieve scientific and comprehensive assessment.

(i) Construct diversified evaluation indexes

Change the single evaluation method and establish a multi-dimensional teaching evaluation index system covering knowledge, skills and attitudes.

In addition to the traditional examination results, increase the evaluation indexes of classroom performance, practical operation, teamwork, innovation ability, etc., to comprehensively and objectively evaluate the learning effect of students. Introduce enterprise evaluation and third-party evaluation to ensure that the evaluation results are more in line with the needs of vocational positions.

(ii) Enriching evaluation methods and approaches

Adopt diversified evaluation methods combining formative and summative evaluation, self-evaluation and peer evaluation. Throughout the teaching process, formative assessments are conducted using classroom questioning, group discussions, and project tasks to offer prompt feedback on students' progress. After completing the course, summative assessments take place through final exams and course projects. By incorporating information technology tools, the evaluation process can be automated, which enhances both the speed and accuracy of assessments.

(iii) Strengthening the application of evaluation results

Establish a feedback mechanism for evaluation results, and use evaluation results for teachers' teaching improvement, students' academic guidance and school teaching management decisions. Based on the evaluation results of students, personalised learning suggestions will be provided to students; based on the evaluation results of teachers, targeted teaching training will be carried out; and based on the evaluation results of courses, the curriculum and teaching content will be optimised. Through the effective application of evaluation results, the quality of teaching will be continuously improved.

V. Improve the teaching management mechanism and enhance the effectiveness of teaching management.

(I) Strengthening teaching quality management

Establish and improve the teaching quality management system, and clarify the quality standards and norms of various aspects of teaching. Strengthen the monitoring of the teaching process, and comprehensively supervise the implementation of teaching programmes, classroom teaching and practical teaching

through teaching supervision, student evaluation and mutual evaluation of teachers. Regular assessment of teaching quality is carried out, and an early warning mechanism for teaching quality is established to detect and solve teaching quality problems in time and ensure the orderly development of teaching work.

(II) Optimising the allocation of teaching resources

Increase the investment in teaching resources, optimise the allocation of teaching facilities and equipment, and build high-level internship and training bases, libraries and information-based teaching platforms. Integrate on-campus teaching resources, avoid duplication of construction, and improve the efficiency of resource utilisation. Strengthen inter-campus sharing of teaching resources, carry out mutual selection of courses and mutual recognition of credits, and expand students' learning resources and development space.

(III) Promoting the informatisation of teaching management

Use information technology to improve teaching management and establish an integrated teaching management information system. Realise the informatisation and automation of teaching management operations such as teaching plan, course arrangement, student course selection and grade management. Create a big data analysis system focused on teaching, which offers a solid foundation for making informed decisions in teaching management. By collecting and examining teaching-related data, this system can enhance both the accuracy and efficiency of managing educational processes.

VI. Enhance students‘ learning motivation and participation, and stimulate students’ learning potentials

(i) Stimulate students' interest in learning

Pay attention to students' interests and career planning, and integrate diversified teaching contents and activities into the teaching process. Offer innovation and entrepreneurship courses, organise subject competitions, skills competitions and club activities to provide students with a platform to show themselves. Incorporate the latest industry knowledge and real-world examples to spark students’

curiosity and boost their creativity. This approach encourages students to engage actively in the learning process.

(ii) Strengthening study guidance and support

Establish a sound student learning guidance system to provide students with personalised learning guidance. Professional academic tutors are provided to help students make study plans, select courses and solve learning difficulties. Build a learning resource centre to provide rich learning materials and online learning support services. For students with learning difficulties, one-to-one support is provided to ensure that every student can successfully complete their studies.

(iii) Creating a favourable learning atmosphere

Strengthen campus culture and create a positive learning atmosphere. Academic lectures, reading activities and learning experience exchanges are organised to guide students to establish correct learning attitudes and values. Strengthen the construction of class culture, carry out activities to create learning classes, promote communication and cooperation among students, and form a learning community of mutual help.

VII. Promote the deep integration of industry and education, and build a collaborative education pattern

(i) Strengthening school-enterprise co-operation and collaborative education

Deepen the school-enterprise cooperation mechanism and establish long-term and stable cooperative relationships with enterprises. Build collaborative education platforms such as industrial colleges and enterprise studios, and work together to formulate talent training programmes, develop curricula, organise teaching and carry out internships and practical training. Carry out pilot projects of modern apprenticeship system, realise the integration of enrolment and recruitment, teaching and production, and cultivate high-quality technical and skilled talents that meet the needs of enterprises.

(ii) Promoting the transformation of industrial resources into teaching resources

Promote enterprises to transform advanced production technology, management experience and project cases into teaching resources. Invite technical backbones and management personnel of enterprises to serve as part-time teachers and participate in teaching and practical guidance in schools. Establish enterprise practice bases and introduce real projects from enterprises for teaching, so that students can master professional skills in practice. Strengthen cooperation between schools and enterprises in developing teaching materials and curriculum resources, and realise the organic integration of industrial resources and teaching resources.

(III) Enhance the ability of schools to serve industries

Focusing on the needs of regional industrial development, strengthen professional construction and scientific research innovation. Set up technology research and development teams, carry out technological research and transformation of achievements, and provide technical services and skills training for enterprises. Establish industrial demand feedback mechanism, adjust professional settings and talent training programmes according to the needs of enterprises, improve the school's ability and level of service to industry, and achieve mutual benefit and win-win situation between schools and enterprises.

By implementing the above - mentioned specific measures, fully implementing the spirit of the "China Education Modernization 2035" document, and devoting to solving the existing problems in teaching, we aim to construct a more scientific, efficient, and dynamic education and teaching system. Continuously refining teaching methods and raising teachers' professional skills are essential steps. At the same time, optimizing curriculum design and improving the evaluation system play important roles. Strengthening teaching management and boosting students' motivation help create a better learning environment. Additionally, promoting closer collaboration between industry and education supports this goal. These efforts together improve the overall quality of education and training. They also help develop more skilled technical

professionals who meet the demands of today's world. Ultimately, this progress advances vocational education in China and builds a strong foundation for achieving educational modernization.

5.4 Research limitations

This paper adopts a mixed research method, the research object is only a single college in Chongqing Business and Vocational College, the number of research samples is small, the scope of the research is small, the limitations are relatively large, and there is a situation in which the results of the research are not applicable to other majors or colleges and universities.

5.5 Recommendations and future research

The landscape of vocational education is undergoing significant transformation, driven by the integration of innovative teaching methods and technological advancements. This section explores emerging research trends and suggests potential paths for theoretical development, methodological innovations, and new application scenarios in vocational education.

One prominent trend is the emphasis on collaborative dynamics between educational institutions and enterprises, particularly in apprenticeship programs. Jing Bo and (Jing Bo, 2023) highlight the importance of school-enterprise collaboration in enhancing the skills and adaptive capacities of apprentices. Their findings suggest that effective apprenticeship programs require a careful alignment of curriculum design with industry expectations, fostering critical thinking and creativity among students. This trend underscores the necessity for vocational educators to engage in continuous dialogue with industry stakeholders to ensure that educational practices remain relevant and effective.

Another significant area of focus is the impact of interactive visual communication design on online learning environments. (Baorong Lu, 2024) argue that integrating visual communication elements can enhance student engagement and knowledge retention in digital education settings. Their systematic literature review

indicates that such design innovations can lead to more effective online learning experiences, suggesting a shift towards incorporating multimedia and interactive elements in vocational education curricula. This trend points to the need for vocational educators to adapt their teaching methods to leverage digital tools effectively.

The exploration of innovative teaching methods is further supported by the investigation of the "1+X" certificate policy in vocational colleges, as discussed by (M. S. Khan et al., 2024). Their study identifies key factors influencing the management of innovative teaching processes, including policy implementation and knowledge transfer. The proposed PTKT model emphasizes the importance of continuous skill development for educators, suggesting that vocational institutions should prioritize training and support for teachers to enhance their core competencies. This highlights a critical path for future research: developing frameworks that facilitate the professional growth of vocational educators in line with evolving educational policies.

Moreover, the integration of Education 4.0 technologies, such as artificial intelligence and blockchain, is transforming higher education management.(Nadir Aliane, 2023) illustrate how these technologies can create dynamic educational environments, although they also present challenges related to data privacy and technical expertise. This trend indicates a growing need for vocational educators to familiarize themselves with emerging technologies and incorporate them into their teaching practices to improve educational outcomes.

The digital transformation of vocational education is also emphasized by (Wanrong Meng, 2022), who argue that the integration of information technology is crucial for advancing teaching reforms. They advocate for the continuous updating of teaching methods and the development of practical skills among educators to meet the demands of modern vocational training. This perspective aligns with the broader trend of enhancing the quality of vocational education through innovative pedagogical approaches.

In addition, the recent study by(Yeqin Chen et al., 2024) analyzes the ontological connotation of digital transformation in vocational education, focusing on

aspects such as precise teaching and intelligent management modes. Their findings suggest that the reform of teaching methods is essential to meet the demands of digital education, highlighting the need for innovative approaches in vocational mathematics education. This aligns with the call for continuous improvement in teaching practices to adapt to the digital landscape.

Furthermore, the attitudes of teachers towards inclusive education, particularly for students with mild learning disabilities, have been identified as a significant factor in the successful implementation of inclusive practices in vocational settings. (Kamran et al., 2023) emphasize that teachers' self-efficacy plays a crucial role in creating an inclusive environment, suggesting that enhancing teachers' confidence can lead to better accommodation of diverse learning needs. This underscores the importance of professional development in fostering inclusive educational practices.

Additionally, the implementation of blended learning (BL) during the COVID-19 pandemic has highlighted the need for effective teaching strategies in vocational education. (Lin Wang, 2023) analyzed the factors influencing Chinese secondary school teachers' BL implementation, revealing that teaching resources and student ability significantly affect teacher motivation and curriculum design. This study underscores the importance of adapting teaching methodologies to enhance student learning outcomes in vocational contexts.

Finally, a systematic review conducted by (Zhao et al., 2024) analyzed 61 pieces of literature on vocational education reform over the past decade. Their findings indicate that the current major directions of vocational education reform include the combination of teaching and practice, multi-skilling, teacher enhancement, and policy reform. This comprehensive overview reinforces the ongoing reforms in vocational education characterized by a focus on integrating theory and practice, multi-skilling, and teacher enhancement. (I. A. Khan et al., 2023) also emphasize the need for continuous improvement in teaching methods and the development of teachers' professional skills to meet the evolving demands of vocational education. This aligns

with the broader trend of enhancing the quality of vocational education through innovative pedagogical approaches.

In conclusion, the current state of vocational education is characterized by a strong focus on collaboration with industry, the integration of technology, and the continuous professional development of educators. Future research should explore the effectiveness of these emerging trends and their implications for teaching practices, ensuring that vocational education remains responsive to the needs of students and the labor market. By fostering an environment of innovation and adaptability, vocational educators can significantly enhance the quality and relevance of their teaching methods.

5.6 Conclusion

5.6.1 The need for reform and innovation in educational practice

The study of teaching methods in Chinese vocational colleges reveals several critical findings that underscore the need for reform and innovation in educational practices. One of the primary insights is the significant impact of technology-enhanced learning on cognitive skill development among students. Research indicates that integrating technology into inquiry-based learning fosters cognitive skills essential for professional growth, highlighting the necessity for vocational educators to embrace modern pedagogical approaches(Yusra Jadallah Abed Khasawneh, 2024) .

Moreover, the collaborative dynamics between educational institutions and enterprises are pivotal in shaping effective apprenticeship programs. This collaboration not only facilitates the transfer of skills but also enhances critical thinking and identity formation among apprentices(Jing Bo, 2023). The findings suggest that aligning curriculum with industry expectations is crucial for the successful integration of theoretical knowledge and practical experience, thereby improving the overall quality of vocational education.

Additionally, the role of teacher support, learning motivation, and emotional intelligence has been shown to significantly influence educational self-efficacy and self-regulation among students. This relationship emphasizes the importance of fostering a

supportive learning environment to mitigate academic procrastination and enhance performance(Mohanad Mohammed Sufyan Ghaleb, 2024).

The integration of interactive visual communication design in online learning environments has also been identified as a transformative factor that enhances student engagement and knowledge retention. This approach suggests that vocational educators should leverage digital tools to create more inclusive and effective learning experiences (Baorong Lu, 2024).

Furthermore, the implementation of the "1+X" certificate policy has been found to influence innovative teaching methods, thereby enhancing instructors' core competencies. The study underscores the importance of continuous skill development and knowledge transfer as key factors in managing innovative teaching processes(M. S. Khan et al., 2024).

In the context of the digital era, the reform of the "Three Teachings" has emerged as a crucial decision to promote the high-quality expansion of higher vocational education. (Cao, 2024)emphasizes that adapting to the digital landscape is essential for meeting the evolving needs of vocational education, suggesting that a practical approach to reform can significantly enhance educational outcomes.

Moreover, the integration of Big Data and Artificial Intelligence (AI) into educational leadership presents both opportunities and challenges. (Nian Meng, 2024) highlight the potential benefits of these technologies, such as personalized learning and data-driven decision-making, which can collectively enhance educational outcomes.

The emergence of artificial intelligence has also raised the bar for vocational education, necessitating a focus on cultivating high-quality talents that meet the demands of the labor market. (Hui, 2020) discusses the importance of connecting AI with the reform and innovation of vocational education to improve teaching quality.

As digital technology continues to evolve, the digital transformation of higher vocational education becomes imperative. (Y. Chen et al., 2023) argue that enhancing teachers' digital literacy is a key starting point for the high-quality development of vocational education.

In addition, the emphasis on integrating theory with practice and improving teachers' professional abilities is crucial for enhancing the quality of vocational education. (Nian Meng, 2024) advocate for the continuous enrichment of multimedia teaching methods and diversified assessment strategies to promote effective teaching practices.

Furthermore, a systematic review of the literature on vocational education reform indicates that the major directions of reform focus on the combination of teaching and practice, multi-skilling, teacher enhancement, and policy reform, which are essential for advancing vocational education(Zhao et al., 2024).

Lastly, classroom-based assessment (CBA) has been shown to positively impact student motivation and achievement, highlighting the need for effective assessment practices that support holistic learning (Lokman et al., 2023).

Additionally, the innovative "Internet + Education" model proposed by Fang Yang, Jun Yan, and Lei Cao (2018) emphasizes the integration of technology in vocational education, aiming to optimize educational resources and enhance teaching effectiveness. This model aligns with the current trends in digital transformation and underscores the importance of adapting educational practices to the needs of the information era(Fang et al., 2018).

In conclusion, the findings from this research highlight the urgent need for vocational educators in China to adopt innovative teaching methods that incorporate technology, foster collaboration with industry, and support student development. These strategies are essential for addressing the challenges posed by the digital era and ensuring the high-quality development of vocational education in the country. The implications of this research contribute significantly to the existing body of knowledge, providing a foundation for future studies aimed at enhancing teaching practices in vocational education.

5.6.2 Implications for the Improvement of teaching methods of teachers in Chongqing Business Vocational College

This study brings out several critical lessons on the teaching methods employed at Chongqing Business Vocational College. Results indicate that both faculty

and student satisfaction are lowest in terms of classroom atmosphere, teaching tools, and methods of assessment. The mean satisfaction scores of 3.97 for the teaching environment atmosphere, 4.01 for teaching tools, and 4.11 for teaching assessment underscore significant areas in need of improvement. As a result of the qualitative element, there exists a consensus that the important issue is concerned with the design of instructional processes. This necessitates a reevaluation and improvement of instructional strategies, focusing on the student instead of the teacher, and creating a lively and supportive learning environment for effective education. Additionally, the study discusses the need for vocational education institutions to enhance the teaching and learning infrastructure by upgrading teaching and learning facilities, implementing cutting-edge technologies, and exploring alternative teaching methods. Training programs for practicing teachers should be provided to equip them for adapting to an evolving educational landscape, catering to the diverse needs of students, and addressing gaps in practical training. With the integration of digital technologies and artificial intelligence in our society, educators should adopt instructional methods that reflect these advancements. This will not only improve the quality of teaching but also better prepare students for the requirements of the labor market. It is crucial for students to be actively engaged and focused on practical experience to develop professional skills and competencies. Finally, appropriate strategies should be implemented to address the gaps identified in the teaching methods of Chongqing Business Vocational College to align the overall educational experience with current requirements and expectations in vocational education.

The phased research results of the "AI+'New Business' Digital Intelligence Talent Training and Research Base" (Project No. JD2024Z027) at Chongqing Education Research Experimental Base.

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APPENDIX

Acceptance Letter

EJER
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EJER_ Acceptance Letter

EJER

Manuscript ID: EJER-455-2024 **Date: 22nd March 2025**

Name and Surname*	:	**Jinghui Xu**
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Name and Surname*	:	Chakrit Ponathong
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Name	:	Pawatwong Bamroongkhan
University-Department*		Assistant Professor, Faculty of Education, Srinakharinwirot University, Thailand
e-mail address	:	pawatwong@g.swu.ac.th

It is to confirm that your paper entitled **"A Study on the Current State and Improvement Strategies of Teaching Methods for Teachers at Chongqing Business Vocational College"** is accepted for the publication in our journal namely "**Eurasian Journal of Educational Research**" Your paper will be published in the current issue of 2024.

Regards

Assoc. Prof. Dr. Şakir ÇINKIR

Editor-in-Chief
Eurasian Journal of Educational Research (EJER)
Abstracted and Indexed in:
ESCI, SCOPUS, ERIC

Certificate of Ethical Committee Approval

AF20-03-03.0
May, 2023

Certificate of Ethical Committee Approval

This is to certify that:

Protocol Title: A STUDY ON THE CURRENT STATE AND IMPROVEMENT STRATEGIES OF TEACHING METHODS FOR TEACHERS AT CHONGQING BUSINESS VOCATIONAL COLLEGE.
Principal investigator: Mrs.Jinghui Xu
Institution: Faculty of Education, Srinakharinwirot University
Protocol code: SWUEC-672494
Documents approved:

1.	Submission form	version no. 2 date 13 August 2024
2.	Full research proposal	version no. 1 date 28 June 2024
3.	Participant information sheet and consent form	version no. 2 date 16 August 2024
4.	Questionnaire/data collection form	version no. 1 date 28 June 2024
5.	Investigator's biography	

have been reviewed and approved by the Human Research Ethics Committee of Srinakharinwirot University based on Declaration of Helsinki, Belmont Report, International Conference on Harmonization in Good Clinical Practice (ICH-GCP), International Guidelines for Human Research, along with laws and regulations of Thailand. Thus, the approval for conducting the study is granted.

Date of approval: 26/08/2024
Date of expiration: 25/08/2025

(Associate Professor Sittipong Wattananonsakul, Ph.D.)
Chairman, Social Science and Behavioral Science Research Sub-Committee
of Srinakharinwirot University (Panel 2)

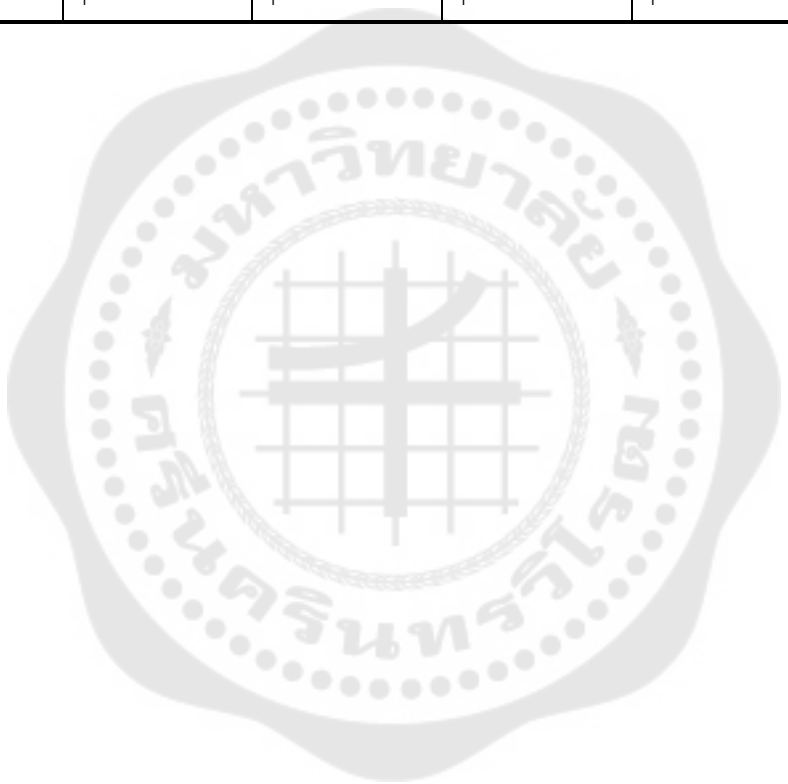
Ethics and Research Standards Devision
Innovation Building Prof. Dr. Saroch Buasri, Floor 17
Srinakhanarinwirot University, 10110 Thailand
Tel.: +66-26-495000, 17503 Fax: (02) 2042590

IOC Scoring Sheet

The Ratings of Each Item by the Three Specialists

Item No.	Expert 1	Expert 2	Expert 3	IOC	Decision
TD1	1	1	1	1	Keep
TD2	1	1	1	1	Keep
TD3	1	1	1	1	Keep
TA4	1	1	1	1	Keep
TA5	1	1	1	1	Keep
TA6	1	1	1	1	Keep
TK7	1	1	1	1	Keep
TK8	1	1	1	1	Keep
TK9	1	1	1	1	Keep
TC10	1	1	0	0.67	Keep
TC11	1	1	0	0.67	Keep
TC12	1	1	0	0.67	Keep
TM13	1	0	1	0.67	Keep
TM14	1	1	0	0.67	Keep
TM15	1	1	1	1	Keep
TE16	1	1	0	0.67	Keep
TE17	1	1	0	0.67	Keep
TE18	1	0	1	0.67	Keep
SD19	1	1	1	1	Keep
SD20	1	1	1	1	Keep
SD21	1	1	1	1	Keep
SA22	1	1	1	1	Keep
SA23	1	1	1	1	Keep
SA24	1	1	1	1	Keep
SK25	1	1	1	1	Keep
SK26	1	1	1	1	Keep
SK27	1	1	1	1	Keep
SC28	1	1	1	1	Keep
SC29	1	1	1	1	Keep
SC30	1	1	1	1	Keep
SM31	1	1	1	1	Keep
SM32	1	1	1	1	Keep
SM33	1	1	1	1	Keep
SE34	1	1	1	1	Keep
SE35	1	1	1	1	Keep

SE36	1	1	1	1	Keep
IS1	1	1	1	1	Keep
IS2	1	1	1	1	Keep
IS3	1	1	1	1	Keep
IS4	1	1	1	1	Keep
IS5	1	1	1	1	Keep
IS6	1	1	1	1	Keep
IS7	1	1	1	1	Keep
IS8	1	1	1	1	Keep
IS9	1	1	1	1	Keep



HESI. 8718/1020

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

19 June 2024

Topic: Invitation to be an Expert

To: Professor Yuan Longyin

Mrs. Jinghui Xu is a Master's degree student, majoring in the Master of Education in the Development and Management of Education at Srinakharinwirot University. She is working on her dissertation, titled "A study on the current state and Improvement strategies of teaching methods for teachers at chongqing business vocational college", with Assistant Professor Dr. Pawatwong Bamroongkhan as her advisor.

The Graduate School has invited her to be an expert on: (1) a consistency checking form; (2) an appropriateness checking form; and (3) the IOC of the Instructional Design Checklist. The subjects were also former students and this process was coordinated down to the last detail.

As a result, I would like to thank you for this opportunity and request permission to ask Mrs. Jinghui to be considered an expert.

Best regards,

(Lecturer Dr. Wongwit Senavongse)
Deputy Dean for Administration and Planning
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

HESI. 8718/1020

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

19 June 2024

Topic: Invitation to be an Expert

To: Professor Yao Ruijuan

Mrs. Jinghui Xu is a Master's degree student, majoring in the Master of Education in the Development and Management of Education at Srinakharinwirot University. She is working on her dissertation, titled "A study on the current state and Improvement strategies of teaching methods for teachers at chongqing business vocational college", with Assistant Professor Dr. Pawatwong Bamroongkhan as her advisor.

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Deputy Dean for Administration and Planning
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

HESI. 8718/1020

Graduate School
Srinakharinwirot University
114 Sukhumvit 23, Bangkok 10110

19 June 2024

Topic: Invitation to be an Expert

To: Professor Wang Fang

Mrs. Jinghui Xu is a Master's degree student, majoring in the Master of Education in the Development and Management of Education at Srinakharinwirot University. She is working on her dissertation, titled "A study on the current state and Improvement strategies of teaching methods for teachers at chongqing business vocational college", with Assistant Professor Dr. Pawatwong Bamroongkhan as her advisor.

The Graduate School has invited her to be an expert on: (1) a consistency checking form; (2) an appropriateness checking form; and (3) the IOC of the Instructional Design Checklist. The subjects were also former students and this process was coordinated down to the last detail.

As a result, I would like to thank you for this opportunity and request permission to ask Mrs. Jinghui to be considered an expert.

Best regards,

(Lecturer Dr. Wongwit Senavongse)
Deputy Dean for Administration and Planning
Acting Dean of the Graduate School

Graduate School
Tel. 0 2649 5064
Note: Please give the student a call if you would like further information on 13926141749

Paper questionnaire design

Title:Questionnaire for《A STUDY ON THE CURRENT STATE AND IMPROVEMENT STRATEGIES OF TEACHING METHODS FOR TEACHERS AT CHONGQING BUSINESS VOCATIONAL COLLEGE》

The purpose of this questionnaire is to find out the current status of teaching methods and the mainproblems of teachers in Chongqing Business Vocational College in order to propose improvementstrategies. The questionnaire mainly focuses on six aspects: teaching design, teaching activities,knowledge gained through practical experience, teaching environment atmosphere, teaching tools andmedia, and teaching evaluation. The data of the questionnaire will be kept strictly confidential andused only for academic research. Thank you for your cooperation!

Part I: Basic Information

Your identity:

[ ] Teachers

[ ] Students

Please complete if you are a teacher:

Gender: _____

Education: _____

Teaching experience: ____

Please fill in if you are a student:

Gender: _____

Grade level:

[ ] Class of 2021

[ ] Class of 2022

[ ] Class of 2023.

Part II: Teachers' Teaching Methodology Survey (completed by teachers)

(1) Instructional Design

1. Do you design instruction based on student needs and learning objectives?

[ ] Never.

[ ] Rarely.

[ ] Sometimes.

[ ] Often

[ ] Always.

2. does your instructional design include a variety of teaching methods (e.g., lecture, discussion, practice, etc.)?

[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

3. Does your instructional design focus on the structure and coherence of subject content, organising and integrating knowledge?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(2) teaching activity

4. Do you regularly interact and discuss in class?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

5. Do you use inquiry learning, project learning and co-operative learning teaching styles in your teaching process?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

6. Do you make timely adjustments to your teaching strategies according to students' learning status during the teaching process?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(3) Knowledge acquired through practical experience

7. Have you gained subject content knowledge and technical knowledge by gaining practical experience through industry, business, etc.?

[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.
8. Have you gained practical experience and knowledge of teaching through teacher training, observing excellent teachers in the classroom, etc.?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

9. Have you translated the knowledge gained through practical experience into teaching?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(4) Climate of the teaching environment

10. Do you believe that the current teaching and learning environment supports effective teaching and learning?
[ ] Not at all.
[ ] Less support
[ ] General support
[ ] More support
[ ] Fully supported
11. Do you feel that the instructional administration provides adequate support and resources?
[ ] Not at all.
[ ] Less support
[ ] General support
[ ] More support
[ ] Fully supported

12. Do you understand how well students understand the subject content and the learning difficulties they may be experiencing, and help them to resolve them?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often

[ ] Always.

(5) Medium of Instructional Tools

13. How satisfied are you with the teaching and learning tools and media (e.g. equipment, platforms, etc.) currently provided by your school?
[ ] Very unsatisfactory.
[ ] Unsatisfactory
[ ] General
[ ] Satisfaction
[ ] Very satisfactory.
14. Have you received training in the use of new teaching tools and media?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

15. Do you use a variety of technological tools and resources (e.g., multimedia tools, software applications, web resources, etc.) in your teaching and learning process?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(6) Teaching Evaluation

16. Do you regularly assess the learning outcomes of your students?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.
17. Do you adjust teaching methods and content based on assessment results?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.

[ ] Often
[ ] Always.

18. Do you support the current school's approach to managing the quality assessment of teachers' teaching?
[ ] Not at all.
[ ] Less support
[ ] General support
[ ] More support
[ ] Fully supported

Part III: Students' evaluation of teachers' teaching methods (to be completed by students)

(1) Instructional design

19. Do you feel that the teachers' content and methods of teaching meet your learning needs?
[ ] Not at all.
[ ] Less satisfied
[ ] Generally satisfied
[ ] More satisfied
[ ] Fully satisfied

20. Do you find the teachers' teaching methods varied and stimulating?
[ ] Totally disagree.
[ ] Less satisfactory
[ ] General agreement
[ ] Agree.
[ ] Totally agree.

21. Do you believe that teachers' instructional design is articulated and coherent?
[ ] Totally disagree.
[ ] Less satisfactory
[ ] General agreement
[ ] Agree.

[ ] Totally agree.

(2) Teaching activities

22. Do teachers regularly organise classroom discussions and interactions?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

23. Do teachers use inquiry learning, project learning and co-operative learning teaching styles in the teaching process?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.
24. Do teachers focus on student feedback and make timely adjustments to teaching strategies based on student learning?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(3) Knowledge acquired through practical experience

25. Do the teachers take into account new technologies and ideas and use case studies (projects, tasks, etc.) to teach so that you can "learn by doing"?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

26. After completing your professional course, are you able to apply what you have learned to analyse and solve practical problems?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.

[ ] Often
[ ] Always.

27. Does the school organise any visits or study tours to industries or companies for you?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(4) Climate of the teaching environment

28. Do you feel that the classroom atmosphere is positive and open and supports productive learning?
[ ] Not at all.
[ ] Less support
[ ] General support
[ ] More support
[ ] Fully supported
29. Do you feel that the school provides adequate resources and facilities to support your learning?
[ ] Not at all.
[ ] Less support
[ ] General support
[ ] More support
[ ] Fully supported

30. Have teachers helped you with your learning difficulties?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(5) Medium of Instructional Tools

31. How satisfied are you with the teaching and learning tools and media (e.g. equipment, platforms, etc.) currently provided by your school?
[ ] Very unsatisfactory.

[ ] Unsatisfactory
[ ] General
[ ] Satisfaction
[ ] Very satisfactory.

32. Do teachers use a variety of technological tools and resources (e.g., multimedia tools, software applications, web resources, etc.) in the teaching and learning process?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

33. Do you conduct self-study or submit assignments through instructional tools and media (e.g., devices, platforms, etc.)?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

(6) Teaching Evaluation

34. Do you keep up with the class and understand what is being taught?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

35. Teachers focus on process assessment, patient counselling and answering questions (including online), and timely correction of assignments (projects, etc.)?
[ ] Never.
[ ] Rarely.
[ ] Sometimes.
[ ] Often
[ ] Always.

36. Do you support the current school's Teaching and Learning Quality Measurement Indicators (student version)?

[ ] Not at all.

[ ] Less support

[ ] General support

[ ] More support

[ ] Fully supported

Part IV: Interview questionnaire design

Interview questionnaire design

Title: Outline of Teaching Methodology Interviews with Teachers at Chongqing Business Vocational College

Description:This interview aims to gain an in-depth understanding of the current situation and improvement strategies of the teaching methods of teachers in Chongqing Business Vocational College. Your answers will help us put forward scientific and reasonable suggestions for improvement and enhance the quality of teaching. Thank you for your participation!

1. what do you think are the main problems with the current teaching methods of the faculty?
2. Do you think the current provision of practical courses in teacher teaching meets the needs?
3. What do you think are some of the challenges that teachers face in terms of instructional design and curriculum?
4. What do you think about the use of interaction, discussion and multimedia tools in teaching and learning activities?
5. Is the current climate of the teaching environment conducive to effective teaching? What could be improved?
6. Are you satisfied with the teaching tools and resources provided by the school? In what ways do you think they could be improved?
7. Do you think the current way of assessing teaching and learning is effective? Do they accurately reflect student learning outcomes?
8. What specific suggestions do you have for improving teachers' teaching methods?
9. What teaching management measures do you think can further improve teachers' teaching ability and teaching quality?

Interview questionnaire

Summary of interview questionnaires

《 A STUDY ON THE CURRENT STATE AND IMPROVEMENT STRATEGIES OF TEACHING METHODS FOR TEACHERS AT CHONGQING BUSINESS VOCATIONAL COLLEGE》

(Head of the Teaching and Research Section): Cheng Wei

(Deputy director of educational administration office): Hu Feng

(External Supervisory Specialist): Liu Hao

(Chief of quality management department): Zhang Chun

(Chief of academic affairs office): Huang Hao

1. What do you think are the main problems with the current teaching methods of the faculty?

(Head of the Teaching and Research Section):

1. Teaching methods are single, favoring traditional teaching methods, such as reading from the textbook and lack of interaction in the classroom.

2. Insufficient combination of theory and practice: Emphasis is placed on theory rather than practice. Practice lacks practical significance and does not correspond to the skills of the target positions.

3. Insufficient attention to students' individual differences: Teachers are often over-uniform in their demands on students, without taking into account their

individual differences and learning needs. Individual differences and learning needs of students.Lack of personalized guidance.

4. Insufficient teaching research and innovation: Teachers generally have a heavy teaching workload and heavy tasks, and do not have time to pay attention to teaching research. Some teachers lack innovation in teaching methods and contents, and fail to introduce new technology, new techniques and new ideas in time.

(Deputy director of educational administration office): Informatization teaching methods are lacking.

(External Supervisory Specialist): Lack of use of student-centered teaching strategies.

(Chief of quality management department): Lack of motivation of some teachers to study teaching methods, mainly young teachers; disconnection between teaching and learning, teachers are exhausted and students are playing dead.

(Chief of academic affairs office):

1. Excessive traditional teaching mode: some teachers still rely too much on traditional lecture teaching, i.e., “duck” teaching, and students are in a state of passive acceptance, lacking the opportunity for active thinking and exploration.

2. Lack of interaction and feedback: insufficient classroom interactions, limited communication between teachers and students and lack of opportunities for cooperation and discussion among students.

3. Lack of cooperation and discussion among students: lack of cooperation and discussion among students.

4. Lack of interaction and feedback: lack of interaction between teachers and students. Lack of opportunities for cooperation and discussion. At the same time, teachers do not give students enough immediate feedback, which makes it difficult to help students adjust their learning strategies in time.

5. Single assessment method: the assessment method of many courses still relies mainly on the final examination, which is difficult to reflect students' learning and

ability level comprehensively, and is not conducive to the cultivation of students' comprehensive quality.

6. Insufficient awareness of innovative teaching: some teachers lack the awareness and motivation of innovative teaching and are not willing to try out new teaching methods and methods of teaching. Unwilling to try new teaching methods and strategies, resulting in outdated teaching content and methods, difficult to adapt to the needs of the times.

2. Do you think the current provision of practical courses in teacher teaching meets the needs?

(Head of the Teaching and Research Section):

1. The curriculum of practical courses should be closely aligned with the needs of the industry to ensure that students can master the core skills required by the industry through practical courses. At present, some majors and courses cannot meet the requirements.

2. On the one hand, some practical courses may still be stuck in the traditional mode of experiments or practical training, which lacks a close connection with the actual needs of enterprises, making it difficult for students to adapt to the workplaces quickly after graduation. On the other hand, due to resource constraints or teaching management and other reasons, the quantity and quality of practical courses may not be fully guaranteed, affecting the cultivation of students' practical ability.

(Deputy director of educational administration office): Yes.

(External Supervisory Specialist): Satisfactory.

(Chief of quality management department): There is a disconnect between the contents of some of the professional courses offered and the competency needs of the vocational positions.

The vague positioning of the objectives of the courses and the lack of functional orientation have led to a lack of core employability skills of the students upon completion of their studies.

(Chief of academic affairs office): basically meets the demand, but the effectiveness of practical courses needs to be improved.

3. What do you think are some of the challenges that teachers face in terms of instructional design and curriculum?

(Head of the Teaching and Research Section):

1. Demand grasp and strategy design: Teachers need to accurately grasp students' learning demands and interests, and at the same time design teaching strategies that can attract students' interests as well as effectively impart knowledge, which requires teachers to possess a high degree of educational sensitivity and innovative thinking.

2. Content updating and structural optimization: With the accelerated pace of knowledge updating, teachers need to continuously update the content of the courses to ensure that it is practical and up-to-date.

3. Practicality and timeliness. At the same time, they need to optimize the structure of the curriculum, balancing the relationship between theory and practice, and between foundation and extension, so as to meet the learning needs of students at different levels.

4.Resource constraints and individual challenges: With limited teaching resources, teachers need to make full use of the existing resources and innovate their teaching methods in order to realize the efficient implementation of the curriculum. In addition, in the face of individual differences among students, how to implement personalized teaching so that each student can receive education that suits him/her is also a major challenge for teachers.

(Deputy director of educational administration office):

1. Adapt to the new teaching environment and update the concept of education.

2. the development of the Internet and artificial intelligence technology requires teachers to master more information technology.

3. The demand for personalized teaching for students and the implementation of differentiated teaching.

(External Supervisory Specialist): Focusing on the “Three Teachings” reform, updating education concepts, improving teaching design, and integrating engineering and learning into project-based teaching.

(Chief of quality management department): Different teaching methods should be developed for different education targets, but schools are mixing students from different sources; integration of industry and education requires teachers to have higher practical ability and industry knowledge; teachers are looking for a balance in the ever-changing education environment while maintaining their own professional growth.

(Chief of academic affairs office):

1. Reasonableness of curriculum: There are problems such as a single curriculum, lack of flexibility, or disconnection with social needs. This requires teachers to have keen market insight and discipline foresight in order to design a curriculum system that meets the requirements of the times.

2.Renewal and Integration of Curriculum Content: With the continuous updating and expansion of subject knowledge, curriculum content needs to be continuously updated and integrated, and attention also needs to be paid to the coherence and systematic nature of the curriculum content in order to avoid repetitions and omissions.

3.Variety of Curriculum Implementation: Curriculum should not only focus on the The curriculum content itself, but also pay attention to the ways and means of curriculum implementation, and explore more diversified teaching methods, such as flipped classroom, project-based learning, inquiry-based learning, etc.

4.Scientific nature of curriculum evaluation: it is necessary to establish a scientific curriculum evaluation system, and to adopt diversified evaluation methods and means, in order to objectively and accurately assess the learning outcomes of students and the effectiveness of teaching and learning.

4. What do you think about the use of interaction, discussion and multimedia tools in teaching and learning activities?

(Head of the Teaching and Research Section): Currently, some teachers are using more interactive, discussion and multimedia tools in their teaching and learning

activities, and some of them are not using them enough. Various forms of interaction, rich discussions, and multimedia tools to assist teaching have significantly enhanced students' interest and participation in learning. However, it is necessary to pay attention to moderate use, avoid over-reliance, and ensure that the teaching effect is optimized.

(Deputy director of educational administration office): Good

(External Supervisory Specialist):: Insufficient and not extensive, only a small number of teachers paid attention to interactive teaching, and the traditional teaching mode is more

(Chief of quality management department): There are two extreme phenomena: one is excessive questioning, with more than half of the students answering questions in a class; and the other is no communication at all, reading out from the textbook and relying on the classroom materials in the whole process. Both situations are more offensive to students.

(Chief of academic affairs office): The whole is being used to varying degrees, but the use is not sufficient and flexible enough, and sometimes there is the phenomenon of using for the sake of using, ignoring the ultimate goal of tool use.

5. Is the current climate of the teaching environment conducive to effective teaching? What could be improved?

(Head of the Teaching and Research Section): The current climate of the teaching and learning environment is conducive to efficient teaching and learning in most cases, but there is still room for improvement. On the one hand, the modern teaching and learning environment is equipped with state-of-the-art teaching and learning equipment and resources, and creates a positive learning atmosphere that encourages students to participate in classroom interactions and cooperative learning. However, on the other hand, there are some challenges, including uneven student learning motivation and habits, which directly affect the realization of efficient teaching.

(Deputy director of educational administration office): Yes

(External Supervisory Specialist):: Improve classroom network conditions and enhance teachers' digital teaching literacy

(Chief of quality management department): The disconnection between students' “teaching” and “management” has resulted in inefficient teaching and learning, which should be coordinated by multiple departments and more institutional constraints should be introduced. (Leader of Quality Management Office): The disconnection between “teaching” and “management” of students has led to inefficient teaching.

(Chief of academic affairs office): On the whole, it is conducive to efficient teaching, but there is still much room for improvement and enhancement. The main ones are:

1. Enhancement of teacher-student interaction: Although many teachers have begun to try interactive teaching, the frequency and quality of teacher-student interaction in actual teaching still needs to be improved. Teachers can enhance teacher-student interaction by designing more diversified teaching activities, encouraging students to ask questions and give feedback, etc.

2. Optimizing learning resources: Although information technology provides abundant resources for teaching, there are still deficiencies in the selection and utilization of resources. Schools can strengthen the construction of resource libraries to provide high-quality and diversified learning resources; teachers need to carefully select and integrate teaching resources according to students' needs and interests.

3. Focusing on individual differences: every student has a unique learning style and ability level, but the current teaching environment is often difficult to fully meet students' individual needs. Teachers can pay attention to individual differences through tiered teaching, individual counseling, and group work to provide different students with learning support that suits their needs.

6. Are you satisfied with the teaching tools and resources provided by the school? In what ways do you think they could be improved?

(Head of the Teaching and Research Section):

1. Updating and upgrading of tools: With the continuous advancement of technology, new teaching tools and platforms are emerging. Schools can regularly

evaluate the effectiveness of existing tools and consider introducing or upgrading those that better meet teaching needs and enhance students' learning efficiency.

2. Teacher training and support: Even with advanced teaching tools and resources, their value will be greatly reduced if they are not effectively used by teachers.

3. Student feedback and assessment: As direct participants in teaching and learning, students' feedback is crucial to the improvement of teaching tools and resources. and resources. Schools should establish a sound feedback mechanism to collect and evaluate students' opinions and suggestions on teaching tools and resources on a regular basis.

(Deputy director of educational administration office): Satisfactory

(External Supervisory Specialist):: Each course team should build teaching resources based on the needs of project-based teaching and learning

(Chief of quality management department): Don't know

(Chief of academic affairs office): Overall, it is basically satisfactory, and can be improved in the following aspects:

1. Updating and upgrading: Teaching tools and resources need to be updated and upgraded regularly to keep up with the development of educational technology and the updating of subject knowledge. Schools should invest more in teaching tools and resources to ensure that they are always up-to-date and useful.

2. Teacher training: Although schools provide advanced teaching tools, many teachers may lack the appropriate skills to use them. Therefore, schools should strengthen the training and support for teachers to help them become proficient in the use of these tools and encourage them to actively apply them in their teaching.

3. Resource Integration and Optimization: At present, teaching resources in many schools may be scattered, duplicated or redundant. Schools should strengthen the integration and optimization of teaching resources to avoid wastage of resources and at the same time improve the efficiency of resource utilization.

7. Do you think the current way of assessing teaching and learning is effective? Do they accurately reflect student learning outcomes?

(Head of the Teaching and Research Section): The current teaching assessment methods are partially effective in reflecting students' learning effectiveness, but there is still room for improvement. There is a need to optimize the assessment indicators, enrich the assessment methods, reduce the influence of subjectivity, and strengthen the feedback mechanism in order to have a more comprehensive understanding of student learning and promote the improvement of teaching effectiveness.

(Deputy director of educational administration office): Effective

(External Supervisory Specialist):: I don't know what teaching assessment methods are available in the school

(Chief of quality management department): The current teaching assessment methods of the school basically implement the concept of focusing on students, but there is still a need to improve the quality of the students, take the method more seriously, and improve the efficiency of the assessment data.

(Chief of academic affairs office): On the whole, it is basically effective and can basically accurately reflect the learning effect of some students.

8. What specific suggestions do you have for improving teachers' teaching methods?

(Head of the Teaching and Research Section): The current teaching assessment methods have achieved some success in reflecting students' learning effectiveness, but there is still room for optimization:

1. Assessment should be more diversified, combining a variety of assessment tools, such as classroom performance, homework, examinations and project work, in order to comprehensively evaluate students' abilities.

2. Improve the feedback mechanism, providing students with specific and constructive feedback in a timely manner, which will help them to clearly identify the direction of improvement.

3. Improve the feedback mechanism, so that students' learning and development can be improved in a more effective way. By continuously improving the

assessment methods, student learning and development can be promoted more effectively.

(Deputy director of educational administration office): Teachers should adjust their teaching mode in time, update their teaching concepts, take students as the main body, stimulate students' thinking and innovation, and actively participate in learning and training as well as teaching and research activities, so as to improve teachers' business ability and teaching level.

(External Supervisory Specialist): Deeply understand the connotation of the “Three Teachings” reform, and implement it in the specific teaching design and implementation process.

(Chief of quality management department):

1. Strengthen practical teaching;

2. Make use of information technology;

3. Pay attention to students' feedback;

4. Strengthen the cooperation with enterprises, and bring in experts from the industry to take part in teaching;

5. Strengthen cooperation with enterprises and introduce industry experts to participate in teaching.

(Chief of academic affairs office):

1. return to the teacher's position, put more energy on how to cultivate students' learning methods, and teach them to “fish” instead of emphasizing on finishing the course content;

2. introduce more diversified teaching strategies, enrich the means of teaching and teaching methodologies, enhance the teaching effect, and continuously reflect on and improve the teaching methodologies. Teaching effect, continuous reflection and improvement of teaching methods.

9. What teaching management measures do you think can further improve teachers' teaching ability and teaching quality?

(Head of the Teaching and Research Section):

1. Regular training and seminars: Organize regular teacher training and teaching seminars to introduce the latest educational concepts and teaching methods to help teachers update their knowledge structure and improve their teaching skills.

2. Individualized teaching support: Provide individualized teaching support and guidance based on teachers' teaching characteristics and needs. Through teaching assessment, the strengths and weaknesses of each teacher are identified and tailor-made enhancement plans are developed to compensate for shortcomings and bring strengths into play.

3. Establishment of incentive mechanism: Establish an effective incentive mechanism to encourage teachers to actively participate in teaching research and reform. Teachers who have achieved remarkable results in teaching innovation and student training will be recognized and rewarded, so as to stimulate teachers' enthusiasm and creativity in teaching.

4. Strengthen the monitoring of teaching quality: establish a perfect monitoring system of teaching quality, and regularly evaluate and give feedback on teaching quality. Through student evaluation, peer evaluation, teaching supervision and other means, we can fully understand the teaching situation, discover problems in time and take measures to improve them.

5. Promote teachers' cooperation and exchange: Encourage cooperation and exchange among teachers, establish teaching teams or teaching and research groups to jointly study teaching problems and share teaching resources and experiences. Through teamwork, collective wisdom is utilized to improve the overall teaching level and quality.

6.Provide technical support and resources: Provide teachers with necessary technical support and teaching resources, such as teaching software, online course platforms and e-books. To help teachers master modern educational technology, enrich teaching means and resources, and improve teaching effectiveness and students' interest in learning.

(Deputy director of educational administration office): I. Improve the training of teachers' business ability and pay close attention to the management of education and teaching; II. Grasp students' formation education and cultivate good learning habits; III. Strengthen the management of classroom process and insist on the quality of teaching; IV. Improve the management system of the school to form a good atmosphere for educating people.

(External Supervisory Specialist): The school's teaching management measures are only external requirements, the key is still the teachers' own recognition of the concept of vocational education, teaching reform and action, the school also needs to strengthen the guidance and resources to build the strength of the support, and strengthen incentives.

(Chief of quality management department):

1. Regular training and continuing education;

2. Sharing of teaching resources;

3. Encouragement of cooperation among teachers of different disciplines;

4. Teachers take the initiative to collect students' opinions and suggestions on teaching; 5. Encouragement of teachers to use educational technology tools.

(Chief of academic affairs office):

1.Strengthening of teachers' team building and improvement of their professionalism, continuous learning and training, and the establishment of a teachers' growth file.

2. Improvement of the teaching management system and assessment system, establish a sound teaching management system, and set up a scientific assessment system.

3.Strengthen classroom teaching management and innovation, optimize classroom teaching design, and strengthen classroom management.

4.Promote exchanges and cooperation among teachers, carry out teaching seminars, and set up a mechanism for teachers to pass on teaching experience.5-

Focus on student feedback and participation, set up a feedback mechanism for students, and encourage students to participate in teaching

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