Research on Practical Teaching System of Information Industry Talent Training in Higher Vocational Colleges Under the Background of Industry Education Integration: The Case of Chongqing C Vocational College

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Abstract: This study explores the content, methods, and mechanisms of industry education integration, analyzes the current situation of talent demand in the information industry, and the relationship between industry education integration and the practical teaching system of vocational information industry talent cultivation. Taking Chongqing C Vocational College as an example, by studying the relationship between the practical teaching system and satisfaction of college students, we can understand the real needs and help optimize the practical teaching system. A purposive sampling method was used to select 427 students for formal questionnaire distribution, and 372 valid questionnaires were obtained, with an effective recovery rate of 87%. The valid questionnaire was analyzed and validated using SPSS26.0 statistical software through item analysis, confirmatory factor analysis, reliability and validity analysis, and linear regression analysis. Explore the practical teaching system for talent cultivation in the information industry, in order to provide in-depth understanding for information majors in vocational colleges and public industry education integration training bases, and serve as a reference for future research.

Keywords: College Students; Integration of Industry and Education; IT Industry; Higher Vocational Colleges; Practical Teaching System.

1. Introduction

After entering the 21st century, with the promotion of the new generation of information technology, social productivity has reached an unprecedented high, and the world has entered the information age. The new generation of information technology will bring unprecedented impacts: firstly, transforming the driving forces of old and new development. The strong penetration and integration of the new generation of information technology have promoted the deep integration of information technology and industrialization, promoting the continuous development of new technologies, industries, formats, and models, cultivating new information economy, digital economy, and intelligent economy, transforming traditional industries, and cultivating new industries. The second is to comprehensively promote social change. The new generation of information technology is gradually being widely applied in various fields of society, resulting in new knowledge, concepts, and concepts such as intelligent agriculture, Industry 4.0, industrial internet, intelligent factories, and intelligent cities, profoundly changing people's way of thinking. How they produce and live. The comprehensive improvement of urban quality and vitality has a wide impact on social transformation and development (Shen Yuan, 2019). This article takes the 11361 practical teaching system for vocational information industry talent cultivation under the background of Chongqing C Vocational School's integration of industry, education, industry, and education as the research object. It attempts to analyze the operation of this system, summarize experience and shortcomings, propose improvement strategies, and provide reference and reference for the cultivation of talent in school enterprise cooperation, industry, and education integration.

This study consists of six chapters, including research background and significance, previous research foundation, relevant concepts and theoretical foundations of industry education integration and talent cultivation practical teaching system, current situation of industry education integration practical teaching in vocational colleges, information industry 11361 practical teaching system in Chongqing C Vocational College, operation effectiveness of Chongqing C Vocational College 11361, and summary and outlook. It conducts research on the practical teaching system of industry education integration talent cultivation in vocational colleges. This chapter is divided into four sections, including research background and significance, literature review, research ideas and methods, and research structure arrangement.

2. Related Concepts

2.1. Higher Vocational Education

Jiang Dayuan (2009) believes that "vocational education needs to be comprehensively considered from three aspects: type and level, supply and demand, training and education, and the social activities that enable learners to acquire vocational knowledge, skills, and ethics are called higher vocational education". Li Qiang (2021) believes that in terms of functional definition, higher vocational education mainly refers to educational activities that take schools as the implementation subject, knowledge education as the foundation, and vocational course training as the carrier, enabling learners to master work skills and professional ethics, employment oriented, combining theory with practice, achieving sustainable human development and meeting social needs; According to the level of education, it is divided into primary vocational education and vocational education.
2.2. Integration of Industry and Education

From the literal meaning of the integration of industry and education, "industry" refers to "industry", which is an industrial organization that meets the people's Material culture needs. 'Education' refers to 'education', which refers to the demand for talent and aims to meet social development. A purposeful and planned social activity aimed at cultivating people aims to provide human resources that match the development of the industry. Fusion "refers to the melting and merging of two or more different things, resulting in a new fusion entity. Pan Shucai (2020) believes that the integration of industry and education is the principle and path for vocational education to move towards high-end and strive for excellence. Shi Weiping (2019) believes that the integration of industry and education is fundamental to ensuring the quality of cultivating technical and skilled talents.

2.3. Information Industry

The information industry is an industry that utilizes information means and technologies to collect, organize, store, and transmit information and intelligence, provide information services, and provide corresponding information means, information technology, and other services. The information technology industry includes industrial departments engaged in the production, circulation, and sales of information, as well as the provision of services through the use of information.

2.4. Practical Teaching System

In order to optimize the overall function of practical teaching, strengthen the integration and connection between theoretical teaching and practical teaching, and strengthen the integration and connection of various links in practical teaching. Fully reflecting the overall and systematic functions of practical teaching, some scholars have proposed the concept of a practical teaching system. The prominent feature of practical teaching is its entirety. Some scholars point out that a system is a whole composed of things related to mountains, which are interrelated, mutually constrained, and inherently interconnected. The teaching system is composed of multiple elements that constitute teaching activities (i.e., students, teachers, curriculum, conditions, etc.). The organic whole composed of various elements of practical teaching activities is the practical teaching system (Huang Chengyun, 2012).

The practical teaching system has both chivalrous and broad concepts. Broadly speaking, it refers to the organic whole composed of various elements of mountain practical teaching activities. It includes four major system parts of practical teaching, namely content, objectives, condition support, and management system parts. The narrow practical teaching system only refers to the content system formulated based on talent cultivation goals. By configuring reasonable practical teaching links and setting up reasonable courses, the teaching content system and teaching system can be established (Li Shulin, 2009).

This article believes that the practical teaching system is an organic and interconnected whole, consisting of various elements of practical teaching activities. Specific elements include objectives, content, management, and conditions for practical teaching activities.

3. Research Theory

3.1. Satisfaction Theory

Lin Chongde (2003) pointed out in the "Dictionary of Psychology (Volume 1)" that the theory of satisfaction refers to the statement or pattern of job satisfaction. He believes that there are mainly the following types: (1) theories of meeting needs. Believing that satisfaction depends on whether an individual is satisfied with the results achieved in a work environment that they consider valuable. Satisfaction is related to both the achievements already achieved and the expected achievements already achieved; (2) Difference theory. Believing that satisfaction depends on the individual's perceived results from work and the degree of consistency they want to achieve; (3) Social reference group theory.

3.2. Stakeholder Theory

The stakeholder theory first appeared in the 1960s and has been widely applied and referenced. Currently, it is mainly applied in the fields of economics and management. The theoretical source of stakeholders is the book "The Theory of Enterprise Growth" written by Penrose. In 1963, the Stanford University Research Institute proposed the term "stakeholders". This is the first time that the connotation of stakeholders has been defined. It believes that "stakeholders are an indispensable part of the enterprise, a group that cannot exist without their support group." The proposal of this concept has made everyone realize that enterprises not only need to pursue the goal of profit seeking, but also have various stakeholders or groups that affect the achievement of enterprise goals, taking into account the needs of all stakeholders, in order to achieve mutual benefit. American scholar Ansoff (1965) believes that "the ideal corporate goal must take into account the demands of many stakeholders, causing them to conflict with each other.

American scholar Freeman (1984) defined the classic concept of stakeholders, believing that "stakeholders are all individuals and groups that influence the achievement of an organization's goals." Freeman believed that the purpose of a company is to "use its own resources to carry out activities that enhance its profits. This theory analyzes the role and influence of stakeholders in enterprise organizations, taking into account the content of stakeholders such as government, community, and environmental protectors. It expands the connotation of stakeholders and believes that stakeholders have the right to participate in the management work of enterprises, promote the development of enterprises with the goal of mutual benefit and win-win, and assume corresponding responsibilities and obligations. The stakeholder approach proposed by Friedman pioneered, emphasizing the involvement of different stakeholders in the formulation and implementation of enterprise management strategies (Zhang Shiyi, 2015), marking the formal formation of the stakeholder theory.

4. Research Framework

There are three main research variables in this study, the self-variable being "student background variable", and the dependent variable being "practical teaching system" and "satisfaction". The research Framework is shown in Figure 1.
5. Research Object and Result Analysis

5.1. Basic Information of Research Samples

Among the 427 students from Chongqing C Vocational College who participated in this survey, 55 invalid questionnaires were excluded, and 372 valid questionnaires were collected, with an effective recovery rate of 87.2%. The specific situation is as follows: The total number of effective participants in this study is 372, with males accounting for 52.7%, which is 196 people; Women account for 47.3% of 176 people. In terms of grade distribution, there are 86 freshmen, accounting for 23.1% of the total population, 146 sophomores, accounting for 39.2% of the total population, and 140 juniors, accounting for 37.7% of the total population. 200 people from urban areas, accounting for 53.8% of the total, and 172 people from rural areas, accounting for 46.2% of the total. In terms of professional distribution, there are 64 people with Internet of Things application technology, accounting for 17.2% of the total, 62 people with computer network technology, accounting for 16.7% of the total, 61 people with big data technology, accounting for 16.4% of the total, and 62 people with software technology, accounting for 16.7% of the total, 69 people apply digital media technology, accounting for 18.5% of the total number of people. 54 people applied artificial intelligence technology, accounting for 14.5% of the total number of people. The distribution of parents' education level: there are 14 people with bachelor degree or above, accounting for 3.8% of the total number, and 53 people with junior college or higher vocational education, accounting for 14.2% of the total number, 53 students from high school or vocational school account for 14.2% of the total number, 153 students from junior high school account for 41.1%, and 135 students from primary school or below account for 36.1% of the total number. The main learning places are distributed, with 8 people at home, accounting for 2.2% of the total population, 280 people in the laboratory, accounting for 75.3% of the total population, 37 people in the dormitory, accounting for 9.9% of the total population, and 47 people in other places, accounting for 12.6% of the total population.

5.2. "11361" Practical Teaching System

The dual education "11361" talent cultivation and practical teaching system of Chongqing C Vocational College was jointly established, managed and shared by the school and enterprise in 2019. Specifically, it includes a long-term interactive mechanism for school enterprise cooperation, a school enterprise joint construction of an industry education integration training base, a three-layer structure of school enterprise cooperation practical teaching system with "grassroots sharing", "middle level diversion", and "high-level mutual selection", six industry university research school enterprise cooperation workstations, and a set of management system for enterprise participation in smart training bases.

5.2.1. Jointly Build One Industry Education Integration Training Base

The college, together with leading enterprises such as China System, Huawei, Unicom, New World, Color Lead, has set up six majors, namely, Internet of Things application technology, computer network technology, Big data technology, software technology, artificial intelligence technology application, and digital media technology, to form a professional group of Big data intelligent application, and cooperate to jointly build a high-level vocational education information industry training base. The base has a scale of over 3000 square meters and a total of 21 training rooms, integrating practical teaching, social training, enterprise real production, and social technical services.

5.2.2. Develop a Long-term Interactive Mechanism between Schools and Enterprises

Establish the Electronic Information Cooperation Development Committee of Chongqing Modern Service Vocational Education Group, introduce high-quality enterprises to participate, and hold two special meetings every year. The first meeting was held in March, mainly to hear reports from enterprises on the development direction of electronic information industry technology. After the meeting, various majors conducted research and analysis based on their professional characteristics, and revised talent training plans; The second meeting will be held in October, mainly with the school reporting on its practices and achievements, proposing the pain points and needs of the school's professional construction. The enterprise will seek practical and sustained cooperation based on the school's needs.

5.2.3. Building a Three-layer Practical Teaching System

Based on the training of "job general skills" and "special skills" in various majors within the professional group, integrate the existing training rooms, and construct a three-layer practical teaching system according to one main line (professional ability main line) and three levels (general skill level, special skill level, and comprehensive skill level). By extracting the maximum common divisor of professional group training course technology, a grassroots training shared package and mutually exclusive technical content are formed, respectively forming a middle-level diversion training package and a high-level mutual selection training package.
Breaking the traditional resource barriers in professional training rooms, training resources can be dynamically configured according to the needs of training projects, achieving full utilization and efficient sharing of high-quality resources.

5.2.4. Building 6 Industry University Research Centers

Provide special venues to build six industry university research centers for Internet of Things application technology, Big data technology, network technology, artificial intelligence application technology, and digital media application technology, which are jointly used by six professional school and enterprise personnel to study the development of practical teaching projects, the revision of talent training programs, the guidance of skills competition training, the introduction of training projects, and the development of scientific research projects.

5.2.5. Building a Smart Management System

Collaborate between schools and enterprises, utilize information technology to form open, shared, and advanced intelligent management methods. Referring to enterprise base management standards and combining with the actual situation of the school, develop intelligent management standards for practical training bases that are suitable for the school, and build a modern practical training base management system that can be demonstrated and promoted. By utilizing information management methods such as experimental and training platforms, smart access control, video monitoring, smart class signage, intelligent central control, and intelligent educational administration, we have designed systems for asset management and cleanliness management, forming an open management model with the participation of assistants, administrators, and department leaders. Firstly, manage the personnel, finances, materials, and overall safety of the training base well; Secondly, all authorized teachers and students can study in a free training room 24 hours a day, achieving the goal of resource sharing; Thirdly, in accordance with the company’s employee management standards, standards should be formulated in terms of dress code and licensed employment. Entering the base for classes is like entering the company for work, where the base is the enterprise, students are employees, and teachers are production line supervisors, forming a professional literacy intelligent management system.

5.3. Analysis of Research Results

The research results are shown in Table 1.

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Source: Compilation of this study

According to the satisfaction and stakeholder theory, a survey on the satisfaction of Chongqing C Vocational College students with the practical teaching system of information industry talent cultivation has been conducted. The conclusions drawn in terms of the content, methods, and mechanisms of industry education integration, the current demand for information industry talents, and the practical teaching system of information industry talent cultivation are as follows.

5.3.1. Content of Industry Education Integration

The integration of industry and education refers to the close cooperation and integration between the industry and the education sector, aiming to achieve the integration of education and training with industrial needs, and promote the synergy between talent cultivation and industrial development. It is a cross-border cooperation model that organically combines the resources, technology, knowledge, and experience of schools and enterprises to jointly promote the innovative development of industries and the cultivation

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of talents. The specific content includes:

1. Curriculum design and development: The core of the integration of industry and education is to closely integrate the content of education and training with industry needs, and jointly formulate curriculum goals and teaching plans based on the trends and needs of industry development, to ensure the cultivation of talents that meet industry requirements.

2. Practical Teaching and Internship: The integration of industry and education focuses on cultivating students' practical abilities. Through cooperation with enterprises, practical opportunities and internship positions are provided, allowing students to learn and practice in a real work environment, and improving their practical operation and problem-solving abilities.

3. Talent cultivation and skill certification: The integration of industry and education encourages schools and enterprises to jointly carry out talent training and skill certification projects, providing students with more practical and practical training content through the professional knowledge and practical experience of enterprises, and enhancing their employment competitiveness.

4. Scientific research and technological cooperation: The integration of industry and education also includes cooperation between schools and enterprises in scientific research and technological innovation, jointly carrying out research projects, technology transfer, and application of achievements, promoting the combination of scientific and technological innovation and industrial development, and promoting industrial upgrading and transformation.

5.3.2. Ways and Mechanisms of Industry Education Integration

1. Industry oriented teaching mode: The school adjusts the curriculum and teaching content according to industry needs, introduces enterprise representatives as teachers or guest lecturers, and provides practical cases and practical problems of enterprises as teaching resources to cultivate talents that meet industry needs.

2. Internship and employment cooperation: The school cooperates with enterprises to establish internship bases or joint laboratories, providing students with internship opportunities and employment channels, and enhancing their employment competitiveness through practical training and work experience.

3. Industry-university-research joint project: Schools, enterprises, and research institutions jointly form research and development teams to carry out research projects and technological innovation. Through cooperation and sharing of resources, technology, and professional knowledge, the interaction and integration of industrial demand and research results are achieved, promoting the integration of technological innovation and industrial development.

4. Develop cooperation agreements and mechanisms: Schools and enterprises can establish industry education cooperation agreements, clarifying the cooperation content, responsibilities, and benefit allocation between both parties, and establishing long-term and stable cooperative relationships. At the same time, mechanisms such as joint meetings and working groups can be established to regularly carry out cooperation, exchange, and evaluation to ensure the smooth integration of industry and education.

5. Establishing an industry education integration platform and network: By establishing an online platform or network, schools and enterprises can conveniently exchange information, share resources, and collaborate. These platforms can provide course resources, internship information, employment opportunities, etc., providing students with more practical and employment opportunities.

The methods and mechanisms of industry education integration can be flexibly adjusted and innovated according to the actual situation of different regions, industries, and schools. It is important to establish effective communication channels and cooperation mechanisms, promote deep cooperation in the integration of industry and education, achieve positive interaction between education and industry, and provide strong support for socio-economic development.

5.3.3. Current Situation of Talent Demand in the Information Industry

The current situation of talent demand in the information industry is influenced by various factors, including economic development, technological progress, and industrial structure adjustment. The following are some common trends and characteristics:

1. The demand for technical talents is increasing: With the continuous progress and innovation of technology, the demand for technical talents in various industries is constantly increasing. For example, artificial intelligence, big data analysis, the Internet of Things, cloud computing and other fields have a strong demand for talents with relevant skills and knowledge.

2. The demand for innovative and entrepreneurial talents has increased: innovation and entrepreneurship have become important driving forces for economic development in many countries and regions. The demand for talents with innovative thinking, entrepreneurial ability, and business insight among enterprises is gradually increasing.

3. The demand for interdisciplinary talents is increasing: The development of many emerging fields requires interdisciplinary talents who can integrate and innovate between different fields. For example, there is a high demand for talents with interdisciplinary backgrounds in fields such as biomedicine, environmental protection, and sustainable energy.

4. The demand for high-end talents is increasing: With the upgrading and optimization of industrial structure, the demand for high-end talents is also increasing. This includes talents with advanced technical, management, and leadership abilities that can drive enterprise innovation and strategic development.

5. The importance of adaptability and Lifelong learning ability: due to the rapid changes in technology and industry, the requirements for talents are also evolving. Adaptability and Lifelong learning ability become important qualities. Enterprises need to find talents with learning ability and adaptability to constantly update knowledge and skills.

Overall, with the development of economy and technology, the demand for industrial talents has shown a trend of diversification and multi-level. In order to meet the needs of the industry, education and training institutions need to adjust their curriculum and teaching content in a timely manner, focus on cultivating practical abilities and comprehensive qualities, closely cooperate with the industry, and ensure that talent cultivation is in line with the development of the industry.

5.3.4. The Relationship Between the Integration of Industry and Education and the Practical Teaching System for Cultivating Vocational Information Industry Talents

The integration of industry and education has the following
impacts on the practical teaching system of vocational information industry talent cultivation:

1. Strengthening the practical aspect: The integration of industry and education makes the practical teaching aspect more closely related to the actual needs of the information industry. Through cooperation with information industry enterprises, students can participate in the development, implementation, and problem-solving of practical projects, improving their practical operation and problem-solving abilities in the information industry field.

2. Updating course content: The integration of industry and education requires schools to update course content based on the development trends and needs of the information industry. Schools need to collaborate with information industry enterprises to understand the latest technologies, tools, and methods, and incorporate them into their curriculum. This can ensure that students acquire knowledge and skills related to information industry practice, and increase their employment competitiveness.

3. Providing internship and employment opportunities: The integration of industry and education has provided more internship and employment opportunities for vocational information industry talents. The school cooperates with information industry enterprises to establish internship bases or joint laboratories, providing students with practical opportunities and opportunities to interact with real work environments. At the same time, enterprises and schools work closely together to provide employment channels and job information, promoting the smooth employment of students.

4. Enhancing professional quality: Through cooperation with information industry enterprises, students can gain a deeper understanding of the development trends, market demands, and business operation models of the information industry. They can be exposed to actual projects and business processes, cultivate professional qualities in the information industry, and improve their professional literacy and comprehensive abilities.

5. Strengthening the construction of teaching staff: The integration of industry and education requires the school's teaching staff to maintain close contact with information industry enterprises and understand the latest technology and industry trends. Schools need to attract information industry professionals with practical experience to serve as teachers or guest lecturers, providing students with practical cases and industry experience. This can improve the teaching level and professional quality of teachers, and better adapt to the development needs of the information industry.

In summary, the integration of industry and education has played a promoting and improving role in the practical teaching system of vocational information industry talent cultivation, enabling students to better adapt to the development needs of the information industry and lay a solid foundation for their employment and career development.

6. Research Recommendations

Through the research on the practical teaching system and satisfaction of students at Chongqing C Vocational College, focusing on the interests of students, this article analyzes the tendency of college students towards the practical teaching system of information industry talent cultivation. In the context of the integration of industry and education, the following suggestions are proposed for the practical teaching system of information industry talent cultivation in vocational colleges.

1. In terms of cooperation content: enterprises participate in professional construction, schools and enterprises jointly develop talent training plans, and schools and enterprises; The school and enterprise jointly develop practical training projects, jointly explore experimental curriculum settings, and determine teaching content.

2. In terms of cooperation methods: Schools and enterprises can choose to carry out various cooperation methods based on the needs of both parties, such as industrial colleges, practical training base construction, cooperative school run factories, off campus internship bases, teacher training, etc.

3. In terms of cooperation mechanisms, there is a special department for industry education integration at the school level, forming a vocational education group in a certain industry. At the secondary college level, there is a school enterprise cooperation specialist, and a vocational education committee under the vocational education group. Joint meetings, working groups, and other mechanisms are established to regularly carry out cooperation, exchange, and evaluation to ensure the smooth progress of industry education integration. Schools and enterprises can sign industry education cooperation agreements, clarifying the cooperation content, responsibilities, and interest distribution between both parties, and establishing a long-term and stable cooperative relationship.

4. In terms of practical teaching system, with schools as the lead and enterprises deeply participating, we introduce advanced equipment, processes, cases, understanding, and standards from enterprises, and deepen cooperation in laboratory construction, management platform construction, practical teaching content establishment, teacher training and mutual employment, joint construction and management of training rooms, provision of student internship employment opportunities, and research and development of school enterprise joint products.

References


Normal University of Technology - Vocational Education Communication, 1, 54-57.


