



**STUDY ON THE INFLUENCE FACTORS OF CULTIVATING
"CRAFTSMANSHIP SPIRIT" OF GRAPHIC DESIGN MAJORS
STUDENTS AT NANJING BUSINESS SCHOOL**



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**AN INDEPENDENT STUDY SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE MASTER'S DEGREE IN BUSINESS
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This Independent Study has been Approved as a Partial Fulfillment of the Requirement
of International Master of Business Administration in Education Management

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Title: Study on the Influence Factors of Cultivating "Craftsmanship Spirit" of Graphic Design Majors Students at Nanjing Business School

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Degree: Master of Business Administration

Major: Education Management

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ABSTRACT

Intermediate vocational education is a crucial component of China's vocational education system. Enhancing students' comprehensive qualities and cultivating their "Craftsmanship Spirit" play a significant role in driving China's technological innovation and economic transformation. The objectives of this study were: 1) To analyze the current situation of cultivation of students' "Craftsmanship Spirit"; 2) To explore whether cognitive awareness of craftsmanship spirit, teaching staff quality, industry-education integration, and curriculum system have a positive impact on the cultivation of students' "Craftsmanship Spirit".

This paper adopted the quantitative research method. Through review the integration of achievement motivation theory, constructivist learning theory, and social cognitive career theory, distributed 450 questionnaires to students in the graphic design major at Nanjing Business School. This paper found that: 1) Students have insufficient awareness of craftsmanship spirit; Teachers are understaffed; Inadequate industry-education integration; The curriculum system is not well-established; 2) Cognitive awareness of craftsmanship spirit, teaching staff quality, industry-education integration, and curriculum system have a positive impact on the cultivation of students' "Craftsmanship Spirit."

The study's results have been reflected upon and discussed, and suggestions have been made. It is recommended to strengthen the cultivation of students' craftsmanship spirit, taking into account various aspects including the school, teachers, and students.

It is important to optimize the teaching evaluation system, enhance teachers' teaching abilities, promote students' self-awareness of craftsmanship spirit, and nurture technical and skilled talents that meet the requirements of the era.

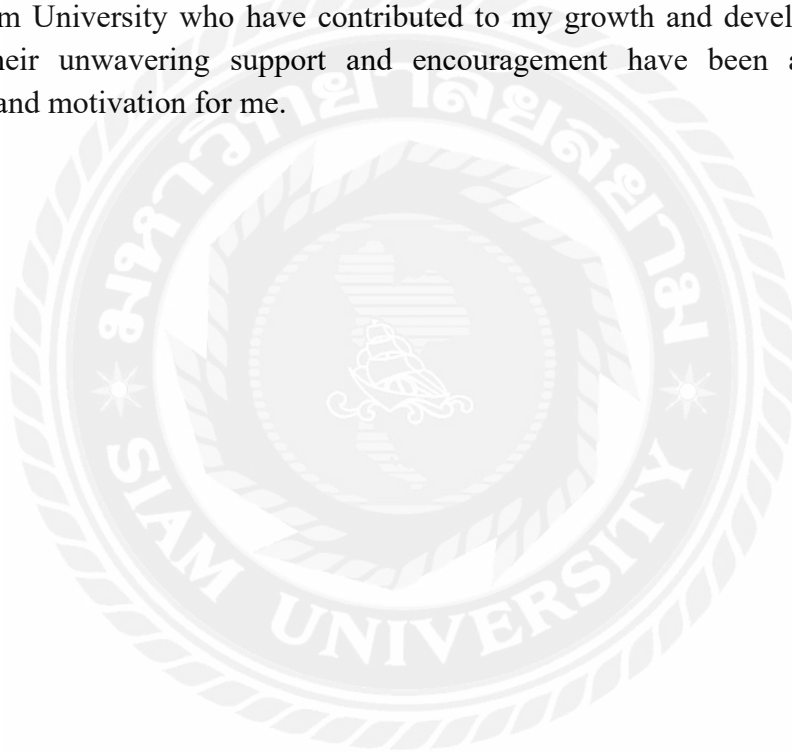
Keywords: Craftsmanship Spirit, Vocational Schools, Influencing Factors

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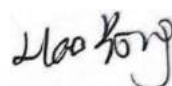
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Declaration

I, HAO YING, as a result of this, certify that the work embodied in this, independent study entitled "Study on the Influence Factors of Cultivating "Craftsmanship Spirit" of Graphic Design Majors students at Nanjing Business School" is a result of original research and has not been submitted for a higher degree to any other university or institution.



(HAO YING)

JULY 8, 2023



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Chapter 1 Introduction

1.1 Research Background

1.1.1 High-quality development in the field of graphic design requires highly skilled professionals.

The design industry is a crucial guarantee for achieving China's economic independence and ensuring long-term prosperity (Naughton, 2008). Currently, China's manufacturing industry is undergoing transformation, aiming for upgrades and high-quality development. However, there are challenges such as unsustainable business growth and a lack of precision in product offerings. Statistics show that most Chinese companies cannot sustain their operations for more than 200 years, unlike numerous companies in Japan and Germany, which have existed for more than two centuries. The enduring success of these companies can be attributed to their possession of a large number of highly skilled professionals who possess exceptional skills and the ability to integrate theory with practice (Naughton, 2008). These professionals design highly distinctive and innovative products, ensuring the continuous development of the companies.

1.1.2 Highly skilled graphic designers should possess a craftsman spirit.

With intensifying competition in various industries, China must ensure its enduring competitiveness (Yan, 2017). This necessitates the high-quality development of the manufacturing industry, emphasizing precision and innovation. Consequently, new requirements have been placed on highly skilled professionals. Since March 2016, the promotion of the craftsman spirit has gradually become a driving force for industry transformation and upgrading, as well as a guarantee for enhancing product quality (Xie, 2018). Highly skilled professionals should not only possess exceptional technical skills but also have an innovative mindset toward product diversification. This craftsman spirit, characterized by innovation, serves as a primary driving force for advancing product quality. Additionally, only when highly skilled individuals exhibit qualities such as dedication, perseverance, and hard work can they wholeheartedly engage in research and development within the manufacturing industry, thus preserving skills and craftsmanship (Li & Yan, 2016).

"The spirit of craftsmanship" is fundamentally a mental concept, and its inherent meaning varies based on the historical context, professional field, and audience (He, 2019). Although the graphic design industry started relatively late in China, it has experienced rapid development in recent years due to the country's fast-growing economy. Currently, employment in the Chinese graphic design industry can be categorized into three levels based on the complexity and scale of the design work: lower-level graphic design positions are mostly employed by printing agencies, small advertising companies, and studios; intermediate graphic design positions are mainly employed by outdoor advertising companies, graphic media, newspaper layout editors, book publishers, and printing companies; high-level graphic design positions are largely occupied by state-owned enterprises' design departments, brand packaging

design companies, and senior image designers, among others. This study discovered, when examining the supply and demand relationship of graphic design positions, that on one hand, the graphic design market requires individuals with high-quality personalized thinking, innovative ideas, proficient technical skills, and a spirit of teamwork; on the other hand, the majority of graduates from graphic design programs are unable to find suitable employment every year. Therefore, it can be observed that secondary school graphic design programs do not meet the recruitment standards of graphic design companies (He, 2019).

Developed countries such as Germany and Japan have integrated the "spirit of craftsmanship" throughout the entire process of vocational education. They have implemented a series of measures in teaching practices, spiritual inheritance, and reform and development, nurturing a group of skilled talents whose industrial skill levels have reached a world-leading standard (Ye, 2016). However, due to the profound influence of traditional culture, vocational education in China exhibits characteristics such as students lacking a solid cultural foundation, low enthusiasm for learning, weak professional beliefs and ideals, and vague career goals. This has led to a widespread lack of the "spirit of craftsmanship" among graduates in terms of their professional qualities. Currently, integrating the "spirit of craftsmanship" into the talent cultivation model of secondary vocational schools is a necessary step in reforming the school's talent cultivation model. This approach can enhance students' professional competence and skill levels, thereby strengthening their competitiveness in the job market (He, 2019). In recent years, a hot topic that has garnered widespread attention in various sectors of society is how to integrate the "spirit of craftsmanship" into the talent cultivation model of secondary vocational schools. This is a pressing practical issue that needs to be addressed (Xie, 2018). Every secondary vocational school is exploring the development of a talent cultivation model based on the "spirit of craftsmanship" that is tailored to its specific circumstances.

1.1.3 The cultivation of the spirit of craftsmanship is an essential component of talent development in Secondary vocational colleges.

According to data from the Ministry of Education, vocational schools contribute 50% of the workforce to modern manufacturing and emerging industries (Naughton, 2008). With the advancement of modernization, companies no longer solely demand highly skilled technical professionals but are also inclined towards nurturing the spirit of craftsmanship. They require students to possess high-quality and advanced technical skills (Wen & Jiang, 2020). Most manufacturing companies believe that technical knowledge and abilities can be cultivated through on-the-job practice, but the spirit of craftsmanship must be nurtured in schools. Therefore, schools, as the foundation for cultivating highly skilled technical professionals in the manufacturing industry, play a crucial role in fostering the spirit of craftsmanship in students (Naughton, 2008). This has become an essential component of talent development, addressing the needs of manufacturing enterprises.

Currently, students at Nanjing Business College have a certain understanding and general recognition of the traditional "spirit of craftsmanship." However, in the field of graphic design, there is room for improvement in both understanding and practical

application of the "spirit of craftsmanship." On one hand, students at Nanjing Business College lack awareness of how to integrate the "spirit of craftsmanship" with their professional knowledge, leading to a lack of practical application of this spirit. On the other hand, educators find it challenging to instill the concept of the "spirit of craftsmanship" effectively through theoretical teaching methods (Wen & Jiang, 2020). Therefore, guided by Marxist materialism, using Nanjing Business College as the educational platform, integrating the cultivation of the "spirit of craftsmanship" into the cultural education system at secondary vocational schools holds great significance. This approach aims to enhance students' understanding and practical application of the "spirit of craftsmanship."

1.2 Research question

Secondary vocational education is an essential component of China's vocational education system, bearing the significant responsibility of nurturing practical and technical talents for society. By improving the quality of vocational education, it aims to transform China from a populous country to a nation strong in human resources. This transformation will enhance the overall professional abilities and vocational qualities of Chinese workers, strengthening the soft power of China's human capital competitiveness. Through an investigation into the current state of cultivating the "spirit of craftsmanship" in students within the graphic design curriculum at Nanjing Business Vocational School, the research primarily focuses on the following two questions:

- 1) What are the influencing factors on the cultivation of the "spirit of craftsmanship" in students at present?
- 2) Does the awareness of the craftsmanship spirit, the quality of teaching staff, the integration of industry and education, and the curriculum system have a positive impact on the cultivation of the "spirit of craftsmanship" in students?

1.3 Research Objectives

The primary task of secondary vocational education is to cultivate tens of millions of talents who possess basic cultural knowledge, specialized knowledge, and professional skills, and are active in frontline production, directly serving local economic development. In other words, secondary schools cultivate future "craftsmen" who embody the "spirit of craftsmanship." The "spirit of craftsmanship" is a vocational spirit that urgently needs to be advocated and nurtured. It is crucial in the training of talents in modern vocational education, especially in the field of graphic design, where enhancing the design capabilities and creativity of graphic design professionals is essential. This study collects data through questionnaires to understand the status of the "spirit of craftsmanship" among students in the graphic design curriculum. By identifying existing issues, the research aims to propose targeted improvements. The goal is to provide insights for enhancing the training of skill-oriented talents at Nanjing Business School. The two main research objectives are as follows:

- 1) To analyze the current situation of cultivation of students' "Craftsmanship Spirit".
- 2) To explore whether cognitive awareness of craftsmanship spirit, teaching staff quality, industry-education integration, and curriculum system have a positive impact on the cultivation of students' "Craftsmanship Spirit".

1.4 Scope of Study

This study focuses on the graphic design students of Nanjing Business College as the experimental subjects. Students from other schools and regions are not included in the survey. The survey covers students' personal information and investigates their perceptions of the spirit of craftsmanship, the quality of teaching staff, the industry-education integration, and the curriculum system about the cultivation of the "spirit of craftsmanship." The study period is from June 1, 2023, to September 1, 2023.

1.5 Research Significance

Firstly, surveying the cultivation of the "spirit of craftsmanship" among graphic design students at Nanjing Business School can help identify the existing problems in fostering the "spirit of craftsmanship" in students.

Understanding the genuine need to cultivate the "spirit of craftsmanship" among students, this research is beneficial in helping vocational school teachers have a clearer and more precise understanding of the craftsmanship spirit. It guides teachers to cultivate the spirit of craftsmanship in students, encouraging them to adapt and modify traditional teaching methods to the requirements of the new curriculum standards. The research emphasizes showcasing the characteristics of vocational education in teaching, emphasizing the connection between teaching content and social life as well as professional life. It also advocates integrating vocational ethics, model worker spirit, and craftsmanship spirit education organically. The aim is to foster students' professional spirit. This approach enables vocational school students to possess exceptional professional skills and a strong craftsmanship spirit, enabling them to stand firm and secure employment in a competitive society, thereby promoting their comprehensive development.

Secondly, this research on the influencing factors of cultivating the "spirit of craftsmanship" in students has direct guiding significance for the teaching reform at Nanjing Business School, the institution under investigation.

This research survey contributes to enriching the content of teaching reforms at Nanjing Business School, updating the teaching methods for cultivating the "spirit of craftsmanship," and enhancing the school's educational strength. By focusing on the influencing factors of cultivating the "spirit of craftsmanship," it paves the way for innovative teaching reform concepts, methods, and approaches, fostering specialized technical talents that align with the needs of socioeconomic development. By exploring effective methods for cultivating the "spirit of craftsmanship," the research creates a conducive environment for students' growth, allowing them to receive education freely. This environment is conducive to students' healthy development and

future success. Studying the cultivation of the "spirit of craftsmanship" not only enhances students' spiritual qualities but also extends their future employment prospects. It facilitates students in achieving meaningful employment, showcasing their talents, and realizing their life values. Ultimately, it enables students to achieve full employment, demonstrate their talents, and fulfill their life's potential, thereby enhancing both the length and depth of their future careers.

1.6 Theoretical Framework

To analyze the influencing factors of cultivating the "spirit of craftsmanship" among students in the graphic design major at Nanjing Business School, this study constructs a model. In this model, the variables of craftsmanship spirit cognition, teaching staff quality, industry-education integration, and curriculum system are considered independent variables. The cultivation of the "spirit of craftsmanship" is the dependent variable in the model.

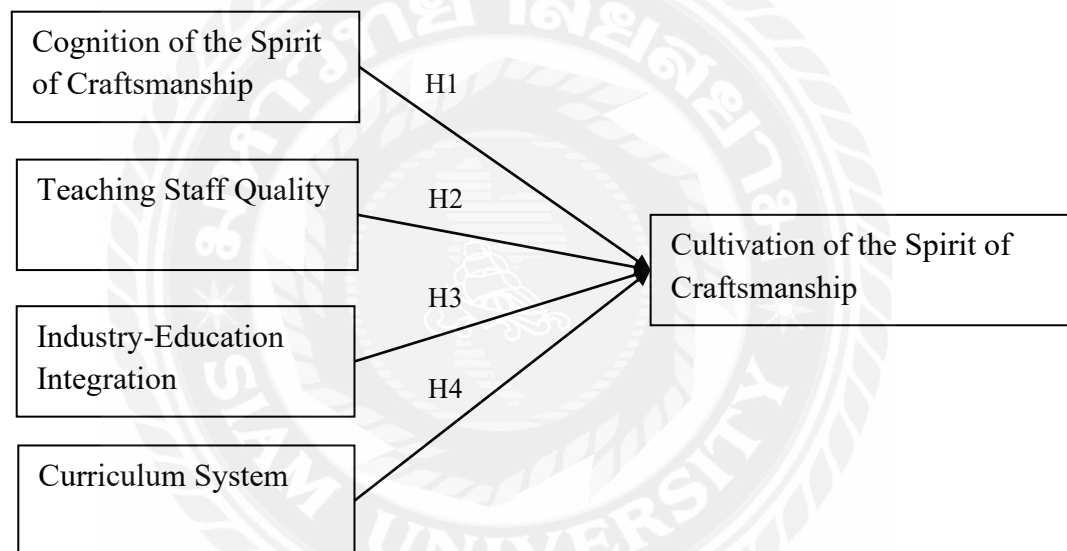


Figure 1.6 Diagram of the theoretical framework of the Study

1.7 Hypotheses

H1: The cognition of the spirit of craftsmanship has a significant positive impact on the cultivation of the spirit of craftsmanship.

H2: The quality of teaching staff has a positive impact on the cultivation of students' spirit of craftsmanship.

H3: Industry-education integration has a significant positive impact on the cultivation of students' spirit of craftsmanship.

H4: The curriculum system has a significant positive impact on the cultivation of students' spirit of craftsmanship.

Chapter 2 Literature Review

2.1 Craftsmanship Spirit

In the journal paper "The Inheritance and Contemporary Cultivation of the Spirit of Craftsmanship in Graphic Design," co-authored by Li and Bu, it is pointed out that, "The so-called spirit of craftsmanship currently refers to the professional spirit of craftsmen from various industries when creating design works. It involves a unique personality, constant improvement of technical skills, and the pursuit of impeccable product quality" (Li & Bie, 2016). Hu and Zhang jointly argue that to cultivate the "spirit of craftsmanship" in secondary schools, it is necessary to establish corresponding practical training sites and enhance skills through practical teaching. Integrating the "spirit of craftsmanship" into practical teaching in vocational education involves strengthening skills training to cultivate good professional qualities (Hu & Zhang, 2018). Xie emphasizes the integration of the "spirit of craftsmanship" into the practical training process of secondary school students. This is achieved by utilizing strict work discipline, meticulous work style, and comprehensive quality requirements from enterprises. It also involves introducing a refined management model from enterprises, aiming to develop students' good professional qualities and study habits (Xie, 2018).

Premier Li Keqiang, in his government work report in March 2016, closely linked the "spirit of craftsmanship" with the development of the manufacturing industry, defining its core as "striving for excellence." Basic connotations of the "spirit of craftsmanship" in the Red Flag Manuscript as dedication, refinement, focus, innovation, and other aspects (Xu, 2018). However, the structural composition of the term "spirit of craftsmanship," includes at least two aspects: "craftsman" and "spirit." "Craftsman" primarily refers to skilled artisans, emphasizing their skills, techniques, and technology in the professional field. "Spirit" refers to one's thoughts, consciousness, and mindset, emphasizing focus, loyalty, dedication, and continuous improvement in their professional pursuits. Therefore, the connotation of the "spirit of craftsmanship" can be understood from the following four aspects.

2.1.1 Humanistic qualities — The professional spirit of dedication and devotion

"Dedication," as defined in the "Modern Chinese Dictionary," means to focus wholeheartedly on one's studies or work. Confucius once said that both doing things and cultivating oneself require consideration of reverence. Confucius advocated that people should dedicate themselves wholeheartedly to their careers throughout their lives. In the Song Dynasty, dedication means dedicating oneself to the cause with a focused and devoted attitude. It can be seen that the so-called spirit of dedication is built on the foundation of love for work, wholeheartedly investing oneself in the cause, reaching a selfless state of unity between oneself and the work, and embodying the essential spirit of dedication (Zhang, 2021).

Contemporary dedication is manifested in several aspects: first, loving one's job

and being faithful to one's duties; second, being diligent and wholehearted in fulfilling one's responsibilities; third, being down-to-earth, diligent, and capable; fourth, seeking improvement and innovation, paying attention to details; fifth, restraining oneself and dedicating oneself to the public, displaying selfless love (Cheng, 2016). Contemporary dedication aims to instill a sense of ownership and responsibility, fulfilling duties with diligence and seriousness, adopting an attitude of continuous improvement, and developing a love for one's job. Students should become professional technicians or experts in their respective fields. Individuals need to possess a proactive work attitude and a spirit of practicality, breaking free from narrow-minded pursuit of personal interests, developing a broad perspective, and considering contributions to society as a matter of great honor and pride (Li, 2015).

2.1.2 Professional Attitude Level - Enthusiastic Work Attitude

"Love for the profession" and "joy in the profession" are prerequisites for possessing the "artisan spirit." For craftsmen, joy in the profession means being immersed in their work, viewing work as a source of enjoyment, and finding pleasure in it rather than merely fulfilling job requirements. Craftsmen dedicate themselves to improving product performance, and crafting flawless products (Li & Yang, 2016). They immerse themselves in their work, continually refining their skills, and enjoy this state of work. What they produce is not just products but works of art.

The modern spirit of loving one's job and finding joy in it is mainly manifested in three aspects: 1. Passion: There is a strong sense of identification and a keen interest in the job one has chosen. People approach their work with great enthusiasm and enjoy the process. 2. Goals and Beliefs: In the professional journey, individuals pursue specific objectives and have personal career dreams. They have clear goals and a well-defined plan for their profession. 3. Belonging: They can actively integrate into a team, possess a sense of teamwork and cooperation, and have a strong sense of pride and honor in their profession (Zhong, 2020).

2.1.3 Professional Skills Level - Exceptional Professional Skills

"Ji" is explained in the Modern Chinese Dictionary as skills and abilities. "Shu" refers to techniques, skills, and methods. Technology refers to the knowledge and experience accumulated by humans in the process of using and transforming nature through production and labor. From a technical perspective, the primary task of craftsmen is to create things. To reach the pinnacle of craftsmanship, craftsmen need to refine their skills day by day, creating products that achieve perfection through meticulous work. "Great Country Craftsman" Guan Yan'an, who has a junior high school education, achieved seamless docking of the Hong Kong-Zhuhai-Macao Bridge's underwater tunnel segments. The only person in the country with precision reaching the level of "silk" is Gu Qiuliang, who can accurately control sealing accuracy to one-fifth of a hair's breadth. These craftsmen possess exceptional professional skills, dedicating themselves to honing their craft and striving for perfection in every piece they create (Ye, Wang & Tang, 2019).

2.1.4 Professional Innovation Level - Innovative Spirit of Introducing New Ideas and Removing Stale Ones

The artistry of ancient Chinese craftsmen was exquisite and passed down through

generations, with techniques that had a long-standing tradition. Within these techniques lay the fusion of their ingenuity and knowledge. What is meant by "knowledge" can be explained, to some extent, by the concept of "observing phenomena and creating tools" mentioned in the Book of Changes (Yi Jing). This concept refers to the creator utilizing known life experiences and cognition to form general conceptualizations or mental images of certain objects. Guided by these conceptualizations or images, practical operations are carried out, leading to the creation of tools or objects (Li & Yang, 2016).

The term "skilled craftsmen" in the Records of Examination of Crafts (Zhou, 2011) refers to artisans who follow the corresponding methods of crafting tools and possess certain techniques. "Skill" is a practical behavior; it involves repeatedly applying the creative methods formed by "knowledge" through long-term and repetitive practice. These experiences are then summarized and integrated, forming a standardized technical process. When craftsmen reach a certain level of mastery in their techniques, they deeply contemplate their work. Their technical operations are no longer repetitive or mechanical activities. People with higher levels of technical expertise are more likely to identify problems and generate new ideas. When the mastery of a craft reaches a level of effortless skill, craftsmen naturally pursue innovation. The generational inheritance of the "craftsmanship spirit" is thus realized.

In summary, the craftsmanship spirit holds a central position in the professional ethos and carries significant importance for talent cultivation in education (Yang, 2017). It involves dedicatedly excelling in every task, either within a specific field or by demonstrating a lifetime of acquired skills without reservation. It means dedicating one's entire life to perfecting a particular craft, focusing on it with utmost precision and excellence. The essence of the craftsmanship spirit lies not only in considering work as a means to earn money but also in nurturing a meticulous, dedicated, and continuously improving attitude toward one's tasks. This spirit should be fully integrated into the process of cultivating the craftsmanship spirit among vocational college students (Li & Yang, 2016).

Nanjing Business School has been exploring the cultivation of students' craftsmanship spirit. Therefore, there have been issues in fostering students' craftsmanship spirit. Consequently, researching the current status of students' craftsmanship spirit cultivation and identifying the factors influencing the cultivation of craftsmanship spirit is crucial.

2.2 Teaching staff quality

Conceptually, "teacher resources" are abbreviated as "teacher capital," representing a subset of human resources in the field of education and a major component of educational resources. In terms of content, the teacher workforce refers to a team of individuals, including instructional, research, and administrative teachers, who hold professional teaching positions. Teacher workforce development involves the rational allocation of teacher resources, ensuring their effective utilization, and aligning the needs and goals of both teachers and schools. It forms the fundamental

basis of educational development for schools (Gu, 2019).

Structurally, teacher resources can be categorized based on curriculum and sources. Regarding curriculum, teachers can be divided into those responsible for general education courses and those responsible for specialized courses. In terms of sources, teachers can be classified as full-time or part-time (Gu, 2019). Currently, the academic community lacks a unified definition for teacher workforce development. Some define the development of vocational education teacher resources as a two-stage process, encompassing pre-service teacher training and in-service training. On one hand, it involves establishing and improving pre-service teacher development systems to ensure a stable source of teacher capital for vocational schools. On the other hand, it entails developing and enhancing in-service training systems to provide teachers with ongoing education opportunities. Efforts must be made to effectively cultivate and train teacher resources in vocational colleges, continuously supplying fresh talent for vocational education while focusing on the knowledge updates and technical enhancements for in-service teachers (Gu, 2019). Additionally, teacher workforce development in vocational education encompasses teacher recruitment, selection, appointment, training, management, evaluation, motivation, and improvement processes (Gu, 2019). It also addresses the structure of teacher resources, teacher recruitment and hiring, the cultivation and assessment of teacher quality and capabilities, and the environmental and personnel management aspects of teacher workforce development in higher vocational colleges (Gu, 2019).

2.3 Industry-education integration

"Industry-Education Integration" is a significant driver of the modernization and high-quality development of vocational education. Industry-education integration facilitates the alignment of industry and education, creating a mutually beneficial and interactive development pattern. Industry-education integration primarily refers to the convergence of "industry" with "education," "enterprises" with "schools," and "production" with "teaching." It involves deep cooperation and mutual complementarity, with the industry providing educational institutions with practical training facilities, funding, job standards, and employment guidance. In return, educational institutions supply the industry with highly skilled professionals, addressing workforce shortages, and jointly achieving maximized benefits.

"Industry-Education Integration" is the process where businesses and vocational schools jointly engage in practical training and teaching (Yang & Han 2020). In this process, businesses collaborate with schools to establish educational objectives based on the developmental needs of the business. They integrate the production and service processes of the business with the practical training and teaching processes. Schools and businesses jointly participate in training teachers on practical skills. They guide teachers and students in using co-established training facilities for practical training and experiential learning (Yang & Han 2020). This approach aims to cultivate and enhance students' vocational skills in real workplace scenarios, enabling students to seamlessly transition into employment. It achieves a synergy where production and

education go hand in hand, and education is seamlessly integrated into the production process.

2.4 Curriculum system

"The curriculum system is the primary vehicle for talent development in higher education and serves as the bridge through which educational ideas and concepts are put into practice. The curriculum system (Cui, 2019). has a rich content, and as an open and evolving system, it clearly defines the objectives that reflect the training goals. It also encompasses the interconnections between various aspects of the curriculum content. A complete curriculum system should cover the objectives of the curriculum system, which are the goals of talent development, and unify various activities within the curriculum system, including curriculum content, curriculum design, curriculum structure, curriculum faculty, and curriculum evaluation.

The curriculum system's objectives serve as the guiding principles for the entire curriculum system, and these objectives are a primary requirement for constructing an advanced curriculum system in the new era (Cui, 2019). The objectives of the curriculum system encompass the specific goals of various internal subject courses and reflect specific indicators for students' comprehensive qualities, knowledge, skills, emotions, attitudes, and other aspects gained through teaching. This study primarily explores the overall objectives of the curriculum system for the field of education. Curriculum design reflects the values of those developing the curriculum system and also influences students' motivation for learning, as it conveys what the school emphasizes and requires. The curriculum system's structure mainly includes the proportions of different subject courses and the organizational forms and time ratios within each subject (Cui, 2019). Curriculum organization and implementation refer to the teaching process, where teachers and students follow the requirements of curriculum objectives in the teaching and learning process, translating the curriculum system's objectives from theory to practice (Cui, 2019). Faculty plays a critical role in determining whether the curriculum can be smoothly delivered. Curriculum evaluation pertains to the guiding principles of the curriculum system, overall objectives, and the implementation of curriculum content."

2.5 Secondary Vocational School

Secondary vocational schools are institutions that provide secondary vocational education. Graduates from these schools obtain secondary vocational education qualifications (Li & Xu, 2019). The target students include those who have completed junior high school or have an equivalent education level. The typical duration of the education program is three years. Secondary vocational schools may also admit students who have completed high school, with programs lasting two or three years. After graduation, students receive secondary vocational education qualifications. Secondary vocational education is conducted in the advanced stage of secondary education and includes vocational training after high school (Li & Xu, 2019). It is a key component of vocational education in China, aiming to train a large number of

skilled workers and high-quality laborers based on compulsory education.

Secondary vocational schools provide cultural knowledge education at the level of high school education while implementing targeted vocational professional knowledge and technical skill education based on the requirements of vocational positions. There are two main types: public and private (Yang, 2017). Vocational secondary schools, abbreviated as "vocational secondary schools," generally admit graduates from junior high school and high school, with a typical duration of three years. Technical schools typically admit graduates from junior high school and high school, with a standard program duration of three years (Zhang & Li, 2017). Vocational high schools and advanced vocational high schools, abbreviated as "vocational high schools" and "advanced vocational high schools," were developed from the reform of the education structure. Most of them were transformed from regular secondary schools and generally admit graduates from junior high school, with a standard program duration of three years. Their training objectives are similar to vocational secondary schools and technical schools, primarily focusing on training operational personnel on the front lines of production and services. Adult secondary vocational schools, abbreviated as "adult secondary schools," have developed as vocational schools after the reform and opening up. They were initially designed to educate adults with a junior high school education level, mainly working individuals, and train them as middle-level technical personnel. The program typically lasts two or three years (Liu & Jiang, 2020).

Compared to before, the definition of secondary vocational schools in society is gradually changing:

Firstly, vocational schools have a high employment rate. Instead of focusing primarily on imparting theoretical knowledge, vocational schools place more emphasis on cultivating technical talents (Gao, 2015). Against the backdrop of the upcoming new industrial revolution, various sectors of society urgently need more technical professionals. Graduates from vocational schools are widely favored in various fields. After students complete internships arranged by vocational schools, they gain practical hands-on experience related to their profession. Upon graduation, they can smoothly transition into the workforce without a "zero transition period." Secondly, vocational schools often offer preferential policies. Due to the increasing demand for technical professionals in society, the government's attention to vocational schools has been growing (Pan, 2015). As a result, the country has introduced several preferential policies to encourage more students to choose vocational schools. These policies include tuition fee exemptions for three years, national student aid, subsidies for students' living expenses, and more (Li, 2011). Thirdly, vocational schools have relatively low admission requirements. Compared to full-time regular high schools, which often have strict admission criteria based on academic performance, vocational schools have more lenient admission requirements (Li & Xu, 2019). They are accessible to a wider range of students. Except for a few highly competitive popular majors, most other majors in vocational schools have low entry barriers. Students generally only need to register without facing specific restrictions.

Vocational schools are primarily institutions for implementing secondary vocational education, mainly focusing on providing high-quality labor for society. This is different from higher vocational education, as it primarily encourages innovation based on specialized skills (Gao, 2015). Therefore, in conjunction with the essence of the "craftsmanship spirit," the "craftsmanship spirit" of vocational school students is primarily manifested in having more specialized practical skills, being meticulous and serious, pursuing perfection, and displaying professional dedication and focus. It embodies the unity of vocational skills, vocational awareness, and vocational ethics (Xiao & Mi, 2014).

2.6 Theoretical foundation

2.6.1 Achievement Motivation Theory

In the 1930s, Henry A. Murray introduced the concept of "achievement needs" and developed the Achievement Motivation Theory based on his research on individual needs and motivations. Murray believed that an individual's personality is composed of various needs, and the need for achievement is one of them. This need drives individuals to set high goals, overcome task difficulties, compete, and surpass others (Xiang, 2018).

Achievement motivation refers to the internal drive within individuals to complete tasks, strive for success, and willingly engage in activities they consider important and valuable, putting forth their best efforts to achieve a state of perfection. One of the characteristics of having a "craftsman spirit" is the pursuit of perfection, aiming to reach a state of excellence in the produced products. Vocational school students with achievement motivation are more likely to develop a "craftsman spirit."

Atkinson believes that achievement motivation is composed of two tendencies: the pursuit of success and the avoidance of failure. These tendencies manifest as actions toward goals and activities to escape, respectively. The synthetic tendency of achievement motivation is the pursuit of success tendency minus the avoidance of failure tendency, expressed as Synthetic tendency of achievement motivation = Pursuit of success tendency - Avoidance of failure tendency. When individuals face a new task, both of these tendencies simultaneously come into play (Xiang, 2018). If the synthetic tendency of achievement motivation is a positive value, meaning the pursuit of success tendency is greater than the avoidance of failure tendency, it will encourage individuals to strive upward and be proactive. If the synthetic tendency of achievement motivation is a negative value, meaning the pursuit of success tendency is less than the avoidance of failure tendency, it will cause hesitation and withdrawal in individuals (Xiang, 2018).

Weiner found that individuals typically believe that the success or failure of what they do is caused by six factors: personal ability, level of effort, job difficulty, personal luck, physical condition, and others. These six success and failure factors discovered by Weiner were later confirmed to represent the attribution responses of the general population. In traditional Chinese culture, interpersonal relationships have always been emphasized. When people achieve success, they often attribute their

success not to their parents or teachers but to their supervisors and managers.

If a student attributes their success to ability rather than luck, they will have a stronger learning motivation. They attribute the reason for their success to their ability, which is an internal and stable factor (Li & Xu, 2019). Therefore, ability enables successful individuals to maintain confidence. On the other hand, students who attribute success to luck rather than ability see success as a random result. Success attributed to luck does not enhance the student's confidence. Vocational school students have limited knowledge about their abilities and the surrounding environment (Li & Xu, 2019). When attributing success or failure, they can be influenced by subjective factors, leading to underestimating their abilities and making incorrect attributions in such cases (Xiang, 2018).

Chinese scholar Fan Jie's survey on the current achievement motivation of middle school students shows significant regional differences in achievement motivation. Students in rural areas have a stronger motivation to pursue success compared to urban students. A study on achievement motivation in middle school students found that parenting styles have a significant impact on their achievement motivation (Li & Xu, 2019). The motivation to pursue success in middle school students is positively correlated with parents' warmth and care, while the motivation to avoid failure is negatively correlated with parents' strict punishment and discipline (Xiang, 2018).

Therefore, vocational schools should enhance the achievement motivation of vocational students, pay attention to their psychological state and mindset, prioritize a student-centered approach, empower students, and stimulate their enthusiasm for participation in activities. By doing so, we can effectively promote the development of the "craftsmanship spirit" among vocational students.

2.6.2 Constructivism Theory

Constructivism is a branch of cognitive psychology, and its key figures include Jean Piaget, Otto Kernberg, Robert J. Sternberg, David Katz, and Lev Vygotsky. In educational research, the study of constructivist learning theory emerged in the 1980s, marking the beginning of studying human learning by referring to the mechanisms of the human brain, representing a true initiation into the study of human learning. In recent years, constructivism has played a significant role in the development of psychology and education, particularly dominating educational research fields like curriculum reform (Yang & Jia, 2021). Constructivism represents the contemporary development of cognitive structural learning theory, emphasizing a student-centered approach based on the student's existing knowledge and experiences, guiding them to actively explore, discover, and construct new knowledge (Yang & Jia, 2021).

The constructivist learning perspective posits that learning is a process in which learners construct their knowledge within a certain context, namely the socio-cultural background. This implies that learning is an active process, where meaning is constructed through repeated and bidirectional interactions between new and old knowledge and experiences (Yang & Jia, 2021). The constructivist curriculum perspective emphasizes presenting problems through real and complex stories and creating an environment for problem-solving (Zhang, 2012). This helps students

activate knowledge during the problem-solving process, transforming factual knowledge into tools for problem-solving. It advocates inspiring students to think through problems derived from real contexts and using this to support problem-solving. It also promotes case-based and project-based learning, engaging students in curriculum design and development, making the curriculum oriented towards the real world, and integrating teaching with society (Yang & Jia, 2021). The constructivist teaching perspective emphasizes guiding learning through the design of significant tasks or problems to stimulate interest and help learners become active participants in the learning process. The learning environment in constructivism comprises four elements: context, collaboration, conversation, and meaning construction. Among these, context forms the fundamental condition for meaning construction (Zhang, 2012). Collaboration and conversation between teachers and students, as well as among students, represent the process of meaning construction. Meaning construction itself is the purpose of constructivist learning (Yang & Jia, 2021).

Constructivism emphasizes that in real contexts or socio-cultural backgrounds, learners actively construct knowledge with the help of others, including communication and collaboration between teachers and students or among students. In vocational schools, the teaching approach differs from that of regular primary and secondary education (Zhang, 2012). It not only imparts theoretical knowledge to students but primarily focuses on skill training. Therefore, this "contextual teaching" model is highly suitable for education and teaching in vocational schools. It creates a real teaching environment for vocational students, enabling them to integrate classroom knowledge with practical scenarios (Liu & Yan, 2013), facilitating a deep understanding of knowledge and mastery of practical skills, ultimately leading to meaning construction. Against the backdrop of China's economic and social transformation, vocational students need to not only acquire essential professional technical skills but also cultivate vital professional spirits, especially the spirit of craftsmanship characterized by excellence, dedication, and meticulousness. This requires effective implementation through the practice of constructivist theory. Currently, vocational schools in China need to rely on enterprises and institutions to achieve the goals of "school-enterprise collaboration," "integration of production and education," "integration of theory and practice," and "modern apprenticeship system." This can be accomplished by jointly developing curricula, establishing shared training bases, and building a collaborative teaching faculty between schools and enterprises to achieve the common goal of talent development. Both the cultivation of craftsmanship spirit and professional internships and practical training for vocational students can take place in real work settings (Liu & Yan, 2013). This approach allows students to effectively integrate classroom knowledge with practical job skills, apply theoretical knowledge in practice, rapidly enhance proficiency in professional skills, and potentially identify and solve problems during practical experiences, thus improving their ability to address real-world issues (Yang & Jia, 2021). Moreover, since vocational students are in a real corporate environment, they can genuinely perceive and assimilate into the company culture and be exposed to the craftsmanship spirit of employees. This exposure is conducive to shaping their craftsmanship

mindset and nurturing the spirit of a craftsman (Liu & Yan, 2013). During internships and practical training, under the guidance of industry mentors, vocational students actively engage in hands-on activities, construct their practical knowledge framework, and internalize professional qualities, especially the craftsmanship spirit, through practice (Yang & Jia, 2021). They undergo the process of embodying the qualities of a craftsman. Therefore, applying constructivist theory in vocational education is beneficial for the development of craftsmanship-oriented talents and the cultivation of the craftsmanship spirit in vocational schools, ultimately enhancing students' awareness of craftsmanship and professionalism.

2.6.3 Social Cognitive Career Theory (SCCT)

The Social Cognitive Career Theory was proposed by Lent, R.W. et al. in 1996. It was built upon Bandura's theory of self-efficacy, Krumboltz's social learning theory, and Sampson, J.P., Peterson, G.W., Reardon, R.C.'s cognitive information processing theory (Gao & Sun, 2015).

The Social Cognitive Career Theory posits that a person's interest in engaging in something is not only related to the anticipated outcomes but is closely linked to their self-efficacy. The more successful a person is in something, the more interested they become in it, and it also enhances their self-efficacy. Past performance affects today's performance, and the reasons for this go beyond an individual's abilities. It also comes from their perception of self-efficacy, which directly impacts their abilities and is not easily changed even when faced with challenges (Gao & Sun, 2015).

The Social Cognitive Career Theory explains the interplay between self-efficacy, outcome expectations, and personal goals in the context of career development. According to the model of Social Cognitive Career Theory, an individual's characteristics and previous background influence their learning experiences, which in turn affect the individual's self-efficacy and expectations regarding future behavioral outcomes. The stronger an individual's self-efficacy, the more optimistic they are about future outcomes. This optimism influences their interest in choosing a particular career and clarifies their chosen goals. Once a goal is selected, the early psychological factors and experiences regarding outcome expectations strengthen an individual's commitment to the goal. Consequently, the individual's level of engagement in career-related activities increases, leading to higher performance levels and greater achievements in the end (Gao & Sun, 2015).

The Social Cognitive Theory has gradually emphasized humanism and explored its role in modern vocational education, making research on modern vocational education theory more comprehensive and in-depth. Vocational education at the secondary level is an indispensable part of China's education system, and the Social Cognitive Career Theory has inevitably become an important theoretical support for secondary vocational education (Gao & Sun, 2015). In secondary vocational education, the theory plays a crucial role in supporting students' cognition of their professions and adaptation to the social environment. When nurturing secondary vocational students with a "craftsmanship spirit," the theory further highlights the importance of students' self-awareness and self-efficacy.

Chapter 3 Research Methods

This paper utilizes a quantitative research approach for data collection. Taking the graphic design course at Nanjing Commercial School as an example, the paper applies Achievement Motivation Theory, Constructivist Theory, and Social Cognitive Career Theory to explore the influencing factors on the cultivation of "craftsmanship spirit" among students at Nanjing Commercial School, based on these theories. The research methodology primarily consists of the following steps:

3.1 Introduction

This study adopts a quantitative research approach. The research survey uses a simple random sampling method. Continuous innovation and improvement in teaching are essential components of school management in secondary vocational schools. Investigating the cultivation of "craftsmanship spirit" among students not only reflects the teaching quality and standards of the school but also indirectly reveals the students' satisfaction with their learning experiences at the school. This paper conducts a case study on Nanjing Commercial School and employs a design focused on the influencing factors in the cultivation of "craftsmanship spirit" students. Through this, it aims to illustrate the current status of cultivating "craftsmanship spirit" students at Nanjing Commercial School, and subsequently propose methods and approaches to address the identified issues.

3.2 Sample size and sampling

The research sample consists of 450 students from the 2022 class of the Graphic Design course at Nanjing Commercial School, a secondary vocational school. The research involved designing a questionnaire, testing the reliability and validity of the questionnaire, and compiling a student survey questionnaire. The main research content focused on the understanding of the "craftsmanship spirit" among secondary vocational students, the faculty's efforts in cultivating the "craftsmanship spirit" among secondary vocational students, the industry-education integration in fostering the "craftsmanship spirit," and the curriculum system for cultivating the "craftsmanship spirit" within the school. The survey questionnaire is divided into different variable investigation data, including the cognition of "craftsmanship spirit," teaching staff quality, industry-education integration, and curriculum system related to the cultivation of the "craftsmanship spirit." Using the Likert five-point scale, assigning values to 'Very Suitable,' 'Moderately Suitable,' 'Average,' 'Moderately Unsuitable,' and 'Very Unsuitable' as 5 points, 4 points, 3 points, 2 points, and 1 point respectively, a total of 450 questionnaires were distributed, and 450 were collected, resulting in 450 valid responses, achieving a response rate of 100%.

3.3 Research design

Table 3.1 Measurement Items for the Current Status of Craftsmanship Spirit

Variate	Measuring item	NO.
Perception of "craftsmanship"	1. The cultivation of craftsmanship spirit aligns with the market demands and corporate employment needs.	Q1
	2. The cultivation of craftsmanship spirit is the prerequisite for developing professional competence.	Q2
Teaching staff quality	1. "Few 'dual-qualified teachers', insufficient number of part-time instructors."	Q3
	2. Professional teachers lack specialized skills and practical abilities, and they have high turnover rates.	Q4
	3. Low teaching quality among teachers and weak research capabilities.	Q5
	4. Lacking a sound system for teacher recruitment and training.	Q6
industry-education integration	1. The school-enterprise cooperation concept needs to be transformed.	Q7
	2. The cooperation between enterprises and schools is not deep enough, remaining superficial and passive.	Q8
	3. Lack of organizational and coordination mechanisms in school-enterprise cooperation.	Q9
	4. The evaluation mechanism for school-enterprise cooperation is not perfect.	Q10
	5. The modern apprenticeship system has not been widely implemented on a large scale.	Q11
	6. The involvement in jointly establishing industry-specific or regional internship and training bases with schools is insufficient.	Q12
Course system	1. Enterprises and schools have low participation in the setting of professional courses.	Q13
	2. The professional curriculum design is disconnected from market and industry demands.	Q14
	3. The professional curriculum design is not scientific, and the goals are not clearly defined.	Q15
	4. The professional programs lack distinctiveness, and there is a weak sense of branding.	Q16
	5. The curriculum does not align with market demands, and there is a lack of balance between practical and theoretical courses. Additionally, there are insufficient elective courses.	Q17
	6. No courses or seminars on craftsmanship spirit, and lack of training programs on professional ethics.	Q18
	7. No dynamic adjustment mechanism for vocational school majors and curriculum settings has been established, and a coherent curriculum connection system is not in place.	Q19

3.4 Data collection

To assess the quality and feasibility of the questionnaire, a test was conducted with 450 students from the 2022 class of the Graphic Design course at Nanjing Commercial School, a secondary vocational school. A uniform explanation was provided, and after the testing, the questionnaires were collected on-site. A total of 450 questionnaires were distributed, and all 450 were collected, resulting in a response rate of 100%. All 450 collected questionnaires were valid, achieving a validity rate of 100%. After inputting the test data into the computer, SPSS 22.0 was used for statistical analysis and data management, including the assessment of reliability and validity.

3.5 Data analysis

This paper employs a quantitative research approach. Through a review of existing literature and in conjunction with Achievement Motivation Theory, Constructivist Learning Theory, and Social Cognitive Career Theory, a questionnaire survey was conducted on a total of 450 students from two classes in the Graphic Design program at Nanjing Commercial School. The primary analysis involved assessing the reliability and validity of the survey using SPSS software. Additionally, correlation analysis and multiple regression analysis were employed.

In this study, the influencing factors in the cultivation of "craftsmanship spirit" among students in secondary vocational schools were examined using the example of students in the Graphic Design program at Nanjing Commercial School. The study employed Achievement Motivation Theory, Constructivist Learning Theory, and Social Cognitive Career Theory. Surveys were distributed, and SPSS software was utilized to conduct independent sample t-tests for further analysis.

3.5.1 Reliability analysis

Reliability refers to the consistency of a measurement with the variable it intends to measure. It indicates the extent to which assessment scores can be trusted. Higher reliability means that the scores obtained for different items within the same scale are less affected by errors. This ensures that the scores obtained on the scale are consistent across different respondents and accurately reflect the true state. The better the consistency, the greater the reliability, and vice versa. In this study, Cronbach's Alpha was used as the basis for assessing the reliability of the survey questionnaire. The survey data indicated excellent questionnaire reliability. The questionnaire consisted of a total of 15 items. The Cronbach's Alpha for "Craftsmanship Spirit" cognition was 0.856. For teaching staff quality, it was 0.880. For industry-education integration, it was 0.895. And for the curriculum system, it was 0.901. All values were greater than 0.8, indicating that the scale possessed high stability and consistency. This suggests that the questionnaire used in this survey research demonstrated excellent reliability.

Table 3.2 Reliability

Variate	Cronbach's Alpha	N of Items
Cognizance of Craftsmanship	0.856	2
teaching staff quality	0.880	4
industry-education integration	0.895	6
curriculum system	0.901	7

3.5.2 Validity analysis

Validity is an examination of the effectiveness of various variables in a survey questionnaire. Factor analysis is a commonly used method to assess the validity of a survey questionnaire. The effectiveness of the questionnaire is established through factor analysis. Principal component factor analysis requires testing the KMO (Kaiser-Meyer-Olkin) measure and Bartlett's sphericity test for the questionnaire. Factor analysis can only be conducted when the KMO value is greater than 0.7. The survey data revealed an overall KMO value of 0.907 with a significance of 0.000, which is less than 0.05 and attains a significant level, indicating the feasibility of conducting factor analysis. The factor analysis results for each variable indicated that the cumulative explanatory rates for "Craftsmanship Spirit" cognition, teaching staff quality, industry-education integration, and the curriculum system were 68.007%, all exceeding 0.5. This suggests good independence for each dimension, indicating overall good questionnaire validity.

Table 3.3 Validity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.907
Bartlett's Test of Sphericity	Approx. Chi-Square	3698.720
	df	66
	Sig.	0.000

Chapter 4 Findings

4.1 Introduction

The subjects of this questionnaire survey were 450 students from the 2022 class of the Graphic Design course at Nanjing Business School, a secondary vocational school. A total of 450 questionnaires were distributed and collected, achieving a response rate of 100%. All 450 collected questionnaires were deemed valid, resulting in a 100% validity rate. The following are the findings and conclusions from the survey results.

4.2 Students have insufficient awareness of craftsmanship spirit.

According to the survey, the statistical results show that 51.25% of vocational school students indicated a limited understanding of craftsmanship spirit and skilled talents, 36.29% of vocational school students claimed to have some understanding of craftsmanship spirit and skilled talents, 6.3% of vocational school students stated they have no understanding at all of craftsmanship spirit and skilled talents, and only 6.09% of vocational school students expressed a deep understanding of craftsmanship spirit and skilled talents. It can be seen that the majority of vocational school students lack a clear understanding of craftsmanship spirit and skilled talents. Only a small portion of vocational school students have a relatively good understanding of these concepts. The specific survey results are shown in Figure 4.1:

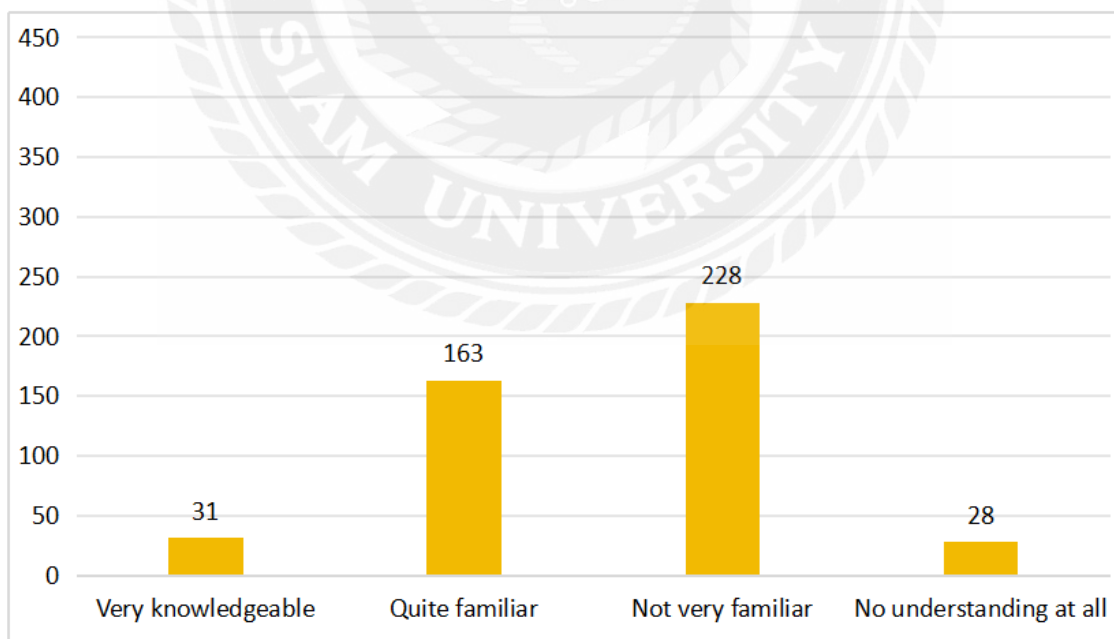


Figure 4.1 Level of understanding of the connotation of craftsmanship spirit

4.3 Teachers are understaffed.

Nanjing Business School's graphic design course primarily focuses on training students to acquire specific vocational skills. In terms of faculty composition, apart from teaching theoretical knowledge, instructors are also required to possess practical expertise. To guide students in integrating theory with practice effectively, a survey regarding the qualifications of vocational school teachers indicates that 15.48% of vocational school students believe their teachers have both solid theoretical knowledge and strong practical skills. Meanwhile, 15.8% of vocational school students feel their teachers lack either solid theoretical knowledge or strong practical skills. A significant 45.79% believe the qualifications do not meet the standard. It is evident that Nanjing Business School still faces challenges in the quality of faculty development. Vocational schools differ from ordinary schools as they aim to nurture students' comprehensive development of morality, intelligence, physical fitness, and aesthetics. These students are expected to possess comprehensive vocational abilities, making them highly skilled workers and professionals in the production and service sectors. This demands teachers not only have theoretical expertise but also possess strong practical skills, enabling them to guide students effectively in both theory and practice. This concept aligns with what we call 'dual-qualified' teachers. Specific survey results are illustrated in Figure 4.2:

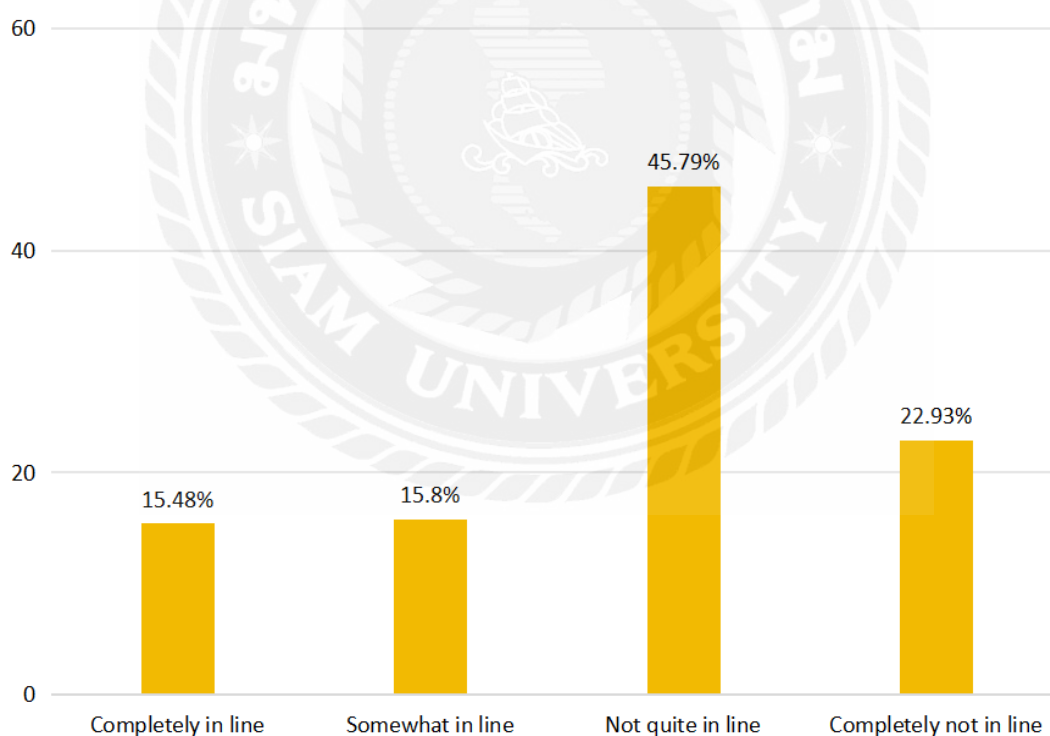


Figure 4.2 Employment status of vocational school teachers

4.4 Inadequate industry-education integration.

According to statistical analysis, the integration between education and industry is not yet perfect. The term 'industry-academic collaboration' refers to the close cooperation between universities and enterprises, where universities utilize their

research results and innovative ideas to guide technological innovation and industrial upgrading in enterprises, thereby creating greater economic benefits. Conversely, enterprises can provide universities with sufficient research funds and practical experiences, guiding university research in problem-oriented directions. Regarding the collaboration and integration between Nanjing Business School and enterprises, the survey indicates that 22.16% of students believe the collaboration between their school and enterprises is very close, 19.94% of students consider it relatively close, 56.51% of students find it not very close, and 1.39% of students feel there is no closeness at all in their collaboration with enterprises. Nanjing Business School needs to further improve its collaboration and integration between academia and industry. Collaboration between academia and industry is a vital approach to cultivating skilled talents. Enterprises and vocational schools collaborate by establishing shared training bases, developing courses together, setting common training objectives, and exchanging teachers for mutual learning, collectively nurturing talents. This approach ensures a smooth channel between talent cultivation and employment, enhancing students' employment rates. Furthermore, as enterprises provide authentic work environments, students find it easier to enhance their technical skills through practical training. They are also influenced by the corporate culture, nurturing their professional ethics and craftsmanship spirit. Specific survey results are illustrated in Figure 4.3:

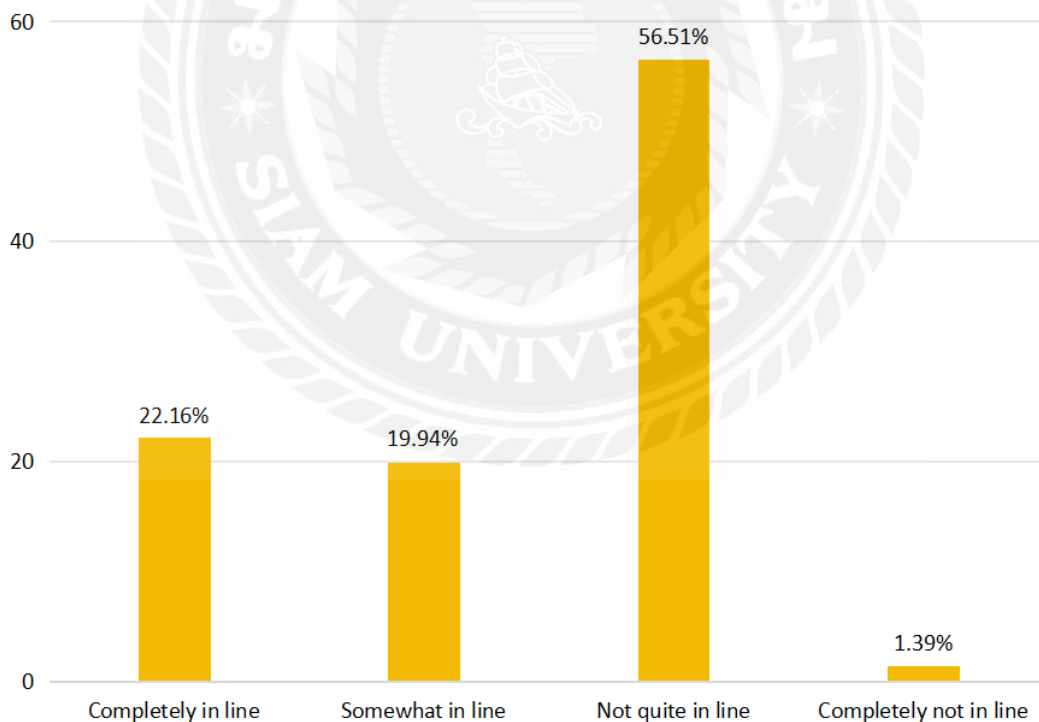


Figure 4.3 Collaboration between vocational schools and enterprises

4.5 The curriculum system is not well-established.

Based on the current survey findings, it is evident that the curriculum system for nurturing craftsmanship spirit at Nanjing Business School is inadequate. The curriculum does not align with market demands, and the balance between practical

and theoretical courses is lacking. Additionally, the school has not introduced courses, lectures, or training programs specifically dedicated to craftsmanship spirit or professional ethics. Furthermore, there is no dynamic adjustment mechanism established for vocational majors and course offerings, and a comprehensive curriculum alignment system is absent. Out of 450 students surveyed, 80 students (17.8%) chose 'Very Suitable,' 120 students (17%) chose 'Moderately Suitable,' 120 students (16.7%) chose 'Average,' 200 students (44.4%) chose 'Not Very Suitable,' and 20 students (4.1%) chose 'Not Suitable at All,' as shown in Figure 4.4:

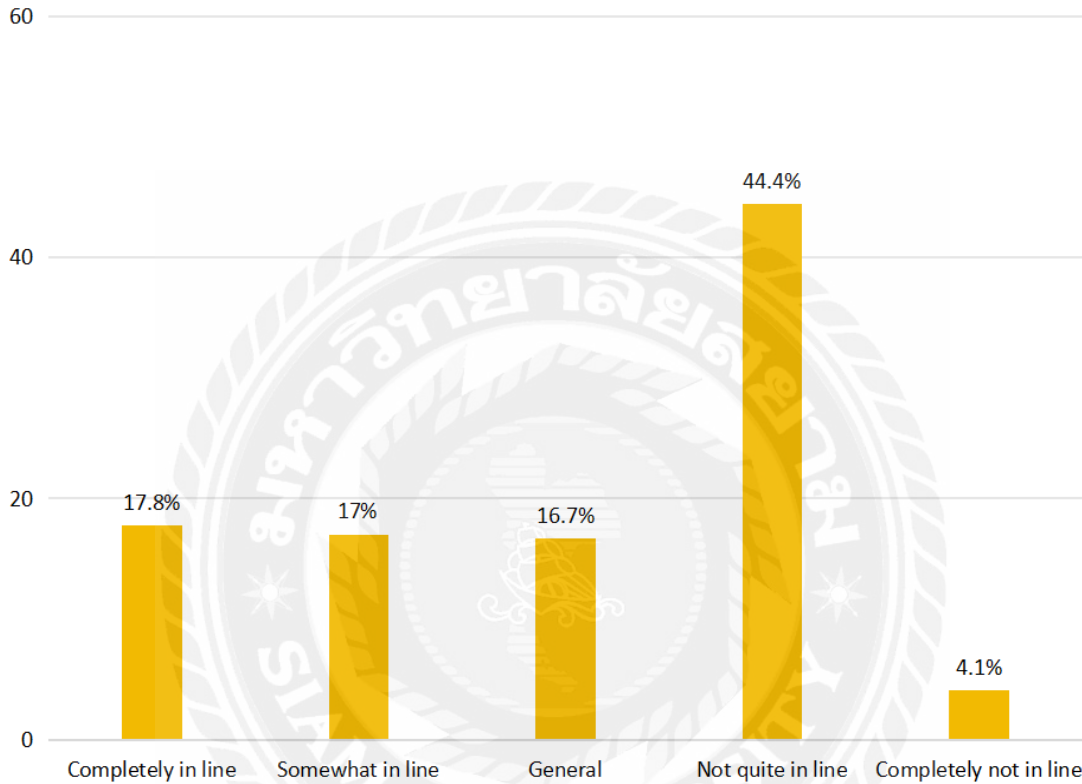


Figure 4.4 Current status of the curriculum

4.6 correlation analysis

Correlation analysis primarily explains the existing relationships between each variable. Pearson correlation analysis is used to demonstrate the linear relationships between each variable. The Pearson correlation coefficient ranges from -1 to 1. The Pearson correlation coefficient analysis is used to explain the relationships between the influencing factors of cultivating "Craftsmanship Spirit" among students at Shandong Engineering Vocational and Technical University. Based on Table 4.1, the following conclusions can be drawn. The Pearson correlation coefficients for "Craftsmanship Spirit" cognition, Teaching staff quality, industry-education integration, curriculum system, and Student Management Satisfaction are all greater than 0.5 and less than 0.9, with a significance level of $P < 0.01$. This indicates a positive correlation between the variables.

Table 4.1 Correlation between variables (Pearson correlation matrix)

Variables	Cognizance of Craftsmanship	teaching staff quality	industry-education integration	course system
Cognizance of Craftsmanship	1			
teaching staff quality	.591**	1		
integration of industry and education	.551**	.665**	1	
curriculum system	.572**	.692**	.675**	1

NOTE: *P<0.05, **P<0.01, ***P<0.001

4.7 Multiple Regression Analysis

Multiple regression analysis was performed on the data to determine the relationship between the dependent variable, Student Management Satisfaction, and the independent variables: "Craftsmanship Spirit" cognition, teaching staff quality, industry-education integration, and the curriculum system. Based on Table 4.2, the regression equation is significant, with $F=142.172$ and $P<0.001$. The Durbin-Watson test value is 1.944, which falls between 1.8 and 2.2, indicating data independence and meeting the requirements for linear regression. In the collinearity diagnostic results, the VIF values for "Craftsmanship Spirit" cognition, teaching staff quality, industry-education integration, and the curriculum system are all close to 1 (1.118, 1.091, 1.195, and 1.073, respectively), indicating no collinearity in the data. "Craftsmanship Spirit" cognition ($\beta =0.145$, $P<0.05$), teaching staff quality ($\beta =0.218$, $P<0.05$), industry-education integration ($\beta =0.112$, $P<0.05$), and the curriculum system ($\beta =0.297$, $P<0.05$) significantly and positively influence the cultivation of "Craftsmanship Spirit". These variables collectively explain 57.5% of the variance in classroom participation, meeting the requirements.

Table 4.2 Multiple Regression Analysis

Item	Unstd. B	Std. Beta	t	Sig.	VIF	F	Durbin-Watson
C	3.209	-	7.506	0.000			
Cognizance of Craftsmanship	0.145	0.175	4.176	0.000	1.118		
teaching staff quality	0.218	0.262	5.327	0.000	1.091	142.172	1.944
industry-education integration	0.112	0.130	2.753	0.006	1.195	***	
curriculum system	0.297	0.320	6.506	0.000	1.073		
R Square	0.579						
Adjusted R Square	0.575						

Based on the multiple regression analysis, the relationships between each variable were determined:

The cultivation of "Craftsmanship Spirit" is determined by the equation: (Craftsmanship Spirit Cultivation = 3.209 + 0.145Craftsmanship Spirit Cognition + 0.218Teaching staff quality + 0.112Industry-Education Integration + 0.297Curriculum System).

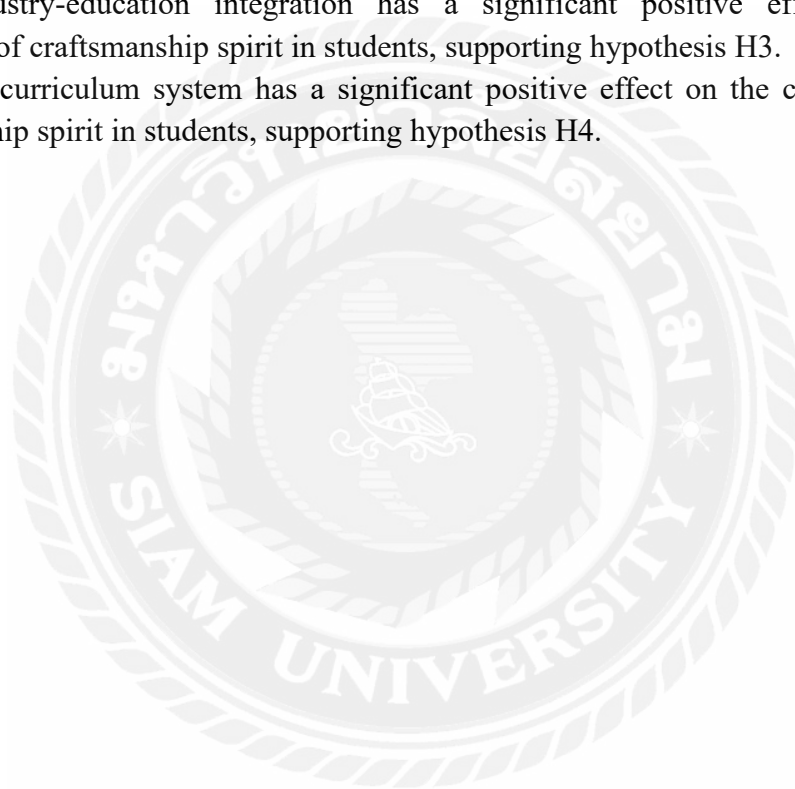
Therefore, based on the data analysis results, in the study of influencing factors on the cultivation of craftsmanship spirit at Nanjing Business School:

- Craftsmanship spirit cognition has a significant positive effect on the cultivation of craftsmanship spirit in students, supporting hypothesis H1.

- Teaching staff quality have a significant positive effect on the cultivation of craftsmanship spirit in students, supporting hypothesis H2.

- Industry-education integration has a significant positive effect on the cultivation of craftsmanship spirit in students, supporting hypothesis H3.

- The curriculum system has a significant positive effect on the cultivation of craftsmanship spirit in students, supporting hypothesis H4.



Chapter 5 Conclusion and Recommendation

5.1 Conclusion

This paper adopts a quantitative research approach. Through a review of existing literature and the integration of achievement motivation theory, constructivist learning theory, and social cognitive career theory, two classes from the Graphic Design major at Nanjing Business School, totaling 450 students, were surveyed using questionnaires. Based on the results, issues related to fostering students' craftsmanship spirit were identified, leading to the formulation of research objectives.

5.1.1 The current status of cultivating craftsmanship spirit among students in the Graphic Design course at Nanjing Business School.

In conclusion, based on the survey questionnaires and interview results, it was found that Nanjing Business School faces numerous practical challenges in cultivating skilled talents:

1. Limited Understanding of Craftsmanship Spirit: Insufficient comprehension of craftsmanship spirit leads to a lack of emphasis on nurturing students' professional ethics and attitudes.
2. Inadequate Faculty Resources: Insufficient teaching staff with inadequate professional skills and practical abilities. There is a shortage of 'dual-qualified' teachers.
3. Weak Industry-Education Integration: Limited collaboration and integration between the school and industry partners.
4. Unreasonable Curriculum System: The curriculum structure is irrational, course arrangements are inappropriate, and there is a lack of practical training opportunities, resulting in insufficient development of students' vocational skills.

5.1.2 The understanding of craftsmanship spirit, teaching staff quality, industry-education integration, and curriculum system all have a positive impact on nurturing the craftsmanship spirit in students.

1. Strengthening the understanding of craftsmanship spirit helps enhance students' self-efficacy.

As a vocational school student, one should have a profound understanding of the essence of craftsmanship, be able to put craftsmanship into practice, demonstrate craftsmanship skills in terms of abilities, and acknowledge the spirit of craftsmanship mentally. It should be integrated into one's professional philosophy, fostering ambitious career aspirations to become a skilled craftsman in the great nation in the future. Self-efficacy refers to a student's psychological estimation of whether they are capable of doing something well. Students with high self-efficacy usually have confidence in their future development, believing that through their efforts, they can find a desired job and are convinced that with diligent study and exploration, they can achieve success.

2. Teaching staff quality resources and cultivate "dual-teacher" educators.

Advocating the creation of a "dual-teacher" educator team, defined as teachers possessing both theoretical teaching and practical guidance abilities. However, currently, teachers at Nanjing Business School generally exhibit weak overall practical teaching abilities. This is largely due to the school not placing enough emphasis on teacher training, reflected in the inadequate teacher training system and superficial training methods. To address this issue, vocational schools should establish a comprehensive teacher training system. For example, developing semester plans and organizing teacher exchanges with schools that have rich teaching experience during winter and summer vacations, with corresponding assessment components to ensure the effectiveness of the training. Additionally, in cases where teachers lack practical experience, professionals with extensive work experience in the relevant field can be invited to share and exchange knowledge at the school. By combining these two approaches, the school can have more outstanding "dual-teacher" educators. Furthermore, a scientific competition mechanism should be established, linking teachers' teaching performance to title assessments and promotions. This approach encourages teachers to continuously enhance their teaching levels, address their weaknesses, and fully engage their enthusiasm and initiative. During this process, the work attitude of teachers will also influence students, making them realize the importance of approaching any profession seriously.

3. Strengthen integration between industry and education, incorporating the cultivation of craftsmanship spirit within it.

School-enterprise cooperation is an important part of practical education in secondary vocational schools. It helps students improve their vocational skills, enabling them to better adapt to the social environment after graduation. It also facilitates their rapid integration into relevant job positions in their future careers. According to current interviews and observations, the current status of school-enterprise cooperation at Nanjing Commercial School is not optimistic.

Enhancing school-enterprise collaboration and integrating the craftsmanship spirit into this collaboration can be approached through the following ways:

Firstly, the school needs to change the existing concept of "emphasizing skills and neglecting spirit" in school-enterprise collaboration. The focus should not only be on improving and nurturing students' professional knowledge and practical skills, but also on developing students' vocational qualities at the spiritual level. Simultaneously, integrating the cultivation of craftsmanship spirit into this process and considering the cultivation of craftsmanship spirit as a significant indicator to measure students' vocational qualities.

Secondly, the school can establish a school-enterprise cooperation committee based on the existing conditions. Within the scope allowed by the existing conditions, professional individuals can be hired to provide specialized guidance for students' off-campus internships, ensuring the smooth progress of school-enterprise cooperation. Additionally, they can assist in developing training plans for students involved in school-enterprise cooperation.

Furthermore, school administrators should have a keen eye and target high-

quality enterprises that are at the forefront of various sectors in today's society. Actively seek and introduce new projects suitable for school-enterprise cooperation, diversifying the channels of cooperation, and achieving seamless integration between the school and enterprises. This will create more opportunities for the cultivation of students' craftsmanship spirit.

4. With imparting applied knowledge at its core, reorganize the curriculum system.

Update the vocational curriculum philosophy and establish a curriculum system based on knowledge application. The biggest feature of the curriculum in Nanjing Province is guided by subject knowledge, and the curriculum system of vocational schools is no exception. The curriculum system guided by subject knowledge focuses more on the main elements of knowledge composition, such as the categories, structure, content, methods, organization, and the historical development of theories. This type of curriculum system is more suitable for knowledge accumulation rather than application. The main goal of the graphic design course at Nanjing Commercial School is to cultivate applied technical talents. Therefore, in the curriculum design, more emphasis should be placed on how to apply knowledge. There should be a fundamental transformation of the current curriculum system, with more communication and learning exchanges with vocational schools in coastal areas. Innovative curriculum system models should be drawn upon to shift the focus of the curriculum towards the objects, methods, content, ways, organization, and historical development of tools for knowledge application. Transform the curriculum from being suitable for knowledge accumulation to being conducive to knowledge application, ensuring that the curriculum is centered on cultivating students' proficient vocational comprehensive abilities. Through the transformation of the curriculum system, the teaching in the school should be more skill-oriented, allowing students to learn more comprehensive, systematic, and highly relevant knowledge to actual work during this process. Through such a curriculum, overall improvement of students' practical level can be achieved, making education more targeted.

5.2 Recommendation

5.1 Focus on student education and integrate the cultivation of craftsmanship spirit throughout.

Student education is an important component of the ideological education of secondary vocational school students. Secondary vocational school students are in a crucial stage of growth and development. Their outward behavior is determined by psychological activities and consciousness. The type of behavior they exhibit is a reflection of their consciousness. If a student's consciousness contains more negative factors, it can lead to feelings of inferiority and even self-abandonment, which is detrimental to the cultivation of craftsmanship spirit. Conversely, by focusing on student education and integrating craftsmanship spirit into it, we can awaken the students' 'internal drive,' help them set clear goals for the future, and encourage them

to strive towards those goals with their efforts. At the same time, it effectively implants a craftsmanship spirit in the students' hearts, ultimately achieving the goal of maturing and succeeding as adults. This is a win-win approach.

To infuse craftsmanship spirit into student education, it is essential to excel in the following two aspects: On one hand, schools should fully utilize the function of ideological and political education courses, helping students establish correct vocational beliefs and cultivate ideological consciousness. Concurrently, integrate the essence of craftsmanship spirit into these courses, laying a solid foundation for students as they enter society.

On the other hand, it is necessary to fully leverage the power of 'craftsmanship' role models to influence students. Role models can be individuals who practice the spirit of craftsmanship and make outstanding contributions to society. This should include individuals of similar age to vocational school students. The selection can follow the 'proximity' principle, choosing outstanding students who exemplify the spirit of craftsmanship within the school. The promotion of role models can be done through various means, such as organizing lectures or meetings, or arranging for students to watch documentaries. Through these methods, students are immersed in the influence of role models showcasing the craftsmanship spirit. Students will understand that excellent 'craftsmanship' role models are ordinary people, often from their surroundings, and that each one of them can strive to become such a person through their efforts.

5.2 Enhancing school-enterprise collaboration and integrating the cultivation of craftsmanship spirit into it.

School-enterprise collaboration is an essential part of practical education in secondary vocational schools. It helps students in various majors in their third year to enhance their vocational skills, enabling them to better adapt to the societal environment after graduation. Moreover, it facilitates a swift integration into relevant job positions in their future careers. Based on current interviews and observations, the current state of school-enterprise collaboration at School D is not optimistic. After conducting several surveys on third-year students from different majors in the school, it was found that during the six-month on-the-job internship, most high school students exhibited a weary and negative attitude. The intended educational function throughout the entire process of school-enterprise collaboration could not be effectively realized. This is highly detrimental to cultivating students' craftsmanship spirit within the context of school-enterprise collaboration.

Enhancing collaboration between schools and enterprises and integrating the craftsmanship spirit into this collaboration can be approached through the following avenues. Firstly, the school should change the existing notion of "emphasis on skills, neglecting spirit" in school-enterprise collaboration. The goal should not only be to improve and develop students' professional knowledge and practical skills but also to focus on fostering the vocational qualities of students on a spiritual level. Simultaneously, infuse the cultivation of the craftsmanship spirit into this process, considering the development of the craftsmanship spirit as a vital indicator to measure

students' vocational qualities.

Furthermore, the school could establish a School-Enterprise Cooperation Committee based on the currently available resources. Within the permissible scope of the school's existing conditions, professional individuals could be hired to provide specialized guidance to students during their extracurricular internships. This ensures the smooth progress of school-enterprise cooperation and assists in formulating tailored student development plans within this collaboration.

5.3 To enhance the cultivation of the craftsman spirit within the school's cultural atmosphere.

To cultivate the craftsman spirit in secondary vocational school students, an appropriate campus cultural atmosphere is essential. In today's highly advanced network technology, smartphones are ubiquitous among the entire population of secondary vocational students, and the internet has become an important means for teachers' instruction, students' learning, and communication. Therefore, to strengthen the construction of a school culture that promotes the craftsman spirit, it is necessary to fully utilize the Internet as a crucial medium. Firstly, actively create an online platform with the theme of the craftsman spirit within the campus culture, utilizing the internet extensively to promote figures and stories related to the craftsman spirit. This will allow the dissemination of the craftsman spirit campus culture in an information-oriented manner. Secondly, actively organize various campus activities with the craftsman spirit as the theme. These could include class meetings, club activities, regular lectures centered around the craftsman spirit, and screenings of documentaries like "Great Nation Craftsman" or "I Repair Cultural Relics at the Forbidden City." After the screenings, discussions, and exchanges of thoughts should be organized. Additionally, the school should actively create opportunities for exchanges and learning with other secondary vocational schools. Thirdly, it is important to rearrange the school environment to reflect the essence of the craftsman spirit in the campus culture. Posters, quotes, and images representing the craftsman spirit should be prominently displayed in teaching buildings, training rooms, corridors, and walls. This will immerse students in an environment where they are constantly exposed to and influenced by the craftsman spirit, motivating them to cultivate this spirit effectively.

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APPENDIX

Appendix 1: Survey Questionnaire on Cultivation of Artisanal Talents in Vocational Secondary Schools in China

Dear Classmates:

Greetings! Thank you very much for participating in this questionnaire on your busy schedule.

This questionnaire aims to investigate the current status and influencing factors of vocational schools in China in nurturing skilled talents. It lays the foundation for the analysis of the reasons for the shortage of skilled talent training and the proposal of effective countermeasures in the future. The questionnaire is anonymous, and your responses are not judged as right or wrong; they are solely for academic reference. Please provide truthful answers. Thank you for your cooperation!

一、 Basic information

1. Your gender?
A. male B. female
2. Your age?
A. Under 18 years
B. 18-25 years
C. 25-32 years
D. 32-40 years
3. Your Account?
A. countryside B. cities and towns

二、 A Survey on the Current Situation of Cultivating Artisanal Talents in China's Secondary Schools

1. How much do you know about craftsmanship and the cultivation of artisanal talents?? (single question)
A. Very familiar
B. Some understanding
C. Not very familiar
D. Completely unfamiliar
2. Do you have a course related to nurturing vocational spirit for vocational school students in your school? (Single-choice question)
A. Yes
B. No
C. Not sure
3. Your school's arrangement for theoretical and practical vocational skills courses is: (Single-choice question)
A. More theoretical courses than practical courses
B. more practical courses than theoretical courses
C. Approximately equal number of theoretical and practical courses

4. How do you think the internship and practical training courses at your school have helped you in developing your vocational skills? (Single-choice question)

- A. I didn't learn practical job skills.
- B. I learned basic job skills.
- C. There are very few internships and practical training courses.

5. What do you think are the problems with the teaching methods at your school? (Multiple-choice question)

- A. Traditional and monotonous teaching methods, rote learning
- B. Emphasis on theory rather than practical skills
- C. Monotonous teaching formats
- D. Traditional and monotonous methods of evaluation
- E. Insufficient professional internships and practical training
- F. Lack of apprentice-style teaching model
- G. Other (please specify)

6. Do your teachers have solid theoretical knowledge and strong practical skills in their profession? (Single-choice question)

- A. Highly suitable
- B. Moderately suitable
- C. Moderately unsuitable
- D. Not suitable at all

7. Is your school closely connected with enterprises, emphasizing students' internships and practical training? (Single-choice question)

- A. Highly suitable
- B. Moderately suitable
- C. Moderately unsuitable
- D. Not suitable at all

8. Does your school frequently organize various skills competitions, encouraging students to delve into their skills? (Single-choice question)

- A. Highly suitable
- B. Moderately suitable
- C. Moderately unsuitable
- D. Not suitable at all

9. What do you think are the current challenges in nurturing skilled talents in vocational schools in China? (Multiple-choice question)

- A. Level of social recognition
- B. Curriculum design
- C. School teaching methods
- D. Teacher training methods
- E. Campus culture development
- F. School-enterprise cooperation
- G. Other

三、 Investigation of Influencing Factors in the Cultivation of Skilled Talents in Chinese Vocational Schools

Survey of Influencing Factors at the Vocational School Level

Item		Level of Compliance				
		Highly Compatible	Moderately Compatible	general	Moderately Incompatible	Highly Incompatible
Cognizance of Craftsmanship	1. The cultivation of craftsmanship spirit aligns with the market demands and corporate employment needs.					
	2. The cultivation of craftsmanship spirit is the prerequisite for developing professional competence.					
teaching staff	3. A small proportion of 'dual-qualified teachers,' insufficient number of part-time teachers.					
	4. Professional teachers lack professional skills and practical abilities, and have high mobility.					
	5. Low teaching quality among teachers, weak research capabilities.					
	6. Lack of a sound system for selecting and cultivating teaching staff.					
Integration of Production and Education	7. The concept of school-enterprise cooperation needs to be changed.					
	8. The cooperation between enterprises and schools is not deep, superficial, passive, or negative.					
	9. There is a lack of organizational and coordination mechanisms in school-enterprise cooperation.					
	10. The evaluation mechanism for school-enterprise cooperation is not perfect.					
	11. Modern apprenticeship programs have not been widely implemented.					
	12. The involvement in jointly establishing industry-specific or regional internship and training bases with schools is insufficient.					

curriculum system	13. Low involvement of enterprises and schools in the design of specialized courses.					
	14. The professional programs are disconnected from the market and corporate demands.					
	15. The professional programs are not scientific, and the objectives are not clearly defined.					
	16. The professional programs lack distinctive features, and there is a lack of brand awareness.					
	17. The curriculum does not align with market demands, and the balance between practical and theoretical courses is lacking. There is a shortage of elective courses.					
	18. No courses or lectures on craftsmanship spirit, or training programs on professional ethics and values have been offered.					
	19. A dynamic adjustment mechanism for vocational school majors and course offerings has not been established, and a well-functioning curriculum alignment system is lacking.					

四、A Survey on Suggestions for the Cultivation of Skilled Talents in Chinese Vocational Schools

1. What do you think the cultivation of skilled talents in vocational schools in China mainly relies on? (Multiple-choice)

- A. Schools
- B. Parents
- C. Students
- D. Enterprises
- E. Government
- F. Society
- G. Other

2. To achieve the goal of cultivating skilled talents in vocational schools, which aspects do you think should be emphasized? (Multiple-choice)

- A. Professional technical proficiency
- B. Theoretical knowledge
- C. Vocational spirit
- D. Moral education
- E. Innovative spirit

- F. Other
3. In your opinion, in what areas should vocational schools make efforts for the cultivation of skilled talents? (Multiple-choice)
- A. Reasonable design of majors, courses, and teaching materials
 - B. Transformation of traditional teaching management methods
 - C. Change in traditional teaching methods
 - D. Strengthening the construction of the teaching staff, cultivating dual-qualified teachers
 - E. Improving the training objectives and evaluation system
 - F. Enhancing campus culture and external cooperation
 - G. Other
4. What areas do you think enterprises should focus on for the cultivation of skilled talents in vocational schools? (Multiple-choice)
- A. Strengthening corporate culture influence
 - B. Changing corporate hiring perspectives
 - C. Actively participating in the integration of production and education and school-enterprise cooperation
 - D. Improving corporate institutional construction
 - E. Other
5. In your opinion, what areas should society focus on for the cultivation of skilled talents in vocational schools? (Multiple-choice)
- A. Strengthening publicity and creating a positive social atmosphere
 - B. Changing traditional cultural perspectives
 - C. Increasing policy support and financial investment
 - D. Perfecting the management, motivation, and evaluation system for skilled talents
 - E. Strengthening industry guidance, evaluation, and services
 - F. Other
6. What do you think are the existing problems in the cultivation of skilled talents in Chinese vocational schools? How can these issues be improved? (Short-answer question)

The questionnaire is now concluded.
Thank you once again for your assistance and support!