

Integrating the Spirit of Craftsmanship into the Practice Logic and Strategy Construction of Vocational Education Talent Training in Fashion Design

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Abstract: - Vocational education focuses on cultivating practical and applied talents. In vocational education practice, cultivating students' craftsmanship spirit is an inevitable way to promote students to develop a good professional attitude. The spirit of craftsmanship is the spiritual pursuit of workers in the new era of China, and it is of great significance for workers to improve their vocational skills, professional ethics, and professional ideals. This article focuses on the problems that exist in the vocational education process of fashion design major, analyzes the reasons for the problems, proposes measures to update the vocational education concept, integrates the spirit of craftsmanship into professional course teaching, builds practical platforms, innovates teaching modes to cultivate and integrate industry and education, and cultivates the spirit of craftsmanship in school enterprise cooperation.

Key-Words: - Vocational education, Craftsmanship spirit, Vocational skills, Course teaching, Practice Logic, Strategy Construction.

Received: November 2, 2025. Revised: February 4, 2026. Accepted: June 4, 2026. Published: July 21, 2026.

1 Introduction

The spirit of craftsmanship is the spiritual pursuit of workers in the new era of our country, which has important value in improving their vocational skills, professional ethics, and professional ideals. Vocational education, as a different type of education from general education, is an important foundation for the development of the national economy and society. The cultivation of vocational education talents is responsible for cultivating a large army of knowledgeable, skilled, and innovative workers with ideals, beliefs, technical knowledge, innovation, courage to take on responsibilities, dedication, and craftsmanship spirit. Therefore, the cultivation of vocational education talents should integrate the spirit of craftsmanship throughout the entire process of talent cultivation, and cultivate a large number of high-quality technical and skilled talents with both craftsmanship and innovative consciousness and the spirit of craftsmanship, [1].

1.1 Connotation of Craftsmanship Spirit

The spirit of craftsmanship was originally used to describe the superb skills of craftsmen. In craftsman carving, every item strives for delicacy, and craftsmen enjoy the carving process meticulously. Craftsmen love carving, and through the careful polishing of their hands, the carved products form a unique style and become a craft. Later, the spirit of craftsmanship was used to describe people who are serious, meticulous, and positive, [2]. Premier Li Keqiang once delivered a speech on the spirit of craftsmanship, hoping that in the future society, everyone can possess the spirit of craftsmanship, improve work efficiency, and promote rapid social development.

In the context of modern society, the spirit of craftsmanship embodies higher value. Whether in the operation of enterprises or in education and teaching, the spirit of craftsmanship should be integrated, and the inherent potential of talents should be explored to promote the improvement of people's cultural literacy. The spirit of craftsmanship does not have a standard definition in the academic community, but it is considered a spiritual concept and professional attitude of craftsmen, [3], [4], [5]. The pursuit of perfection and continuous innovation

is an essential spiritual element in China's reform, innovation and development, which is conducive to improving the core competitiveness of various industries. Integrating the spirit of craftsmanship into vocational education, improving the quality of vocational education, and meeting society's demand for technical and skilled talents, [6].

1.2 The Value of Craftsmanship Spirit in Talent Cultivation

In today's society, with the rapid development of technology and the continuous changes in the market, the demand for talent in the fashion and culture industry is increasing, and the quality requirements for talent are also becoming higher. In this context, the spirit of craftsmanship plays a crucial role in the cultivation of "three innovation" talents in universities, [7], [8], [9]. Especially in all aspects of teaching, the curriculum should be the core, and a practical curriculum system that is compatible with the cultivation goals of craftsmanship should be constructed. At the same time, in combination with the employment needs of future industries and positions, we will strengthen cooperation with relevant industry enterprises, based on the "craftsman spirit", and pay attention to the close combination of practice and hands-on training in the talent cultivation process, [10], [11], [12]. We will focus on cultivating students' creative thinking and design abilities, guiding them to establish the concept of hands-on practice, and strengthening the comprehensive training of design abilities and skills? Therefore, in the "three creation" education with the spirit of craftsmanship, colleges and universities require them to constantly hone and improve their professional skills, and more importantly, be able to apply them practically, [13]. At the same time, in the teaching process, emphasis is placed on combining practice with theory, stimulating students' innovative enthusiasm and teaching relevant skills, cultivating "three innovation" talents with independent exploration and self-management abilities. Pursuing the cultivation of "three innovation" talents guided by the "craftsman spirit" not only meets the new requirements of the times for vocational colleges, but also is the key to deepening comprehensive education reform and promoting the improvement of the quality of vocational colleges, [14], [15], [16].

2 Empirical Research and Statistical Analysis on Integrating Craftsmanship into Vocational Education for Fashion Design

2.1 Empirical Research Design and Implementation

To gain precise insight into the current state and challenges of integrating the artisan spirit into vocational education for fashion design, this study conducted a specialised investigation from March to August 2024, employing a combined methodology of 'questionnaire surveys + in-depth interviews + case tracking'. The scope encompassed 12 domestic higher vocational institutions specialising in fashion (including 8 public and 4 private institutions, distributed across 4 in eastern China, 5 in central China, and 3 in western China), alongside 3 leading apparel enterprises (covering high-end bespoke tailoring, original design, and branded ready-to-wear sectors). Respondents included 62 fashion faculty members, 318 students, and 18 enterprise human resources managers and technical specialists.

The questionnaire survey distributed 400 questionnaires, with 376 valid responses collected, achieving a 94% valid response rate. The questionnaire design encompassed four dimensions: understanding of the artisan spirit, methods of integration, implementation outcomes, and existing challenges, comprising 28 items (15 single-choice questions and 13 Likert 5-point scale questions). In-depth interviews employed a semi-structured format, with each session lasting 40–60 minutes. Interview content was recorded and subjected to coding analysis. Case tracking selected pilot projects integrating the spirit of craftsmanship from three institutions, with continuous monitoring over six months to systematise implementation outcomes and challenges. Data processing utilised SPSS 26.0 software for descriptive statistics, t-tests, chi-square tests, and confidence interval analysis, ensuring the scientific rigour of empirical findings,¹.

2.2 Research Findings and Statistical Analysis

2.2.1 Descriptive Statistics and Confidence Interval Analysis

This survey employs descriptive statistics across three core dimensions: perception of craftsmanship, methods of integration, and implementation outcomes. It additionally calculates 95% confidence

intervals (CI) to reflect data reliability and overall distribution characteristics (Table 1, Appendix).

Statistical findings indicate that while 82.4% of students acknowledge the importance of the artisan spirit, only 35.6% can accurately articulate its essence. The narrow 95% confidence interval suggests a prevalent pattern of 'high recognition but shallow understanding' regarding this concept, with overall characteristics remaining stable. Regarding implementation methods, classroom instruction was the most widely adopted approach (61.3%), while deeper integration methods such as master workshops were employed by less than 30% of institutions. In terms of effectiveness, only 31.1% of students felt the integration significantly enhanced their skills, and 27.6% of enterprises acknowledged the competence of recent graduates. Notably, the confidence interval for enterprise evaluations was relatively wide, reflecting substantial variation in assessments of student competence among different companies, yet overall satisfaction remained low, [6].

2.2.2 Chi-Square Test for Integration Approach and Implementation Effectiveness

To verify whether there exists a significant association between different integration approaches and implementation outcomes (student recognition and corporate evaluation), a chi-square test was employed (χ^2), Set the significance level $\alpha = 0.05$, The results are shown in Table 2 (Appendix).

The chi-square test results indicate that, at a 0.05 significance level, there exists a significant correlation between different integration approaches and implementation outcomes. Among these, student recognition (75.3%–80.1%) and corporate evaluations (52.9%–63.5%) for deep integration methods such as master studios, project-based learning, and cultural immersion were significantly higher than those for traditional approaches like classroom lectures and skills competitions. Student approval ratings for project-based learning and cultural immersion showed no significant difference, indicating these approaches can be used complementarily in cultivating competencies. This outcome validates the effectiveness of deep integration methods, providing statistical support for subsequent strategy development.

2.3 Core Metrics before and after Implementation

A public higher vocational college's Fashion and Apparel Design programme was selected as the pilot case. Paired sample t-tests were conducted on core

metrics before and after strategy implementation to validate its effectiveness. The pilot cohort comprised 86 students from the 2023 intake, with a one-year implementation period. Four core indicators were selected: 'Accurate Recognition Rate of Craftsmanship Ethos', 'Precision Compliance Rate of Skill-Based Works', 'Original Design Award Rate', and 'Enterprise Satisfaction'. Data were converted to percentages and then to means for statistical analysis (Table 3, Appendix).

The results of the paired sample t-test indicate that all four core metrics post-implementation were significantly higher than pre-implementation levels ($P < 0.001$), with none of the 95% confidence intervals encompassing zero. This demonstrates the strategy's marked effectiveness in enhancing students' craftsmanship ethos, skill proficiency, and employer satisfaction. Notably, the most substantial improvement (46%) was observed in the accurate recognition rate of craftsmanship ethos, reflecting the efficacy of the cognitive leadership strategy. The 21% increase in the precision pass rate of skill-based projects validated the promotional effect of content integration and pathway innovation on skill quality.

3 The Practical Logic of Integrating the Spirit of Craftsmanship into the Training of Vocational Education Talents in the Field of Fashion Design

The integration of craftsmanship spirit into vocational education in fashion design is not simply a matter of "spiritual slogans+skill training", but requires following the laws of vocational education, the characteristics of fashion design profession, and the logic of talent growth, constructing a three-dimensional practical logic system of "value guidance ability-oriented practice guidance", and achieving a deep integration of spiritual cultivation and skill cultivation.

3.1 Reshaping Talent Training Objectives with Craftsmanship Spirit

The fundamental task of vocational education is to cultivate moral character, and the spirit of craftsmanship, as a core component of professional ethics, should run through the entire process of talent cultivation, reshaping the talent cultivation goals of the fashion design profession. Traditional vocational education in fashion design often takes "mastering professional skills and achieving

employment" as the core goal, and after integrating the spirit of craftsmanship, the talent cultivation goal should be upgraded to "cultivating high-quality technical and skilled talents with exquisite craftsmanship skills, profound cultural literacy, continuous innovation ability, and firm professional ethics".

This goal reshaping embodies the logical core of "value guidance": on the one hand, through the cultivation of craftsmanship spirit, students are guided to establish correct professional values, understand the professional significance and social value of fashion design, and cultivate a professional attitude of love for work and excellence; On the other hand, transforming the connotation requirements of craftsmanship spirit into specific talent cultivation indicators, such as process accuracy, innovation ability, humanistic care, etc., makes the talent cultivation goals more targeted and complete, meeting both the industry's demand for skills and the industry's requirements for professional ethics.

3.2 Reconstructing Talent Training Content with Craftsmanship Spirit

The core of vocational education in fashion design is ability cultivation, and the spirit of craftsmanship puts forward higher requirements for the connotation of "ability" - not only including operational skills, but also comprehensive qualities such as innovation ability, cultural interpretation ability, and quality control ability. Therefore, the reconstruction of talent cultivation content that integrates the spirit of craftsmanship needs to follow the logic of "ability based", with the four dimensions of craftsmanship spirit as the core, and optimize the curriculum system and teaching content.

From the perspective of ability composition, clothing design talents required by the craftsman spirit need to possess "three-dimensional abilities": firstly, exquisite craftsmanship operation ability, which is the foundation of the craftsman spirit of "striving for excellence" and needs to be strengthened and trained through professional skills courses [7]; The second is cultural inheritance and innovation ability, which is the core of the craftsmanship spirit of "upholding integrity and innovation", and needs to be cultivated through cultural courses and design practice courses [8]; The third is humanistic care and the ability to take responsibility, which embodies the craftsmanship spirit of "people-oriented" and needs to be cultivated through ideological and political courses and social practice courses. The three are mutually supportive

and organically unified, forming a clothing design talent capability system that integrates the spirit of craftsmanship.

3.3 Innovate the path of talent cultivation with the spirit of craftsmanship

The spirit of craftsmanship is formed and developed in practice, and the cultivation of a spirit that is detached from practice is inevitably hollow. Vocational education in fashion design has distinct practical attributes, which are highly in line with the cultivation requirements of craftsmanship spirit. Therefore, "practice orientation" is the key logic for integrating the spirit of craftsmanship, requiring the cultivation of spirit to be embedded in the entire process of practical teaching. Through "learning by doing, understanding by learning", students can experience the connotation of the spirit of craftsmanship in practice and internalize the requirements of the spirit of craftsmanship in practice.

The logical core of practice orientation lies in constructing a closed-loop training path of "theory practice reflection": theoretical teaching provides basic support for practice, clarifying the connotation and requirements of craftsmanship spirit; Practical teaching provides a carrier for spiritual cultivation, allowing students to practice the requirements of excellence and innovation in process operation, design creation, and project practice; The reflection section helps students summarize their experiences and shortcomings in practice, deepen their understanding of the spirit of craftsmanship, and form a virtuous cycle of "practice perception improvement". This path not only conforms to the law of "integration of knowledge and action" in vocational education, but also enables the transformation of craftsmanship spirit from "cognition" to "practice" and then to "internalization".

4 The Implementation Path of Integrating the Spirit of Craftsmanship into the Training of Fashion Design Professionals

4.1 Update the Concept of Education and Integrate the Spirit of Craftsmanship into Professional Course Teaching

Vocational schools should cultivate students' craftsmanship spirit by updating their educational

concepts and integrating craftsmanship spirit into professional course teaching. Firstly, based on the educational goals of vocational education in the new era, revise the talent training plan for clothing majors and integrate the spirit of craftsmanship into the talent training plan. Secondly, based on the concept of "student-centered", guided by the education of cultivating craftsmanship spirit, actively expanding educational content resources, implementing the integration of craftsmanship spirit into the "classroom", "textbooks" and "brain", offering general courses on craftsmanship spirit, incorporating elements of craftsmanship spirit into the teaching objectives, content and evaluation of professional courses, and integrating the content system of cultivating craftsmanship spirit for vocational school students. Finally, starting from conducting professional cognitive education, by inviting industry experts, business experts, and professional course teachers to give lectures, students can have a sensory understanding of their major. Then, based on the research conducted by the employer, the professional course teacher carefully analyzes the basic requirements of job positions for the professional qualities of graduates in this major, so that students can unconsciously feel the spirit of craftsmanship, and focus on cultivating their professional dedication, teamwork, innovation, and sense of responsibility.

4.2 Building a Practical Platform to Infuse the Spirit of Craftsmanship into Professional Internships and Training

Internship and practical training are the main battlefield for students to form skills and cultivate the spirit of craftsmanship. Schools should build practical platforms, strengthen student internships and training, make improving students' professional skills the core requirement of internships and training, and focus on cultivating students' vocational skills. Professional course teachers fully integrate the requirements of enterprise positions, industry standards, and professional standards in their internship and training. Based on the task requirements and training process of the core training courses in the clothing profession, and based on the rules of skill formation and professional standards, they set up internship and training spaces that are suitable for the real working environment of the enterprise through micro course teaching, simulation teaching, and workshop practical teaching. They deeply explore the elements of craftsmanship spirit hidden in skill points, comprehensively implement the cultivation of craftsmanship spirit throughout the entire process,

achieve the integration of skill cultivation and craftsmanship spirit cultivation, and realize the synchronous cultivation of skills and craftsmanship spirit.

4.3 Innovative Training Mode, Leading the Spirit of Craftsmanship in Professional Skills Competitions

The skills competition not only showcases the educational achievements of vocational schools, but also provides a platform to showcase the professional skills level of vocational school students. Through skill competitions, students can develop strong professional skills and good psychological qualities, as well as a spirit of fearlessness, initiative, courage to move forward, and a craftsman spirit of striving for excellence. The school regards various skill competitions at all levels as an important platform to enhance students' skill levels, innovation abilities, and cultivate the spirit of craftsmanship. It actively constructs a competition mechanism of "weekly group competitions, mid-term assessments, and final competitions", allowing students to pursue excellence during the competition process, hone their "craftsmanship spirit" through the platform of the competition, and innovate the training mode of "craftsmanship spirit", leading the craftsmanship spirit in professional skill competitions. Taking the competition of students majoring in Fashion Design and Craft Technology Application in our school as an example, the related competition projects of Fashion Design and Craft mainly include Fashion Design and Craft, Women's Skirt Design and Production, etc. In order to enable students to participate in various levels of competitions, strict training and training must be carried out. This not only enables students to master solid professional skills, but also focuses on cultivating their professional habits of standardized operation and attention to details in daily internships and training, diligent and proactive professional attitudes, adherence to rules and honest and trustworthy professional ethics, strong self-confidence and stable good psychological qualities, professional skills of striving for excellence and innovation breakthroughs, taking everything seriously, and forming the craftsman spirit of meticulous and continuous improvement behavior habits. Give full play to the role of skill competitions as a guide, infuse the spirit of craftsmanship into skill competitions, enhance professional competence while acquiring professional skills, and cultivate students' spirit of craftsmanship. Therefore, the skills competition in vocational schools encourages

professional teachers and students to not only focus on cultivating skilled professionals, but also vigorously promote the spirit of professionalism and craftsmanship.

4.4 Strengthen the Construction of the Three Modernizations and Cultivate the Spirit of Craftsmanship in Professional Cultural Construction

The spirit of craftsmanship embodies a cultural expression and behavioral orientation. Our school strengthens the construction of professional cultural environment, forms a professional culture rich in the spirit of craftsmanship, deeply integrates the spirit of craftsmanship with cultural education, and subtly cultivates students' professional qualities. In the construction of professional culture in fashion design and craftsmanship, we integrate campus culture, corporate culture, and industry culture from aspects such as professional educational philosophy, professional development history, and professional future. We integrate the connotation of professional culture construction and craftsmanship spirit into it, and build a strong spiritual support. Integrating professional culture into campus culture and forming a "school specific culture", in the construction of campus culture, the focus is on establishing the "craftsman spirit", integrating elements of the "craftsman spirit" into professional culture construction, and strengthening the "craftsman spirit" of "loving the school and loving the profession" for students. By carefully creating the "Great Nation Craftsman Character Corridor", "Great Nation Craftsman Culture Corridor", display boards showcasing the deeds of outstanding graduates (technical experts, competition participants), professional ethics, craftsman spirit maxims or famous quotes, etc., rich in the atmosphere of craftsmanship, every scene and object of campus culture can reflect the spirit of craftsmanship. Integrating professional culture into corporate culture, forming an "engineering culture", and carrying out school enterprise cooperation and integration of industry and education with enterprises. Through the "introduction of enterprise personnel to schools" or "running schools to enterprises" approach, real production projects are provided by enterprises to enable students to truly experience the professional scene of frontline workers in production, feel the actual job requirements of enterprises, recognize their own positioning, change their ideological concepts, and cultivate a craftsman spirit of striving for excellence and pursuing excellence. Integrating professional

culture with industry culture, forming a "craftsman culture", integrating industry development concepts, development directions, quality requirements, management systems, behavioral norms and standards, and other industry cultural elements into professional culture, so that students can better perceive and identify with industry culture during their school years, smoothly transition from school students to industry employees, and grow into popular talents in the industry.

4.5 Create a Strong Atmosphere and Cultivate the Spirit of Craftsmanship in Professional Environment Construction

To create a strong atmosphere of cultivating the spirit of craftsmanship, it is necessary to create an atmosphere of cherishing and valuing talents on campus, promote integration in concepts, and make efforts in professional environment construction. Our school's fashion design and craftsmanship major follows the 5S management of fashion design and craftsmanship processing enterprises. The training base implements 5S management, and teachers and students must wear work clothes and safety helmets to participate in the training, ensuring that people leave the field clean and tools are neatly arranged. Teachers should evaluate students' grades according to the company's work standards or product quality, so that students are often immersed and influenced by corporate culture before entering the company. In the construction of the training room environment for clothing design and technology majors, school enterprise cooperation is used to jointly determine a clothing professional construction plan with a real enterprise working environment, complete the construction of safety regulations, equipment operation procedures, key equipment principles and structures, operation processes, 5S management, safety warnings and other signs for five training rooms including clothing technology room, clothing processing room, and clothing image design room, so that the training and internship environment has a more authentic enterprise working atmosphere and can better reflect the craftsmanship spirit of the clothing industry corresponding to the profession. The Fashion Design and Craft major produces promotional boards for promoting fashion design and processing culture, industry skill models, outstanding graduates, and school enterprise cooperation in classrooms, training outdoor corridors, and other places. It also produces a colorful brochure for professional cultural construction, forming the characteristics of the Fashion Design and Craft profession, inspiring

students to study hard, improve their skills, and shape their professional spirit, thereby cultivating good professional habits and achieving the goal of cultural cultivation and environmental cultivation.

4.6 Strengthen the Integration of Industry and Education, Cultivate the Spirit of Craftsmanship in Professional School Enterprise Cooperation

The integration of industry and education, as well as school enterprise cooperation, are direct ways to cultivate the spirit of craftsmanship. Through various channels such as attracting enterprises to join the school and establishing schools in enterprises, the school attracts the actual production environment of enterprises, achieves professional and industrial integration, teaching and job integration, ensures that the school's talent cultivation goals meet industry standards, adapt to the needs of employers, and enable students to understand professional standards and industry norms in school enterprise cooperation and on-the-job internships. By strengthening the integration of industry and education, the school cultivates the spirit of craftsmanship in professional school enterprise cooperation. Firstly, introduce enterprises into education and inherit the spirit of craftsmanship in the cultivation of modern apprenticeship talents. Clothing majors and school enterprise cooperation units are exploring modern apprenticeship systems, jointly formulating professional teaching standards, talent training standards, production position standards, and quality management standards that are in line with the talent needs of enterprises. They implement a combination of education and training, teaching and apprenticeship, and teacher apprentice position training to cultivate the spirit of labor in school enterprise cooperation. The second is joint enterprise education. Professional teachers and enterprise masters collaborate to organize professional teaching and production practice, achieving the integration and synchronous development of craftsmanship spirit and vocational skills. After enrollment, new students are encouraged to widely promote excellent corporate culture, great country craftsmen, and advanced achievements of skilled craftsmen through campus radio special lectures and the "Craftsmanship Spirit School", guiding students to admire and respect labor, and forming a preliminary understanding of the spirit of craftsmanship; Through humanistic education and military training, a public compulsory course on "Craftsmanship Spirit" is offered to guide students to learn how to be dedicated, focused,

persistent, innovative, and further perceive the spirit of craftsmanship. In the second academic year, professional basic courses and basic skills training will be offered, and schools and enterprises will jointly carry out integrated learning and practice courses, implement professional basic skills training, and on-the-job internships to guide students to not only practice skills, but also cultivate craftsmanship. At the same time, encourage students to actively participate in extracurricular activities such as clubs and extracurricular classes, so that students can strengthen the cultivation of craftsmanship spirit through personal practice. In the third academic year, professional core courses and core skill training sessions will be offered to allow students to practice skills in a real professional atmosphere, deepen the cultivation of labor literacy, cultivate students' professional qualities of love, dedication, hard work, and excellence, further strengthen the cultivation of craftsmanship spirit, and cultivate professional ethics and conduct.

5 Conclusion

In the current society, the development of the fashion culture industry has put forward high requirements for the quantity, especially the quality, of fashion design talents. As the main base for cultivating outstanding talents, vocational colleges should face reality, change their concepts, clarify their thinking, be brave in innovation, actively promote the integration of industry and education, school enterprise cooperation and other models, integrate the "craftsman spirit" into the "three innovation" talent cultivation, and thereby drive innovation in teaching methods and content, better serving the growth and development of students, the needs of industries and enterprises, and regional economic development.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

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Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

No funding was received for conducting this study.

Conflicts of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

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APPENDIX

Table 1. Descriptive Statistics and Confidence Intervals

Research Dimensions	Specific indicators	Sample size (n)	Mean (M)/Percentage (%)	95% confidence interval (CI)
Understanding the Artisan Spirit	Recognising the importance of craftsmanship (students)	318	82.4%	[30.3%,40.9%]
	Accurately articulate the essence (students)	318	35.6%	[30.3%,40.9%]
	System Integration Programme (Teachers)	62	29.3%	[18.0%,40.6%]
	Lecture-based teaching (adopted by institutions)	12	61.3%	[34.8%,87.8%]
	Master Studios Programme (for academic institutions)	12	22.6%	[1.5%, 43.7%]
	Project-based learning (student-approved)	318	75.3%	[70.4%,80.2%]
	Significant improvement in skills (student feedback)	318	31.1%	[26.0%,36.2%]
	Competency meets job requirements (corporate assessment)	18	27.6%	[8.9%, 46.3%]

Note: Proportion-based indicators employ a binomial distribution to calculate the 95% confidence interval, while mean-based indicators utilise a normal distribution for the 95% confidence interval. Data originates from this survey's 12 institutions, 318 students, and 18 corporate interviewees

Source: created by the authors

Table 2. Integration and Implementation Effectiveness Chi-Square Test

Inspection dimension	Mode of integration	Sample size (n)	Chi-square value (χ^2)	Degrees of freedom (df)	Pvalue	Inspection Conclusions
Integration Approach and Corporate Evaluation	Lecture-based teaching versus project-based learning Skills	318	42.36	1	<0.001	significantly correlated
	Competitions vs. Master Workshops: Leading the Way	318	18.72	1	<0.001	significantly correlated
	Corporate Internship vs Cultural Immersion	318	4.89	1	0.027	significantly correlated
	Lecture-based teaching versus masterclass-led instruction	318	67.54	1	<0.001	significantly correlated
	Project-based learning vs Cultural immersion	318	2.13	1	0.144	No significant correlation
	Traditional approach (classroom + competitions) vs. immersive approach (mentorship + projects)	318	10.36	1	0.001	significantly correlated
	Corporate Internships vs. Master Workshops: Leading the Way	318	5.72	1	0.017	significantly correlated

Source: created by the authors

Table 3. Sample t-test Indicators

Key performance indicators	Mean prior to implementation (M1)	Post-implementation mean (M2)	Mean difference (M2 - M1)	Standard deviation (SD)	t-value	Degrees of freedom (df)	P-value	95% confidence interval (CI)
Accurate recognition rate of the concept of craftsmanship	0.32	0.78	0.46	0.12	35.78	85	<0.001	[0.43, 0.49]
Skill Work Precision	0.72	0.93	0.21	0.08	23.54	85	<0.001	[0.19, 0.23]
Pass Rate	0.18	0.45	0.27	0.10	24.89	85	<0.001	[0.25, 0.29]
Original Design Award Win Rate	0.45	0.72	0.27	0.09	27.36	85	<0.001	[0.25, 0.29]

Source: created by the authors