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Research on the Orientation of Innovative and Skilled "Dual-Core" Talents Integrated with WorldSkills Competition Standards

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Abstract: WorldSkills Competition embodies the talent cultivation requirements for higher vocational colleges set by the Ministry of Education, integrates the current industry demand for talent development, and reflects the latest concepts and methods in education. It serves as a crucial indicator for the reform of talent training programs in higher vocational colleges. This paper aims to promote the educational transformation of the Hotel Management and Digital Operation major. By combining WorldSkills Competition standards and the “dual-core” talent orientation, it intends to cultivate higher vocational talents with both practical skills and innovative thinking.Through literature analysis and expert consultation, this study optimizes the curriculum system and constructs a model integrating core skills with digital operation. Simulation of WorldSkills Competition projects, virtual reality technology and cooperation with hotel groups are adopted to strengthen students’ practical and innovative abilities. Meanwhile, teacher training and enterprise attachment are implemented to improve faculty competence, so as to promote the integration of courses and industry demand.The results demonstrate that the “dual-core” talent orientation model for innovative skills integrated with WorldSkills Competition standards has effectively improved students’ professional competence and innovative thinking. Their practical ability is also outstanding, with an excellent rate as high as 100%. In conclusion, integrating WorldSkills Competition standards into the talent training system of Hotel Management and Digital Operation is feasible.

1. Introduction

The wave of globalization and digitalization is profoundly reshaping the landscape of the hospitality industry, while posing new challenges for talent requirements. Traditional hotel management education can no longer adapt to the new situation, especially with prominent deficiencies in cultivating digital literacy and innovative thinking. As a global platform for vocational skills competition, the WorldSkills Competition has undoubtedly pointed out the direction for educational reform in higher vocational colleges.However, higher vocational colleges

still face many difficulties in integrating WorldSkills Competition standards, such as insufficient understanding, outdated curricula, and the lack of an innovative training mechanism. These problems directly lead to the disconnection between education and industry demand. To address this situation, it is necessary to update educational content with the support of WorldSkills Competition standards, so as to ensure that students' skills are aligned with international benchmarks. This approach not only improves their practical ability but also strengthens their professional qualities.This study advocates a "dual-core" cultivation model of "professional skills + innovation" to comprehensively improve students' comprehensive quality and innovative ability. Combined with the characteristics of hotel management and digital operation, WorldSkills Competition standards are integrated into teaching. Through practical methods such as competition simulation and case analysis, students can practice in learning and innovate in practice, so as to truly cultivate high-quality talents who meet the needs of the hotel industry in the new era.Using case analysis and comparative research, this paper systematically analyzes the deficiencies of the current education system and proposes an innovative talent orientation framework adapted to industry development. The main contribution of this paper is to propose a new education model that combines WorldSkills Competition standards with the "dual-core" orientation of innovative skills, aiming to cultivate interdisciplinary talents with both professional skills and innovative thinking.

2. Related Work

Against the backdrop of globalization and rapid technological transformation, enterprises' demand for talents is no longer limited to single professional skills, but places greater emphasis on their comprehensive qualities and soft skills [1]. To address this challenge, higher education must focus on cultivating interdisciplinary talents who possess both professional expertise and innovative thinking. Such talents should not only master the knowledge and skills of their major to solve technical problems in work, but also have a broad global perspective, a diversified knowledge structure, and sharp insight into information. Meanwhile, the spirit of innovation, innovative thinking, and innovative capabilities are also indispensable. Alnuaimi [2] pointed out that digital transformation is strengthening the connection between learning and technological innovation. In enterprises with a high level of digitalization, the attitude towards learning plays a more significant role in promoting technological innovation. In addition, Wannapiroon [3] constructed virtual classrooms using digital technology, which can provide students with a more immersive and interactive learning environment, thereby stimulating their creative thinking and innovative skills. In terms of talent management, Pandita [4] argued that innovative employer branding strategies and corporate social responsibility programs have become key factors in attracting talents with strong social awareness. Huang [5] found that the agglomeration of digital talents plays a positive regulatory role in promoting the relationship between the digital economy and green technological innovation. Therefore, society must re-examine the traditional training objectives for skilled talents and shift towards focusing more on cultivating interdisciplinary talents with an innovative spirit and cross-disciplinary capabilities.

Guided by the evaluation criteria and assessment content of vocational skills competitions, clear talent training objectives should be established. Professional teachers need to refer to competition standards to design classroom teaching, ensuring that students' training objectives are closely aligned with the requirements of skills competitions and practical work [6]. Wang's [7] research confirmed that vocational skills competitions can effectively improve students' problem-solving abilities, providing theoretical support for vocational colleges to organize competitions. Cao [8] integrated elements of English vocational skills competitions into regular teaching and designed competition-oriented courses and practical activities. Through comprehensive evaluation, it was

found that students participating in English competitions achieved significant progress in foreign-related communication. Chuan's [9] study showed that vocational skills competitions occupy an important position in vocational education and profoundly influence educational directions and talent training models. Eke's [10] research indicated that students who participate in vocational skills competitions are more outstanding in innovative thinking and capabilities. In summary, vocational skills competitions play a crucial role in the progress of vocational education and talent cultivation. The core of this paper lies in combining WorldSkills Competition standards to cultivate "dual-core" talents with innovative skills.

3. Methodology

3.1 Interpretation of WorldSkills Competition Standards and Curriculum System Design

A combination of text analysis and expert consultation was adopted. Technical documents related to hotel management in the WorldSkills Competition were decomposed in detail to extract key skill points. Experts from the WorldSkills Competition and senior practitioners in the hotel industry were invited to verify and supplement the extracted skill points. Finally, a detailed skill list was formulated.The WorldSkills skill list was compared with standards issued by internationally renowned hotel groups and industry associations. Using content analysis, similarities and differences among different standards in terms of skill classification, skill description, and skill level division were compared.The overall framework of WorldSkills Competition standards is highly consistent with international industry standards, but its requirements for certain specific skills are more detailed. In terms of digital operation, WorldSkills standards impose higher requirements on customer data privacy protection and social media crisis management. Accordingly, the WorldSkills skill list was fine-tuned to better align with actual international industry demands.Ten experts were invited to score each skill point independently on a scale of 1 to 5, where 1 represents the simplest skill and 5 the most complex. The average score of each skill point was calculated, and the final level classification was determined combined with the weight coefficient of the AHP (Analytic Hierarchy Process), as shown in Formula (1) [11]:

$$\omega_i = \frac{\sum_{j=1}^{m} \omega_{ij} \times r_j}{\sum_{j=1}^{m} \omega_{ij}} \quad (1)$$

Where ω_i denotes the final weight of the i-th skill point, ω_{ij} denotes the score given by the j-th expert to the i-th skill poin,$r_j$denotes the weight of the j-th expert,and m denotes the total number of experts.

Skill points are classified as follows:

$1 \leq \omega_i < 2$: primary skills

$2 \leq \omega_i < 3$: intermediate skills

$3 \leq \omega_i < 5$: advanced skills

The 87 skill points in the WorldSkills skill list were integrated and classified, eventually forming 6 core curriculum modules. Real cases from the WorldSkills Competition and classic cases in the hotel industry were introduced for analysis, focusing on the processing methods and skills of different competitors. Driven by WorldSkills Competition projects, students were required to apply their knowledge to design digital marketing plans, and to conduct project presentations and defenses.WorldSkills simulation activities were organized regularly, with customer service tasks set in different scenarios, accompanied by scoring and feedback. A combined evaluation method was

adopted: process assessment (class performance, homework completion, project participation) + summative assessment (course examinations, practical operation assessments, and simulation competition results). The final evaluation score is calculated as:

$$E = 0.4 \times P + 0.6 \times F \quad (2)$$

P represents the score of process evaluation, and F represents the score of summative evaluation.

A curriculum feedback mechanism will be established. At the end of each semester, curriculum evaluation meetings will be organized, where students and teachers are invited to jointly discuss the implementation of the courses. Industry experts will also be invited to review the course content. The curriculum system will be continuously improved in accordance with the feedback received.

3.2 Construction of the "Dual-Core" Talent Positioning Model

The core curriculum system of the Hotel Management major is sorted out to extract the common core skill modules. A comparative analysis is conducted between the extracted core skill modules and the relevant skill requirements in the WorldSkills standards to identify the skills that need to be supplemented or strengthened.Experts in the field of hotel management and WorldSkills judges are invited to review the core skill modules, and the skill modules are optimized and adjusted according to expert opinions. Finally, five major core skill modules for the Hotel Management major are determined and refined into 20 specific skill requirements.Taking the hotel management process as the main line, all skill modules and skill points are arranged in logical order to form a complete skill map, as shown in Figure 1 below:

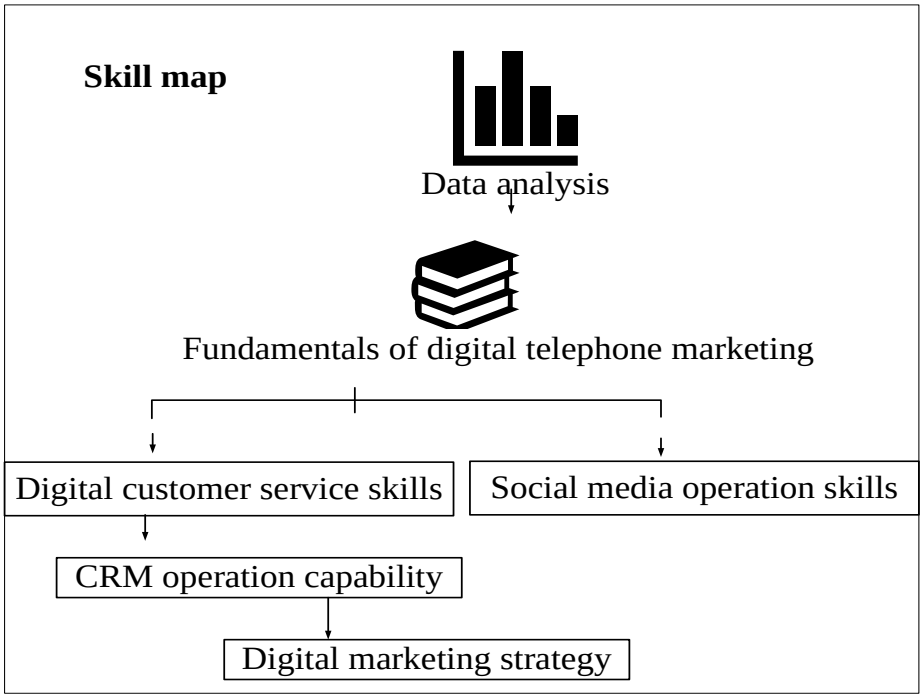

Figure 1. Skill Map

In Figure 1, text mining is conducted on hotel recruitment information. It is found that data analysis capability, social media operation capability, and Customer Relationship Management (CRM) system operation capability [12] are the core demands of the current hotel industry for digital talents.Based on the analysis of industry demands, a digital operation skill module is

constructed and integrated with the core skill module of hotel management. The relationships among all skill points are analyzed to determine their logical sequence and dependencies. The skill of “data analysis” serves as the foundation for “digital marketing”, while the skill of “customer service” needs to be supported by “digital customer service techniques”.Design thinking workshops are held regularly. With the theme of “Improving Hotel Customer Experience”, students are organized to carry out activities including brainstorming, user research and prototype design, as shown in Table 1 below.

Table 1 Framework of the Thinking Workshop

Stage	Activity content	Time arrangement	Goal
1	Problem definition and research	1 day	Understand pain points in hotel customer experience and define areas for improvement
2	Idea generation and prototype design	2 days	Brainstorm ideas and create low-fidelity prototypes
3	User testing and feedback collection	1 day	Invite target customers for testing, collect feedback, and optimize the prototype
4	Final solution presentation and defense	1 day	Present the final design to judges and defend the solution

The activities listed in Table 1 help students apply the knowledge they have learned to solve specific challenges in the hotel industry.

The “Hotel Digital Transformation Innovation Competition” is held, requiring students to use digital technologies to propose innovative solutions for improving hotel operational efficiency or customer experience.In the “Hotel Crisis Management” course, real cases are provided, and students are organized to conduct group discussions, analyze problems in the cases, and put forward solutions.Debates are held around the topic of “Whether hotels should fully implement unmanned services” to cultivate students’ logical thinking and critical thinking abilities.A “Customer Satisfaction Improvement” project is carried out in cooperation with hotels, requiring students to conduct in-depth analysis of customer feedback data, and formulate and implement improvement plans.Interdisciplinary courses are offered, including “Integration of Hotel Management and Information Technology” and “Hotel Marketing and Data Analysis”, guiding students to apply knowledge and methods from different disciplines to the field of hotel management.Students majoring in hotel management are grouped with those majoring in computer science and marketing to jointly complete hotel digital transformation projects, so as to cultivate students’ teamwork ability and interdisciplinary thinking ability.

3.3 Practical Teaching and WorldSkills Simulation

The specific competition sections and scoring criteria of the “Hotel Reception Service” event are analyzed. The event is divided into three simulated competition items: “Check-in Procedure P1”, “Customer Need Identification and Satisfaction P2”, and “Complaint Handling P3”. The detailed tasks of each item are shown in Table 2 below, which also specifies the evaluation criteria and duration for each task.

Table 2 Tasks of the Simulated Hotel Reception Service Competition

Competition project	Description	Time allocation (min)	Scoring criteria/Requirements
p1	Verify documents, allocate rooms	20	1. Accuracy of verification 2. Room allocation efficiency 3. Politeness and professionalism
p2	Recommend hotel facilities, customize services	20	1. Accuracy in identifying customer needs 2. Service response time 3. Quality of personalized service
p3	Solve problems and provide solutions	20	1. Complaint handling skills 2. Reasonableness and effectiveness of the solution 3. Communication and emotional management skills

When simulating the “Hotel Reception Service” competition event, a simulated hotel front desk will be set up, equipped with computers, printers, hotel management software and other equipment, and a complete WorldSkills simulation project system will be designed.In the “Hotel Reception Service” competition, participants draw lots to form groups before the competition. Multiple scenario tasks are set during the competition, and judges provide comments and scores after the competition.Managers from well-known local hotels are invited to serve as judges for the “Hotel Reception Service” competition. The total duration of the competition is set at 60 minutes, and detailed scoring criteria are formulated in accordance with WorldSkills standards. Virtual Reality (VR) technology is used to simulate competition scenarios to enhance the interactivity and immersion of the competition [13]. The final score formula is as follows:

$$S = \sum_{i=1}^{n}(\omega_i \times s_i) \quad (3)$$

$s_i$denotes the score of the i-th evaluation item, and n represents the total number of evaluation items.

After the competition, the judges comment on the students' customer service skills in the "Hotel Reception Service" competition and put forward specific improvement suggestions.Questionnaires are used to collect students' opinions and suggestions on the "Digital Marketing and Data Analysis" competition. Problems existing in the "Hotel Reception Service" competition are summarized, and improvement measures are proposed to make the simulated competition more in line with the actual WorldSkills competition and more effectively enhance students' practical abilities.Cooperation with local hotel groups is carried out in three aspects:

Cooperation 1: Conducting Research on Digital Transformation Needs of Hotels

This cooperation aims to investigate the pain points and demands of hotels in digital operation. Based on the research results, real projects suitable for students' participation are selected. These real projects are decomposed into multiple subtasks, with clear goals, requirements, and evaluation criteria for each subtask. A project schedule is formulated, and the project progress is regularly inspected. Marketing directors from hotel groups are invited to serve as corporate mentors for the projects, providing professional guidance and suggestions to students. The final project reports are evaluated in terms of analysis depth, scheme feasibility, and implementation effect.

Cooperation 2: Establishing Training Bases for Hotel Management and Digital Operation

Regular internships and training sessions are organized for students. An "order-oriented training program for hotel management talents" is launched to cultivate talents for enterprises in a targeted manner.

Cooperation 3: Jointly Developing Hotel Management Systems or Digital Operation Solutions

A "school-enterprise cooperation agreement" is signed to clarify the content of training base construction, internship arrangements, project cooperation, and other aspects. Regular "school-enterprise cooperation joint meetings" are held to discuss the progress and existing problems of cooperative projects. An "evaluation index system for school-enterprise cooperation projects" is formulated to assess the implementation effect of cooperative projects. A "training achievement exhibition for hotel management and digital operation" is held to display students' internship results. Joint applications for patents or software copyrights for cooperative projects are submitted with partner enterprises to promote achievement transformation. Efforts are made to promote the achievements and facilitate their application in the industry.

3.4 Construction of the Teaching Staff

Organize a workshop themed "Interpretation of WorldSkills Hotel Reception Service Standards" to conduct an in-depth analysis of the competition's scoring criteria and operational specifications. Analyze "case studies of WorldSkills hotel reception service champions" to explore their operational skills and score-winning points, and conduct a comparative analysis combined with actual hotel cases.

Carry out an "WorldSkills Simulation Competition Experience" activity, where teachers play the role of contestants to complete designated tasks, with WorldSkills judges providing comments and guidance.Invite judges of the WorldSkills Hotel Reception Service project to deliver a lecture titled "WorldSkills Scoring Standards and Teaching Application", interpreting the scoring criteria and discussing how to integrate them into daily teaching. Hold a workshop on "Integrating WorldSkills Standards into Teaching", allowing teachers and WorldSkills experts to jointly explore ways to incorporate WorldSkills standards into curriculum design and formulate specific implementation plans.Arrange for teachers to observe the on-site "WorldSkills Hotel Reception Service" competition, observe the contestants' operational processes and the judges' scoring procedures, and conduct summaries and reflections.Host a seminar on "WorldSkills Standards and Curriculum Design" to discuss how to transform WorldSkills standards into curriculum objectives, curriculum content, and teaching activities. Demonstrate the "Hotel Reception Service" course by simulating WorldSkills competition scenarios, setting up task-driven teaching sessions, and adopting WorldSkills scoring standards for evaluation. Require teachers to write teaching reflection journals to record problems encountered in the teaching process and their solutions, and conduct regular exchanges and sharing.

Appoint senior executives from hotel groups as part-time teachers for the "Hotel Digital Operation" course to impart the latest industry practical experience and cases to students. Invite digital transformation experts from well-known hotel groups to serve as visiting professors and regularly deliver lectures on "Trends in Hotel Digital Transformation". Arrange for teachers to take up a one-semester secondment at hotel groups to learn advanced corporate management experience and digital operation models.Combine the industry experience of industry experts with the theoretical knowledge of teachers, inviting them to co-compile the Practical Tutorial on Hotel Digital Operations and jointly guide students in the "Hotel Customer Relationship Management Innovation" project.

Jointly apply for scientific research projects on "Hotel Digital Transformation and Talent Training" and collaborate on writing relevant academic papers. Invite the Director of Human

Resources and the Front Office Manager of hotel groups to conduct evaluations respectively: the former evaluates the "Hotel Management" course, while the latter assesses students' internship performance in "Hotel Reception Service".

4. Results and Discussion

4.1 Mastery of Professional and Technical Skills

Sixty freshmen (with similar academic levels) majoring in Hotel Management and Digital Operations were selected and divided into two groups: the experimental group and the control group, with 30 students in each group. The experimental group was trained in accordance with the talent positioning model proposed in this paper, while the control group received training under the traditional teaching model. The experiment lasted for 6 months. After the experiment, five indicators were selected for evaluation:

M1: Basic knowledge of hotel management
M2: Basic knowledge of digital operations
M3: Hotel service skills
M4: Digital tool application capabilities
M5: Analysis and problem-solving capabilities

Scores were jointly awarded by professional teachers and corporate mentors, and the average score was taken as the final result. The specific results are shown in Figure 2 below.

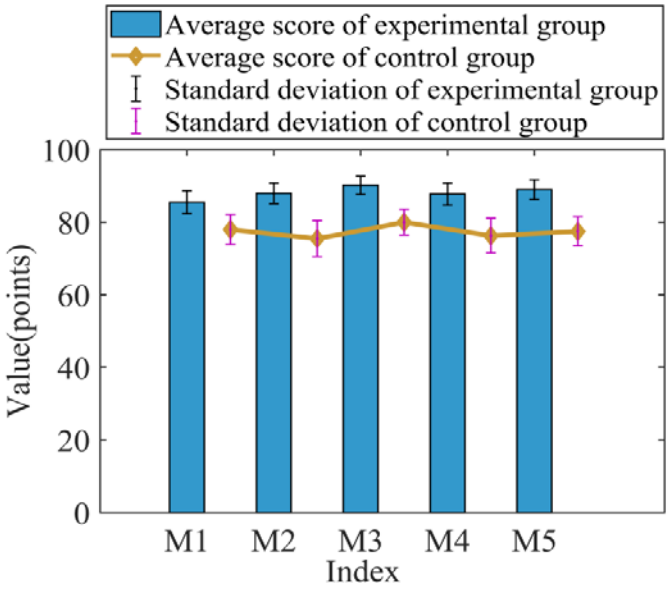

Figure 2 Mastery of Professional and Technical Skills

Figure 2 presents a comparison of the performance between the experimental group and the control group across different indicators. The average score of the experimental group was higher than that of the control group in all indicators, demonstrating the overall superior performance of the experimental group. Additionally, the standard deviation of the experimental group was smaller, indicating that the group had a higher overall level and less fluctuation in these areas. These data suggest that the experimental group exhibited stronger capabilities and better learning stability in various aspects.

4.2 Innovative Thinking Capabilities

Innovation themes related to hotel management and digital operations were set. Each group was required to design an innovative scheme within a specified time (2 weeks) and submit a detailed scheme report. The time allocated for scheme presentation and defense was 15 minutes. The scoring criteria consisted of four dimensions:

Innovation: 40 points

Feasibility: 30 points

Teamwork: 20 points

Presentation Effect: 10 points

A review panel composed of professional teachers, corporate mentors, and industry experts scored each group's scheme, with the average score taken as the final result. Descriptive statistical methods were adopted to analyze students' performance across different dimensions of innovative thinking capabilities. The specific results are shown in Figure 3 below.

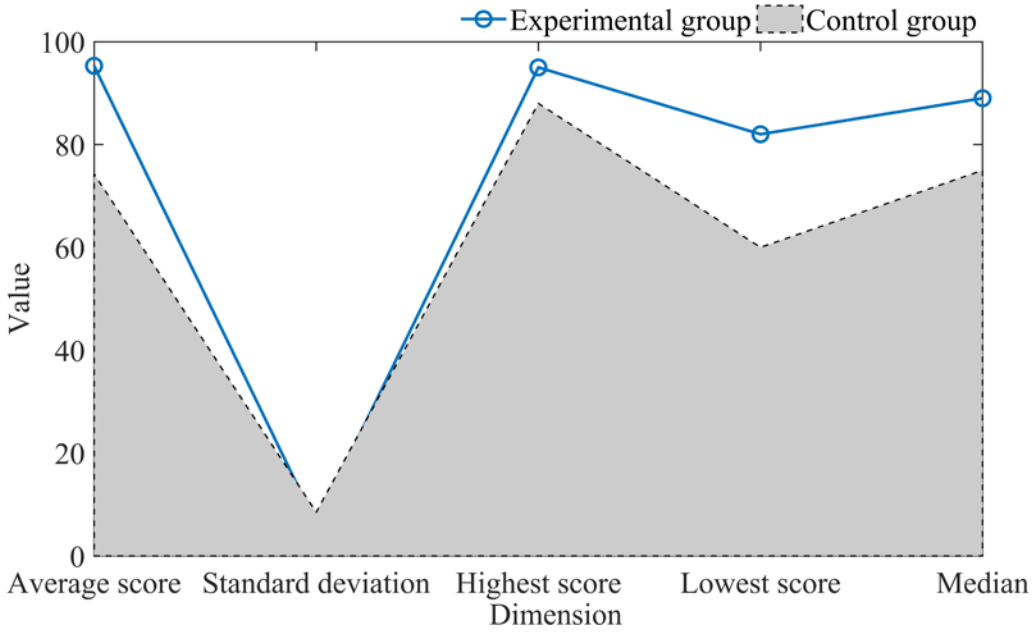

Figure 3 Students' Performance in Different Dimensions of Innovative Thinking Capabilities (Unit: Points)

As shown in Figure 3, the average score of the experimental group was 95.3 points, while that of the control group was 74.3 points, representing a 28% improvement in the experimental group compared with the control group. The experimental group significantly outperformed the control group in terms of scores, and the experimental group also exhibited less score fluctuation, showing more stable performance.

4.3 Practical Capabilities

A simulated hotel front desk reception scenario was set up, with tasks including check-in registration, room assignment, and complaint handling. Both the experimental group and the control group were divided into 5 subgroups, with 6 students in each subgroup. Each subgroup was required to complete the competition tasks within a specified time (60 minutes), and the scores were awarded by the judges. The scoring composition is as follows:

D1: Project Innovation and Market Adaptability: 20 points
D2: Digital Skill Application: 30 points
D3: Implementation Effect: 20 points
D4: Teamwork and Execution: 20 points
D5: Communication and Presentation Capabilities: 10 points
The results of each subgroup are shown in Figure 4 below.

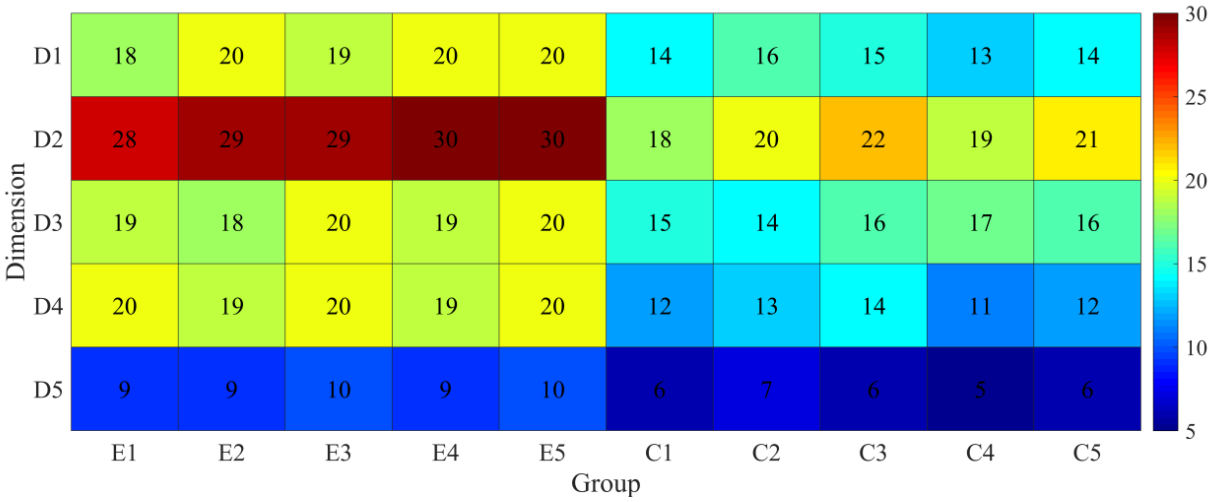

Figure 4 Results of Practical Capabilities Evaluation

In Figure 4, E1 to E5 represent participants in the experimental group, and C1 to C5 represent participants in the control group. The data show that the experimental group generally achieved higher scores than the control group in all dimensions. Moreover, the highest score in the experimental group was a full score, indicating outstanding practical capability of 100%.

5. Conclusion

This study integrates WorldSkills Competition standards into the talent training system of the Hotel Management and Digital Operations major, constructs a “dual-core” talent positioning model of “professional technical skills + innovative thinking skills”, and designs a corresponding curriculum system and practical teaching plan. Through WorldSkills simulation competitions, real project practice and school-enterprise cooperation, students’ practical ability, innovative thinking ability and professional quality have been effectively improved, so as to cultivate high-quality and interdisciplinary talents for the hotel industry.

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