

# Research on the Functional Upgrade Path of World Skills Competition Bases: A Practical Integration of Teaching and Competition Functions Based on Spatial Optimization of the Restaurant Service Competition

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## Abstract:

In technical institutes, WorldSkills Competition bases bear the dual responsibilities of cultivating high-level skilled talents and hosting professional competitions. However, many bases currently face a significant contradiction between the universality required for teaching and the specialization needed for competitions. This study focuses on the Restaurant Service competition of WorldSkills, meticulously constructing a comprehensive upgrade path encompassing “spatial flexible renovation — equipment hierarchical configuration — cultural symbol transformation.” Through a series of innovative measures, such as scientifically reconstructing circulation paths, installing movable partition systems, formulating rigorous equipment grading standards, and reducing the cost of auxiliary equipment, a deep integration of teaching and competition functions has been achieved. In this process, some strategies cleverly draw on the intensive experience of temporary space transformation from the Hangzhou Asian Games, providing a highly valuable and replicable paradigm for the construction and development of WorldSkills bases.

## Keywords:

WorldSkills, Training Base, Restaurant Service, Teaching-Competition Integration

## 1. Introduction

### 1.1. Research Background

In the current wave of vigorous development of vocational education, the WorldSkills Competition bases in technical institutes serve both as crucial platforms for high-level competitions and as core venues for skill teaching, tasked with nurturing numerous skilled professionals. However, many bases encounter functional

fragmentation during actual operation, which has become a bottleneck restricting their further development. According to relevant authoritative surveys, the idle rate of equipment in most bases is high after competitions, indicating significant waste and underutilization of resources that urgently require rational planning and utilization. In daily teaching, due to the fixed nature of spatial layouts, it is difficult to conduct flexible and efficient group training, leading to low student operation compliance rates, which severely hinders the improvement of teaching quality and the comprehensive development of student skills [1]. The successful transformation of a primary school into a restaurant capable of meeting the demands of a large-scale event during the Hangzhou Asian Games demonstrated the great potential and value of elastic spatial transformation. This inspires WorldSkills bases to actively explore a minimal-intervention functional switching mode to achieve the integration of teaching and competition functions, thereby overcoming difficulties and achieving high-quality development.

### ***1.2. Research Objectives***

In light of the current challenges faced by WorldSkills bases, this study aims to construct a base upgrade model integrating teaching and competition functions, providing new ideas for base construction in vocational colleges. It focuses on solving three core problems: Spatial Compatibility, achieved through reversible modifications to enable flexible adaptation of base space for both teaching and competition needs, breaking traditional layout limitations; Equipment Economy, by balancing costs through hierarchical equipment planning while ensuring professional standards for competition equipment, thus avoiding waste; and Cultural Sustainability, by creating a long-lasting, immersive competitive atmosphere, integrating the cultural connotation of WorldSkills to stimulate student enthusiasm and cultivate professional quality.

## **2. Core Contradictions and Optimization Framework**

### ***2.1. Analysis of Contradiction Dimensions***

In deeply analyzing the issue of functional fragmentation in WorldSkills bases, this study identifies core contradictions from three key dimensions: space, equipment, and culture, providing clear direction for formulating subsequent optimization strategies. From the spatial dimension, the requirements for spatial layout differ significantly between teaching activities and competition activities. Teaching often requires flexible grouping layouts, such as a field-shaped layout, to facilitate teacher guidance and student interaction; whereas competitions emphasize the design of unidirectional circulation paths to ensure smooth and fair competition flow, such as the common U-shaped track layout. This difference in needs means that in traditional base construction, spatial modifications made according to competition standards often cause structural damage to the original teaching space, making smooth switching between teaching and competition difficult [2].

### ***2.2. Optimization Objective System***

Based on the in-depth analysis of the core contradictions above, this study constructs a systematic optimization objective system aimed at comprehensively upgrading and optimizing the WorldSkills base from multiple levels and perspectives to achieve the deep integration and synergistic development of teaching and competition functions. This objective system covers key areas such as the

flexibilization of spatial layout, the efficiency of equipment configuration, and the immersion of cultural atmosphere, striving through scientific and rational planning and design to create a modern WorldSkills base that can meet both professional competition requirements and serve daily teaching activities efficiently.

### **3. Spatial Optimization: Flexible Transformation for Functional Switching**

#### ***3.1. Streamlined Circulation Design***

In the Restaurant Service competition, service path planning is crucial for competition efficiency and quality, but traditional bases often suffer from lengthy paths. This study employs streamlined circulation design by positioning the preparation area against the wall, placing the operation counter centrally, and situating the judges' station diagonally, forming a compact triangular relationship and establishing one-way passages. This significantly shortens service paths, conforms to WorldSkills standards, and enhances service experience and efficiency. This design draws inspiration from the flow intensification logic of the "Vitality Corridor" concept used in the Hangzhou Asian Games.

#### ***3.2. Reversible Functional Transformation***

Teaching and competitions have significantly different demands for venue functionality, leading to low utilization rates in traditional fixed venues. This study introduces movable partition systems to achieve rapid switching, meeting the needs for independent operation in individual competitions, collaboration in team competitions, and group training in teaching. Removable anti-slip floor markings are used to delineate competition areas, drawing on the temporary transformation experience of the Hangzhou Asian Games to enhance spatial conversion flexibility and reversibility, thereby avoiding resource waste [3].

### **4. Equipment Configuration: Hierarchical Strategy and Cost Control**

#### ***4.1. Equipment Grading Standards***

In the Restaurant Service competition, equipment configuration plays a key role in enhancing competition standards and teaching quality. However, traditional equipment configuration models often suffer from high costs and resource waste. To address this contradiction, this study proposes a scientific and reasonable hierarchical equipment configuration scheme, aiming to effectively reduce equipment costs while meeting professional competition needs, achieving dual optimization of economic benefits and teaching/competition requirements. Based on the importance and frequency of use of equipment in competitions and teaching, this study categorizes Restaurant Service competition equipment into two grades: Competition Grade and Teaching Grade. Taking the coffee machine as an example, the Competition Grade standard uses the La Marzocco GB5, known for its excellent performance and high stability, meeting the stringent requirements of WorldSkills. For the teaching phase, the Nuova Simonelli Appia is used as an alternative; its performance, while slightly lower than the Competition Grade, fully meets daily teaching needs at a significantly reduced cost. For the timing system, the Competition Grade brand TAG Heuer is used during competitions to ensure accurate timing, while the Hongrui H8 electronic timer

is chosen as the Teaching Grade alternative for daily teaching and informal competition scenarios, meeting teaching requirements while substantially saving equipment costs [5].

#### ***4.2. Transfer of Asian Games Experience***

The advanced experience in equipment management during the preparation and operation of the Hangzhou Asian Games provides valuable insights for equipment configuration in WorldSkills bases [4]. In the case of the food lift used in the Hangzhou Asian Games, a rental-during-competition model was adopted, significantly improving equipment utilization efficiency and capital effectiveness. Inspired by this, this study suggests that WorldSkills bases implement a “rent for competitions, return normally” strategy for equipment with low usage frequency. This involves leasing high-end equipment during competition periods to ensure professionalism and high standards, and returning these equipment to the leasing company during non-competition periods to prevent idleness and resource waste, thereby optimizing equipment resource allocation and effectively controlling costs, further enhancing the base’s operational management level and economic efficiency.

### **5. Cultural Context: Creating an Immersive Competitive Atmosphere**

The WorldSkills Competition is not only a contest of skills but also a transmission and dissemination of culture. To create a strong competitive atmosphere and stimulate students’ learning enthusiasm and competitive spirit, this study, starting from three cultural elements, has carefully designed a series of immersive cultural context creation schemes [6].

(1). Visual Scoring Wall: In the Restaurant Service competition, the visualization of scoring standards is highly instructive for student learning and training. By creating decomposed diagrams of table setting standards and displaying them on a scoring wall, students can intuitively understand the specific requirements and scoring criteria for various operations.

(2). Role Model Exhibition Corridor: Past participants are outstanding representatives of WorldSkills. Their success stories and striving experiences serve as great motivation for newcomers. Therefore, this study recommends establishing an exhibition corridor within the base to display physical exhibits such as competition uniforms, medals, and training diaries of gold medalists. By visiting the champion exhibition corridor, students can closely appreciate the excellence of gold medalists, draw inspiration, ignite their own competitive drive, set lofty career goals, and inject strong motivation into their skill development.

(3). International Symbols: WorldSkills is an international event with broad global influence. To reflect the international characteristics of the competition, this study proposes designing a WorldSkills clock at the base entrance, displaying the current time in time zones of past host cities like Zurich and Lyon. This design not only provides convenient international time information for participants and coaches but also creates an international atmosphere, making students constantly aware of their connection to the global skills stage, stimulating their international perspective and competitive awareness, and fostering skilled talents with international standards.

In the design of the cultural wall, this study draws on the design philosophy of the Asian Games, deforming elements like knives and forks associated with restaurant service to create competitive-themed symbols, which are skillfully integrated into the design of a WorldSkills spirit theme wall. This unique design not only showcases the professional characteristics of the Restaurant Service competition but also conveys a positive, striving competitive spirit, allowing students to constantly feel the influence of this spirit during daily learning and training, thereby continuously improving their professional quality and sense of occupational honor, laying a solid cultural foundation for becoming outstanding skilled talents.

## **6. Conclusion and Suggestions**

### **6.1. Conclusion**

Through the research and practice on the functional upgrade path for WorldSkills bases, this study reaches the following core conclusions: Spatial flexible transformation is the foundation for integration; introducing movable partition systems and streamlined circulation design enables rapid switching between teaching and competition spaces, effectively solving the problem of functional fragmentation in traditional layouts and improving the efficiency of spatial resource utilization. The equipment hierarchical strategy can reduce overall costs; by categorizing equipment into Competition Grade and Teaching Grade and configuring them scientifically, it balances competition professionalism with teaching economy while ensuring reasonable core investment, providing economic sustainability for the base.

### **6.2. Suggestions for Base Construction**

To promote the implementation of the research findings, it is suggested that base construction follows a three-step path: Formulate the "Technical Specifications for Reversible Transformation" to provide technical guidance for flexible modifications, avoiding structural damage and resource waste; Establish an equipment management and maintenance system, strengthening regular inspections, maintenance, and equipment updates according to the grading standards to ensure efficient and stable equipment operation; Foster the WorldSkills cultural atmosphere by integrating the WorldSkills spirit through setting up cultural display areas, organizing skill culture festivals, and other forms, cultivating students' professional quality and international perspective.

In summary, through systematic research and practical exploration of the functional upgrade path for WorldSkills bases, this study proposes a series of innovative solutions, aiming to provide useful reference and insights for the construction and development of WorldSkills bases in vocational colleges. In future base construction, full attention should be paid to spatial flexible transformation, hierarchical equipment configuration, and cultural atmosphere creation. Through scientific and rational planning and design, modern WorldSkills bases integrating teaching and competition functions can be established, making positive contributions to cultivating more high-quality skilled talents and promoting the high-quality development of vocational education.

## **Conflicts of Interest**

The authors declare that there is no conflict of interest regarding the publication of this article.

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