

**CASE STUDY**

# Reflections on career development of WorldSkills Competition winners in the context of skills-based society: An analysis of awardees from four provinces and cities in the Yangtze River Delta

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In the context of the construction of a skills-based society, this study statistically analyzes the career conditions of winners from the 41st-46th WorldSkills Competitions across four provinces and cities in the Yangtze River Delta. The main career characteristics identified include relatively stable employment, preference for teaching positions as their first choice of profession, focus on skill training in their work content, and increasing flexibility in employment opportunities over recent years. The construction of a skills-based society has set new requirements for WorldSkills winners: to refine their own skills, enhance skill standards, improve the skills environment, and expand international influence. In their career development, winners face major challenges in terms of three aspects: professional skills, career vision, and career paths. In response to these requirements and challenges, this paper proposes specific reform suggestions, including improving policy content, establishing learning and training platforms, optimizing the internal and external practical environment, and designing a comprehensive career development path for these winners.

**Key words:** skill-based society, WorldSkills Competition, WorldSkills Competition winners, career development, Yangtze River Delta

**INTRODUCTION**

The proposal of national strategic goals for talent development, establishment of objectives for building a skills-based society, and the increasing number of award-winning contestants from China in the WorldSkills Competition (WSC) in recent years have brought the issue of career development for WSC medalists into the spotlight as a pressing issue requiring immediate attention. WSC medalists represent the elite among skill learners and they are also young representatives of highly skilled talent. Although China's participation in the WSC

began relatively late, there has been rapid progress. There is already considerable research and accumulated successful experiences regarding the development of WSC contestants. However, studies on the career development of WSC medalists upon their return; the challenges they face in their career progression; how to fully utilize their professional value; and how to integrate the cultivation, evaluation, and utilization of WSC medalists with the construction of a skills-based society remain inadequate. This paucity of research is particularly noticeable when compared to the emphasis placed by China on building a skills-based society and the

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importance attached to WSC medalists. To address this gap, this paper conducts a statistical analysis of the career development of WSC medalists from the 41st-45th WSC and the 46th WSC Special Edition, focusing on medalists from the four provinces and municipalities in the Yangtze River Delta region (includes the Shanghai municipality and the provinces of Jiangsu, Zhejiang, and Anhui).<sup>[1]</sup> Set against the backdrop of building a skills-based society, this study analyzes the challenges in the career development of WSC medalists and attempts to propose corresponding reform suggestions to fully leverage the key role of these medalists in the construction of a skills-based society.

## **CAREER CHARACTERISTICS OF WSC MEDALISTS FROM THE YANGTZE RIVER DELTA REGION**

Since China's initial participation in the 41st WSC in 2011 to the 46th WSC Special Edition in 2022, a total of 129 Chinese contestants have won 113 medals, including gold, silver, and bronze awards. Among these, 35 contestants from the 4 provinces and municipalities in the Yangtze River Delta region have won 33 medals, accounting for almost 30% of the total. This study focuses on the WSC medalists from the Yangtze River Delta region across all editions and analyzes their medal achievements and career characteristics.

The number of medals won by contestants from the Yangtze River Delta region has grown rapidly over the last three competitions, with award-winning fields gradually encompassing all six skill sectors of the WSC. In terms of medal count, contestants have won 33 medals across 21 skill projects, with 17 gold medals accounting for more than half of the total. Regarding the award-winning fields, by the 45th WSC, all six skill sectors had medal-winning entries. Analyzing the industrial sectors of the winning projects, the "Construction and Building Technology" sector garnered the most medals, with a total of 11, while the "Transportation and Logistics" sector secured the highest number of gold medals, winning 7 medals in total, of which 6 were gold.

As of August 2023, based on the compilation of the "Where Have the WorldSkills Champions Gone" series of articles from the official WeChat account of the Ministry of Human Resources and Social Security (MOHRSS) and supplemented by Internet searches using keywords such as "WorldSkills + contestant name" and "project name + contestant name", including interview reports from sources like the China Organization and Personnel News, we have summarized the following findings: Among the 35 WSC medalists from the Yangtze River Delta region, 6 are current

students, while the remaining 29 are employed, with 23 of those employed being teachers. Examining the types of educational institutions in which the medal-winning contestants serve as faculty, it is revealed that 21 contestants are employed at public institutions, while only 2 work in private institutions. From the perspective of institutional governance, 14 medal-winning contestants teach in technician institutes managed by the MOHRSS departments, which are primarily responsible for conducting advanced vocational training (Figure 1).

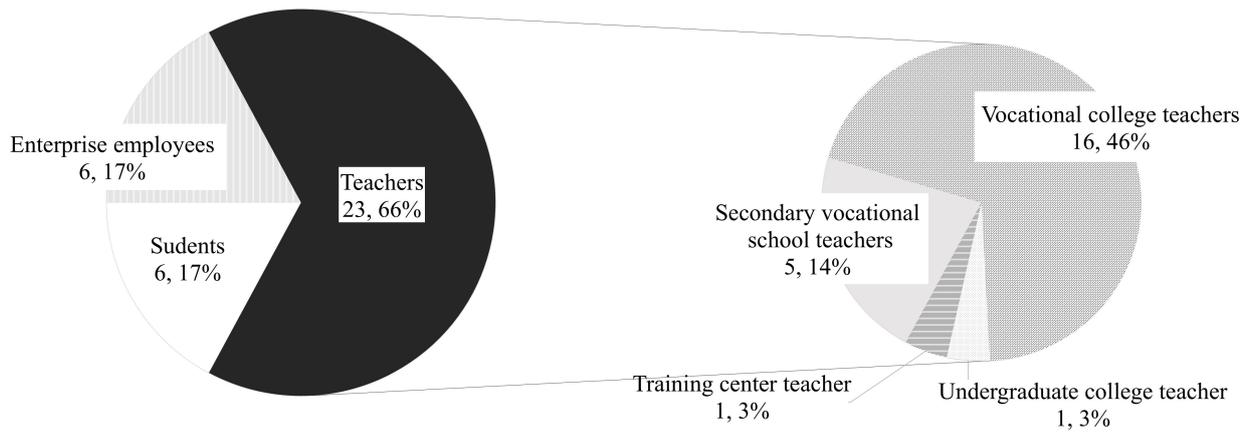
The following analysis focuses on the 29 employed medalists, revealing the following main characteristics in their current professional status and development.

### ***Job and geographical stability of medalists***

Research data reveals that Chinese industrial workers have a very high job turnover, changing positions every 1.6 years, on average.<sup>[2]</sup> Among the 13 employed medalists from the Yangtze River Delta region who participated in the 42nd-44th WSCs, 11 have not changed cities or companies since they began their careers. This indicates strong job stability among the vast majority of WSC medalists. Several factors contribute to this stability. Many medalists work at their alma maters or in companies that have close school-enterprise cooperation relationships with their graduating institutions. This familiarity reduces the likelihood of job changes. From a social stratification perspective, these policies have eliminated household registration restrictions for medalists working and living in the Yangtze River Delta region. This enables them to settle permanently in urban areas. Moreover, the combination of regular salaries and bonuses from skills competitions provides relatively high compensation compared to their peers. Medalists tend to have a positive subjective evaluation of their social status within their professions. This leads to high job satisfaction, which significantly enhances their work stability.

### ***Award-winning competitors prioritize teaching positions in education institutions as their first career choice***

Among the 29 award-winning competitors who entered the workforce, 23 became teachers, thereby accounting for 79% of the employed award winners and 66% of the total number of award winners from the four provinces and municipalities in the Yangtze River Delta region. This figure is largely consistent with the figure of 69.8% of WSC competitors nationwide who pursue teaching careers,<sup>[3]</sup> thus indicating a high level of professional identification with teaching positions among WSC award winners. Further, examining the pre-competition work or positions of the award-winning competitors who became teachers, 11 were already teachers before the competition, while the remaining 12 chose teaching



**Figure 1.** Employment distribution of WorldSkills Competition medalists in the four provinces and municipality of the Yangtze River Delta region.

positions after participating in the WSC as students. These individuals reported that the teaching profession filled them with a sense of achievement and that they took pride in imparting professional knowledge and WSC experiences in their role as educators. The relevant reward systems associated with the WSC have further enhanced the enthusiasm of award-winning competitors to engage in skills-related work and competitions, conduct skills training, and cultivate skilled talent. The newly revised Vocational Education Law of the People's Republic of China in 2022 also reflects the concept of encouraging skilled professionals to enter the teaching profession, thereby providing a legal basis for supporting skilled individuals to take up teaching positions.

### **Skills training as the primary work content**

WSC medalists possess superior operational skills and valuable competition experience, thereby making skills training a key advantage in their work. Regardless of whether they work in enterprises or educational institutions, almost all medalists participate in skills training at their alma maters. Many institutions have established WSC training bases where medalists serve as project coaches and conduct skills training. Certain medalists with skill master studios train a broader range and larger number of skilled talents in their local areas. Exceptional medalists are recruited by other provinces and cities to work in skill talent development centers and public vocational skill training centers, focusing on training technical and skilled personnel. Medalists leverage their advanced skills in their work, showcasing the cutting-edge nature and exemplary effects of their abilities. The effectiveness of their training is evident, particularly in the continuous success seen in nine WSC projects across the four provinces and municipalities of the Yangtze River Delta region (Table 1). Medalists express a clear desire to give back to their institutions

and contribute to skill inheritance. As one medalist stated, "The school trained us, and now it's our turn to pass on the baton and teach these skills to more students... To elevate the technical standards of the entire industry, becoming a teacher is an excellent choice". This focus on skills training aligns with the medalists' aspirations to extend the life-changing impact of skills beyond their personal experiences. It also addresses the needs of industry development and the construction of a skill-based society, which require an increasing number of professionally skilled talents.

### **Flexible employment trends among award-winning competitors in recent years**

With the increasing influence of WSC and the acceleration of information flow in the digital economy era, WSC medalists in recent years have revealed a more flexible trend in terms of employment space and scope. In China, WSC competitors primarily come from educational institutions, including students and teachers. Among the 35 medalists from 4 provinces and cities, 34 were from these institutions. Of the 12 medalists who participated as students and subsequently became teachers, 7 remained at their alma maters, while the other 5 sought employment elsewhere after graduation. Notably, all medalists from the 44th WSC found employment within the Yangtze River Delta region, whereas medalists from the 45th WSC expanded their employment geography beyond this area and were no longer limited to vocational institutions (Table 2).

The reason for this trend may be attributed to the accelerated information flow in the digital economy era. As new occupational information is constantly being disseminated, young people are more likely to find collaborative opportunities and suitable careers in cyberspace. This expansion of career choices for youth is

**Table 1: Distribution of consecutive award-winning projects and sessions of the WSC in the four provinces and cities of the Yangtze River Delta**

Projects	Print Media Technology	Autobody Repair	Car Painting	Electrical Installations	Industrial Mechanics	Bakery	Floristry	Plastering and Drywall Systems	Hairdressing
The 42nd WSC	Bronze	-	-	-	-	-	-	-	-
The 43rd WSC	Silver	Silver	Golden	Silver	-	-	-	-	-
The 44th WSC	-	Golden	Golden	Silver	Golden	Golden	Golden	-	-
The 45th WSC	-	Golden	-	-	Bronze	Bronze	Golden	Silver	Golden
The 46th WSC	Golden	-	-	Golden	-	-	-	Golden	Silver

WSC, WorldSkills Competition.

**Table 2: The winners of the 42nd and 45th editions of the WSC who participated as students and took up teaching positions after graduation**

Serial number	Province and city before the competition	Career information	Number of awards and medals	Award-winning projects
1	Shanghai	Remained in the graduate school, Shanghai Publishing and Printing College	Bronze, The 42nd WSC	Print Media Technology
2	Shanghai	Remained in the graduate school, Shanghai Publishing and Printing College	Silver, The 43rd WSC	Print Media Technology
3	Jiangsu	Remained in the graduate school, Yancheng Polytechnic of Jiangsu	Silver, The 43rd WSC	Electrical Installations
4	Jiangsu	Remained in the graduate school, Jiangsu Changzhou Technician College	Golden, The 44th WSC	Industrial Mechanics
5	Zhejiang	Remained in the graduate school, Zhejiang Construction Technician College	Golden, The 44th WSC	Wall and Floor Tiling
6	Jiangsu	Remained in the graduate school, Yancheng Polytechnic of Jiangsu	Silver, The 44th WSC	Electrical Installations
7	Anhui	Working in a non-graduation university, Jinhua Vocational and Technical University	Bronze, The 44th WSC	Landscape Gardening
8	Anhui	Working in a non-graduation university, Nanjing Vocational Institute of Railway Technology	Bronze, The 44th WSC	Landscape Gardening
9	Anhui	Working in a non-graduation university, Anhui Silver Collar Skilled Talent Research and Development Center Co., Ltd.	Golden, The 45th WSC	Architectural Stonemasonry
10	Zhejiang	Working in a non-graduation university, Anji Vocational Education Center School	Silver, The 45th WSC	Plumbing and Heating
11	Jiangsu	Working in a non-graduation university, Hangzhou First Technician College	Silver, The 45th WSC	Pâtisserie and Confectionery
12	Jiangsu	Working in a non-graduation university, Tianjin Public Vocational Training Center of China	Bronze, The 45th WSC	Industrial Mechanics

Source: The relevant reports of the winners of the WSC. WSC, World Skills Competition.

characterized by broader spatial and scope options, more convenient and flexible selection methods, and an increasing number of opportunities.<sup>[4]</sup> Furthermore, an analysis of the competition cycles reveals that the seven medalists who remained at their alma maters were predominantly from the earlier 42nd WSC to the 44th WSC. After the 44th WSC, influenced by the development of the digital economy, medalists have revealed a greater inclination to pursue teaching opportunities outside their graduating institutions.

## REQUIREMENTS AND CHALLENGES POSED BY THE CONSTRUCTION OF A SKILL-BASED SOCIETY FOR WSC WINNERS

### *New requirements for WSC winners in the construction of a skill-based society*

A skill-based society is a socialized system that has evolved from the concepts of skills and skill formation systems. It centers on the comprehensive development

of individuals and the enhancement of skills, emphasizing the process of skill formation beginning from learners' skill acquisition.<sup>[5]</sup> The construction of a skill-based society involves not only educational theories but also relevant theories from economics and sociology. From an economic perspective, a skill-based society is one that incentivizes continuous skill investment by both nations and individuals. From a sociological standpoint, it examines whether the skill capital acquired through investment in skill formation can facilitate social mobility (advancement) for skill learners and promote their social integration.<sup>[6]</sup> Furthermore, with the proposition of building a community with a shared future for mankind, the models and standards established during China's construction of a skill-based society will be disseminated globally through international exchanges, thereby promoting worldwide skill development and socioeconomic progress. Therefore, the construction of a skill-based society will inevitably pose new requirements for WSC medalists, closely linking their personal skill advancement, industry standard development, improvement of the skill environment, and expansion of international influence. The specific arguments are enumerated below.

First, medalists are required to continuously invest in skill development. A skill-based society aims to diversify pathways for skill formation and enhance its efficiency.<sup>[7]</sup> China is promoting the construction of a skill-based society by steadily developing undergraduate vocational education and integrating the modern vocational education system. The consequent rapid global technological advancement has led to a rightward shift in the skill structure of the same job across professions, thus resulting in changing skill requirements for various positions. In this context, medalists should seize the multiple skill formation pathways provided by the nation, adopt a lifelong learning mindset, and comprehensively improve their capabilities through further education, enterprise practice, and project implementation. They should continuously accumulate, enhance, and update their skills to actively contribute to technological progress and innovation in their respective industries.

Second, medalists are expected to promote the development of industry skill standards. The ultimate goal of hosting the WSC is to foster highly skilled talents required for the development of various industries. It can be said that WSC has enriched the pathways for cultivating and evaluating skilled talents in a skill-based society, responding to the demand for corresponding highly skilled personnel in the construction of such a society. The construction of a skill-based society requires medalists to facilitate the development of industry skill standards. Through the integration of production and education, as well as school-enterprise cooperation, they

should ensure the effective inheritance, development, and innovation of WorldSkills-level skills, thereby elevating the overall skill standards of relevant industries while promoting reforms in talent cultivation within the educational sphere. By deeply engaging in the process of translating WSC achievements, medalists accelerate the realization of objectives such as promoting learning, teaching, and reform through competition. This involvement pushes educational institutions to implement reforms in relevant educational fields, thereby laying a solid foundation of human capital for the construction of a skill-based society.

Third, medalists are required to contribute to improving the environment for skill development. The construction of a skill-based society necessitates the creation of a favorable atmosphere, primarily encompassing an employment environment that values skills and a social environment that respects skilled talent. WSC medalists are young representatives of highly skilled talent, and the type of skilled talent they represent forms the backbone of building a skill-based society. While the WSC halo helps medalists themselves secure "good employment", it also requires them to actively promote "good employment" for skilled talents in general. This involves improving the employment environment for skilled personnel, enabling a wide range of skilled workers enhance their sense of professional achievement and identity, and narrowing the gap in economic income and social status between skilled talent and other talent. Further, upon returning from the competition, WSC medalists often participate in numerous media interviews and engage in exchanges in schools, enterprises, and communities. Medalists should leverage these promotional opportunities to share their WSC experiences and advocate in favor of the craftsmanship spirit characterized by focus, dedication, excellence, and innovation. By doing so, they contribute to fostering a value orientation that adheres to the spirit of craftsmanship and creating a positive atmosphere that reveres skills and respects skilled talents.

Fourth, medalists are required to expand the International Influence of Skill Development through award-winning competitors. The WSC serves as an international platform for skill exchange and demonstration. The exceptional performance of Chinese competitors in this global arena contributes to the export of our nation's talent cultivation models and skill standards. The construction of a skill-based society requires award-winning competitors to maintain their engagement with the WSC platform, proactively acquire competition-related information and resources, develop cross-cultural communication competencies and tolerance, and continuously enhance their professional capabilities. This approach aims to position them among the ranks of international-level skill competition judges and

experts, thereby elevating China's global status in vocational education. Furthermore, by showcasing the personal WSC experiences of award-winning competitors, their career development achievements, and improvements in their social environment, we can attract more aspiring youth, including those from foreign countries, to participate in China's skill development initiatives. This strategy promotes the formation of a skilled workforce that is sufficient in number, reliable in quality, and balanced in structure. While advancing toward the goal of building a skill-based society in China, this approach simultaneously expands the international influence of our nation's skill development efforts. It requires winners to expand the international influence of skill building. In other words, the WSC is an international platform for skill exchange and display. The excellent performance of Chinese competitors helps to export China's skilled talent cultivation model and skill standards. The construction of a skill-based society requires winners not to abandon the WSC platform, actively acquire information and resources related to the competition, cultivate cross-cultural communication understanding and tolerance, continuously improve their professional abilities, join the ranks of judges and experts in international skill competition projects, and enhance the international status of China's vocational education. Moreover, through the personal WSC experiences of winners, their career development achievements, and improvements in the social environment, more aspiring youth (including foreign youth) should be attracted to participate in China's skill building, thereby promoting the formation of a skilled talent team that is sufficient in number, reliable in quality, and reasonable in structure. This will not only promote the realization of China's skill-based society construction goals but also enable the expansion of the international influence of China's skill building.

### **Major challenges in the professional development of WSC medalists**

To address the new requirements posed by the construction of a skill-based society for competition medalists, it is necessary not only to leverage the exemplary and leading role of these medalists in a skill-based society but also to ensure the sustainable development of their individual professional competencies. Looking ahead to the future career development of these medalists, effective responses to the following three aspects of challenges are required.

#### *Soft skills as increasingly important factors in sustainable career development*

Technological advancements and industrial upgrades inevitably lead to changes in the industry environment, consequently altering the skill requirements of industries, enterprises, and job positions. In contrast, professional

soft skills are not constrained by time or space nor are they affected by knowledge updates, technological progress, or product iterations. The possessors of these skills can transfer them from their initial job positions to future ones. Therefore, in their future career development, competition medalists should place greater emphasis on enhancing transferable professional soft skills.

Moreover, the long-term potential of their career development is closely related to their educational level as well as the depth and breadth of their professional knowledge. This is particularly crucial for many medalists who choose to remain in educational institutions as instructors or serve as WSC coaches to train future competitors. Their educational qualifications and professional qualities should be developed in harmony with their high-level technical operational skills. Medalists should possess a "four-in-one" comprehensive professional quality, integrating knowledge, skills, innovative capacity, and craftsmanship spirit.<sup>[8]</sup>

Furthermore, with the deepening construction of a skill-based society and increasing international skill exchanges and cooperation, it becomes increasingly important to cultivate internationally oriented skilled talent that is well-versed in global rules. Medalists should also focus on enhancing their problem-solving abilities, social communication skills, and self-reflection capabilities.<sup>[9]</sup>

#### *Expanding horizons: A necessary step for skill development and career growth*

The purpose of hosting the WSC is to cultivate more outstanding young skilled talent worldwide and promote technological innovation and progress in relevant industry sectors across countries and regions. Statistics reveal that almost four-fifths of the medalists from the 41st to 46th WSC in the four provinces and cities of the Yangtze River Delta region have remained in educational institutions. However, as talent cultivation institutions, vocational schools do not directly engage in production activities, thereby resulting in skill updates that lag behind those of industry enterprises. Medalists working in enterprises have explicitly stated the following in media interviews: "the knowledge learned at work is vastly different from that in textbooks" and "the technologies used in real enterprise production have broadened their horizons".

In the process of skill formation, effective skills can only be developed through close interaction between skill knowledge learning and skill experience accumulation.<sup>[10]</sup> After learning theoretical skill knowledge in educational institutions, medalists must personally engage in practical operations at enterprise production skill training sites. Inadequate and superficial school-enterprise cooperation directly affects the quality and

effectiveness of medalists' post-competition skill formation. Furthermore, as medalists gain prominence on the international skills competition stage, the lack of international skill training opportunities has become one of the main issues that is hindering their career development against the backdrop of the deepening construction of a skill-based society.<sup>[11]</sup> Medalists are eager for opportunities to "bring in" or "go out" for international exchanges.

#### *The increasingly prominent role of professional guidance in career development effectiveness*

The majority of WSC medalists are students and teachers from educational institutions. An analysis of the career paths of these medalists reveals that 60% of them pursue careers in vocational colleges, with almost 80% choosing teaching positions. This indicates that the career choices of WSC medalists are relatively narrow and their career development paths are comparatively singular. Given that vocational colleges are oriented toward cultivating highly skilled industrial workers, these medalists face the challenge of transitioning their career planning in terms of the nature of their work.

From the perspective of role and identity transformation, as students become teachers and competitors become coaches, the question of how to plan a career as a vocational skills instructor arises. For a student who has just left school and entered society, this can be confusing. Therefore, appropriate guidance and systematic training in teacher education becomes necessary.<sup>[12]</sup> Moreover, the career development path for WSC medalists transitioning from retained teachers and WSC project coaches to WSC judges and experts remains unclear.

Due to the lack of top-level design, overall planning, and targeted guidance for the career development of medalists in China, the career development of WSC medalists lacks systematic, lifelong, and sustainable corresponding designs.

## **RECOMMENDATIONS FOR THE CAREER DEVELOPMENT OF WSC MEDALISTS IN THE CONTEXT OF A SKILLS-BASED SOCIETY**

In the context of a skills-based society, the career development of WSC medalists should organically integrate their development, evaluation, and utilization with the construction of a skills-based society. This process requires both government policy support and active guidance and support from industries, enterprises, various educational institutions, and society at large. This approach aims to provide medalists with clear goals, direction, and motivation, thereby enabling them to

establish definite objectives in their career development. Based on the preceding analysis of the career development of WSC medalists in the four provinces and cities of the Yangtze River Delta region, the following recommendations are proposed for the career development of WSC medalists in the context of a skills-based society.

### ***Refining policy content to promote the educational advancement of medal winners***

An examination of the career development of WSC participants reveals that insufficient educational background is the primary obstacle, not only for medal winners from the four provinces and cities in the Yangtze River Delta region but also for competitors nationwide.<sup>[3]</sup> Inadequate academic qualifications are revealed to be the main factor hindering the career development of most medal winners. Pursuing higher education and academic advancement are the principal means for medal winners to overcome their career development bottlenecks. To this end, a series of corresponding policy contents should be refined to provide support and guarantees for competitors' further education.

First, improving the policy of admission without examination for medal winners, thus laying a solid foundation for their career development. Academic qualifications and professional knowledge are undoubtedly the basis for medal winners' skill enhancement and career development. In 2020, the General Office of the Ministry of Education issued the "Notice on Facilitating the Admission of WorldSkills Competition Medal Winners to Relevant Universities" (Education Office [2020] No. 3). However, non-current year medal winners cannot benefit from this policy's green channel for admission, facing either increased difficulties in entering without examination or having to pursue further education during work intervals. It is recommended to improve the university recommendation policy for WSC medal winners and, thus, open up the green channel for non-current year medal winners.

Second, innovate WSC reward policies by establishing incentive mechanisms that encourage continuous learning. Drawing inspiration from international practices in rewarding WSC, instead of disbursing all prize money in cash, a proportion of it could be allocated to cover future academic education or professional learning fees. This approach can encourage competitors and relevant units to actively seek subsequent learning opportunities.<sup>[13]</sup> Simultaneously, it is suggested to strengthen cooperation with universities, coordinate resources from prestigious institutions (such as those in the "985 Project" and "211 Project"), flexibly

adopt targeted or non-targeted training methods, and scientifically develop tailored talent cultivation plans and curriculum systems in line with the objectives of building a skills-based society that serves the career and comprehensive development of medal winners.

Third, enhance complementary policy provisions to address the concerns of medal winners pursuing further education. For WSC competitors, their career is a lengthy journey spanning 40 years; this necessitates the formulation of various supportive policies to alleviate economic pressures in the early stages of career development, reduce family burdens, and avoid forfeiting enrollment opportunities due to work-study conflicts. Moreover, during their career development, medal winners also assume multiple life roles. At this stage, it is necessary to increase policy support for their living conditions and psychological well-being to ensure the continuity of career development.

### ***Building learning and training platforms to broaden medal winners' career horizons***

For WSC competitors to achieve long-term development, they must not only continuously improve their educational qualifications but also broaden their career horizons and integrate this into skills practice. By establishing practical training platforms for WSC medal winners in enterprises and on international exchange and learning platforms, the pathways for competitors to refine their skills can be expanded.

On the one hand, it is important to utilize combined incentive policies to motivate enterprises in constructing high-quality skill supply systems. It is also of significance to vigorously implement combined incentive measures of "finance + land + fiscal + credit" to encourage more industry-leading enterprises to build high-quality skill learning and training platforms. Most knowledge closely related to technical capabilities belongs to non-standard tacit knowledge, which is embedded in the routine actions of enterprise production.<sup>[14]</sup> Therefore, enterprises should be incentivized to actively construct skill supply systems; establish high-quality skill learning and training platforms; and promote coordination and cooperation among enterprises, between skill supply entities and trainees, and between enterprises and educational institutions; this would encourage collaboratively advancing the formation of effective skills.

On the other hand, building international exchange and learning platforms to help competitors enhance their global perspectives is equally vital. Organizing training and exchanges is the primary measure for employers and superior departments to cultivate and motivate medal winners.<sup>[3]</sup> In addition to independent training in schools, provincial-level training, and national-level

training, regular training exchange programs should be conducted to provide as many industry exchange and international training exchange opportunities as possible and actively building international exchange and learning platforms. As the youth force in the construction of a skills-based society, WSC medal winners will likely play an important exemplary and leading role.

As WSC is one of the ways to cultivate and evaluate high-skilled talent in a skills-based society, China needs to design career development paths for WSC medal winners toward becoming WSC judges and organizational officials, thereby enhancing China's status in the international skills arena. International exchange learning and international skills training programs with more flexible time frames, deeper exchanges, and more profound experiences should be developed. These programs can enable medal winners to understand international industry development levels, closely connect them with new technologies and WSC resources both domestically and internationally, and expand their international career development horizons and opportunities.

### ***Optimizing internal and external practice environments to enhance medal winners' hard and soft skills***

International researchers have found that combining formal vocational education with intentional practice and training under expert guidance in the workplace improves WSC medal winners' long-term career development and vocational abilities.<sup>[9]</sup> Based on this perspective, optimizing the practical environment for enhancing medal winners' comprehensive vocational abilities is an effective pathway to expand their career development space.

First, it is important to collaboratively construct a gradient vocational education system to breakthrough career development bottlenecks. Vocational education, being as important as general education, involves establishing and improving a gradient vocational education and training system with multiple forms of articulation, multiple growth channels, and sustainable development. This system enables medal winners to improve their hard vocational skills synchronously with their career development, thereby providing new pathways when facing career bottlenecks. However, if vocational schools are the sole providers of vocational education, it creates a contradiction between the unidirectional nature of skill supply and the diversity of skill demand.<sup>[15]</sup> Therefore, skill supply entities should be diverse, including vocational schools, enterprises and industry organizations, social training institutions, and employers. These entities should collaborate and continuously assist medal winners in acquiring the

necessary vocational abilities during their career development.

Second, medal winners must be organized to accumulate professional experience in real production practices. WSC medal winner teams must be encouraged to immerse themselves in the frontline of enterprise production. Through the accumulation of practical production experience, they can enhance their problem-solving abilities and service spirit. In addition, enterprise R&D experts, skill masters, and industry insiders must be invited to serve as mentors. Through practical exchanges with enterprise mentors, medal winners can continuously update their knowledge structure, strengthen skill learning, and enhance their communication abilities and skill innovation capabilities in response to new requirements for technological innovation, process transformation, and industrial optimization and upgradation.

Finally, soft vocational skills must be refined through international skill exchange platforms. In achieving related goals, the Luban Workshop serves as an excellent platform. On such platforms, WSC medal winners exchange skills with teachers and students from different countries and regions with diverse cultural backgrounds. In this process, soft vocational skills—such as cross-cultural communication and complex problem-solving—are applied. Simultaneously, this also contributes to the effective enhancement of medal winners' ideological realm, political awareness, craftsmanship spirit, and professional ethics.

### ***Scientific coordination and design of career development paths for medal winners***

China's participation in the WSC began relatively late, and research surrounding the competition is still comparatively insufficient compared to that in developed countries. Consequently, from national and various levels of government management departments to employers, a clear career development path plan for WSC medal winners has not yet been formed, and the competitors themselves have not fully clarified their career development goals and directions. Thus, the planning of sustainable career development paths for medal winners can be approached from the following three levels.

The first level is strengthening top-level design, with the nation providing more support for the career development of medal winners. Under the new circumstances, the nation should help WSC medal winners establish themselves in the new development paradigm, planning career development in both international and

domestic arenas. In this context, it is important to provide macro-direction guidance for career development to medal winners with a solid foundation, encouraging them to continue deepening their involvement in the WSC field, promoting the internationalization of their career development, and facilitating medal winners' progression toward becoming WSC judges, project experts, and WSC organization officials. Domestically, it is important to continue to deepen China's personnel system reform with an emphasis on the cultivation and selection of cadres from among WSC medal winners, thereby promoting the elevation of competitors' social status.<sup>[16]</sup>

The second level is conducting scientific planning and promoting the establishment of a career development database for medal winners by the government. Led by local governments, it is of significance to construct a career development database for medal winners, thereby strengthening cooperation among industry organizations, upstream and downstream enterprises, universities, and vocational colleges. Based on medal winners' career development needs and regional industrial development requirements, it is important to integrate resources from all parties to coordinate research planning, policy formulation, education and training, research analysis, diagnostic feedback, and other services for the career development of WSC medal winners.

The third level is to form a multiparticipatory mechanism for career development, propelling the sustainable development of medal winners' careers. For example, during the WSC preparation period, career planning coaches can be introduced to guide competitors in learning theories related to career choice matching, completing vocational personality ability tests, helping them discover their personality traits, and determining their career interests and ability specialties. After winning medals, a career development community should be constructed to involve medal winners, employers, and research institutions. This community should scientifically analyze competitors' career positioning, determine career development goals, provide career opportunities, and plan career development paths. In operation, this community can also draw lessons from the sustainable development mechanisms established in developed countries or regions: "WSC competitor → advanced learning → becoming an expert/coach → nurturing new WSC competitors".<sup>[13]</sup> This establishes personal career development files and forms a virtuous cycle of cultivation, evaluation, and utilization of WSC medal winners' career development through diagnostic and process-oriented career development assessments.

## CONCLUSION

The study emphasized that the career development of WSC medalists holds profound significance not only for their individual growth but also serves as a model and catalyst in the construction of a skills-based society, thereby creating a pathway to enhance China's global influence in skill development. By focusing on four key measures—refining policy frameworks, establishing learning and training platforms, optimizing internal and external practical environments, and systematically designing career development pathways for medalists—the cultivation, evaluation, and utilization of WSC medalists can be effectively integrated with the objectives of a skills-based society. This approach necessitates leveraging the protective role of government policies, while fostering active guidance and support from industries, enterprises, educational institutions, and society. Through collaboration among diverse stakeholders, the career development of WSC medalists can be made more goal-oriented, direction-driven, and motivated, thereby achieving their sustainable professional growth and maximizing their contributions to skill-based societal advancement.

## DECLARATIONS

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### Author contributions

Luo YC: Conceptualization, Methodology, Validation, Writing—Review and Editing. Liang MM: Data curation, Formal analysis, Writing—Original draft, Visualization. All authors have read and approved the final version of the manuscript.

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### Conflict of interest

The author has no conflicts of interest to declare.

### Data availability statement

Data used to support the findings of this study are available from the corresponding author upon request.

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