

Research on the Mode Innovation and Practice Path of Vocational Education Empowering Jilin Ice and Snow Economic Talent Training

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Abstract: Under the dual strategic background of the high-quality development of the national ice and snow industry and the construction of modern vocational education, Jilin Province relies on the advantages of world-class ice and snow resources to promote the transformation of the ice and snow industry from scale expansion to quality improvement. With the implementation of the global development pattern of national ice and snow sports, the market demand for professional and compound ice and snow economic talents continues to rise. At present, there are obvious shortcomings in the construction of ice and snow related majors in vocational colleges in Jilin Province. The talent training system is out of line with the actual needs of the industry. The strength of double-qualified teachers is weak, and the coordination mechanism of industry-education integration is not perfect, which seriously restricts the supply of high-quality talents in the ice and snow industry and has become an important obstacle to the upgrading of the regional ice and snow industry. Based on the perspective of vocational education, this paper combs the development trend of ice and snow industry and the demand of talent market in Jilin Province, deeply analyzes the existing difficulties and deep causes of ice and snow talent training in local vocational colleges, and puts forward the practical path that can be implemented, aiming to make up for the shortage of talent supply in ice and snow industry and promote the sustainable and high-quality upgrading and development of ice and snow industry in Jilin Province.

Keywords: Vocational Education; Ice and Snow Economy; Talent Training; Integration of Production and Education

1. Introduction

After the end of the Beijing Winter Olympic Games, the overall scale of the domestic ice and snow market has maintained a good momentum of steady growth. The state has also introduced a number of supporting policies to promote the expansion and upgrading of the ice and snow industry and continuously improve the ice and snow talent supply system. Relying on the unique local ice and snow resource conditions, Jilin Province has now built an ice and snow economic industrial chain covering ski resorts, ice and snow research, ice and snow events, and ice and snow cultural and creative industries. The rapid development of this industry has also spawned a large number of compound skill positions. Vocational education is the key carrier to effectively connect the demand of industrial employment and the cultivation of talents. It has the core function of undertaking the supply of ice and snow skilled talents. However, at present, most of the secondary and higher vocational colleges in Jilin Province are only based on the traditional majors such as tourism and sports. From the professional setting, course content, training conditions to the teaching staff, it is difficult to adapt to the development needs of various new formats derived from the ice and snow industry in all aspects, which directly leads to the shortage of enterprise employment and the mismatch between supply and demand of fresh graduates. Based on the actual school-running situation of local vocational colleges in Jilin Province, this paper comprehensively sorts out the current situation of talent demand in the local ice and snow industry, and deeply analyzes various practical problems existing in the current ice and snow talent training work. The research also constructs an innovative training mode of localized ice and snow economic talents suitable for local development, and at the same

time, it is accompanied by a relatively perfect practical implementation strategy, which can provide corresponding theoretical reference and practical solutions for the long-term construction of the talent echelon of ice and snow industry in Jilin Province.

2. The Current Situation of Ice and Snow Economic Development and Talent Demand in Jilin Province

2.1 The Overall Development Trend of Ice and Snow Economy in Jilin Province

At present, the ice and snow industry in Jilin Province has gradually formed a mature industrial pattern of multi-integration. On the one hand, many well-known high-end ski resorts, such as Changbai Mountain, Beidahu Lake and Lianhua Mountain, are continuously promoting expansion and upgrading, and the overall industrial scale is constantly expanding ; on the other hand, Chagan Lake winter fishing, Jilin rime, Korean ice and snow folklore and other characteristic resources have been successfully built into a national iconic ice and snow cultural tourism IP. The ice and snow research industry has also achieved rapid expansion through the relevant policy dividends of practical education in primary and secondary schools. It can undertake hundreds of thousands of youth research teams from all over the country every winter, and the market volume is very considerable. In addition, the ice and snow event undertaking work in Jilin Province has tended to be normalized. The successive landing of various international snow league events and youth ice and snow sports events can directly drive the employment demand of ice and snow coaches, event operations, ice and snow safety and other related positions. At the same time, many emerging formats such as ice and snow cultural and creative, ice and snow digital cultural tourism, and ice and snow health care have also gradually formed and developed steadily in the province, which has also enabled the ice and snow industry in Jilin Province to completely get rid of the traditional single tourism development model and slowly realize the extension and upgrading of the development model of the whole industrial chain.

Analyzing from the logical level of the overall industrial transformation, it can be found that the ice and snow industry in Jilin Province is currently completing two core transformations.

First, the development model has gradually shifted from the previous short-term winter seasonal business model to the annual four-season ice and snow comprehensive operation model ; secondly, the industrial positioning has also got rid of the original single tourism attribute, and gradually transformed into a composite ice and snow economic form that integrates ice and snow sports, ice and snow culture, ice and snow equipment, and ice and snow services. The overall transformation of the ice and snow industry will directly drive the overall adjustment of the internal post structure of the industry. Under the traditional mode, the market demand of the simple scenic spot service personnel with large demand has shown a trend of contraction, and the compound skilled talents that can adapt to the development of the whole industry, the corresponding market gap is still expanding [1].

2.2 The Layout and Job Requirements of the Core Areas of Ice and Snow Economy in Jilin Province

2.2.1 Ice and snow sports service sector

Specifically, the current job types of the ice and snow industry have covered multiple core positions such as ski resort operation, ski coach, ice and snow safety rescue, snow resort equipment operation and maintenance, and ice and snow club management ; this kind of post has a clear standard requirement for the comprehensive practical ability of practitioners. It requires practitioners to master the core practical ability of skiing practical skills, basic maintenance of snow field equipment, emergency rescue, customer service and so on. The main body of this kind of post is mainly based on skilled talents at the secondary and higher vocational levels.

2.2.2 Ice and snow cultural tourism research section

Under the general trend of the integrated development of ice and snow culture and tourism, the industry has gradually derived many characteristic posts, such as ice and snow research tutors, winter fishing folklore explanation, ice and snow activity planning, cultural tourism route design, cultural and creative product development and so on. This kind of position is no longer limited to a single skill requirement, and will put forward more comprehensive standards for the comprehensive quality of employees. It requires talents to have

solid folk culture reserve, basic education and teaching ability and mature activity planning and practical ability. It is also based on the working characteristics of such posts. In the process of talent selection and recruitment, the industry will focus more on attracting professionals with a dual composite background of culture, tourism and education.

2.2.3 Ice and snow events and commercial operations

The commercial development of the ice and snow industry has also spawned a large number of business service jobs, including the planning and implementation of ice and snow events, ice and snow brand marketing, ice and snow new media operations, ice and snow exhibition investment, ice and snow hotel operations management and other work directions ; this kind of post has relatively low requirements for practical operation technology, and the whole is more biased towards the field of management and marketing, which is very suitable for higher vocational compound talents with relevant knowledge system.

2.2.4 Ice and snow equipment and supporting industry sector

In addition to cultural tourism services and management positions, the stable operation of the ice and snow industry also requires a large number of technical positions as support, including ice and snow equipment maintenance, ice and snow equipment sales, ice and snow site engineering maintenance and other related technical positions. Such positions have strong professional pertinence, and often need to be equipped with mechanical and equipment maintenance professional and technical personnel to be competent for related work [2].

2.3 The Current Situation of Ice and Snow Talent Training in Vocational Colleges in Jilin Province

From the current situation of running schools, it can be seen that most of the vocational colleges offering ice and snow related majors in Jilin Province are concentrated in the core development cities of ice and snow industry such as Changchun, Jilin, Yanbian and Tonghua; at present, the setting of ice and snow related majors in the province basically relies on traditional advantageous majors such as tourism management, leisure sports and marketing to add ice and snow characteristic learning directions. The number of ice and snow

economy and ice and snow operation majors that are truly independent is still very small.

From the perspective of the scale of running a school, the number of graduates in the ice and snow related direction exported by higher vocational colleges in Jilin Province is less than one thousand every year. Such a talent output volume is completely unable to fill the continuous employment gap of thousands of people in the ice and snow industry every year. From the perspective of training content, most of the courses offered by current colleges and universities are mainly based on traditional teaching contents such as general tourism and sports theory, and exclusive courses specifically aimed at Jilin local rime landscape, winter fishing culture, Korean ice and snow folklore and other local characteristics. The overall proportion is at a very low level ; from the perspective of practical conditions, most vocational colleges in the province have only established a short-term internship cooperation relationship with local small and medium-sized snow fields, and have not built a stable and long-term exclusive training base for the integration of production and education. Most of the internships that students participate in are concentrated in low-end positions such as basic cleaning and ticketing services, and are basically out of touch with the core business sectors such as operation management, activity planning, and equipment maintenance required by the industry. From the perspective of teacher structure, most of the professional teachers engaged in ice and snow related teaching work are from traditional cultural tourism and sports majors, and have not accumulated first-line experience in the ice and snow industry. There is also a serious shortage of double-qualified teacher reserves within the colleges and universities. This structural supply and demand imbalance between the industrial end and the talent training end has gradually become the core short board that restricts the high-quality development of the ice and snow industry in Jilin Province [3].

3. The Existing Problems of Ice and Snow Economic Personnel Training in Vocational Colleges in Jilin Province

3.1 Talent Training and Industrial Post Demand are not Closely linked

First, professional settings will lag behind the

pace of development of new forms of industry. Most vocational colleges in the province have not followed the overall layout of the ice and snow industry chain to dynamically adjust their professional construction direction [4]. In the face of emerging positions in the ice and snow new media operation, ice and snow research course development, ice and snow event planning and other industries, the school does not have a corresponding special course module, which makes the overall talent training content still stay in the teaching level of traditional sightseeing tourism, unable to adapt to the post demand after industrial upgrading. Second, there is a problem of ambiguity in the goal of talent training. Most of the colleges and universities offering ice and snow related directions have generally set the talent training orientation as a general tourism service personnel, without distinguishing the different job attributes of the snow field technical post, research and education post, and operation and management post. The differentiated ability training requirements of each post eventually caused the common problems of serious homogenization of graduates' skills and weak post adaptability. Third, there is a clear lack of a normalized talent communication mechanism between schools and enterprises. In the process of carrying out core teaching work such as curriculum development and talent training program formulation, vocational colleges rarely invite local ice and snow enterprises to participate in depth, which leads to a serious disconnection between daily teaching content and real job content of enterprises. After graduation, students often need to spend 3-6 months of retraining in order to be able to work formally, which also greatly increases the employment cost and training pressure of ice and snow enterprises.

3.2 The Cooperative Education Mechanism of Industry-education Integration is not Perfect

At present, most of the integration of production and education in the ice and snow industry in Jilin Province only stays at the relatively shallow level of cooperation such as short-term internships [5]. The deep collaborative education mechanism that can adapt to the development of the industry has not really been built and improved. In the first aspect, the cooperation mode between local

colleges and ice and snow enterprises is relatively single and solidified. As a whole, only the basic cooperation content of students' winter short-term internship has been completed, and no deep-level cooperation carriers such as industrial colleges, joint training bases and order classes have been set up together. In the second aspect, the division of rights and responsibilities of talent co-education in the field of ice and snow is still relatively vague. In the daily teaching process, undergraduate colleges and universities mainly undertake the related work of theoretical teaching, and cooperative enterprises only provide students with corresponding internship sites. Schools and enterprises do not jointly participate in the core education links such as curriculum development, teacher appointment and research and development of scientific research projects; in the third aspect, there are obvious deficiencies in the continuous promotion ability of the existing school-enterprise cooperation. Due to the strong seasonal development characteristics of the ice and snow industry itself, the winter is the peak period of industry employment, and the cooperation between schools and enterprises will be relatively close. In the non-snow season of spring and summer, all kinds of cooperation work will basically fall into a state of stagnation, and it is difficult to form a year-round normalized industry-education-people coordination system.

3.3 There are Obvious Shortcomings in the Construction of Ice and Snow Professional Teaching Staff

The teaching staff will form the core support for the quality of personnel training in vocational education, and the teaching staff of ice and snow related majors in Jilin Province still have prominent structural shortcomings [6]. In the first aspect, the overall proportion of double-qualified teachers in local colleges and universities is low. Most of the teachers are engaged in teaching work in school for a long time, and have not participated in the actual work experience of snow field operation and first-line positions in ice and snow cultural tourism enterprises, which also leads to the obvious weakness of teachers' own practical teaching ability. In the second aspect, the teacher training system adapted to the ice and snow industry is still in a state of absence. The province has not set up a special training

channel for teachers in the ice and snow industry for the time being, which makes the teachers' professional knowledge update slowly and can not follow up in time. The emerging new formats and new technical content of the ice and snow industry; in the third aspect, it is difficult for colleges and universities to introduce part-time teachers from enterprises. The work intensity of senior operators and technical backbones of ice and snow enterprises is generally high. At the same time, there is no supporting special funds and exclusive incentive policies on the side of colleges and universities to attract high-quality talents from enterprises to enter schools to carry out teaching work, which leads to the common problems of strong mobility and insufficient teaching stability of part-time teachers.

3.4 Lack of Talent Training Level and Multiple Guarantee System

In the system construction of hierarchical training of ice and snow talents, there are serious problems of gradient separation in the training system of ice and snow talents in the three sections of secondary vocational school, higher vocational school and junior college in Jilin Province. The teaching focus of secondary vocational colleges will be biased towards the training of basic service skills. Higher vocational colleges will focus on cultivating students' operation and management related abilities. The teaching content of the upgrading stage is more focused on the level of industrial research. The curriculum systems of the three stages are independent of each other and lack effective connection. The overall training objectives have not been able to connect up and down, so it is difficult to build a complete step-by-step talent growth channel. From the perspective of professional supporting guarantee, the practical training construction of ice and snow specialty needs to invest higher costs. The procurement and later maintenance of ice and snow venues, skiing equipment, and ambulance equipment will have high costs. The special school-running funds that local finance can give are relatively limited, which will limit the construction of training venues in major colleges and universities. In addition, the field training and outdoor practical teaching carried out by the ice and snow major have certain safety hazards, and the corresponding safety guarantee system and training subsidy

mechanism are not perfect enough. These problems will directly restrict the orderly advancement of practical teaching in colleges and universities.

4. The Causes of the Existing Problems in the Training of Ice and Snow Economic Talents in Vocational Colleges in Jilin Province

4.1 Lack of Special Policy Support for Ice and Snow Economic Talent Training

At present, China has issued many supporting policies to help the development of ice and snow industry from the national level, but at the provincial level in Jilin Province, the special supporting policies for the training of ice and snow talents in vocational education are still relatively scarce. At present, there is no subdivision policy document covering various dimensions such as school-enterprise cooperation incentives, training base subsidies, double-qualified teacher training, and ice and snow professional enrollment support in the province. This makes it difficult for colleges and enterprises to get effective policy guidance in the process of carrying out collaborative education work, nor can they enjoy the corresponding financial support dividend ; in this context, the enthusiasm of both schools and enterprises to actively participate in the integration of production and education and collaborative education will be obviously limited.

4.2 The Curriculum Reform Lags behind and has not been Integrated into the New Industry

At present, the pace of curriculum renewal in local colleges and universities is generally slow, and the overall content of the textbooks used will lag behind the actual development level of the ice and snow industry for 3-5 years. The emerging teaching contents such as ice and snow digital marketing, ice and snow research course design, and intelligent operation and maintenance of ice and snow venues have not been truly incorporated into the daily teaching system. At the same time, the current curriculum development work has not fully combined with the unique characteristics of ice and snow resources in Jilin Province, and will largely ignore the regional representative industrial content such as Chagan Lake winter fishing and Korean ice and snow folklore,

which makes the talent training work of ice and snow majors lack sufficient regional recognition, and it is difficult to meet the characteristic development needs of local ice and snow industry.

4.3 The Financial Investment in Teacher Construction is Insufficient, and the Long-term Training Mechanism is not Perfect

At present, most of the focus of education financial funds will be inclined to the traditional advantageous majors, which will lead to the limited budget of teacher training and enterprise talent introduction related funds that can be allocated to emerging majors such as ice and snow. In addition, the current teacher assessment and promotion mechanism in colleges and universities will focus more on theoretical scientific research results as a whole, and the assessment weight set for teachers' first-line industrial practice experience is relatively low. Such a system status quo will make many teachers take the initiative to go to the ice and snow enterprises. The enthusiasm for participation in the exercise has become seriously insufficient.

4.4 Enterprises' Participation in Education has High Cost and Lack of Interest Protection

In the process of participating in the training of talents, ice and snow enterprises need to invest a lot of manpower and material costs such as training venues, professional equipment and senior staff teaching. Under the existing institutional mechanism, enterprises participating in the education work can not enjoy tax relief, employment subsidies and other related policy dividends ; at the same time, the investment return cycle of deep cooperation modes such as order classes and industrial colleges is relatively long, and the overall income is not intuitive enough, which makes the endogenous motivation of ice and snow enterprises to participate in collaborative education appear weak.

4.5 The Existing Talents have a Weak Sense of Self-improvement

For college ice and snow graduates and on-the-job ice and snow industry practitioners, the province has not yet set up a long-term use of normalized continuing education channels, nor has it built a skills improvement training

platform specifically for the ice and snow industry ; after the formal employment, it is difficult for employees to continue to update their professional skills and industry knowledge. Over time, there will be a problem of personal professional ability solidification, which cannot keep up with the development pace of the ice and snow industry's continuous upgrading and iteration, and it is also difficult to adapt to the industry's continuously updated job requirements.

5. The Construction of Innovative Training Mode of Ice and Snow Economic Talents in Jilin Province from the Perspective of Vocational Education

5.1 Optimize the Characteristic Curriculum System of 'Post Course Competition Certificate' Integration

Based on the post ability standards corresponding to the four core sections of the ice and snow industry in Jilin Province, the existing talent training curriculum system is reconstructed and optimized in a hierarchical and classified way [7]. Through this reform method, we can effectively open up the four core education carriers of job demand, classroom teaching, skill competition and professional certificate, so that each education link can be linked and connected to each other, and further improve the local ice and snow professional education system.

5.1.1 Layered setting of ladder courses

In the specific construction of the hierarchical curriculum system, differentiated teaching content can be set up for the training orientation of different student sections, so as to realize the ice and snow talent training mode of secondary vocational, higher vocational and undergraduate[8]. In the secondary vocational stage, we can mainly focus on practical basic courses such as ice and snow basic services, basic operation of snow field equipment, ice and snow safety rescue, etc., focusing on consolidating students' first-line basic practical ability ; in the higher vocational stage, the curriculum dimension can be further expanded, and more comprehensive composite courses such as ice and snow operation management, ice and snow research planning, ice and snow new media marketing can be set up, focusing on cultivating students' comprehensive application ability ; at the stage of upgrading from junior

college to university, we can appropriately raise the teaching level, add relevant advanced courses such as ice and snow industry planning and ice and snow economic policy research, and truly build a complete and coherent talent training system based on the progressive curriculum setting of each learning stage.

5.1.2 Embedded in the curriculum module of Jilin regional characteristic industry

Jilin Province itself has a large number of highly recognizable high-quality ice and snow cultural tourism resources such as Changbai Mountain ice and snow tourism, Jilin rime landscape, Chagan Lake winter fishing folklore, and Yanbian Korean ice and snow intangible cultural heritage. Colleges and universities can rely on these local characteristic resources to add a number of characteristic courses that can fit the actual operation scenarios of local industries. The development of regional ice and snow resources, the operation of folk culture and tourism, and the management of ice and snow projects in four seasons are in line with the core content of local industrial development, and fully integrated into the existing overall teaching system, so that the course content can truly connect with the actual development characteristics of Jilin local ice and snow industry.

5.1.3 Promote post-class docking, competition certificate integration

Colleges and universities can work together with the head ice and snow enterprises in the deep-ploughing industry in the province for many years to sort out and formulate a standardized list of job capabilities, disassemble and transform the real job tasks of enterprises, and build them into practical projects suitable for classroom teaching. At the same time, it can integrate the assessment contents of various industry competitions and professional certificates such as ice and snow vocational skills competition, ski social instructor certificate, cultural and tourism planner, first aid and ambulance certificate into the daily course teaching link, so that students can prepare for the examination and obtain the professional certificate just needed by the industry at the same time as completing the course study in school, effectively consolidate their own post practical ability, and further enhance their core competitiveness in employment.

5.2 Build a High-Level Double-qualified Professional Teaching Staff

5.2.1 Establish a special job attachment plan for ice and snow professional teachers

The relevant departments of provincial education and cultural tourism can allocate corresponding special funds every year to select teachers majoring in cultural tourism and sports, and go to local leading ice and snow enterprises such as Changbai Mountain and Beida Lake to carry out full-time temporary training for 6 to 12 months. Relevant departments can formally incorporate the teacher's enterprise experience into the rigid assessment indicators of professional title evaluation and performance appraisal, so as to force teachers to take the initiative to go deep into the front line of the industry, accumulate solid practical experience in the ice and snow industry, and effectively improve the weak industrial practice ability of the teaching staff.

5.2.2 Build an incentive mechanism for the introduction of part-time teachers in enterprises Through the introduction of special support policies, the relevant departments can provide the technical backbone and operation management talents of ice and snow enterprises with corresponding school teaching hours subsidies and individual tax relief benefits [9]; through the implementation of such favorable policies, a systematic enterprise teacher resource database has been gradually established, which can stabilize the part-time teacher team of colleges and universities to a large extent. At the same time, colleges and universities can also regularly organize full-time teachers in the school and front-line teachers in enterprises to carry out joint cooperation, jointly participate in curriculum development, training materials and other related work, so that the real industrial practice experience can be effectively transformed into standardized and landing teaching resources, and further enrich the teaching content of ice and snow specialty.

5.2.3 Normalize the special training of ice and snow teachers

Local colleges and universities can cooperate with the ice and snow industry association of Jilin Province to jointly set up a normalized annual ice and snow teacher training course. The training content will focus on covering the frontier content of the development of the industry, such as the new format of ice and

snow, the operation and maintenance of intelligent snow field, and the development of ice and snow research courses. Through this kind of normalized special training, it can help teachers continue to make up their own knowledge shortcomings, constantly iteratively update their personal professional knowledge system, and adapt to the new development trend of the ice and snow industry.

5.3 Improve the Multi-party Linkage Industry-education Collaborative Education Mechanism

5.3.1 Co-construction of college of ice and snow industry

At the government level, it can help local vocational colleges to actively link with high-quality head ice and snow groups in the province by providing diversified support methods such as site support and financial subsidies, and jointly build an exclusive ice and snow economic industry college. The industrial college will implement the operation and management mode of two-way co-management between schools and enterprises. The colleges and enterprises will work together to customize the talent training program that meets the needs of the industry. At the same time, they will work together to build the campus simulation training base and the off-campus snow field reality training base. On this basis, an exclusive enterprise order class is set up to carry out customized talent training according to the actual employment needs of the enterprise positions, which can continuously transport professionals with higher adaptability to the local ice and snow industry [10].

5.3.2 Build a four-season normalized collaborative platform

In order to effectively solve the inherent shortcomings of seasonal cooperation in the ice and snow industry, both schools and enterprises can carry out differentiated cooperation between production and education according to the characteristics of the industry in different seasons, so as to open up the education channel of cooperation throughout the year. In the winter snow season stage, we can focus on arranging students to enter the ice and snow enterprises to carry out the first-line internship work, and make full use of the peak period of winter industrial employment and operation to accumulate practical experience ; in the non-snow season of spring and summer, both

schools and enterprises can also jointly carry out diversified cooperation projects such as ice and snow cultural and creative research and development, online ice and snow research and live broadcast, and ice and snow industry planning research, so that the education work of the integration of industry and education will not be broken due to seasonal changes, and truly realize the uninterrupted and normalized cooperative education mode of industry and education throughout the year.

5.3.3 Play the role of industry associations as a bridge

It can rely on the ice and snow tourism association of Jilin Province to coordinate and integrate the high-quality resources of all kinds of ice and snow enterprises in the province. The association leads the unified formulation of school-enterprise cooperation norms and talent evaluation standards suitable for the development of local industries, so that the development of school-enterprise cooperation can be standardized and the quality of talent training can be quantified. At the same time, the association can take the initiative to build a precise docking channel between vocational colleges and small and medium-sized ice and snow enterprises, break through the barriers of poor information and poor docking between the two sides, and effectively solve the long-term difficulties of talent recruitment and insufficient professional talent reserve faced by small and medium-sized snow fields and cultural tourism bases in the province.

5.4 Strengthen Policy Guidance and Multi-special Security System

We will improve the supporting guarantee from the four dimensions of finance, policy, incentive and safety, and clear the obstacles to the implementation of talent training [11].

5.4.1 The introduction of provincial ice and snow vocational education special support policy

Jilin Province can combine the actual development of ice and snow vocational education, refine the detailed rules of landing special support policies, and clarify the implementation standards of various incentive measures. In view of the construction of ice and snow professional training base, special award and subsidy funds are set up, and financial subsidies are given according to the investment scale of the construction of training base in

colleges and universities, so as to alleviate the financial pressure of training site construction and equipment operation and maintenance. In view of the school-enterprise cooperation and education, preferential policies such as tax relief and cost credit are implemented for the identified ice and snow enterprises with integration of production and education, so as to reduce the investment cost of enterprise personnel training. At the same time, relax the restrictions on the enrollment of ice and snow majors, give special school running subsidies to expand the scale of ice and snow talent training ; set up a special award for the ice and snow skills competition, commend and encourage the winning teachers and students, incorporate the competition results into the teaching evaluation, and mobilize the initiative of school-enterprise collaborative education based on the policy dividend in an all-round way.

5.4.2 Increase the financial investment in training hardware

Set up special funds for ice and snow vocational education training in Jilin Province, specifically support the upgrading and construction of training carriers in vocational colleges, and focus on supporting the construction and transformation of characteristic training platforms such as indoor simulated snow fields, ice and snow rescue training centers, and digital classrooms for ice and snow research and learning. Through the guarantee of special funds, the high cost of training site construction, professional equipment purchase and daily operation and maintenance of colleges and universities can be effectively shared, and the financial pressure of practical teaching of ice and snow specialty can be effectively alleviated, so as to provide solid hardware support for the development of normalized and high-quality practical teaching.

5.4.3 Improve the two-way benefit guarantee mechanism between school and enterprise

For the ice and snow enterprises deeply involved in the construction of industrial colleges and order classes, a series of supporting policies such as value-added tax reduction and exemption, job stabilization subsidies and talent introduction subsidies can be implemented to effectively reduce the input cost of enterprise collaborative education and stimulate the endogenous power of enterprises to participate in the deep integration of production and education. At the same time, for

vocational colleges that set up ice and snow specialty, it is necessary to appropriately increase the per-student running funds and special enrollment indicators, and strengthen the resource guarantee of specialty construction in colleges and universities. Through the policy model of two-way support between schools and enterprises, we can balance the investment cost of education between the two sides, fully mobilize the enthusiasm and initiative of school-enterprise collaborative education, and promote the long-term development of ice and snow talent training.

5.4.4 Improve the training safety and continuing education security

Unified formulation of ice and snow outdoor training special safety management norms, clear training operation standards, on-site management requirements and emergency response processes, simultaneous implementation of the full training insurance system, comprehensive avoidance of outdoor training safety risks, and solid practice teaching safety bottom line. At the same time, we will build a provincial-level online ice and snow industry continuing education platform, set up regular skills improvement online courses for in-service practitioners and previous professional graduates in the ice and snow industry, cover new technologies, new formats, new norms and other learning content in the industry, build sustainable lifelong learning channels, help practitioners continue to iterate professional ability, and steadily improve the overall talent quality of the ice and snow industry.

6. The Implementation Path of the Training Mode of Ice and Snow Economic Talents in Jilin Province

6.1 The Government should Make Overall Planning and Build a Provincial Ice and Snow Vocational Education Coordination Platform

The special working group for the development of ice and snow vocational education was jointly led by the Department of Education, the Department of Culture and Tourism, and the Sports Bureau of Jilin Province, to coordinate and integrate various resources of vocational colleges, ice and snow enterprises and industry associations in the province, and to coordinate and promote the standardization and systematic

development of ice and snow vocational education. First, compile a three-year special plan for the development of vocational skills talents in the ice and snow industry in Jilin Province, clarify the training orientation of ice and snow talents in various regions, unify the support standards for running schools with ice and snow characteristics in colleges and universities, and clarify the development goals of phased talent construction. Secondly, build a provincial public service platform for the integration of ice and snow industry and education, relying on online digital carriers, to achieve accurate docking of school-enterprise supply and demand, sharing of high-quality curriculum resources, two-way flow of school-enterprise teachers, and breaking the resource barriers between industries and colleges [12]. Thirdly, it is necessary to regularly hold the provincial ice and snow industry and education integration docking exchange meeting, build a bridge of offline cooperation between schools and enterprises, promote the on-site contract cooperation between colleges and ice and snow enterprises, and implement in-depth cooperation projects such as industrial colleges and customized order classes in batches, so as to continuously expand the scale of ice and snow industry and education integration education.

6.2 Dynamic Optimization of Specialty and Curriculum Construction in Colleges and Universities

Vocational colleges in various regions can base on the advantages of local ice and snow industry resources, implement differentiated and characteristic school-running models, and accurately meet the needs of regional industrial talents. Among them, Changbai Mountain and Tonghua areas are rich in ice and snow sports resources. Local colleges and universities can focus on the cultivation of skilled talents such as ice and snow sports services and snow field equipment operation and maintenance ; relying on folk resources such as rime landscape and Chagan Lake winter fishing, Jilin and Songyuan areas focus on creating characteristic professional directions such as ice and snow folk cultural tourism and winter fishing research. Relying on industrial agglomeration and location advantages, Changchun City focuses on cultivating compound special talents such as ice and snow operation management, new media marketing, and event planning [13]. At

the same time, a dynamic update mechanism for talent training and course content is established. Colleges and universities jointly cooperate with enterprises to revise and improve the talent training program every two years, update more than one-third of the course teaching content every year, and timely integrate into the new format and new technology module of the ice and snow industry. Relying on the joint research and development mode of school-enterprise teachers, we have compiled characteristic training materials suitable for Jilin's local industrial scene, built a dedicated teaching resource library for ice and snow majors, and continuously consolidated the foundation of characteristic talent training.

6.3 Enterprises are Deeply Involved in the whole Process of Talent Co-education

Promote the deep involvement of ice and snow enterprises in the whole process of talent training, and build a whole process collaborative education mechanism. In the stage of enrollment and selection, enterprises participate in the selection of students in the order class, and select the suitable talents according to the post employment standard ; in the daily teaching stage, the technical backbone of the industry is sent to the school to undertake the teaching of practical courses, and the first-line practical experience is integrated into the classroom ; in the practical training stage, the real job scene is opened, the one-to-one master teaching mode is implemented, and the students' practical ability is strengthened. In the stage of academic evaluation, enterprises participate in the assessment of students' practical ability, and incorporate the results of enterprise assessment into the rigid evaluation index of graduation to ensure that the quality of personnel training conforms to the industry standard. At the same time, the enterprise fully opens the four-season operation scene, and undertakes project-based training such as students' ice and snow cultural and creative development and online operation promotion in the non-snow season, effectively revitalizing the annual industrial resources, and completely breaking the seasonal limitations of ice and snow industry training.

6.4 Establish a Dynamic Monitoring and Evaluation Mechanism for Talent Training Effectiveness

Construct a multi-agent collaborative dynamic talent training evaluation system to achieve continuous iterative optimization of the education model. The effectiveness evaluation is carried out by the tripartite linkage of vocational colleges, cooperative enterprises and ice and snow industry associations : colleges and universities regularly count the quality of students' curriculum completion, professional certificate examination and skill competition awards, and master the effectiveness of school education; cooperative enterprises continue to feedback graduates' post adaptation, practical comprehensive quality and post retention rate, and judge the level of talent post adaptation. The ice and snow industry association organizes the unified assessment of ice and snow vocational skills every year to form industry standardized evaluation data. Based on the results of the three-party comprehensive evaluation, the curriculum system, teacher training program and industry-education cooperation model are iteratively optimized year by year, the shortcomings of talent training are dynamically supplemented, and the adaptability of ice and snow talent training and industrial post demand is continuously improved [14].

7. Conclusion

Ice and snow economy has become the core starting point for Jilin Province to promote regional industrial transformation and upgrading and cultivate new growth points of local economy. The stable supply of specialized and compound skilled talents is the key core element to support the high-quality and long-term development of ice and snow industry. At this stage, there are still many practical bottlenecks in the training of ice and snow talents in vocational education in Jilin Province. The root cause is mainly due to the lack of special support policies for ice and snow vocational education, the lag of curriculum system renewal iteration, and the imperfect mechanism of school-enterprise interest collaborative education, which seriously restricts the deep integration of production and education and the improvement of the quality of ice and snow talents training.

Based on the perspective of vocational education development, this paper closely combines the resource endowment and job demand characteristics of the ice and snow

industry in Jilin Province, constructs a training mode of ice and snow skilled talents suitable for regional development, and sets up a multi-party collaborative implementation system of government, colleges and enterprises. The education mode deeply fits the characteristics of Jilin local ice and snow resources, unblocks the channel of talent supply and demand between vocational education and ice and snow industry, effectively alleviates the shortage of talents in the industry, and promotes the deep integration and coordinated development of vocational education and local ice and snow economy. In the future, Jilin Province needs to continuously improve the special policy system of ice and snow vocational education, increase financial special support, widely guide all kinds of vocational colleges and ice and snow market entities to deeply participate in collaborative education, and build a step-by-step and full-cycle ice and snow talent long-term cultivation system. With the supply of high-quality skilled talents, we will promote the comprehensive transformation of the ice and snow industry in Jilin Province from traditional resource advantages to industrial advantages and economic advantages, and help the national ice and snow development strategy of 'Arctic South Expansion West Expansion Eastward' take root in Jilin and improve quality and efficiency.

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