Analysis on the Ability Development and Industry Adaptability of Higher Vocational Teachers under the Background of Industry-Academic Integration

Chunmiao Zhang

Zhejiang Fashion Institute of Technology, Ningbo, 315211, Zhejiang, China

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Abstract: Under the background of the deepening of Industry-Academic Integration, the requirements of professorship education for teachers' ability and industry adaptability are increasing. This article focuses on this, aiming to explore the effective promotion path of higher vocational college (HVC) teachers' ability development and industry adaptability under the background of Industry-Academic Integration. Through literature research, investigation and analysis, this article combs the theoretical basis of Industry-Academic Integration and the development of HVC teachers' ability, and analyzes the current situation, existing problems and causes of the development of HVC teachers' ability. It is found that there is a gap between the ability development and industry adaptability of HVC teachers, such as untimely updating of professional knowledge and insufficient practical ability. Based on this, this article puts forward some strategies, such as building a mechanism for improving teachers' ability, deepening school-enterprise cooperation, and improving the training system, so as to promote the improvement of teachers' ability and the enhancement of industry adaptability, promote the Industry-Academic Integration, and lay the foundation for cultivating high-quality technical and skilled personnel who can meet the needs of the industry.

1. Introduction

Under the background of rapid economic and social development, the importance of professorship education in promoting industrial upgrading and economic transformation has become increasingly prominent [1]. Industry-Academic Integration, as the key path of professorship education reform and development, aims to break down the barriers between education and industry, and realize the precise docking of talent training and industrial demand [2][3]. Higher vocational teachers, as the direct implementers of talent training, have a direct impact on the quality of professorship education and the effectiveness of talent training [4].

At present, with the continuous adjustment of industrial structure and the continuous emergence of new technologies, new processes and new norms, the industry has put forward higher and more contemporary requirements for the ability and quality of higher vocational talents [5]. This requires HVC teachers not only to have solid professional knowledge and teaching skills, but also to closely track the industry trends, deeply understand the actual needs of the industry, and constantly improve their own industry adaptability [6]. However, the reality is that there is still a certain gap between the ability development of HVC teachers and the adaptability of the industry, which restricts the ability of professorship education to serve the development of the industry to some extent [7].

Under this background, it is of great theoretical and practical significance to study the ability development and industry adaptability of HVC teachers. It is helpful to further enrich and improve the theoretical system of teacher development in professorship education. It can also provide useful reference for formulating scientific and reasonable training policies for HVC teachers and improving the overall quality of teachers, thus promoting the Industry-Academic Integration and promoting the high-quality development of professorship education.

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2. Industry-Academic Integration and the theoretical cornerstone of HVC teachers' ability development

Industry-Academic Integration is not a new concept, its theory can be traced back to the development of professorship education. From the early emphasis on the combination of education and productive labor to the all-round and multi-level collaborative education of production and education, it has been continuously evolved and improved [8]. Germany's "dual system" model provides a successful example for Industry-Academic Integration. Enterprises and vocational colleges cooperate deeply and share the responsibility of personnel training, and theory and practice are closely combined, highlighting the key position and important value of Industry-Academic Integration in professorship education.

The theoretical support of HVC teachers' ability development is diverse and solid. The theory of human capital points out that education investment can improve the quality of workers and is a key factor to promote economic growth. In the field of professorship education, the investment in teachers' ability development can effectively improve their teaching and practical guidance ability, and then cultivate more competitive talents for the society. Lifelong learning theory emphasizes that individuals need to continue learning in their life to adapt to social development and changes [9]. Teachers in vocational schools are no exception. Facing the rapid update of industry technology, they must keep learning, improve their own abilities and realize lifelong development.

Industry adaptability also has a profound theoretical explanation in Industry-Academic Integration. According to system theory, education system and industrial system are interrelated and influence each other. As a subsystem of the education system, professorship education needs to develop in coordination with the industrial system. As the key link between the two systems, the vocational teachers' industry adaptability determines whether the two systems can be effectively connected. If teachers don't understand the industry demand and technology development, it will be difficult for the students to meet the industry demand. Therefore, enhancing the vocational adaptability of HVC teachers is an important guarantee to promote the Industry-Academic Integration and realize the coordinated development of education and industry.

3. Dilemma of HVC teachers' ability development under Industry-Academic Integration

3.1. Mode and performance: The current mode of HVC teachers' ability development

At present, the ability development of HVC teachers has formed many models. On the one hand, teachers' ability to apply teaching theories and methods is improved by holding regular teaching seminars and organizing teachers to participate in various teaching skills training. On the other hand, some vocational schools have established cooperative relations with enterprises, and arranged teachers to work in enterprises to enhance their practical operation ability and understanding of the actual industry.

These models have achieved certain results. According to incomplete statistics, in the past three years, the students' evaluation scores of the courses taught by teachers who participated in the on-campus teaching and training have increased by an average of 3 points. Enterprise attachment training also allows many teachers to introduce practical cases of enterprises into the classroom, enriching the teaching content.

3.2. New appeal: Industry: Education Integration gives HVC teachers new requirements for their abilities

Under the background of Industry-Academic Integration, higher requirements are put forward for teachers' ability in vocational schools. In terms of professional ability, teachers should not only be proficient in traditional professional knowledge, but also keep up with cutting-edge technologies in the industry, such as industrial internet and big data applications in the field of intelligent manufacturing. In terms of practical ability, teachers should have the ability to solve complex engineering problems and guide students to participate in practical projects. Furthermore, the ability of cross-cultural communication and teamwork has become crucial. With the acceleration of

industrial internationalization, HVC teachers need to cultivate students' ability to adapt to international cooperation projects.

3.3. Cause analysis of the gap: The gap between HVC teachers' ability and industry adaptability and its causes

Through the investigation and study (see Table 1), there is an obvious gap between the ability of HVC teachers and the adaptability of the industry. In terms of updating professional knowledge, only 25% of teachers can master the latest technology in the industry in time and integrate into teaching, and most teachers lag behind in updating their knowledge. In terms of practical ability, less than 30% teachers have the ability to solve complex engineering problems independently.

Table 1 Survey on the Gap between Higher Vocational Teachers' Competence and Industry Adaptability

Survey Item	Specific Situation	Proportion
Timeliness of Professional Knowledge Update	Able to grasp the latest industry technologies in a timely manner and integrate them into teaching	25%
Practical Ability (Ability to Independently Solve Complex Engineering Problems)	Teachers with this ability	30%
Cross-cultural Communication Ability	Teachers who can effectively carry out cross-cultural teaching activities	20%
Team Collaboration Ability (Ability to Guide Students in Team Projects)	Teachers who can proficiently guide students to complete projects through team collaboration	28%

There are many reasons for these gaps. First of all, the teaching tasks in vocational schools are heavy, teachers are busy with teaching and scientific research, and lack enough time to go deep into enterprise research and study, which leads to insufficient understanding of the latest trends in the industry. Secondly, the enthusiasm of enterprises to participate in Industry-Academic Integration is not high, and some enterprises are worried that teachers' attachment exercise will affect the normal production and operation of enterprises and are unwilling to provide teachers with opportunities for in-depth practice. Moreover, the teacher training system is not perfect, the training content is out of touch with the actual needs of the industry, and the training method is relatively simple, which can not meet the diversified learning needs of teachers. These factors jointly restrict the development of HVC teachers' ability and the promotion of industry adaptability.

4. Ways to improve the ability and adaptability of HVC teachers

4.1. Mechanism construction: Based on Industry-Academic Integration, the path construction of teachers' ability improvement

It is the key to construct a scientific and reasonable mechanism to improve teachers' ability. First of all, a dynamic evaluation system of teachers' ability should be established, and teachers' professional knowledge, practical skills and industry cognition should be evaluated comprehensively on a regular basis. Through the evaluation results, we can accurately locate the shortcomings of teachers' ability and provide a basis for subsequent training and development. Refer to Table 2. The system subdivides a number of indicators from three dimensions: teaching ability, professional practice ability and industry docking ability to quantitatively evaluate teachers' ability.

Based on the evaluation results, a personalized ability improvement plan is formulated. For teachers who are lagging behind in updating their professional knowledge, arrange to participate in industry-leading technical training courses; Teachers with weak practical ability, increase the duration of enterprise attachment training or participate in the campus practice base project. Furthermore, an incentive mechanism for teachers' development is set up to give material and spiritual rewards to teachers who have performed well and achieved outstanding results in the

process of improving their abilities, so as to stimulate teachers' enthusiasm for self-improvement.

Table 2 Dynamic Evaluation Index System for Higher Vocational Teachers' Competence

Primary Indicator	Secondary Indicator	Specific Description
Teaching Ability	Instructional Design Ability	Rationality and innovativeness of course content design
	Classroom Organization Ability	Classroom order management, guidance of student participation, etc.
	Teaching Evaluation Ability	Diversity of evaluation methods, timeliness of evaluation result feedback, etc.
Professional Practical Ability	Operational Skill Level	Proficiency in operating relevant professional equipment
	Project Practical Experience	Number and complexity of actual projects participated in, etc.
Industry Alignment Ability	Industry Knowledge Update	Mastery of the latest industry technologies and standards
	Depth of Enterprise Cooperation	Activities and outcomes carried out in cooperation with enterprises, etc.

4.2. School-enterprise cooperation: Enhance the adaptability of teachers' profession through school-enterprise cooperation

Take the cooperation between vocational schools and well-known local manufacturing enterprises as an example (Table 3). According to their own business needs, enterprises have designed a half-year attachment training program for teachers, covering product research and development, production management, quality inspection and other links. During their temporary employment, teachers are not only familiar with the latest production process and technical application of the enterprise, but also establish close ties with the technical backbone of the enterprise to facilitate the introduction of practical cases in subsequent teaching.

Table 3 Arrangement of Teacher In-service Training Projects through School-Enterprise Cooperation

In-service Training Stage	Time	Participating Project	Learning Content
First Stage	1st - 2nd month	Product R&D Project	New product design concepts, R&D processes
Second Stage	3rd - 4th month	Production Management Project	Production planning formulation, on-site management methods
Third Stage	5th - 6th month	Quality Inspection Project	Product quality standards, inspection techniques and tools

Enterprise technical experts can regularly give lectures in schools, participate in teaching guidance, share the latest industry trends and practical work experience with teachers, promote teachers' in-depth understanding of the industry, and enhance their industry adaptability.

4.3. Perfection of training: Strengthening teachers' professional adaptability with a sound training system

Perfecting the teacher training system is an important guarantee to improve the adaptability of teachers' profession. The training content should closely focus on the actual needs of the industry, covering professional frontier knowledge, practical skills, cross-cultural communication and other aspects. For example, in view of the demand of intelligent manufacturing industry for industrial internet technology, relevant training courses are offered to enable teachers to master the skills of industrial internet platform construction, data analysis and application.

Training methods should be diversified. Besides traditional centralized teaching, online learning,

workshops, case studies and other forms can also be used. Online learning platform can provide rich industry resources, and teachers can learn independently according to their own time and needs. The workshop focuses on solving practical problems and improves teachers' practical ability through group cooperation and simulated practice. Case study selects real cases of enterprises, organizes teachers to analyze and discuss together, and improves teachers' ability to solve practical problems. Furthermore, the training management department should strengthen the evaluation of training effect, collect teachers' feedback in time, adjust and optimize the training content and methods, ensure the training is effective, and help teachers improve their adaptability to the industry.

5. Conclusions

This article focuses on the in-depth research on the ability development and industry adaptability of HVC teachers. By combing the theoretical basis, the important position and correlation of Industry-Academic Integration, HVC teachers' ability development and industry adaptability in the theoretical system of professorship education are clarified.

A survey of the current situation of teachers' ability development in vocational schools reveals that although the existing development model has made some achievements, there is still a significant gap compared with the new requirements given by Industry-Academic Integration. Problems such as lagging professional knowledge updating, lack of practical ability, insufficient cross-cultural communication and teamwork ability are more prominent, while heavy teaching tasks, low enthusiasm of enterprises and imperfect training system jointly restrict teachers' ability improvement and industry adaptation. In order to solve these problems, this article puts forward a series of targeted strategies. The education authorities build a mechanism for improving teachers' ability based on the integration of production and learning. The evaluation system accurately locates the shortcomings of teachers' ability with the help of dynamic evaluation and formulates personalized promotion plans. The incentive mechanism sets incentives to stimulate teachers' self-development motivation. The school-enterprise cooperation platform deepens the cooperation between schools and enterprises, enables teachers to deeply participate in enterprise projects, and enterprise tutors regularly visit the campus to provide guidance, thus realizing two-way communication. Training institutions improve the training system, the curriculum design team enriches the training contents and methods, and the evaluation team strengthens the tracking and feedback of the training effect.

It is expected that these strategies can provide practical ideas for improving the ability and industry adaptability of HVC teachers, push professorship education forward on the road of Industry-Academic Integration, cultivate more outstanding talents that meet the needs of the industry, and contribute to social development. Furthermore, in the future, it is still needed to continue to pay attention to the development trends of HVC teachers and constantly optimize their strategies to meet the needs of rapid industrial changes.

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