

Strategy Analysis for the Cultivation of Application-oriented Undergraduate Teaching Staff*

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Abstract—The application-oriented undergraduate teaching staff, on the one hand, are facing the challenge of training application-oriented talents; on the other hand, they are experiencing the pains brought by various contradictions in the process of transformation and upgrading between Higher Vocational Colleges and application-oriented undergraduate universities. It is particularly important for the survival and development of application-oriented undergraduate universities to build an application-oriented teaching staff with reasonable structure and excellent quality. Based on the concept of "dual-track structure", this paper analyses the connotation of application-oriented teachers from the three dimensions: quantity, structure and quality, and further explores the cultivation strategies from the aspects of talent introduction, young teachers' training, academic qualification improvement and teaching and research ability training.

Keywords—application-oriented teaching staff; connotation; strategy

I. INTRODUCTION

Application-oriented undergraduate faculty refers to a group of people engaged in education, teaching and scientific research in application-oriented undergraduate colleges and universities, including all levels of teachers in teaching, scientific research and management posts.

Teacher team construction refers to the cultivation and management of a team of teachers with reasonable structure and excellent quality, which covers the construction of three dimensions: quantity, structure and quality. The construction of application-oriented undergraduate teaching staff is based on the characteristics and requirements of application-oriented undergraduate colleges and universities, and the reasonable construction and scientific management of application-oriented undergraduate teaching staff in the three dimensions mentioned above.

Application-oriented undergraduate colleges and universities are guided by the market demand for talents, serving local economy and social development, and focusing on training high-level application-oriented talents with strong practical ability in serving the front line of economic construction. For the teaching staff who plays a direct role in

cultivating talents, the specifications of application-oriented cultivation of talents determine that the teaching staff of application-oriented undergraduate colleges and universities should be an application-oriented teaching staff, which is the ultimate goal of the construction of application-oriented undergraduate teaching staff.

In the application-oriented undergraduate colleges and universities upgraded and transformed from the Higher Vocational education, the teaching staff is composed of the original group of personnel. In this special period of cohesion and promotion, the application-oriented undergraduate teaching staff inevitably highlights some problems. At the micro level, this will be involved with such aspects as the change of teachers' educational concepts, the improvement of teachers' teaching methods, the development of teachers' teaching ability, and at the macro level, it will be involved with such aspects as meeting the quantity demand of teachers, the rationality of the structure and so on. Studying and exploring the solutions to these problems, and building up a reasonable structure of application-oriented undergraduate teaching staff with excellent quality are the important prerequisites for the construction of high-quality application-oriented undergraduate colleges and universities.

Based on the characteristics and requirements of application-oriented undergraduate colleges and universities, and on the foundation of analyzing the connotation of application-oriented teaching staff, this research explores the construction strategies of application-oriented teaching staff, aimed at providing theoretical reference for the construction of application-oriented undergraduate teaching staff.

II. ANALYSIS OF THE CONNOTATION OF THE CONSTRUCTION OF APPLICATION-ORIENTED TEACHING STAFF

The development of application-oriented undergraduate colleges and universities follows the general law of general higher education, and meanwhile, it also undertakes the task of serving the local social economy, which determines that application-oriented undergraduate colleges and universities have their own characteristics of application-oriented in the idea of management, the goal of cultivating talents and so on. The most obvious feature is that both disciplinary education and application-oriented education share the equal importance in the cultivation of application-oriented and innovative abilities, which determines that the application-

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oriented undergraduate teaching staff have special requirements that are different from the ordinary teaching staff and can meet the cultivating requirements of application-oriented talents. Therefore, the construction of application-oriented teachers should adhere to the "dual-track structure". The first track refers to the general construction standard of teaching staff in colleges and universities, which is the cornerstone; the second track refers to the special construction standard, the application-oriented standard, which is the core of it.

A. *Quantity Dimension*

Whether the quantity of teaching staff is suitable or not is mainly measured by the ratio of students to teachers. Student-teacher ratio refers to the ratio of the number of students and full-time teachers in colleges and universities. It is an important index used in undergraduate teaching evaluation to judge whether the level of running a university is qualified or not. According to the "Evaluation Indicators and Basic Requirements for the Qualification of Undergraduate Teaching in General Colleges and Universities (Trial Implementation)", the ratio of students to teachers is not higher than 18:1 except for medical, sports and art colleges. With the continuous expansion of the scale of application-oriented undergraduate colleges and universities, the number of disciplines and specialties has increased rapidly, and the problem of insufficient number of full-time teachers has become prominent. In view of the "National Monitoring Report on Teaching Quality of Newly-built Undergraduate Colleges and Universities", the ratio of students to teachers in application-oriented undergraduate colleges and universities is less than 30% of the qualified requirements.

To increase the number of full-time teachers and reduce the ratio of students to teachers enables the number of teachers in all professions to meet the teaching demands of the profession, reducing the workload of teachers, so that teachers have sufficient energy to devote to all aspects of teaching, and promote the quality of teaching and scientific research and innovation ability. Expanding the quantity of teaching staff based on the standard of 18:1 student-teacher ratio is the prerequisite for the construction of application-oriented teaching staff.

B. *Structure Dimension*

The structure of teaching staff belongs to the micro-structure of higher education system. It refers to the staffing and composition relationship of different characteristics of the groups who undertake teaching work in colleges and universities. The traditional structure of teaching staff mainly includes educational background structure, professional title structure, age structure, source structure and so on.

1) *Age structure*: It refers to the average age of teachers and the proportion of teachers in different age groups. It reflects the vitality of teaching and scientific research of teachers, which is the main indicator of the creativity of teachers, and predicts their development potential. The predecessor of application-oriented undergraduate colleges and universities has a certain history of development. There

are a large number of experienced and older teachers in specialized education. With the demand of undergraduate development in recent years, a large number of young teachers have been introduced. The whole teaching staff is thick at both ends of age groups and weak in the middle age group. Normal distribution, age balance and no age gap are the criteria of age structure for the construction of application-oriented teaching staff.

2) *Educational structure*: It refers to the distribution and proportion of teachers with different levels of learning experience, which is the theoretical basis of teachers' professional knowledge and the motive force of academic development. Based on the Indicator System of Basic Conditions for Running Colleges and Universities (Trial Implementation), the proportion of teachers with master and doctor degrees or above should be more than 50%. Some of the application-oriented undergraduate teachers are retained from the teachers at the junior college level, and the proportion of full-time teachers with postgraduate education or above is low. To bring in as many talents as possible who have long-term experience in learning and researching professional theoretical knowledge, and to improve the proportion of higher educational level is the standard of educational structure of application-oriented teachers.

3) *Professional title structure*: It refers to the composition and proportion of the number of teachers with different ranks and titles in the teaching staff, which, to a certain extent, reflects the academic and professional ability of the teaching staff, that is, whether it can train application-oriented talents with innovative ability, whether it can provide a certain level of scientific and technological achievements to serve the local economy and social development. Among application-oriented teaching staff, there should be more than 90% of teachers with professional titles of lecturer or above. The number of teachers with senior application-oriented undergraduate titles is relatively small and the number of teachers with junior titles is relatively large and the distribution pattern of teaching staff with different professional titles is in triangular shape. Creating the professional title structure in inverted triangle distribution is the standard of title structure for the construction of application-oriented teaching staff.

4) *Source structure*: Source structure mainly refers to the structure of graduation origin and experience. Graduation origin structure refers to the proportion of graduates from our university to those who are not from our university in the teaching staff. It is an important indicator of whether the teaching staff is diversified in disciplines and specialties, and a sign of vitality. Breaking the situation of single source and inbreeding, meeting social needs and facing the application fields, and enhancing the construction of teaching staff in specialties with advantages and characteristics are the criteria for the academic structure of application-oriented teachers.

Experience structure, on the one hand, refers to the proportion structure of full-time and part-time teachers.

Combining theoretical knowledge with practice, the team of application-oriented teachers is composed of highly effective full-time teachers and high-quality and high-level experts from different industries and enterprises, which provides effective guarantee for the cultivation of application-oriented talents. On the other hand, experience structure refers to the proportion of teachers who have working experience in different industries and enterprises among the existing teaching staff. Practical experience in different industries and enterprises provides abundant experience for practical teaching of application-oriented undergraduate teachers and avoids empty talk.

Experience structure is an important aspect of the special standards for the construction of application-oriented teaching staff and an important guarantee for the improvement of practical teaching ability.

C. *Quality Dimension*

Compared to quantity and structure, the quality of construction of application-oriented teaching staff mainly refers to the quality and ability of teachers at the micro level, including moral quality, knowledge ability and teaching and scientific research ability.

1) *Moral quality*: Teachers are regarded as engineers of human soul. Teachers' ideological and political quality and professional ethics directly affect the healthy development of college students. With firm ideals and beliefs, they are supposed to love education, rigorously study, carry out research on professional technology. With a strong sense of responsibility, they should care for students, and offer the correct guidance to the values of their students. These mentioned above are the entry threshold for all types of teachers at all levels. Application-oriented undergraduate teachers are no exception.

2) *Knowledge and ability*: Comprehensive and creative application-oriented talents should have a deep theoretical foundation and a wide range of knowledge, which determines that application-oriented teachers themselves should have solid and open theoretical foundation and be good at expanding and improving the knowledge system. In addition to grasping the basic knowledge, academic frontiers and development trends of the subjects, application-oriented teachers should also grasp the relevant knowledge of professional practice. For example, they are supposed to be familiar with mature technical knowledge in relevant professional fields, master relevant operational skills and business management technology, and have high problem-solving ability.

Professional practical ability is the basis of practical teaching ability of application-oriented teachers and the special standard of knowledge ability for the cultivation of application-oriented teaching staff.

3) *Teaching and research ability*: Scientific teaching concept, advanced teaching method and reasonable teaching organization form are important elements to guarantee good teaching effect and embody higher level of teaching ability.

The applicability and professionalism of application-oriented talents determine that the teaching level of application-oriented teachers is not only reflected in these basic elements, but also in their "double-teacher" characteristics, which means that they can not only be a "theoretical lecturer" and competent for the teaching of professional theoretical knowledge, but also a "technology instructor", teaching skills and guiding practice, and cultivating students' ability to apply theory to practice, solving problems, and their creativity [2].

In general colleges and universities, the improvement of teachers' scientific research level is helpful for them to grasp the frontier knowledge of disciplines and enrich the knowledge reserve, so as to improve the level of theoretical teaching. Meanwhile, teachers' innovative ability can be trained by finding and solving problems in the process of scientific research. Application-oriented teachers should possess higher scientific research literacy, intensify applied research, improve the level of theoretical teaching and innovative ability, at the same time, provide more scientific and technological achievements for local economic development, and fully reflect the nature of serving the society of application-oriented undergraduate colleges and universities.

Practical teaching ability and applied research ability are the special criteria for the construction of teaching and research ability of application-oriented teaching staff.

III. STRATEGIC ANALYSIS OF THE CONSTRUCTION OF APPLICATION-ORIENTED TEACHING STAFF

A. *Expanding the Introduction of Talents and Adjusting the Scale of Teachers*

Talents introduction is the key to the construction of teaching staff for application-oriented undergraduate colleges and in a certain period. In the process of introducing teachers, the first is to expand the introduction of qualified teachers with high academic qualifications, professional titles and high quality under the guidance of discipline and specialty construction. The second is to introduce a group of full-time teachers with rich practical experience from different industries and enterprises with the goal of professional practical ability. The third is to employ a group of high-quality and high-level experts from different industries and enterprises as part-time teachers of corresponding disciplines and specialties oriented by social demands. Employment should be based on practical principles, pay attention to professional consistency, have good professional ethics, and have certain teaching ability. Build a team of application-oriented teaching staff combining theory with practice, full time and part-time through diversified ways.

B. *Enhancing the Cultivation of Young Teachers and Improving the Age Structure*

The proportion of young and middle-aged teachers in application-oriented undergraduate colleges and universities is relatively large, which is the main force of the teachers. Young teachers, as green hands, have a certain theoretical

knowledge reserve, but they have no long-term practice, only with rough experience. There are many ways to cultivate young teachers' professional knowledge and skills. Firstly, pre-job training should be strengthened and the training of basic teaching skills of young teachers should be enhanced; secondly, it is needed to exert our teamwork strength, inviting the old teachers to play the role of passing on, helping and leading the young teachers; thirdly, it is necessary to carry out school-enterprise cooperation to encourage young teachers to work in enterprises; fourthly, it is needed to select key young teachers to study in famous universities at home and abroad. These measures enable young teachers to grow rapidly through various ways, which, to a certain extent, reduces the contradiction brought about by the age imbalance of the teaching staff [3].

C. Supporting the Upgrade of Academic Qualifications and Optimizing the Structure of Professional Titles

The level of academic qualifications and professional titles of teachers plays an important role in the quality of running a college. further education through on-the-job postgraduate study should be encouraged so as to enhance the educational level and quality of teachers; strengthen the construction of subject leaders and build a teacher echelon in the process of teaching and research; provide supporting policy and environment for teachers' promotion; launch the "Excellent Talents Team Building Plan"[4], and set up special funds for innovative teams and teaching teams, top-notch talents support plan, and the young and middle-aged academic leader support program, the young academic backbone support program and the famous teachers support program, etc. Boost the professional competitiveness and speed up the overall upgrading of academic qualifications and titles of application-oriented teaching staff.

D. Strengthening the Construction of Teachers' Morality and Virtue and Improving Teachers' Quality

It is necessary to construct a network of teachers' morality and virtue of teaching in which colleges, teachers, students and teaching supervisors are all engaged, and infiltrate the construction of teachers' morality and virtue into all aspects of education and teaching. Enhance teachers' spirit of career, sense of responsibility and professionalism. When introducing teachers, it is necessary to pay attention to the assessment of teachers' morality; organize relevant meetings to increase the propaganda and education of teachers' morality and virtue; set up records of teachers' morality in teachers' teaching; and incorporate the evaluation criteria of teachers' morality and virtue into teachers' evaluation system.

E. Emphasizing the Training of Applied Ability and Improve the Ability of Teaching and Research

The training goal of Application-oriented Undergraduate Talents determines that application-oriented teaching staff should have a broad theoretical knowledge base and a strong ability to solve practical problems. This requires the application-oriented teachers to possess the characteristics of "double teachers" [4]. On the one hand, according to the requirements of training application-oriented undergraduate talents, the existing teaching staff is classified and reformed,

and the application-oriented undergraduate teachers are classified into theoretical and practical ones according to their abilities, specialties and development visions. The teaching of theory and practice has its own emphasis, and meanwhile, reasonable division of labor and cooperation should be carried out among them.

On the other hand, full-time teachers are encouraged to participate in technological transformation and development of science and technology in enterprises so as to enable them to master more operational knowledge and skills; full-time teachers are integrated into enterprises through the cooperation of production, teaching and research, so as to grasp the requirements of practical skills of the talents they need, so as to guide the improvement of their teaching level, which will help cultivate their "double teacher" quality.

F. Improving the Construction of Institutional Environment and Promoting Management Effectiveness

It is necessary to further improve the system construction, which enables the introduction of teachers, training, development and other links to be rational and evidence-based. Create a good environment for teachers' professional development, establish incentive and restraint mechanism, provide a broad platform for application-oriented undergraduate teachers' teaching and scientific research, and strive for more projects. Establish and improve the evaluation index system of applied teachers, and comprehensively assess the level of theoretical and practical teaching ability. Enhance the monitoring of teaching process and teaching quality, and promote the improvement of teaching ability. Actively guide and encourage teachers centered on the training objectives of application-oriented talents, in view of their own strengths and potential, reasonably positioning themselves, accurately developing their careers, which will help facilitate the construction of application-oriented teaching staff more effectively.

IV. CONCLUSION

Application-oriented teaching staff should be composed of a team of full-time and part-time teaching talents with balanced age groups, higher educational background, balanced professional titles, who have good moral literacy, solid professional theory and practical knowledge, higher theoretical and practical teaching ability and strong scientific research and innovation ability. Guided by the concept of "double track structure", it is needed to clarify the general construction standards and special construction standards, and build an application-oriented teaching staff by introducing skilled experts and high-quality talents from different industries and enterprises, rebuilding the existing teachers educational level and teaching and research ability with the goal of "double teachers", and actively constructing the environment for cultivating practical and innovative abilities.

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