Teaching Management Work Model of Higher Vocational Colleges Based on Computer Technology

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Abstract. With the rapid development of computer technology in modern society, it has had a large and small impact on all aspects of our lives. Among them, the one million enrollment policy has a great impact on the future development path of higher vocational colleges, and the teaching management mode of higher vocational colleges based on the one million enrollment policy has also undergone great changes with this policy. In this situation, the teaching management mode of higher vocational colleges has major challenges and rare opportunities. In meeting these challenges and opportunities, higher vocational colleges should use computer technology management methods and innovations derived from computer technology. The method is applied well. This article is based on some problems such as poor student base, insufficient teaching staff and old management methods faced by higher vocational colleges after the expansion of one million enrollment, and through the calculus algorithm in computer technology, it is based on computer technology. A series of research and discussion were conducted on the teaching management mode of the school after the enrollment expansion of one million. The enrollment expansion by one million in higher vocational colleges is of great significance for promoting the reform of personnel training policies, deepening the reform of the teaching management mode of higher vocational colleges, expanding the growth and development space of students, and alleviating the employment pressure of students. In the context of the expansion of enrollment based on one million in higher vocational colleges, such a large-scale increase poses new challenges to the faculty of higher vocational colleges, and the diversity of needs also poses new challenges to the teaching management mode of work, so many people The resulting complexity also poses new challenges to teaching management. To deal with these challenges, higher vocational colleges should deepen teaching reform, explore new ways to combine education and training; strengthen the construction of the teaching team; and innovate teaching management work models. The experimental results show that after the enrollment of higher vocational colleges under the computer technology is expanded by one million, the teaching management mode of higher vocational colleges should change.

Keywords: Computer Technology, Higher Vocational Colleges, One Million Enrollment Expansion, Teaching Management Mode
1. Introduction
The educational goal of higher vocational colleges is to cultivate professional talents that meet the needs of the market. They have a unique position in solving social employment problems and are one of the main sources of talent output [1]. In the past expansion of enrollment, the talent training program of higher vocational colleges has a tendency to tilt towards ordinary higher education institutions, which makes its own development lose its uniqueness, and the competitive advantage of graduates of higher vocational colleges has also been weakened to a certain extent. Therefore, the millions of enrollment expansion policy is actually a good opportunity for the transformation and development of higher vocational education management mode [2]. In the next step of the work, the source of social students is widely added to the education of higher vocational colleges, and the teaching management work mode of higher vocational colleges is bound to change. Driven by the changes in the number of students and the structure of student sources, the development of higher vocational colleges The foreground will be brighter and brighter [3].

Under the background of the continuous expansion of the application field of computer technology, the integration of computer technology into the teaching management mode of higher vocational colleges is the need for management information [4]. Due to the introduction of computer technology, the overall level of teaching management work mode has been improved. Due to the application of computer technology in teaching management, there are still many problems that need to be solved [5]. The application of computer technology also requires the establishment of a new management model. After the management model is innovated, a new management method is needed [6]. For example, due to the application of computer technology, relevant personnel engaged in teaching management must master the application of software and ensure the security of computer information. Due to the continuous development of higher vocational colleges, the types of teaching management are also diversified, and the amount of management information will increase. Different departments have realized information sharing, which is conducive to improving management efficiency [7].

Under the background of the enrollment expansion of one million in higher vocational colleges, the existing teaching management work model of higher vocational colleges is difficult to meet the actual requirements. The obsolete teaching management work model is mainly reflected in two aspects: simple methods and lack of individuality [8]. On the one hand, when higher vocational colleges are developing teaching management work models, they still value the management content that can be quantified, that is, the evaluation of student test scores, etc., and they are relatively indifferent to some difficult-to-quantify evaluation items, such as the improvement of students' comprehensive ability. The development of learning habits, etc., this approach can easily lead to the superficial model of teaching management [9]. On the other hand, in the management of students in higher vocational colleges, they have not implemented individualized methods, that is, facing students with different personalities or growth backgrounds, they have adopted homogeneous management methods, which caused some students to fail to meet their own growth laws. This makes the teaching management after the expansion of one million enrollment more risky. Because the structure of the source of students after the expansion of one million is more complicated, a single management method is not conducive to the improvement of students' ability [10].

2. Method

2.1 Computer Calculus Algorithm
During the development of the theory of fractional calculus, many definitions of fractional calculus appeared.
CAuchy fractional integral definition:

\[
D^q f(t) = \frac{\Gamma(q+1)}{2\pi i} \int_{C} \frac{f(T)}{(T-t)^{q+1}} dT
\]  

(1)

In the formula, \( q \) is the order of fractional integration, \( C \) is the smooth curve of \( f(t) \) single value and analytical open area, and \( \Gamma \) is the gamma function.
The RiemAnn-Liouville fractional integral is defined as:

$$^{0}D_{a}^{-q}f(t) = \frac{1}{\Gamma(q)} \int_{a}^{t} (t - \tau)^{q-1} f(\tau) d\tau$$  \hspace{1cm} (2)

In the formula, 0<q<1, a and t are the upper and lower limits of the integral. If 1<q<n, n ∈ N, then the fractional differential is defined as:

$$^{0}D_{a}^{q}f(t) = \lim_{h \to 0} \frac{1}{h^{q}} \sum_{j=0}^{\lfloor \frac{t-a}{h} \rfloor} \frac{(-1)^{j} \Gamma(q+1)}{j! \Gamma(q+1-j)} f(t - jh)$$  \hspace{1cm} (3)

Grunwald-Letnikov fractional calculus is defined as:

$$^{0}D_{a}^{q}f(t) = \lim_{n \to \infty} \frac{1}{h^{q}} \sum_{j=0}^{\lfloor \frac{t-a}{h} \rfloor} \frac{(-1)^{j} \Gamma(q+1)}{j! \Gamma(q+1-j)} f(t - jh)$$  \hspace{1cm} (4)

In the formula, h is the step size, and [X] represents the rounding of X. When q>0, this formula represents fractional order differential; when q<0, this formula represents fractional integral.

2.2 Adjust the Organizational Structure to Ensure the Normal Operation of the Teaching Management Mode

Under the background of the enrollment expansion of one million, higher vocational colleges must use efficient information-based teaching management methods to ensure the smooth operation of various teaching management tasks in the school and provide reliable, feasible and credible management for the teachers and students of the school. In order to promote the integration of computer technology, the organizational structure of higher vocational colleges should also be adjusted to some extent, appropriately delete and adjust some human jobs that can be replaced by computer technology, streamline teaching management personnel, and then obtain with the assistance of computer technology Higher management efficiency.

2.3 Develop Software Functions to Improve the Quality Operation of Teaching Management Work Mode

With the development of the computer age, the development of the electronic software industry is becoming more and more mature. Many companies are very good at designing educational service software, and many software suitable for teaching management in higher vocational colleges have appeared in the market. Therefore, after the enrollment expansion of one million, higher vocational colleges can cooperate with related enterprises, provide the educational management needs of the school to the enterprises, and develop related software together with the enterprises, and adjust them according to the current needs. In addition, in order to ensure the correctness of the software development direction, higher vocational colleges must dig deeply into the needs of students in the teaching management work, especially after the student source structure changes, teachers can no longer speculate on students based on previous ideas In my mind, I should communicate with non-graduate high school graduates more and tap the key direction of teaching management from their growth background and current learning needs.

2.4 Strengthen Data Management and Promote the Efficient Operation of Teaching Management Mode

After using computer technology, teachers in higher vocational colleges can collect more information when conducting teaching management work, and use the functions of computer technology software to analyze it. On the one hand, teachers in higher vocational colleges can use the data analysis function of computer technology to monitor students' attendance, after-school learning, and internship, and use the big data analysis function in each semester or school year to unite with brother colleges Let's explore the new characteristics of the student population after the enrollment expansion of one million. On the other hand, higher vocational colleges should also do a good job in data security management, protect the data related to school secrets or student privacy, and hire full-time personnel to escort the
school's data management. Only by doing a good job of data management can the teaching management of higher vocational colleges run efficiently and adapt to the teaching practice after the enrollment of one million is expanded more quickly.

3. Experiment

3.1 Subject
As a major policy in the development of higher vocational colleges and even higher education in recent years, the expansion of one million enrollment requires in-depth and extensive publicity to clarify people's understanding of this, because understanding and recognition of meaning is the basis for ensuring the effect of policy implementation. For higher vocational colleges, the expansion of one million enrollment will bring many problems to school development, including enrollment, teaching, management, and even student accommodation. Waiting for these specific problems to be analyzed and solutions are proposed. To achieve the goal of expanding enrollment by one million, higher vocational colleges should not only be satisfied with providing the basic conditions for enrolling students to learn, but also paying close attention to the new changes and new requirements brought to teachers by enrollment expansion. For this reason, the teaching work of teachers in higher vocational colleges is of great significance, and higher vocational colleges need to attach great importance to it. This article uses computer calculus algorithm to find the information about the millions of enrollment expansion in higher vocational colleges across the country, and through the integration, analysis and comparison of the data, explores the teaching management mode of the higher vocational colleges after the enrollment of millions of enrollment.

3.2 Experimental Method
(1) Literature research method
Through the collection, screening and sorting of relevant documents, a preliminary scientific understanding is formed. This thesis mainly collects information on the scale of enrollment expansion of one million in higher vocational colleges in various regions to provide literature support for the thesis research.

(2) Qualitative research methods
Conduct in-depth investigation and analysis through experience, and then gain an understanding of things, which is mainly used to determine the nature and type of the object. The theory

(3) Case study method
It connects theory with practical analysis methods through actual cases. Generally, specific case analysis is used, and specific case analysis is used to find out the internal laws with the importance of general practical policies and derive general principles or theories.

(4) Statistical analysis
This article sorts out the collected sample data, and verifies and modifies the model in the article based on the statistical method of structural equation and statistical software.

4. Results
It can be known by collecting national data and combining with computer calculus algorithm. In recent years, the overall enrollment scale of higher vocational colleges across the country has remained relatively stable. In 2014, the number of new vocational colleges nationwide was 3.4 million, and in 2018 it was 3.758 million. As shown in Figure 1.
Figure 1. Enrollment scale of higher vocational colleges in my country in recent years

It can be seen from Figure 1 that the overall enrollment scale of higher vocational colleges in my country is growing very steadily. On this basis, the scale of the enrollment source of the Million Enrollment Expansion Program accounted for 27% of the total enrollment scale in 2019, and the number of enrollment expansion is very large. Creatively incorporate veterans, laid-off and unemployed persons, migrant workers and new-type professional farmers into the scope of expansion of higher vocational colleges, and no longer rely solely on the source of nationally-aged graduates every year. It can be said that it has fundamentally solved the expansion of higher vocational colleges. The source of students.

After the enrollment expansion of vocational colleges by one million, there are relatively many problems in the teaching management mode of teachers, but there are roughly several important problems, as shown in Table 1.

Table 1. Summary of the problems in the teaching management model of the millions of enrollment expansion in higher vocational colleges

|                          | Teacher teaching management is marginalized | Incomplete development of teaching management institutions | Teacher teaching management work is not preparing for the expansion of one million |
|--------------------------|--------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------|
| Higher Vocational Colleges in East China | 50%                                       | 23%                                                     | 27%                                                                             |
| Higher Vocational Colleges in North China | 37%                                       | 30%                                                     | 33%                                                                             |
| Higher Vocational Colleges in Central China | 44%                                       | 25%                                                     | 31%                                                                             |

It can be understood from Table 1 that the teaching management mode of higher vocational colleges in East China, North China and Central China has not changed after the expansion of one million, making them unable to cope with the problems arising from the expansion of one million. First, the expansion of one million enrollment puts forward new requirements on the talent training process, specifications and quality standards, and it will inevitably put forward new requirements on the teaching process, teaching environment and teacher ability. Strengthening the construction of the teaching staff and promoting the improvement of teachers' ability through the development of teachers'
teaching work is the only way to meet the new requirements. Second, the leaders of higher vocational colleges should deepen the recognition that the teaching management of teachers is the foundation of school development, and realize the development of the school's connotation by promoting the development of teachers' teaching management. Third, through the integration of various training plans inside and outside the school, to meet the needs of school development for the common development of teachers and the needs of teachers' individual professional development, and provide teachers with school-based professional development services.

This article uses a questionnaire to investigate the views of teachers in several local vocational colleges on whether the teaching management work model should be changed after the expansion of one million, as shown in Figure 2.

![Figure 2. Teachers' views on the teaching management work model](image)

It can be seen from Figure 2 that the teaching management work model of most teachers should have changed after the enrollment of one million is expanded, because the previous teaching management work model is no longer applicable to higher vocational colleges. For teachers, one million enrollment is not a simple increase in the size of students, and the heterogeneity of students will also increase greatly. Retired military personnel, laid-off workers, new farmers, etc. constitute the main body of the expansion of one million enrollment. They are very different from the traditional source of higher vocational students such as ordinary high school graduates and secondary vocational graduates. They have different experiences and backgrounds, their learning goals are also different, and their expectations of teachers' teaching management work mode after entering higher vocational colleges are also different. Therefore, the teaching management work mode of higher vocational colleges should be changed.

5. Conclusion
This paper uses the calculus algorithm of computer technology to carry out a series of research and discussion on the teaching management mode of higher vocational colleges after one million enrollment expansion. After the implementation of the one million enrollment policy, higher vocational colleges have ushered in the spring of development, and they are also facing greater challenges. Problems in the source of students, teachers and management are endless. Higher vocational colleges should use more advanced teaching management methods to deal with them carefully, Combined with "computer technology" for information management. When optimizing the teaching management mode, higher vocational colleges can choose to integrate conventional teaching management and information technology with the assistance of computer software, so that the teaching management work can run smoothly, with high quality and efficiency. Education serves the
country. Higher vocational colleges should focus on their own function of serving the society, reform the existing education and operation models, strengthen the construction of teaching staff and school-enterprise cooperation, and introduce more advanced and effective talent training models and policies. And development policies, etc., to build a reasonable and comprehensive teacher evaluation system to encourage them to improve their own level, jointly study social needs, and better serve the society. In short, one million enrollment expansion is both an opportunity and a great challenge for the teaching management of higher vocational colleges.

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