Design of Teaching Quality Monitoring System Based on Professional Development of Teachers in Colleges and Universities

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Abstract. As one of the leading factors affecting the quality of teaching (tea), the professional development of teachers not only directly affects the current tea quality, but also determines the future development of colleges and universities. Therefore, the research of tea quality monitoring based on the professional development of college teachers has important theoretical value and practical significance for ensuring and improving the tea quality of colleges and universities. According to the survey, 37% of the papers searched with "higher education" as the keyword, 26% of the papers searched with "university tea quality monitoring system" as the keyword,1053 papers searched with "university teaching quality monitoring" as the keyword, quality "and 20 papers in the degree database.

Keywords: University teachers · Professional development · Teaching quality · Monitoring system

1 Introduction

With the rapid development of mobile Internet technology and the introduction of the national "Internet" action plan, it is imperative to integrate the Internet into the traditional industry. For colleges and universities, information technology makes information feedback faster, realizes real modern management, and lays the foundation for the future development of schools. Therefore, using information technology to promote tea quality monitoring and evaluation is a necessary means to realize educational modernization. To promote scientific and standardized management of tea quality monitoring.

The design of tea quality monitoring system based on the professional development of college teachers has attracted the interest of many experts and has been studied by many teams. For example, some teams found that according to developmental psychology, young people under 35 are still in the period of personality formation, which is also an important period for the vigorous development of self-consciousness, the rapid expansion of the field of social life, and the further establishment of values and outlook on life. If university teachers are not aware of the responsibilities and obligations entrusted to them when they are young, they are likely to leave the university because of the pursuit of material goals and lose their "professional development" opportunities. On the other

Z. Zhan et al. (Eds.): EIMSS 2022, AHCS 7, pp. 800–808, 2023.
https://doi.org/10.2991/978-94-6463-024-4_84

hand, it may deviate from the goals of "teaching" and "scientific research" because they emphasize "teaching" or "scientific research" differently in their respective environments [1]. As teachers and researchers, the goal of teachers' professional development is to have a certain degree of professionalism in teaching and scientific research, which cannot only meet the needs of students' development, but also serve others with their own scientific research achievements. There are many factors that affect the professional development of college teachers. Here we can attribute it to three categories: personal, material and environmental factors [2]. Some teams have found that in order to ensure the quality of higher education and the coordinated development of scale, quality and efficiency, the internal tea quality monitoring system at home and abroad should be adopted to monitor the tea quality monitoring system from the perspective of informationization and operation monitoring of the teach quality monitoring system, which should include the following contents: teaching quality objectives and decision-making system, information system, evaluation system, guarantee system, incentive system and feedback system [3]. Others found that from the history of higher education, teach quality is one of the driving forces to promote the development of higher education. The Humboldt Reform of Berlin University in Germany is of epoch-making significance in the history of higher education in the world. The thought of Humboldt Reform is mainly embodied in three aspects: first, the ultimate goal of education is to cultivate a complete person; second, the principle of unity of teaching and research; third, advocating knowledge and seeking truth [4]. After Humboldt's reform, the teaching quality of western universities has taken on a new look. It not only makes Germany in the leading position of science and technology and economy in the next few decades, but also makes the teaching quality pay more and more attention to by developed countries. The tea quality of higher education in developed countries such as Europe and America has been in the forefront of the world, which is inseparable from the monitoring and guarantee measures of teaching quality in colleges and universities in these countries. Therefore, studying the present situation of teaching quality control system in developed countries has a strong reference significance for improving the teaching quality of colleges and universities in China [5]. The development of economy and society needs to be realized through the improvement of talent quality. The competition of talents is an important feature of economic globalization, and the international competition of higher education is becoming increasingly fierce [6]. In the fierce international competition, colleges and universities must meet the needs of economic globalization by improving the quality of talent training. Tea quality monitoring is an important means to improve the quality of talent training. In order to achieve the quality of talent training and certification in accordance with international standards, teaching quality monitoring and assurance should not only be based on the local, but also look around the world [7]. Although their research results are very rich, but there are still some shortcomings.

This paper expounds in detail the construction process of the tea quality monitoring and evaluation system in colleges and universities, and establishes a network system which can freely customize the teaching monitoring and evaluation business, which can play an important role in promoting the improvement of teaching quality.

2 Method

2.1 The Countermeasures for the Professional Development of Teachers in Colleges and Universities

College teachers should create a scientific concept of development, which is the theoretical premise of promoting practical development. College teachers must establish a good concept of self-improvement in theory, actively explore scientific development methods, and provide a solid guarantee for self-improvement and self-development. Teachers should constantly innovate their ideas, improve their teaching quality in an all-round way, restrain themselves with strict requirements, and build themselves into a high-quality teacher. It is necessary to establish a scientific development goal, find out its own defects in a timely manner, formulate scientific rectification measures, and stick to the goal without wavering, and work hard toward the goal with perseverance.

In addition, actively participate in professional development, and actively participate in activities and training. In the process of professional development of college teachers, it is the key to actively establish the awareness of self-development and self-renewal; it is also necessary to increase academic exchanges with other teachers, check and fill gaps, find out their own shortcomings, improve the integration of subject knowledge, and create a high-quality working atmosphere. Comprehensively improve professional quality and teaching skills. The teaching profession puts forward higher requirements for teachers' professionalism, and only with a very high professionalism and dedication can teachers provide guarantee for the development of teaching work. Teachers should not regard teaching as a tool for survival, and the strong utilitarian nature can easily make teachers have psychological deviations, resulting in the phenomenon that the results of re-evaluation ignore the teaching effect. Teachers must improve their loyalty to their own work, enrich and improve themselves in continuous learning, and then apply what they have learned to practical teaching, so as to comprehensively improve teaching effectiveness and promote the smooth development of teaching work. Teachers should treat teaching as a kind of enjoyment, respect students' physical and mental development, gain respect in the process of imparting knowledge, and then enhance their sense of self-identity? Teachers have heavy tasks, trivial work, relatively monotonous teaching life, and repetitive work is boring. In order to improve teaching effectiveness, teachers must rationally adjust their mentality, enrich their spiritual life, actively explore a better quality of life, and then improve the recognition of teaching work. Only in this way, teachers' professional passion can be awakened, work enthusiasm can be enhanced, and work effectiveness can be highlighted. Teachers must face things in the teaching process with an optimistic and positive attitude, fully tap the fun in work, experience the value of work, impart knowledge to students, teach students the principles of life, and gradually improve their sense of mission in the teaching industry. Toward self-realization.

2.2 Human Behavior Recognition Algorithm Based on 3DCNN

After the judgment matrix is obtained, the weight is obtained by summation method [8]. The judgment matrix is normalized, that is, each number in the matrix is divided by columns, the normalized matrix is obtained, then each row is added, then the order is

divided to obtain the weight variable W, then λ max get the maximum feature root, as shown in formula (1), the consistency index CI, as shown in formula (2), considering that the consistency deviation may be caused by random reasons, it is necessary to compare the CI with the average random consistency index RI to judge the satisfactory consistency of the matrix. CR < 0.1, pass the examination, as shown in formula (3) [9].

$$\lambda \max = \frac{1}{n} \sum_{i=1}^{n} \frac{(Aw)_i}{w_i} \tag{1}$$

$$CI = \frac{\lambda \max - n}{n - 1} \tag{2}$$

$$CR = \frac{CI}{RI} \tag{3}$$

2.3 Analysis of Teaching Quality Evaluation Data

For the individual sample of the teacher, the quantitative result of his evaluation is an absolute value, which has no comparative value and cannot reflect the position of the individual in the whole and the gap with the whole. In this case, in order to reflect the relative position of the individual in the population and the gap with the population, we introduce the mathematical statistic "variance", which is used to describe the degree of dispersion of random variables. The greater the deviation, the more scattered the value of random variables. For a sample (x1, x2, …, xn), formula (4) is called the variance of the sample, where formula (5) is the mean value of the sample [10].

$$S^2 = \frac{1}{n-1} \sum_{i=1}^{n} (x_i - \overline{x})^2 \tag{4}$$

$$\overline{x} = \frac{1}{n} \sum_{i=1}^{n} x_i \tag{5}$$

2.4 Calculation of Maximum Eigenvalue

Calculate the maximum eigenvalue λ max, as shown in formula 6 [10].

$$\lambda_{\max} = \frac{1}{n} \sum_{i=1}^{n} \frac{(Aw)_i}{w_i} \tag{6}$$

3 Experiment

Source of Experimental Data. Based on the investigation and analysis of the present situation of teachers' professional development and tea quality monitoring in colleges and universities, this paper puts forward different tea quality monitoring theories. In view of the problems of teachers' professional development in colleges and universities, this paper first draws lessons from the existing research results, systematically explains the theory of teachers' professional development, and then discusses the principles, models and measures of teaching quality monitoring based on the professional development of college teachers.

Experimental Design. It mainly adopts the research methods of collecting data, investigating and analyzing, integrating theory with practice and seeking truth from facts, and constructs the tea quality monitoring system of colleges and universities from a certain perspective and depth, that is, the teaching quality evaluation standard system, the system guarantee system, the quality monitoring method and the organization management system.

4 Result

4.1 An Analysis of the Problems of Teaching Quality Monitoring by Classification

It is a characteristic of higher education research, which is divided into general higher education, distance higher education, adult higher education and higher vocational education. By combing the retrieved literature, the literature is statistically classified according to the type of higher education, the type of university and the level of degree, as shown in Table 1.

Table 1. Literature statistics of different types of colleges and universities

Classification		Number of documents
Type of education	General undergraduate	114
	Higher vocational education	137
	Adult higher education	36
Type of university	Teaching research universities	5
	Local undergraduate colleges	17
	Local undergraduate colleges	10
	New undergraduate colleges	34
	Independent college	44
	private higher learning institution	17
Degree level	Undergraduate education	46
	Postgraduate education	10

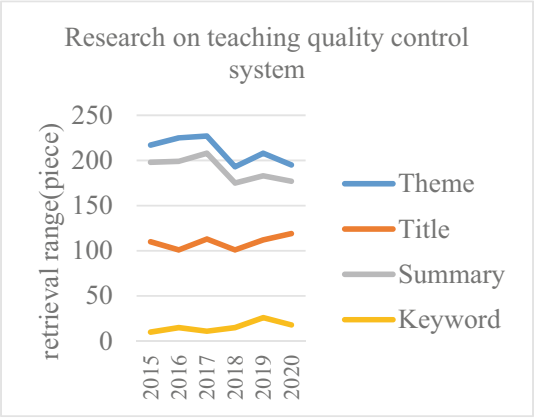

Fig. 1. 2015–2020 teaching quality control system

4.2 Analysis of Autonomous Access Control Method

Searching the 2015–2020 literature with the theme, title, abstract and key words of "Teaching Quality Control System" of China Zhiwang, 2212, 1340, 2053, 178, As shown in Fig. 1, among them, less analytical literature on publication time and volume, since 2018, the academic research of teaching quality control system has gradually increased, after 2019, a significant growth rate, after reaching its peak in 2020, gradually entering a slightly declining but relatively stable state, visible, although the research of "teaching quality control system" has an impact on the research of hot issues such as innovative entrepreneurship education, but still maintain a high research heat, is developing to a deep level.

4.3 Analysis on the Investigation of the Current Situation of Monitoring Tea Quality in Colleges and Universities

In fact, each university has some basic tea quality monitoring behaviors, such as setting tea quality goals, teaching inspection, listening to classes, organizing students to discuss, evaluating teaching and feedback teaching information. As one of the main objects of teaching quality monitoring, college teachers have the most profound feeling and understanding of tea quality monitoring behavior in colleges and universities. In the questionnaire of college teachers, 5 to 11 problems are related to teaching quality control. From the statistical results, we think that the current situation of tea quality monitoring in colleges and universities is as follows: first, the goal-oriented role of tea quality monitoring in colleges and universities is remarkable. Generally speaking, the determination of teaching quality goal is the first step of tea quality monitoring in colleges and universities. In this sample survey, 81.21% of the teachers understand the school talent training goal, 82.42% understand the professional training goal and 87.2% express the understanding of the subject knowledge teaching goal. In addition, the number of college teachers who pay more attention to and attach importance to these teaching quality objectives in the teaching process is far more than the number of college teachers who

Table 2. Table on the importance attached by university teachers to teaching objectives at all levels

Specific circumstance	Are you aware		
	Yes	No	a little
Training objectives in schools	134	22	9
Training objectives for professionals	136	19	10
Personnel requirements of employers	119	35	11
Subject knowledge teaching objectives	144	12	9

do not pay much attention to and attach great importance to them, as shown in Table 2. In the process of tea, college teachers choose the option of paying more attention to the goal of tea quality, which shows that they have a strong sense of quality, and the effect of teaching quality goal on ensuring teaching quality is obvious. Establishing teaching quality goal is one of the effective teaching quality monitoring behaviors to guide college teachers to improve teaching quality.

4.4 Analysis of the Status of the Third Party Payment Platform

Teaching supervision is a management form of monitoring the tea quality of colleges and universities under the leadership of the principal in charge. The significance of teaching supervision lies in supervising and guiding classroom teaching, focusing on checking and guiding teachers' teaching ability, professional level, teaching effect and methods embodied in classroom teaching, and urging teachers to continuously improve and improve their teaching level and professional accomplishment. The teaching supervision group is composed of school leaders, department heads, teaching supervisors and peer experts. The rationality of the teaching team structure lies in the fact that the teaching supervisors listen to the class at most, followed by the dean, peer experts, college leaders and school leaders. In addition, from statistical data and interviews, it can be seen that attendance has a relative impact on improving the quality of tea, with the greatest impact being on peer experts, followed by heads of departments and teaching supervisors and college leaders. The survey found that peer experts are familiar with the difficulty of teaching courses and give more targeted opinions. The dean is a peer expert, of course, the impact is greater, because they are not at one level, people are always leaders, opinions in various aspects may be more considered, many teaching supervisors are different from their own subjects, the help to improve the quality of tea is mainly a guide in teaching skills, certainly slightly lower than peers, The influence of the head of the department (Fig. 2).

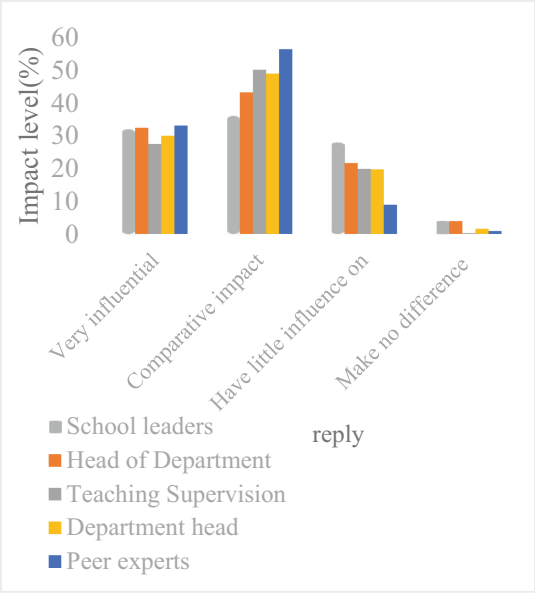

Fig. 2. Survey of attendance and impact of teaching staff

5 Conclusion

At present, the knowledge economy has had a profound impact on all aspects of human society, the trend of economic globalization is accelerating day by day, the industrial transfer in the world is irreversible and accelerating. In order to realize the leapfrog development of higher education in China, we should not only increase the number of talents, but also require their quality.

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