Construction of College English Teaching Effect Evaluation Model Based on Big Data Analysis

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Abstract: Nowadays, one of the most widely used languages in the world is English. Therefore, College English classroom teaching has been listed as one of the key indicators of college curriculum construction evaluation. Big data, especially education big data, support and change the teaching mode is an inevitable trend of human social development, and is the product of the deep integration and innovation of information technology and modern education and teaching development. The teaching evaluation system constructed in this paper gives full play to the advantages of big data to carry out targeted classroom teaching evaluation of College English courses. The optimized College English classroom teaching evaluation system realizes the diversification of evaluation subjects, combines formative and summative evaluation, and comprehensively applies quantitative and qualitative evaluation.

1 INTRODUCTION

In recent years, the state has increased many investments in College English teaching, but the improvement of teaching effect is not significant. The research results show that the lack of a scientific and reasonable evaluation system for College English classroom teaching is one of the important factors (M Martínez-Gómez,Sierra J,Jabaloyes J, et al., 2011). Classroom teaching evaluation can effectively improve teaching efficiency. Only by constructing a multi-dimensional classroom teaching system with the characteristics of College English curriculum itself can we ensure the standardization of the evaluation process and the rationality and fairness of the evaluation results (Yueh, Chen, Chiu, et al., 2012). With the development of education big data, the impact of big data on education is bound to be based on classroom teaching mode (Aslan, Aydin, 2015; Steinberg, Kraft, 2017). That is, one of the important directions of many current educational reforms is data-based teaching and learning.

Teaching effect evaluation refers to the comprehensive, objective and fair evaluation and judgment of teachers' quality, work process and work performance by using the theories, methods and techniques of educational evaluation according to the policies, regulations and the training objectives and requirements of schools (Liu 2020). Internet-based big data provides a new possibility for optimizing college English classroom teaching evaluation. This is because "big data is a comprehensive description of capturing, processing, analyzing and managing other information related to a number", and its information is characterized by mass, high frequency and diversity (Chen 2021).

2 COLLEGE ENGLISH CLASSROOM EVALUATION

2.1 The Meaning of Classroom Teaching and the Necessity of Evaluation

College English classroom teaching is a teaching organization form integrating teaching and learning. It is based on the teaching objectives specified in the new college English curriculum standards. Objectively speaking, it is the teaching activities organized by teachers and students with the teaching objectives as the core in a specific time and

in a specific teaching environment. In the traditional classroom teaching mode, the main body of the classroom is the teacher, while the new curriculum standard is a student-centered teaching mode, which cultivates students' independent learning ability, fully spreads students' thinking mode of learning English, and comprehensively improves students' comprehensive quality.

2.2 Evaluation Function

The functions of classroom teaching evaluation mainly include: feedback, coordination, decision-making, diagnosis and guidance, etc. as shown in Figure 1, in order to better realize its functions and turn evaluation into a mechanism to promote teacher-student teaching progress, only by exploring the principles followed by College English classroom teaching evaluation can we better build an evaluation system.
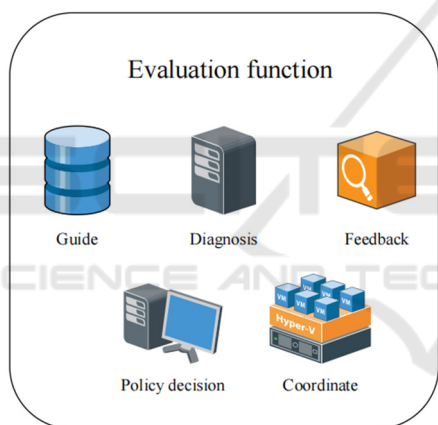

Figure 1 Function diagram of classroom teaching evaluation

2.3 Evaluation Index System of College English Classroom Teaching

In October 2020, a university started the reconstruction of the classroom teaching evaluation system. Each college and discipline can independently formulate its own evaluation system according to its own characteristics (Zhou, Li, Sun, 2016).

Through factor analysis, the evaluation of foreign language department on teachers is divided into five dimensions, with three-level indicators under each dimension; The evaluation of students is divided into three dimensions, and each dimension

also has three levels of indicators. After that, under the guidance of experts, the index weight was adjusted by adding, deleting, merging or splitting evaluation indicators. In order to ensure the evaluation validity of the system, the new index system is used for trial evaluation before the final determination, so as to further improve the new evaluation system. In the newly constructed index system, the evaluated objects include both teachers and students; The evaluation of teachers and students accounts for 70% and 30% of the final results of College English classroom teaching evaluation, respectively; The evaluation body is divided into three parts: students, teachers, peers and managers. Table 1 shows the evaluation of College English teachers by managers and students.

Table 1. College English classroom teaching evaluation form (for evaluating teachers)

Primary index	Weight (%)	Evaluation grade
Preparation before class	10	
Basic quality	20	
Content of courses	40	
Teaching methods	20	
Teaching effectiveness	10	

Three evaluators respectively evaluate teachers' and students' performance in college English classroom, and each evaluator uses a new index system to evaluate another important participant in classroom teaching-students. The evaluation indicators of students are divided into three dimensions: behavioral input, cognitive input and emotional input, and each dimension has three levels of indicators. As the importance of each dimension in college English classroom teaching has been basically determined, the weights of each dimension remain unchanged when different evaluators evaluate students, with 20%, 40% and 40% respectively. And the evaluation of teachers and administrators on students are shown in Table 2.

Table 2. Evaluation Form of College English Classroom Teaching (Evaluation Form for Students)

Primary index	Weight (%)	Evaluation grade
Behavior input	20	
Cognitive input	40	
Emotional input	40	

The implementation of the new evaluation index system needs the support of the school in management, technology and manpower. The quantitative and qualitative evaluation of college English classroom teaching by all subjects at the same time should overcome the traditional concept of quantitative and qualitative evaluation when statistics and analysis of evaluation data.

3 CLASSROOM EVALUATION SYSTEM BASED ON BIG DATA ANALYSIS

The evaluation results of teachers' teaching quality are composed of the evaluation of the teaching management department of the college and the evaluation of students, of which the evaluation of the management depax`rtment of the college accounts for and the evaluation of students accounts for. The teaching management department of the college determines to recruit an evaluation team composed of academic committees, subject directors, teaching management personnel, class teachers, etc. according to needs, and evaluates the teaching quality of teachers by checking the teaching workload, teaching plans, student assignments, listening to students' feedback, and filling in the College English classroom teaching evaluation form. The evaluation team listens to at least two classes of the courses of the evaluation objects every semester, We should implement evaluation interviews, exchange views, solve problems, improve teaching, and achieve the purpose of implementing developmental evaluation (Guo, Bai, Yu et al., 2021). Students' evaluation of teachers' teaching quality is mainly organized by the academic affairs office and filled in by students.

The implementation process of teacher teaching evaluation includes three stages:

1) Students and teaching management departments evaluate teachers' teaching information collection stage. At this stage, the main work is prepared by the organizer, the staffing, work arrangement, questionnaire printing and sampling, and a certain range and number of teaching units are selected to evaluate the overall situation of the survey.

2) Information processing stage for students and teaching management departments to evaluate teachers' teaching. The main work of this stage is to deal with the collected evaluation information by various methods and means.

At this stage, students' evaluation data of teachers are calculated by calculating the standard score of the teacher's score in this class on a class-by-class basis, and it is converted into the standard score. The students' original evaluation results of teachers are converted into standard scores or scores, and the calculation of standard scores and scores can refer to formula (1) and (2).

$$Z = \frac{x - \bar{x}}{\sigma_x} \qquad (1)$$

Where Z represents the standard score, x is any variable, and $\bar{x}$ represents the average of the population. σ_x Represents the standard deviation of the population.

$$T = 10 \times Z + C \qquad (2)$$

Where T stands for T score, Z stands for standard score, and C is a variable constant.

The method used by the management department to calculate the evaluation data of teachers is to evaluate teachers as independent individuals, and the average score is used for the evaluation data. The calculation formula refers to formula (3).

$$\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i \qquad (3)$$

3) The information feedback stage in which students and teaching management departments evaluate teachers' teaching. The main work at this stage is to express the evaluation results, rank the quantitative part, and systematically organize and express the feedback of the evaluation results according to a certain logic in the qualitative part. The evaluation results are fed back to the teachers themselves and school leaders to summarize the evaluation activities.

4 RESULT ANALYSIS AND DISCUSSION

The so-called "knowing oneself and the enemy, and being invincible in a hundred battles" is very helpful for teachers to understand the evaluation results of students on various indicators, their position in the whole college and the distribution of evaluation results in recent years. Therefore, As an evaluation

system, it is very necessary to give the following information about teachers' teaching evaluation.

In order to reflect the status of teachers' evaluation results in the corresponding indicators and make the evaluation data comparable, the original evaluation results of students on teachers are converted into standard scores or scores. The indicators in the figure are the five indicators in the College English classroom teaching evaluation form. The individual scores of College English teachers' student evaluations are shown in Figure 2.

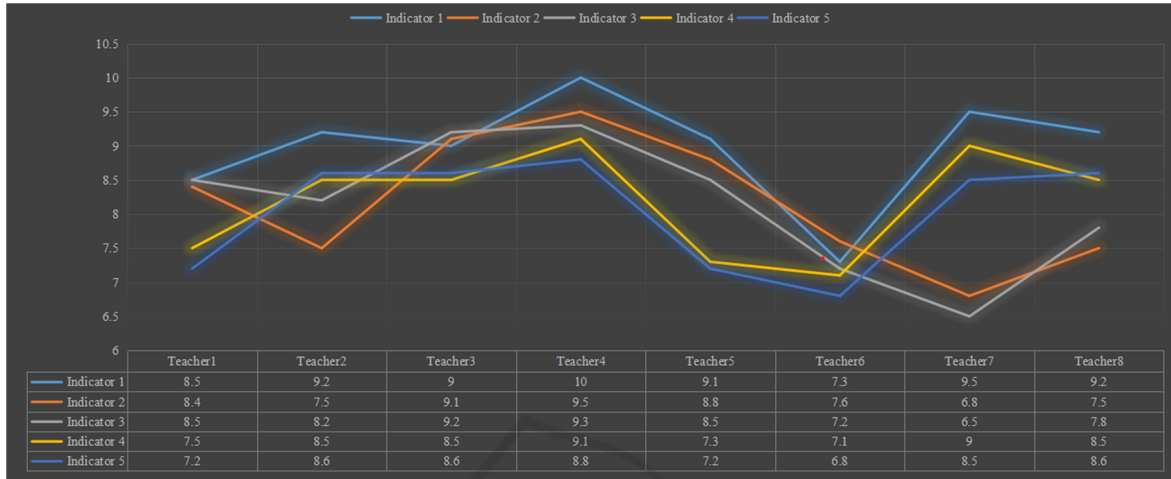|	Teacher1	Teacher2	Teacher3	Teacher4	Teacher5	Teacher6	Teacher7	Teacher8
Indicator 1	8.5	9.2	9	10	9.1	7.3	9.5	9.2
Indicator 2	8.4	7.5	9.1	9.5	8.8	7.6	6.8	7.5
Indicator 3	8.5	8.2	9.2	9.3	8.5	7.2	6.5	7.8
Indicator 4	7.5	8.5	8.5	9.1	7.3	7.1	9	8.5
Indicator 5	7.2	8.6	8.6	8.8	7.2	6.8	8.5	8.6

Figure 2 Single score of college English teacher's student evaluation

As Figure 2 shows the teachers' scores on individual items, for a certain teacher, one can clearly know his score on an individual item and his position in the whole major from the given individual distribution map. In addition, from the above distribution map, we can also know that the gap between teachers is relatively large, and some teachers' almost all individual achievements are relatively backward in the junior middle school of their major.

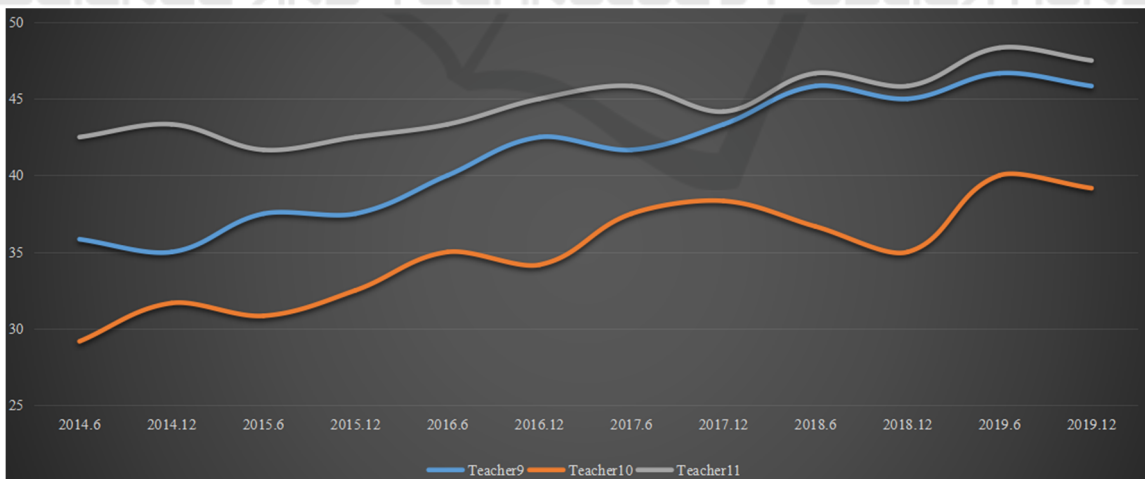The classroom scores of English teachers at different times are shown in Figure 3.

Figure 3 College English teachers' individual scores of student evaluations at different times

It can be seen from Figure 3 above that there are great differences in the evaluation results of different teachers at different times. But the overall quality is on the rise. This shows that with the emergence of the teaching evaluation system, the level of teachers has also improved, which has played a good role in promoting college English education.

5 CONCLUSIONS

To sum up, with the rapid development of globalization and the wide application of information technology, English, as the most widely used language, has become a public compulsory basic course offered by various colleges and universities. In recent years, China's requirements for College English teaching standards, teaching methods and evaluation methods have become higher and higher. Therefore, in the evaluation of College English teachers' teaching and learning, it is necessary to formulate a systematic and perfect evaluation mechanism to truly reflect the teaching situation in the classroom, so as to promote the development of the teaching evaluation system.

Regarding classroom evaluation, Bill Gates once said, "there is a kind of work in the world that is very important, but every time these people get feedback at work, they only get 'satisfaction' or 'dissatisfaction'. How can we ask them to do their work better by relying on this word alone?" As a basic course of general education in Colleges and universities, College English has always attracted much attention for its teaching effect.

Firstly, this paper analyzes the present situation of teaching quality evaluation in colleges and universities, and finds that the data analysis function of most teaching quality evaluation systems is weak and the data can't be fully utilized. On this basis, it uses big data analysis to analyze the data of teachers' teaching quality evaluation from multiple angles, and obtains some information with certain reference value for teachers, students and administrators. Based on this, it constructs a teaching evaluation analysis model, with a view to providing reference for the improvement of teachers' teaching quality evaluation in the future.

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