The Construction of an Evaluation System for the Post Competence of College Foreign Language Teachers Based on Computer Big Data Technology

Nan Peng, Gang Yang*, Kai Wang, Chao Yang
East University of HeiLongjiang, China, 150066

*Corresponding author e-mail: 1104196117@qq.com

Abstract. This paper plans to comprehensively evaluate the post capacity of college English teachers by combining the computer big data technology with the equivalent multi-level weighted index method. Through the analysis, this paper constructs the post competency index of teachers in colleges and universities, and integrates the teaching achievements, scientific research achievements, attendance results and the subjective evaluation results of students and colleagues, so as to realize the comprehensive evaluation of teachers. Teacher comprehensive working ability price. This index applies not only to college English teachers, but also to the evaluation of other college teachers.

Keywords: Evaluation System, College Foreign Language Teachers, Teachers Index, Big Data

1. Introduction

The work of university teachers is not only teaching, but also teaching. On the one hand, the indicators of teaching work should observe the students' scores in the unified examination, because the results of foreign language teaching in domestic mainstream colleges and universities are generally evaluated according to the students' scores in passing the CET-4 and CET-6, i.e., the students must take part in the national joint examination to determine their teaching and learning results, on the other hand, the foreign language teaching work also needs to take into account the publication volume of foreign periodicals and Other foreign language application skills and foreign language related career trends[1].

In addition, university teachers also shoulder the ability of relevant feasibility study, including project application and research results, related thesis publication and related international and domestic academic exchange results display. Foreign language related achievements belong to the achievements of social humanities, including foreign language literature, foreign culture, cross-cultural communication, international cultural exchange, international Chinese service and related technical achievements related to foreign language and translation, artificial intelligence achievements, social engineering achievements, etc[2].

Therefore, the evaluation of college foreign language teachers is the evaluation of their comprehensive business ability and comprehensive business performance. At present, index method is generally used to evaluate them. Exponential evaluation method: refers to the method of evaluating a
participating unit in many ways by using multiple indicators, which is called the index evaluation method or system, or index evaluation method for short. Its basic idea is to select multiple indicators through various aspects, and make comprehensive evaluation according to different weights of each indicator. Generally, we should follow the principles of scientificity, guidance, comprehensiveness, comparability and operability, select different indicators and specify different standards. It is mainly used in economic index evaluation, economic benefit evaluation and individual benefit evaluation[3].

2. The structure of college foreign language teacher evaluation index

Using AHP to decompose the teacher index, we can get the result of Figure 1. That is to say, the evaluation of teacher index can be divided into teaching achievement, scientific research achievement, subjective evaluation, attendance achievement, etc. Through the further analysis of the above four parameters[4].

![Figure 1. Analysis of teacher index structure](image)

In terms of teaching performance, there are two main sub indicators. The first is the students' performance in the CET-4 and CET-6 and the exam-8, including passing rate and average score. The second is the proportion of students engaged in English secretarial work, business translation, Literature Publishing translation, foreign affairs and foreign trade work, foreign language editing and other related work after graduation, which marks the guiding role of teachers' teaching work to students' career trend.

In terms of scientific research achievements, on the one hand, the number of papers of teachers, including the number of monographs of national publishing houses, the number of monographs of provincial and ministerial publishing houses, the number of SCI papers, the number of papers of domestic core journals, the number of internal references, the number of other papers, etc. On the one hand, it investigates the academic exchange of teachers, such as the number of participating in or promoting school enterprise cooperation, the number of leading or participating in the integration of production, learning and research, the number of leading or participating in the feasibility study projects supported by government funds, the number of participating in International academic exchange conferences, and the number of participating in domestic academic exchange conferences at or above the provincial level[5]. Papers show the number of academic achievements of teachers, and academic exchanges show the academic process of teachers.

In terms of attendance, the attendance rate of teachers, the total number of class hours in the
semester, the number of administrative departments and teaching departments in charge of the school, the number of laboratories and research institutes at all levels in charge of the school, etc., reflect the total workload of teachers.

In the aspect of subjective evaluation, it mainly judges teachers' subjective evaluation indexes from students' subjective evaluation results of teachers and mutual evaluation results of teachers each semester. That is to say, the satisfaction of students and teachers' colleagues to teachers determines whether teachers' daily work methods and personal styles are qualified. At the same time, it reflects whether teachers promote team harmony and create teaching atmosphere in their daily work.

3. Index composition of equivalent weighting method

Index weighting methods are generally divided into equivalent weighting method and nonlinear weighting method. The nonlinear weighting method uses log function or exponential function, reciprocal function and other methods to enlarge and displace the index results, so that the index details in some areas can be enlarged. However, the index results of each sub index are relatively average, and each index of different teachers has its own advantages, so the equivalent weighting method is proposed for analysis[6].

The equivalent weighting method can also be combined with the layered weighting method. After the lower level indicators are equivalent weighted, the upper level indicators can be obtained. After the calculation layer by layer, the total index evaluation results can be obtained. Among the top four indicators, teaching achievement is considered as the core indicator, accounting for 45% of the equivalent weight, scientific research achievement 25% of the equivalent weight, and subjective evaluation achievement 20%. However, if the employment of teachers in schools and laboratories has an impact on the overall indicators, it has been reflected in the other three indicators. Therefore, this indicator can only reflect the workload of teachers but not the work performance of teachers, so this indicator only accounts for 10% of the equivalent weight. See Table 1.

Table 1. Index composition of equivalent weighting method

| Basic Index          | %  | Subdivision Index            | %  |
|----------------------|----|-----------------------------|----|
| Teaching Achievement | 45%| Examination Results         | 75%|
|                      |    | Employment Guidance         | 25%|
| Research Achievement | 25%| Papers                      | 60%|
|                      |    | Academic Exchange           | 40%|
| Attendance Results   | 10%| Attendance                  | 45%|
|                      |    | Class Hour                  | 35%|
|                      |    | Responsible Department      | 8% |
|                      |    | Responsible Laboratory      | 12%|
| Subjective Evaluation| 20%| Student Evaluation          | 65%|
|                      |    | Mutual Evaluation           | 35%|

In the third level of indicators, the relevant data come from different evaluation platforms, and their total scores and dimensions are different. Therefore, before entering into the indicators of this paper, we need to give the minmax projection processing to these evaluations on the indicator evaluation series of all the participating teachers, and gather them into the range of 1-10 points, that is, all the teachers with the lowest sub indicators score are 1 point, and the teachers with the highest score are all 1 point It is 10 points, and the sorting formula is as follows:

\[ f(x) = \min \max(x) \times 9 + 1 \]  \hspace{1cm} (1)

Among:

\[ \min \max(x) = \frac{x - \min(x)}{\max(x) - \min(x)} \]  \hspace{1cm} (2)
Formula (2) projects the sequence \([x]\) of all teachers’ evaluation results of the index to a \([0,1]\) interval, and formula (1) shifts the projection results so that the maximum value is adjusted from 1 to 10, and the minimum value is adjusted from 0 to 1, so as to facilitate subsequent processing.

4. Summary

Teachers in Colleges and universities should carry out both education in teaching and scientific research, that is, to promote teaching with scientific research and promote scientific research with teaching. Scientific research and teaching are inseparable and complementary aspects in the work and life of university teachers. Only the college teachers, especially the College English teachers discussed in this paper, who have both teaching and research, can be regarded as qualified college teachers. The core value of big data lies in data mining and data analysis. Through the integration and analysis of all the data produced in the work of teachers, including teaching achievement data, scientific research achievement data, attendance data, subjective evaluation data of students and colleagues, the teacher index is finally obtained. To some extent, the index reflects the overall working ability and performance of College English teachers, and it is also applicable to the overall evaluation of College Teachers in other disciplines.

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