



The Algorithm and Implementation of College English Teaching Comprehensive Ability Evaluation System

Yanxia Li and Xinchun Wang(✉)

School of Aviation and Tourism Management, Chongqing Aerospace Polytechnic College,
Chongqing 400020, China

Abstract. The evaluation system of English teaching comprehensive ability can complete the evaluation and ranking of College English teaching comprehensive ability. By using the attribute method, seven attribute indexes are obtained. The example shows that the structure of the system is clear and the process is simple. It can flexibly adjust the evaluation parameters such as the school scheme set model and relevant psychological weight according to the user's requirements. It can compare the overall teaching quality of different grades or the same grade universities after considering various influencing factors (internal factors and external factors) according to the characteristics of the school, and objectively reflect the overall teaching level of the school.

Keywords: English teaching · Evaluation · Attribute theory

1 Introduction

It is a misunderstanding that the passing rate of the examination is used as the basis for evaluating the overall teaching quality of a school. The results of this one-sided approach are as follows: (1) from the perspective of the administrative department of teaching, ranking each school according to the simple passing rate is very easy to cause schools to compete with each other and form an inappropriate invisible pressure. In fact, each school has different conditions and different sources of students, there is no basis for simple comparison (2) from the perspective of school. In order to improve the passing rate, we should link the passing rate of CET-4 and CET-6 with the degree and Diploma of the students. In some places, we only want to pass but not improve. This is against the law of English teaching, It is easy to frustrate the enthusiasm of teachers and students. Besides, the passing rate of the examination can only reflect how many students have reached the passing line of CET-4 or CET-6, but not at what level these students have reached the corresponding requirements of the syllabus. (3) From the perspective of students, the purpose is to obtain a certificate, not to improve their practical ability to use English [1]. In order to scientifically reflect the overall teaching level of a school, the author has developed such an English teaching comprehensive ability evaluation system to more accurately describe the actual situation of students.

2 Attribute Analysis of Evaluation System

2.1 Basic Introduction

The English comprehensives IV e evaluating system (ECE) is a complex large-scale system involving various factors or attributes, and there are various complicated causal relationships among the factors. Therefore, the ECE is a complex system, a series of theories and methods of systematic analysis and decision-making have emerged. Accordingly, all kinds of decision-making and evaluation have gradually moved from the past empirical decision-making to the stage of scientific decision-making and intelligent decision-making with the help of computer tools. Therefore, scientific decision-making theory and the most advanced decision-making aids must be used as much as possible in the evaluation of English teaching comprehensive ability. It makes the assessment of English teaching comprehensive ability go on the road of scientization and modernization.

2.2 The Function of Comprehensive Ability Assessment in English Teaching

The function of the English teaching comprehensive ability evaluation system is to compare the situation of English Teaching in several schools after considering the internal and external factors of various English learning, regardless of the grade of the school, and compare the overall quality of learning in different grades and the same grade universities, which can more accurately reflect the overall level of the school and help the school to reduce costs, So that the teaching level has been improved.

Through the analysis, it is necessary to extract the attribute features of teaching quality evaluation among schools. Therefore, the evaluation system of comprehensive ability of English teaching has the following attributes: internal cause, external cause and capital investment, specifically speaking, the learner's personal factors, environmental factors and the cost paid.

3 Personal Factors

Learners' personal factors include intelligence, personality, motivation and attitude. The ability to grasp and use various learning skills in general, the learners with good intelligence learn faster, and the learners with low intelligence can not produce miracles in learning even under the best learning conditions, In personality psychology, personality can be divided into "extrovert" and "introvert". People once tended to think that extrovert learners, because of their lively personality, dare to speak in the process of learning, have more opportunities to practice English, and their performance will be better than introvert learners. But this is not the case. Learners with different personalities use different learning strategies to deal with different learning tasks. For learners with extroversive personalities, their good talk is conducive to obtaining more opportunities for input and practice. However, they often do not pay much attention to language forms. Introverted learners may be better at making use of their redundant and quiet personality to make a more in-depth and detailed formal analysis of limited input, especially in the teaching environment that pays attention to language forms and language rules [2]. Personality factor refers to whether the school adopts different English education for different personalities.

4 The Application of Attribute Theory

4.1 The Indicators of Each School Will Be Converted into Sex Scores

In order to express clearly, three factors (attributes) are taken for analysis. For example, considering only three important factors of investment, intelligence training and learning environment, three schools are set up to compare the quality of English teaching. The investment of school a is 800000, that of School B is 400000, that of school C is 600000, that of school a is 0, and that of School B is 100, The score of school C is calculated as: $(100 - 0)/(40 - 80) = (y - 0)/(60 - 80)$, $y = 50$, which can transform the attribute of capital input of the above three schools into a hundred point system. Similarly, school a attaches great importance to the intelligence training of the three schools, ranking first among them, school a gives 100 points, school C pays the least attention to the cultivation of cohesion, school C gives 0 points, and school B can score by experts, Compared with school a and school C, the score of intelligence factor is the same. The school with good learning environment has higher score, while the school with poor learning environment has higher score.

4.2 Applied to Horizontal Type of Gravity Center

First of all, each school should be graded, and then they should be divided into several grades. In this way, we can compare the same grade. There are two methods for grading. One step archiving method is to directly grade the school into the grading grade of the comprehensive ability system of English teaching. Experts are invited to grade the seven English Teaching Indicators of the schools participating in the evaluation, or conduct online survey, The students of the evaluation school are asked to score their own school on seven indicators, and then, according to the level of scoring, 5 points or 10 points are divided into one grade, Secondly, the two-step filing method first classifies the evaluation schools according to the scoring and ranking of some authoritative institutions (for example, the famous website of China Netcom University ranks all the schools, and the top 200 can be classified as category 1, the 200 - 400 as category 2, and the 400 - 60 as Category 3). Using the close degree formula of spatial distance and human brain cognition in attribute theory, the satisfaction degree of a certain school grade is set as:

$$C_s(X) = \exp(-(\sum_{i=1}^n w_i |x_i - y_i|)) \tag{1}$$

In order to compare the schools in different grades, a regulation coefficient λ is used in front of the grade satisfaction function:

$$C_t(X) = \lambda C_s(X) \tag{2}$$

Where: $C_s(X)$ is the grade satisfaction degree of school $\lambda C_s(X)$ is related to the total score of school attribute of school x , and selects an entry:

$$\lambda = (\sum x_i)^a, a > 0 \tag{3}$$

5 System Flow and Result Simulation Analysis

The experimental data are evaluated by 200 universities. Considering the seven attributes of universities, the lowest score is 520, and the highest score is 700, There are 30 grades, 6 grades, and one grade is 610 (the 15th grade, $520 + 15 \times 6 = 610$), including 12 schools with total scores from 605 to 610. Their attribute scores. The psychological standard point of this grade is (8542593896810138686687619, 83.750.91.898) [3]. It can be seen from table 1 that the closer to the standard score point, the greater the grade satisfaction of the school, and the greater its space satisfaction, Such as school 46, school 147, the system flow is shown in Fig. 1.

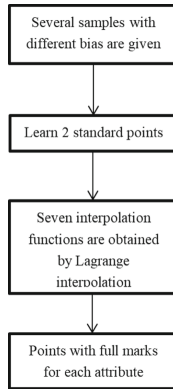


Fig. 1. Flow chart of English teaching comprehensive ability evaluation system

For this system, we mainly look at the evaluation effect from the error rate. Two different controllers are used, one is synovial controller, the other is mechanism controller. The simulation results are shown in Fig. 2. From Fig. 2, we can see that with the blessing of the two controllers, the error rate is reduced, which also verifies the effectiveness of the algorithm [4].

6 Research Design

The aim of the present research is to check whether the task-based approach is effective in improving students speaking ability in Integrated Skills of English Course to English major A semi-experiment is designed, with an experimental group and a control group, pre-test and post-test on speaking performance, a questionnaire and informal interviews to collect data. In this chapter, the research aim, subjects, materials and procedures will be reported [5].

6.1 Research Aim

The present research is intended to check the effects of the task-based teaching in improving students speaking ability in Integrated Skills of English Course to English majors

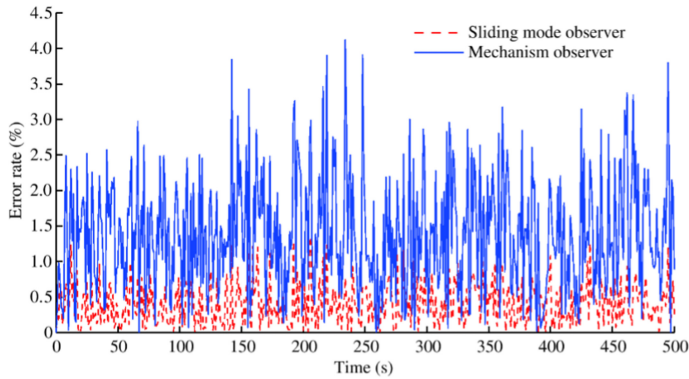


Fig. 2. Simulation results for estimate effect

[6]. To be concrete, the researcher hopes to find the effectiveness of the task-based approach on the improvement of the students' speaking ability as well as their motivation. It is hypothesized that task-based teaching through communicative tasks can function positively in speaking training to English majors and their motivation [7]. The general research questions are 1. Will the teaching through tasks in Integrated Skills of English Course lead to the improvement of the students speaking ability? 2. Will the teaching through tasks have positive effect on the students motivation?

6.2 Subjects

Students participating in this research are 72 freshmen of English majors enrolled in two classes in Foreign Language College in Beihua University. They were probably at different level of English proficiency as a whole, however they may have attained similar level of speaking competence, since the condition of speaking teaching at secondary schools is generally discouraging. In addition, they have been trained in the college by the researcher for one term. Therefore the students in the two classes were believed to be at similar level of speaking proficiency, and this was proved by the pretest at the beginning of the research [8].

6.3 Instruments

In Beihua university, English Department of foreign Language College has Oral Test at the end of every term. The score of the Oral Test will be added to the final score of the Integrated Skills of English Course [9]. Every term, the Oral Test will be conducted strictly. The scores of each student will be given by two teachers, then the average scores given by the two teacher swill be the final one. So we set the Oral Test at the end of the 1 term of 2005–2006 as the pre-test, then the post-test will be the Oral test at the end of the 2 term of 2005–2006. The two tests were administered in this research in order to check the effect of task-based approach in teaching of speaking in the Integrated Skills of English Course to English majors. Reliability of the tests was guaranteed since they were both administrated under the same circum stances and at the same time.

6.4 Procedure

The goals of the speaking training in the Integrated Skills of English Course are to improve the students' speaking ability and provide opportunities exercising initiative, leadership, and practicing organizational and participation skills in group situations [10].

TBLT carried out teaching through accomplishing tasks in class. If the tasks couldn't be accomplished, the teaching process would be hindered and the students' confidence and initiative would be decreased. Therefore, the difficulty of the task was a key factor. Besides, the students' available resource was limited. If the task is too difficult the students would focus on the accomplishment of the task and overly depend on communicative strategies and vocabulary, neglecting language forms, even not using target language. Then the accuracy and complexity couldn't be achieved. So the tasks should be designed at an appropriate level of difficulty to achieve balanced goal development. In general, the language skill that the students employed to accomplish the task was a little beyond their current stage of development. It would drive the students to develop and achieve success [11].

7 Refine Formative Assessment Indicators

The process evaluation includes many forms: Students' self-evaluation, students' mutual evaluation, teachers' evaluation of students, educational administration department's evaluation of students, etc. Process assessment has the characteristics of "subjectivity, process, diversity, development and openness". Therefore, the graded teaching evaluation of College English course should adopt a combination of various ways and means, increase the intensity of evaluation, refine and quantify the usual performance, increase the score items of classroom performance and group activity performance, duty report, effort degree and so on. At the beginning of each semester, teachers can publish the evaluation criteria and proportion, so that students can make clear their learning objectives. There must be a clear percentage of formative assessment and summative assessment. For example, formative assessment accounts for 50%, including daily written work (5%, 5 points), daily oral work (5%, 5 points), attendance (10%, 10 points), classroom performance (20%, 20 points), daily test (10%, 10 points), and summative assessment accounts for 50%. When evaluating various awards or scholarships, each department can refer to the students' overall evaluation results. At the end of each semester, a, B and C classes still take the form of standardized level closed book examination. The following formula can be used to calculate the total score of English: the total score (100 points system) = 5% of the usual written homework + 5% of the usual oral homework + 10% of the attendance + 20% of the classroom performance + 10% of the usual test + 50% of the final term [12].

7.1 Diversity of Classroom Evaluation Indicators

The indicators of classroom evaluation should be diversified, including academic achievement test and potential investigation [13]. The form should be diversified, including: written test, examination of knowledge and skills, comprehensive evaluation of

emotion, attitude, values, innovative consciousness, group coordination ability, organization ability, information extraction and processing ability, practical ability, etc. (1) Discourse flow evaluation. The data of students' oral expression in class can be collected and recorded periodically, including the time of discourse flow, the fluency of discourse, the number of language defects, the clarity of thinking, etc. (2) Classroom participation. Classroom evaluation should also include students' interaction, initiative and the actual effectiveness of their actions in the classroom. (3) Cognitive acceptance. In the classroom, we can use various means to understand students' thinking process, master students' understanding of teaching information, and students' ability to accept new language learning projects. (4) Responsiveness. Students' flexibility, creativity and adaptability to learning situations can also be examined in class. The diversity of classroom evaluation indicators is shown in Fig. 3.

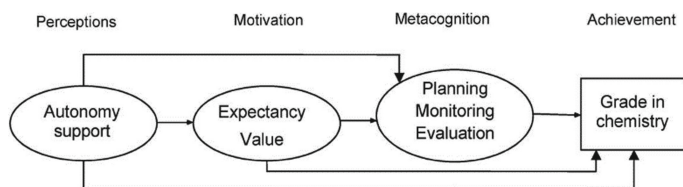


Fig. 3. Diversity of classroom evaluation indicators

7.2 Diversification of Evaluation Subjects

Classroom evaluation involves teachers and students. Teachers as the subject of evaluation, evaluation object can be divided into: (1) a teaching class. Teachers make immediate evaluation on the overall performance, group advantages and disadvantages of a teaching class. (2) Different groups at different levels [14]. Evaluate the actual performance of different levels of class groups, and compare the classroom performance changes of each group. (3) Study group. Sub activity or group activity is an important evaluation index of classroom evaluation. Grouping should follow the principle of heterogeneity in the same group and homogeneity between groups to conduct scientific and reasonable grouping, and observe the activities of the group, the strength of organizational ability, information communication, the process of completing tasks, the effect of solving problems, etc. (4) Individuals. For each individual evaluation, it is necessary to collect and compare data in the form of individual cases [15].

Give full play to students' subjectivity and regard students as the main body of evaluation.

Students as the main body of classroom evaluation, is a more open evaluation model. The evaluation object is the participant who completes the learning task with the evaluator, which mainly includes: (1) students record their learning process, reflect on themselves regularly, and describe their learning behavior. (2) A member of a sub activity. That is to say, the two people participating in the antithetical activities evaluate each other. (3) Study group. That is, the evaluation of cooperation within the group.

To cultivate students' good cooperative evaluation behavior, we should guide students to manage group activities and implement group evaluation tasks independently in class. (4) There are three teaching classes as a whole. Students evaluate the group learning of the whole teaching class [16].

7.3 Rationalization of Evaluation Methods

In the hierarchical teaching mode, we should adopt the method of combining dynamic and static evaluation mechanism [17]. At present, the practice of most schools is the traditional, static horizontal evaluation, that is, the synchronic comparison between individual students, and the quantitative performance management within the teaching class. The commonly used evaluation methods are as follows: (1) test; (2) measurement of attitude and emotion in classroom teaching; (3) observation; (4) questionnaire and interview as the main form of investigation; (5) establishment of portfolio; (6) anecdotal record, that is, continuous and objective description of behavior in a certain time, place and environment.

This kind of horizontal comparison evaluation method pays too much attention to the results of individual learning activities and ignores the progress, change and effort of the evaluated. Therefore, in the hierarchical teaching, we should also comprehensively use dynamic and vertical evaluation, that is, on the premise of respecting individual differences, we should pay attention to the individual development process, and not only evaluate the results at the end of the student development process. Its evaluation object can be a single individual, a learning group, a teaching class or even the whole grade or school class. It emphasizes the collection and preservation of all the key information in the process of students' development, so as to help teachers form a correct and comprehensive understanding of students' learning process, development and change. It is an evaluation mechanism with incentive or guidance function for the evaluation object. It is a kind of evaluation method of individual difference, that is, based on the status of the evaluated object itself, according to the development of the evaluated individual, to make a vertical comparison, so as to judge its value.

8 Conclusions

The evaluation system of English teaching comprehensive ability is a comprehensive evaluation model with multiple indexes (factors and attributes). Its design is unique and novel. It takes into account the weight change of evaluation indicators (factors and attributes) and the mutual restriction and connection between evaluation indicators (factors and attributes). The comprehensive ability evaluation system of English teaching involves social environment factors, learning environment factors, natural environment factors, investment funds, intelligence training and personality education. There are a lot of uncertain and fuzzy factors in a multi-attribute decision-making question in many aspects, such as learning, motivation and attitude. The system discussed in this paper can complete the evaluation and ranking of English teaching comprehensive ability. The structure of the system is clear, the process is simple, and the evaluation parameters such as the scale of the school scheme set and the relevant psychological weight can be flexibly adjusted according to the requirements of users.

References

1. Guangdong Education Examination Center: Lecture notes on social psychology of Peking University. <http://www.gd.edu.com/selfstudy/study/9study6.htm> (11 March 2002)
2. Xie, X., Feng, J.: Attribute barycenter partition model in college entrance examination. *J. Guilin Instit. Technol.* **20**(3), 287–290 (2000)
3. Xie, X., Liu, J., Lu, Q.: Decision algorithm in college entrance examination. *J. Guilin Instit. Technol.* **21**(4), 402–406 (2001)
4. Wu, Q., et al.: Evaluation decision model based on attribute coordinate analysis and learning. *J. Nanjing Univ. (Nat. Sci. Ed.)* **6**, 183–188 (2003)
5. Yang, H.: *Language Testing Research: Development, Evaluation and Research Guide*. Foreign Language Teaching and Research Press, Beijing (2001)
6. Luo, S.: *Research on Formative Assessment of English Classroom Teaching*. Foreign Language Teaching and Research Press, Beijing (2003)
7. Hedge, T.: *Teaching and Learning in the Language Classroom*. Shanghai Foreign Language Education Press, Shanghai (2002)
8. Liu, R., Wu, Y.: *Research on English Education in China*. Foreign Language Teaching and Research Press, Beijing (2000)
9. Meng, C., Zhang, J.: The function of classroom assessment in English teaching. *Sci. Tech. Inform.* **35**, 444–445 (2007)
10. Wang, Z.: Exploration of graded teaching management mode and evaluation system in college English class of newly established universities. *J. Hebei Energy Vocational Tech. College* **4**, 76–78 (2012)
11. Li, B., Nie, J.: Summary of domestic formative assessment application research. *J. Shanxi Agric. Univ.: Soc. Sci. Ed.* (2010)
12. Li, L., Guo, Y.: A study on the promotion of formative assessment in college English listening teaching. *J. Shanxi Radio TV Univ.* (2011)
13. Chen, Y.: Evaluation of the effect of formative assessment in college English teaching. *Chin. J. Out School Educ.: Subject Educ.* (12) (2010)
14. Zhang, M., Zhang, R., Yuan, C.S.: *Research on Formative Assessment Based on Network*. Jiangxi Radio and TV University (2007)
15. Ma, L., et al.: The practice and application of formative assessment “open English I multimedia learning system”. *English News Mech. Electr. Univ.* (3) (2005)
16. Wang, Y.: Investigation and reflection on the use of multimedia learning system in open English I. *J. Nanjing Radio TV Univ.* (2009)
17. Aijing, M., Xiaonan, Z.: The teaching mode and practice of contemporary college English [J]. *Journal of Cangzhou Teachers College* (3) (2005)