An Empirical Study on the Influencing Factors of the Quality of Professional English Teaching in Colleges and Universities

Zhi-wei WANG
Weifang Vocational College, Shandong Weifang 261000, China

Keywords: Professional English, The quality of teaching, Rough sets, Structural equation modeling.

Abstract. Through an investigation on five hundred undergraduate students in ordinary and key universities, the influencing factors of the professional English teaching quality can be reduced to five dimensions: students’ awareness to the importance of professional English, teachers’ conscientiousness on teaching, innovative degree of teaching method, classroom activity, textbook and evaluation. Results show that students’ awareness is the key factor influencing teaching quality, and it has significant effect on teachers’ conscientiousness. The influences of textbook and evaluation of teaching quality is obvious, and so does teachers’ conscientiousness to classroom activity, innovative degree of teaching method to classroom activity.

Introduction

ESP, short for English for Specific Purpose, refers to English related to a particular occupation, subject or purpose. The status quo of ESP teaching in colleges and universities conveys the following information to us: the factors affecting the quality of ESP teaching need to be reasonably defined, otherwise the optimal allocation of teachers cannot be chosen; there is a certain relationship between ESP teaching mode and students’ satisfaction, and ESP teachers must create teaching mode. This study is based on two foundations, one is to sort out the relevant domestic literature on ESP teaching model, teaching practice, teaching quality and other factors; the other is to investigate and obtain the first-hand analysis data of different majors in key and ordinary colleges and universities in China. This paper intends to reveal the influencing factors of professional teaching quality and their differences in different types of universities (i.e. key and ordinary colleges and universities) through a rigorous empirical study, and further explore the relationship between the teaching mode of professional English teachers and students’ satisfaction. It provides reference for the allocation of teachers in English teaching.

The Related Literature Summary and Research Hypothesis

Research on Influencing Factors of Teaching Quality of Professional English

Mingyin Chi (2011) believes that the main factors that restrict the quality of ESP teaching are students' lack of attention to ESP and teachers' lack of enthusiasm. In the allocation of learning time and energy, most students put more time, energy and enthusiasm into the relative useful professional skills class, and think that they can pass the final examination of professional English, so most students do not pay enough attention to it[1]. Lili Sun and Zhengliang Wang (2017) investigated 360 students of three science majors in an applied undergraduate university. The data were analyzed by SPSS software to find out the factors influencing ESP learners' learning negative motivation, and to study the influence of factors on different gender and different English proficiency learners. The results show that there are five factors affecting ESP learning negative motivation, namely, classroom factors, environmental factors, employment prospects, the impact of English reform, learners' own factors[2]. Zhanfeng Wang (2018) used Richter's Five-Point Scale and interviews as research tools, exploratory factor analysis and T-test as statistical tools, and took the undergraduates of cooperative projects in Fujian and Taiwan universities as examples to investigate the main factors of their
negative motivation in English learning. They found that teaching, teaching ability and textbooks were the main factors affecting their negative motivation in English learning. The main factors affecting the negative motivation of English learning in Fujian and Taiwan. The influence of academic ability on science and engineering group and arts and science group was greater than that on liberal arts group; the influence of textbooks and teaching factors on science and arts and science group was greater than that on arts group [3].

The Relationship between Factors of Professional Teaching Quality and Research Hypotheses

(1) Students' awareness of the importance of professional English

Bo Xu and Junqing Kang (2001) hold that China's economy is developing rapidly, a large number of foreign-funded enterprises are springing up. This makes the study of professional English more and more important, and the understanding of the importance of professional English is one of the key factors to learn professional English well [4]. Zaoshu Mo (2003) pointed out that students' emphasis on the curriculum would also react to teachers' teaching attitude [5]. Students' emphasis on the curriculum would stimulate teachers' enthusiasm; students' negative neglect would affect teachers' emotions and affect their teaching enthusiasm. Accordingly, the following research hypotheses are proposed.

H1: Students' awareness of the importance of professional English has a positive impact on the quality of professional English teaching.

H2: Students' awareness of the importance of professional English has a positive impact on Teachers' teaching conscientiousness.

(2) Textbook selection and teaching evaluation

Yi Fan (2000) holds that a good textbook is a prerequisite for students to learn English well. A qualified college or university should compile its own textbook for English majors [6]. Li Liu et al. (2010) believe that in the teaching of ESP, the construction of teaching textbook, teacher training and teaching evaluation will make the teaching of ESP in medical colleges and universities to a new level [7]. Accordingly, the following research hypotheses are proposed.

H3: The selection of professional English textbooks and teaching evaluation methods have a positive effect on the quality of professional English teaching.

(3) Teachers' teaching conscientiousness

Lingling Li (2018) proposed to build a harmonious, relaxed and active classroom atmosphere, introducing modern elements, attracting students' attention in the classroom, promoting interaction between teachers and students, actively guiding students to study independently [8]. Fang He (2018) takes English majors in Hunan local colleges and universities as the research object, collects and analyzes the data through a questionnaire survey. The research shows that under the background of mobile learning, college students have a strong sense of using information technology in English learning [9]. Accordingly, the following research hypotheses are proposed.

H4: Teachers' conscientiousness in professional English teaching has a positive effect on the activity of professional English classroom.

H5: the seriousness of teachers' professional English teaching has a positive effect on the innovation of professional English teaching methods.

(4) innovation of teachers' teaching methods

Mingqi Wang (2018) pointed out that blended teaching combines the advantages of traditional classroom teaching and online learning, and provides a more scientific, convenient and effective teaching model for teachers. Using network media to integrate traditional teaching can establish a scientific teaching model, and effectively improve the enthusiasm and effectiveness of students' learning [10]. Accordingly, the following research hypotheses are proposed.

H6: the innovation of teaching methods of professional English has a positive effect on the quality of professional English teaching.

H7: the innovation of professional English teaching method has a positive effect on the activity of professional English classroom.

(5) classroom activity
Chen Liping (2000) pointed out that with the deepening of the information revolution, traditional teaching methods have been gradually replaced by the use of multimedia equipment in teaching, to achieve the modernization of teaching methods\textsuperscript{[11]}.

H8: the activity of professional English classroom has a positive effect on the quality of professional English teaching..

**Research Framework Design**

**Research Framework**

According to the relevant assumptions put forward above, the theoretical framework of this paper is shown in Figure 1.

![Figure 1. Research framework.](image)

**Data and Data Measurement**

All the data in this study were collected from a survey of students of different majors in universities and key universities nationwide. The survey was conducted from September 2017 to June 2018.

According to the theoretical hypothesis, the questionnaire is divided into six dimensions: students' awareness of the importance of ESP, teachers' teaching seriousness, teachers' innovativeness in teaching methods, classroom activity, textbook selection and teaching evaluation, and teaching quality. There are 31 questions in the questionnaire. The answer part of the questionnaire is designed as a five-part scale. “Disagreement” is 5 points; “disagreement” is 4 points; “general” is 3 points; “comparative agreement” is 2 points; and “consent” is 1 point.

**Research Methods**

This paper mainly adopts the quantitative research method and the statistical analysis tool is SPSS. According to the hypothetical model established above, it uses rough set theory to reduce the sub-factors of the factors affecting the quality of ESP teaching, and then uses AMOS 20.0 to do confirmatory factor analysis. A structural equation model is constructed to explore the influence factors on teaching quality.

**Structural Equation Modeling and Result Analysis of Influencing Factors of Undergraduate English Teaching Quality**

**Questionnaire Analysis**

The questionnaire data analysis tool is SPSS 20.

(1) questionnaire reliability and content validity

Through SPSS 20.0, the reliability of each dimension is tested. The test results show that the reliability coefficients of each dimension are higher than 0.7 as shown in Table 1. According to Nunnally's research, Cronbach's alpha coefficient between 0.5 and 0.7 is believable, between 0.7 and 0.9 is very believable, more than 0.9 is very believable, therefore, all dimensions of the questionnaire are designed to meet the requirements.
Table 1. The reliability of each dimension and the whole questionnaire.

| Dimensions and entirety                                      | $\alpha$ coefficient |
|--------------------------------------------------------------|----------------------|
| Students' awareness of the importance of professional English| 0.778                |
| Teachers' teaching conscientiousness                        | 0.887                |
| Innovation of teaching methods                              | 0.712                |
| Classroom activity                                           | 0.712                |
| Textbook selection and teaching evaluation                   | 0.922                |
| Professional English teaching quality                       | 0.845                |
| Whole                                                        | 0.950                |

Since the item design of each dimension is based on the purpose of the study and the relevant literature, the questionnaire has content validity.

(2) questionnaire data processing

In this paper, the information entropy reduction algorithm in rough set theory is used to calculate the information quantity of the sub-factors which affect the teaching quality of ESP designed in the questionnaire. The sub-factors involved (corresponding to the relevant items in the questionnaire) can be reduced to about 50% of the $d_i$ value, that is, the development of the professional field and the encouragement of personal opinions.

Structural Equation Modeling of Influential Factors in Undergraduate English Teaching

After discussing the factors influencing the teaching quality of ESP for undergraduates, it is necessary to discuss the degree of influence of each factor on the teaching quality. In this paper, AMOS 20.0 is used to conduct a confirmatory factor analysis of the factors affecting the quality of ESP teaching. The results (shown on Table 2) show that the structural equation model can be used to reveal the relationship between the various factors and their impact on the quality of ESP teaching.

Table 2. Model fitting index values.

| $\chi^2$ | df  | $\chi^2$/df | RMSEA | NNFI | CFI  | IFI  |
|----------|-----|-------------|-------|------|------|------|
| 400.5    | 541 | 0.74        | 0.0674| 0.911| 0.919| 0.920|

(1) structural equation modeling of factors affecting the quality of English Teaching in ordinary Colleges and Universities

In this paper, Maximum Likelihood (ML) method is used as the estimation method of structural equation model to verify the relationship among the influencing factors in the model. The path relationships among the influencing factors are shown in Table 3 and Figure 2.

Table 3. Parameter estimation results.

|                      | Estimate | S.E. | C.R.  | P   |
|----------------------|----------|------|-------|-----|
| Teaching quality     | .612     | .277 | 3.276 | .001|
| Teachers' teaching conscientiousness | .312   | .193 | 2.348 | .019|
| Teaching quality     | .254     | .112 | 2.035 | .042|
| Classroom activity   | .473     | .118 | 4.347 | *** |
| Innovation of teaching methods | .604 | .152 | 5.486 | *** |
| Teaching quality     | .020     | .097 | 4.992 | *** |
| Classroom activity   | .303     | .058 | 1.065 | .287|

The regression coefficients of recognition degree of importance are 0.42 and the other regression coefficients are all greater than 0.6, which shows that each sub-factor can express its corresponding dimension efficiently, and proves the validity of rough set theory in pretreatment.
(2) Structural equation modeling of factors affecting the quality of English Teaching in part key Colleges and Universities.

The results of parameter estimation are shown in Table 4.

Table 4. Parameter estimation results.

|                                 | Estimate | S.E.  | C.R. | P     |
|---------------------------------|----------|-------|------|-------|
| Teaching quality                | 0.650    | 0.329 | 1.977| 0.048 |
| Teachers' teaching conscientiousness | 0.844    | 0.196 | 4.295| ***   |
| Teaching quality                | 0.235    | 0.173 | 1.360| 0.014 |
| Classroom activity              | 0.488    | 0.226 | 2.160| 0.031 |
| Innovation of teaching methods  | 0.163    | 0.229 | 1.088| ***   |
| Teaching quality                | 0.460    | 0.063 | 1.677| 0.034 |
| Classroom activity              | 0.609    | 0.199 | 1.187| 0.035 |
| Teaching quality                | 0.660    | 0.158 | 6.067| ***   |

The regression coefficients of each dimension to its corresponding sub-factors are all greater than 0.6 in the structural equation modeling result diagram. Each sub-factor can express its corresponding dimension efficiently. The structural equation modeling result diagram is omitted because of the space limitation.

Conclusion and Suggestion

(1) Rough set theory is used to pretreat the survey data in the empirical study, which can improve the validity of the data and reduce the adjustment of factors in the subsequent structural equation modeling.

(2) The main factors affecting the quality of ESP teaching are students’ awareness of the importance of ESP, teachers’ teaching seriousness, teachers’ innovative teaching methods, classroom activity, textbook selection and teaching evaluation.

(3) Students’ awareness of the importance of ESP has a significant impact on the quality of ESP teaching (the path coefficient of ordinary universities is 0.612, and some key universities is 0.650). It also has a significant impact on teachers' teaching seriousness, indicating that students' awareness of the importance of ESP affects the quality of ESP teaching.

(4) Innovative teaching methods and classroom activity should be implemented according to different students.

References

[1] Mingyin Chi. Current Situation and Countermeasures of ESP Teaching for General Undergraduates [J]. Management Review, 2011 (3): 41-42.

[2] Lili Sun and Zhengliang Wang. A Study on the Influencing Factors of ESP Learners' Negative Motivation in Applied Undergraduate Colleges [J]. Journal of Shangluo College, 2017 (3): 87-91+96.

[3] Zhanfeng Wang and Lijuan Shen. A Study on Negative Motivation of Undergraduates' English Learning: Taking the Undergraduates of Fujian-Taiwan University Cooperative Program as an Example [J]. Journal of Luoyang Normal University, 2018 (04): 87-91.

[4] Bo Xu, Junqing Kang. Strengthen English teaching and improve students' comprehensive quality [J]. Liaoning Education Research, 2001 (8): 50-51.

[5] Shu Mozai. The construction of professional English textbooks: Problems and solutions [J]. Foreign language circles, 2003 (4): 66-71.
[6] Yi Fan. Some problems in the reform of College English textbooks [J]. Foreign language teaching, 2000 (10): 55-62.

[7] Li Liu, Hong Sun, Zhichen Wang. Discussion on the Reform of English Teaching for Nursing Specialty [J]. Exploration of Medical Education, 2010 (11): 1525-1527.

[8] Lingling Li. Research on the Effective Teaching Model of Public English in Finance and Economics Universities [J] Journal of Heilongjiang Vocational College of Ecological Engineering, 2018 (2): 138-139.

[9] Fang He, Xueyun He and Qiucheng Liu. Investigation on the Information Technology Ability of College Students in English Learning under the Background of Mobile Learning: A Case Study of Hunan Local Colleges and Universities [J].Foreign Language Audiovisual Teaching, 2018 (2): 68-71.

[10]Mingqi Wang. Applied Research on the Hybrid Teaching Model in Higher Vocational Public English Teaching [J]. Education and Teaching Forum, 2018 (29): 239-240.

[11]Liping Chen. ESP research [M]. Shanghai: Fudan University Press, 2000.