

Innovative Teaching Methods of College English Education of Forestry Major in the Era of Big Data and New Media

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Abstract:

English for forestry majors is one of the most important elective courses for forestry undergraduates. New media is widely used in all fields of social life. It not only has a great impact on people's daily life, but also promotes the development of education and teaching, resulting in new teaching methods. On the basis of studying the application value of new media in English teaching, this paper discusses the two-way interactive teaching form and the hybrid modern teaching mode of English Education under the condition of new media. This paper puts forward the innovation strategy of English education. At the same time, this paper proposes a teaching method of College English based on semantic key big data. The experimental results show that this method can make the new media and English education coordinated and unified, so as to realize the modernization of English education.

Keywords: Forestry major, new media, English teaching, two-way interaction, big data.

I. INTRODUCTION

New media appeared in the 1990s, known as the "fifth media". Compared with traditional media, new media shows its own uniqueness, which integrates advanced network technology, digital technology and communication technology [1-2]. At the same time, it also includes the advantages of a variety of communication channels, including the Internet, mobile communication network, etc., which can deliver various forms of information to users in time [3]. The application of new media in English education not only provides ideas and paths for the development and innovation of English education, but also improves the interest in learning English and the effect of English teaching. To strengthen the innovative research of English education in the new media era is the basic requirement for improving the level of English education, practicing the concept of "people-oriented" and "all-round development of students",

and cultivating high-quality English talents [4-5].

New media endows English teaching with greater vitality. In the theory of constructivism, teachers are the organizers and implementers of teaching practice, and students have a dominant position in teaching practice. Conversation, situation and cooperation have a more profound impact. Constructivism supports the organic integration of English teaching and new media from a theoretical point of view. The addition of new media makes the English classroom more vivid and vivid [6]. The teaching content can be presented to students in various forms, such as sound, image, video and so on, which brings greater vitality to the English classroom and greatly impacts the traditional English classroom. Under the condition of new media, the role of teachers has changed, from former performers to directors, while students have changed from audiences to actors. In the process of teaching interaction, students gradually increase their interest in English learning, improve classroom efficiency and improve the quality of classroom teaching.

New media promotes the extension of teaching [7]. The organic combination of new media and English teaching eliminates the time and space constraints under the traditional teaching mode, that is, students can learn English by browsing relevant teaching resources in their spare time, and they can also use the teaching website to preview new knowledge and consolidate old knowledge. In addition, students can communicate with teachers and students in real time through QQ group or wechat circle, and learn English through the interaction of both sides to better digest the teaching difficulties, so as to achieve the purpose of English learning. The organic integration of new media and English teaching is also reflected in the construction of learning context. Students can not only use new media to accumulate vocabulary and knowledge, but also follow others to learn good English learning experience. In these two activities, students will gradually build a whole process learning mode, which will expand English learning to a wider range.

II. RELATED RESEARCH BASIS

2.1 The concept of content semantic analysis

From different perspectives, the concept and connotation of content semantic analysis have different representation forms, as shown in Table 1. Content analysis method originated from the study of communication. Its main principle is to analyze the information contained in the content of literature and its changes, so as to reproduce and infer the content of literature [8-10]. In the field of psychology, Osgood, a famous American psychologist, proposed semantic analysis to measure the different meanings of the same concept for different people [10]. A

typical semantic difference scale establishes seven grades between "good" and "bad". Usually, "0" stands for "neutral", "1" stands for "little", and "3" stands for "extreme". Semantic analysis is mainly used for theoretical testing, measurement of individual understanding, attitude and motivation, and diagnosis of individuals.

TABLE I. The concept of content semantic analysis

VISUAL ANGLE	NAME	CONCEPT	
Psychology	Semantic analysis	It is a method to study the meaning of things by using the semantic region subscale. The subjects are required to evaluate a thing or concept on several semantic scales with grades, so as to understand the meaning and strength of the thing or concept in each dimension	
Education	Content analysis	Practical content analysis	Statistical analysis of some subject words or specific vocabulary, and give the weight of Xiaotong (such as different fonts, layout location, ranking order, etc.) to infer the original prisoners and possible consequences
		Semantic content analysis	Semantic content analysis is analyzed from the semantic level of content, which can be further divided into designation analysis, attribution analysis, assertion analysis and so on
		Analysis of symbolic media	It only counts the frequency of specific symbols (such as some subject words) from the literal, does not consider the semantics, and does not introduce the weight, so as to analyze the content
Computer	Semantic analysis method	Semantic analysis is a complex process, involving linguistic research, text similarity calculation, ontology construction, ontology reasoning and so on	

In the field of education, content analysis is a research method to objectively, systematically and quantitatively describe the content of education. Content analysis can be subdivided into practical content analysis, semantic content analysis and symbolic media analysis. For example, Tang yewei and others used content analysis method to analyze the development status of micro class from 2011 to 2014. From the perspective of curriculum, Yin Rui and others studied the

curriculum content, curriculum resources, curriculum implementation and curriculum evaluation of the three MOOC platform courses by using content analysis method. Guan Jueqi and others took the teacher interview text as the content analysis object, and found the regional promotion status and Strategies of e-Schoolbag application through content combing, coding and analysis. With the development of semantic web, content semantic analysis plays an important role in the fields of information extraction, machine English learning, social question answering system and automatic summarization.

In the field of computer, the research of content semantic analysis mainly includes: semantic analysis based on syntactic rules, semantic analysis based on similarity calculation, semantic analysis in ontology database construction and semantic analysis in ontology based reasoning. Aiming at the problem of topic content mining and corresponding group emotion analysis in group emotion analysis, researchers introduce syntactic rules and emotion ontology library to achieve accurate extraction of topic content and accurate matching of emotion units, and realize quantification and visualization of group emotion. The application of semantic technologies such as ontology and reasoning to e-English learning can greatly improve the personalized and intelligent service level of education system; the design of subject domain ontology database can establish the foundation for dynamic aggregation of subject resources and adaptive English learning path recommendation.

2.2 The general process of content semantic analysis

The process of content semantic analysis mainly includes four steps: (1) make clear the goal of content semantic analysis, collect and organize the data; (2) make clear the elements of content semantic analysis, explain the characteristics of the elements, and establish the analysis category. (3) Select part of the content, use the determined analysis category, through the way of manual coding or computer coding to analyze the content; (4) make statistics on the analyzed data, test the consistency between coders, and finally explain and explain the meaning of the data expression. In single label classification, the most commonly used parameters for consistency test include percentage, Cohen's kappa and Krippendorff's alpha.

In the field of computer, semantic analysis method is to obtain user intention and content meaning through layer by layer processing and analyzing educational information. The process of content semantic analysis is shown in Figure 1. The process of content semantic analysis includes the following four main steps.

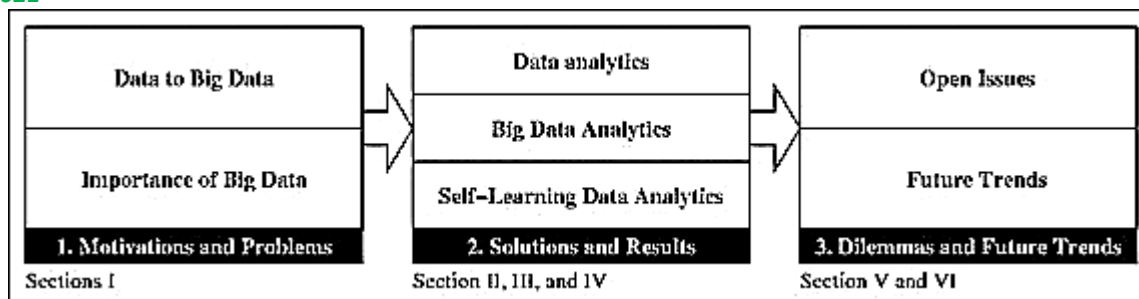


Fig 1: Content analysis process based on Semantic Web

(1) Corpus and dictionary. User content obtains all the information of words, including word form, part of speech and semantic connection, through "corpus and dictionary".

(2) Grammar analysis. In the "grammar rule" stage, the sentence structure is analyzed, including subject, predicate, direct and indirect object, and the grammar chart rules of the sentence.

(3) Semantic analysis. The "semantic rules and templates" includes high-end semantic analysis rules and schema definitions. According to the syntax rules, semantics and semantic correlation calculation, the system understands the content and uses appropriate semantic templates to express it.

(4) Visual representation. In the "concept class tree" stage, it contains hierarchical and structured topological mesh language definitions, such as ontology, more abstract, more specific, domain related class definitions, etc.

2.3 Content semantic analysis of Digital Classroom

The educational information in digital classroom has the characteristics of low measurement level, small sample data and some fuzzy information. From the perspective of education big data, the teaching analysis of digital classroom is the integrated application research of multiple small samples and single classroom teaching analysis, so as to find the general rules and characteristics of large-scale teaching scenes and phenomena.

From the perspective of English learning process, the English learning process of students in digital classroom can be understood as a process of human-computer, teacher-student and student student interaction, which can be studied by behavior analysis, semantic analysis, social network analysis and other research methods. The English learning process in digital classroom is a process of information transmission, in which the law of English learning process can be

analyzed by using information theory. From the perspective of teaching content, the teaching content in digital classroom is a complex fuzzy information, which can be studied by fuzzy mathematics and content semantic analysis. In the active service analysis of digital classroom resources, ontology, semantic analysis, graph and other methods are usually used. The structure of educational information in digital classroom mainly includes matrix, time series, graph and so on. Teaching analysis of digital classroom mainly includes teaching content structure analysis, teaching process analysis, group response analysis, resource semantic analysis, etc., as shown in Table 2.

TABLE II. Analysis of Digital Classroom Teaching

ENVIRONM ENT	TARGET	METHOD	TEST QUALITY
Digital Classroom	Structure analysis of educational information	S-P table	Positive answer rate, discrimination, difficulty, student curve, question curve, difference coefficient, attention coefficient
		Project association structure analysis, (IRS) analysis	Test structure sequence
	Analysis of teaching process	S-T analysis	Teaching model
		ITIAS analysis	Interaction rate
	Analysis of student group response	Group response curve	Positive response rate, discrimination and response rate

III. STRUCTURE ANALYSIS OF EDUCATIONAL INFORMATION

The structure analysis of educational information is a visual method to analyze the structure of educational information. Typical analysis methods include S-P table analysis, project association structure analysis (IRS analysis), etc.

S-P table is a method to analyze test scores. Through a certain test, the score matrix composed of 1 (positive answer) and 0 (wrong answer) is obtained. S-P table is used to rank 1 and 0 according to the positive response rate and students' scores, so as to analyze the

characteristics of students and questions.

Project relevance structure analysis is a structural analysis method based on the students' understanding of each problem (project) and the analysis of the relevance structure between problems.

3.1 Analysis of teaching process

Teaching process is the process of information transmission between teachers and students, which is a process of expansion and change on the time axis. By recording all kinds of data in the teaching process, through the analysis and processing of these data, we can obtain the information of classroom teaching evaluation. The main analysis methods include S-T analysis method and itias analysis method.

S-T analysis divides classroom teaching behavior into two categories, namely teacher behavior (T) and student behavior (S). The teaching behavior is sampled at a certain time interval, and the times of T and s are recorded to form S-T diagram, which is used for teaching mode analysis and behavior transformation analysis of teachers and students.

The interactive analysis coding system based on Information Technology (itias) mainly analyzes the speech acts in classroom teaching. The classroom teaching acts are divided into four categories: Teacher's speech, student's speech, silence and technology, with a total of 18 kinds of behaviors. The samples are also taken at certain intervals to record the proportion of four kinds of behaviors, which are used for the analysis of teacher-student interaction.

3.2 Analysis of student group response

In digital classroom, the analysis of students' group response can be used for formative evaluation of teaching, analysis of students' characteristics and control of teaching process. Student group response analysis refers to the response analysis of the whole class as a student group to the teacher's questions.

Teaching analysis in digital classroom environment also includes discourse analysis. Discourse analysis is mainly used to analyze the part of speech of the dialogue between teachers and students, count the frequency of words, calculate the information entropy, and analyze the cognitive and emotional characteristics of students in teaching activities.

In the above research methods, large-scale classroom teaching analysis will gather teaching and English learning information from time, space, subject and other dimensions, and analyze

the universal laws and characteristics of subject behavior, content characteristics, interaction characteristics and so on.

3.3 Suggestions on the innovation of English education in the new media era

(1) Innovating micro courses and optimizing teaching resources: literally, "micro" in micro courses is dominant, which is also its advantage. The advantages of micro courses are very prominent, such as strong interaction and participation, short time-consuming information dissemination process and so on. With the continuous development of science and technology, the whole society began to enter the "micro era". Students are one of the important groups in the new social conditions. They can quickly receive new things, are good at thinking, and think sensitively. But their learning time is generally short, that is, students' learning time shows obvious fragmentation characteristics. Traditional English teaching mode makes students in a single teaching method, students are prone to conflict, it is difficult to actively participate in English learning activities, and the emergence of micro curriculum effectively solves this problem. Although the micro course can deliver various interesting and thematic teaching contents to students in a more relaxed and interesting way, the current micro course teaching resources in China are relatively insufficient. It is very difficult for teachers to present new knowledge in various forms perfectly, and it is also difficult for students to build a complete knowledge system. Therefore, teachers can use new media to further expand teaching methods and continue to complete the integration of micro curriculum education resources. Under the influence of new media technology, teachers should conduct in-depth research on the current teaching materials, and endow the micro curriculum with the advantages of refining and core.

(2) Establish a learning salon, activate the learning atmosphere ": the wide application of new media in life has changed people's way of life to a certain extent, so has the English teaching method. For example, through the establishment of QQ English Salon learning group, it provides a better way for the communication between students and teachers, and realizes the smooth communication between the two sides. Students can gather the knowledge points they don't master in class, and use the chat function and information transmission function of QQ group to consult teachers in time. Teachers can use this software to provide guidance and help for students' English learning, and can also track the whole process of students' English learning. This innovative English teaching mode not only breaks through the limitations of the original English classroom, but also helps to build a personalized English classroom. In addition, English teachers can also use the circle of friends, space and other ways to improve students' enthusiasm for learning English. For example, teachers can publish some English sayings, beautiful articles and poems in the space, and also upload some beautiful English songs, so that students can feel the charm of English unconsciously and eliminate their aversion

to English, So as to devote more enthusiasm to English learning. QQ has a long-distance teaching mode, teachers can have voice dialogue with students in the group, to meet the psychological needs of students.

(3) Promote information training, strengthen the reform: in recent years, many schools pursue the enrollment expansion policy, the number of students is rising, which makes the English teaching team in a relatively insufficient state, and the construction of high-quality English teaching team has become one of the most important tasks of school development. Due to the increase of the number of students, teachers' teaching time and lesson preparation time are increasing, and people's energy is limited. In this way, teachers' learning time in strengthening self-education and improving technical level will be less. From the current overall situation of English teachers, the ability of some middle-aged and elderly teachers to learn advanced educational technology is really low, and schools should provide more opportunities for teachers to participate in training. Therefore, school management can create a good learning platform for English teachers from a coordinated and unified perspective, especially to help students master more multimedia production technology. In addition, the increase in the number of students has led to the contradiction between the teaching hardware and the number of school computers is limited, and the campus LAN service ability can not meet the growing needs of students. These problems directly affect the enthusiasm of English teachers to carry out English teaching by using new media technology. Therefore, the school should increase the investment in network construction, increase the number of computers, and build new multimedia classrooms and other supporting facilities. School administrators should see this, and firmly implement it in the teaching reform, closely around the information construction, and strive to create a better external environment for the smooth development of English teaching between teachers and students.

(4) Through the new media technology, the reform of teaching mode: teachers should first see the importance of new media technology in English teaching, and purposefully use new media technology to create a good learning environment. In the final analysis, English teaching is a language discipline. A good learning atmosphere is an important prerequisite for the smooth development of English teaching. If the new media technology is organically combined with the construction of English learning atmosphere, more prominent teaching effects can be achieved. For example, teachers can use new media technology to play classic movies and TV plays for students, or explain the reading materials in the form of combining text and images, or guide students to correct their pronunciation by using error correction software, etc. rich and colorful forms will greatly improve the learning effect. In addition, teachers should pay attention to summing up the system knowledge, not only to sum up the main points of knowledge in time, but also to use new media technology to supervise students and urge students to master English

knowledge, so that students can continuously improve their ability to use English comprehensively.

Using new media technology to enhance the interest of English teaching. The traditional English teaching mode is generally characterized by teachers' speaking, students' memorizing, neglecting to encourage and guide students, students' low interest in English, and even boredom, which has become the main reason to limit the improvement of English teaching effect. Based on this, English teachers must cultivate students' interest in learning English, and guide students to actively participate in English learning. Teachers can use new media technology to create teaching situation, the purpose is to improve the interest of English classroom, enhance the interaction between teachers and students, so that students are more likely to have interest in English learning. In the process of English learning, students should also make full use of multimedia technology. On the one hand, they should improve their interest in learning English through new media technology; on the other hand, they should actively think about it and improve their ability of speaking, reading and writing, so that they can have a foothold in the society in the near future.

Using new media technology to realize the modernization of English education. With the rapid development of new media technology, it will be widely used in the field of education. Therefore, the innovative teaching mode based on new media technology will replace the traditional teaching mode, which is the necessity of social development, and will also lead to an unprecedented great change in the field of education. The new media teaching mode includes two meanings, one is to use modern media technology to improve the classroom effect, the other is to highlight the dominant position of students and establish a new learning mode of teacher-student interaction.

IV. CONCLUSION

In short, English teachers should make full use of the vividness and vividness of new media technology, try to stimulate students' interest, promote the development of English education, and improve students' comprehensive ability to use language. At present, there are many problems in English teaching, such as not paying attention to the cultivation of students' interest in learning English, lack of a good external environment for English learning, lagging behind of teaching philosophy and so on. English teachers should not only discover these problems in time, but also innovate educational means, and put forward more targeted English learning strategies on this basis. For English teachers, they should dare to innovate, especially use new media technology to change the original teaching system. They should not only impart English knowledge to students, but also increase the interest of classroom teaching. For students, they should fully realize the importance of English learning, strive to increase their interest in

learning English, and constantly explore their own English learning methods in practical learning, so as to improve their comprehensive ability of using language.

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