Intelligent Data Mining-Based Method for Efficient English Teaching and Cultural Analysis

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ABSTRACT

The emergence of online education helps improve the traditional English teaching quality greatly. However, it only moves the teaching process from offline to online, which does not really change the essence of traditional English teaching. In this work, the authors study an intelligent English teaching method to further improve the quality of English teaching. Specifically, the random forest is firstly used to analyze and excavate the grammatical and syntactic features of the English text. Then, the decision tree-based method is proposed to make a prediction about the English text in terms of its grammar or syntax issues. The evaluation results indicate that the proposed method can effectively improve the accuracy of English grammar or syntax recognition.

KEYWORDS

1. INTRODUCTION

Since the beginning of the 21st century, the world economy and arms competition have become increasingly fierce, and the demand for English professionals has gradually expanded. In order to meet the needs of rapid economic development, different colleges and universities have implemented a series of reforms in view of the existing English teaching models (Guan 2018). Among them, English grammar and syntactic analysis are the key points in the foundation, and they are the necessary conditions for the establishment and cultivation of compound English talents. With the introduction of the compound talent training mode of "English + news", colleges and universities gradually begin to actively explore diversified English teaching models, give full play to students' practical and innovative abilities, and carry out comprehensive practical education around the creative ability of graduates (Mahbub 2021). It plays an important role in cultivating the new ability of English majors.

At present, although the level of English teaching in colleges and universities in China is constantly improving, English, as a public subject, has not been deeply integrated with specific fields and vocational skills, which is reflected in the unfamiliarity of English grammar rules in many fields (Albiladi 2019). French semantic logic is not clear and so on. Therefore, in order to fully meet the needs of social development and educational reform in colleges and universities, we should actively explore an English teaching model dominated by the cultivation of students' professional ability, focusing on the cultivation of basic English analysis and judgment, and realizing the simultaneous development of students' English proficiency and vocational skills plays an important role in improving students' English ability (Mirbabayeva 2020).

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In the context of the current big data era, the rapid development of technology has also brought opportunities for the development of college English teaching. Especially in the current teaching, the application of some advanced network technology and information processing technology has greatly facilitated English teaching, changed the traditional English teaching mode, made teaching more diversified and more interesting, and significantly improved students' interest in learning (Elyas 2018). With the assistance of big data, school institutions can build an effective English grammar and syntax database, record students' phased English learning, and then organize and analyze them as a basis to constantly optimize teaching ideas. improve the pertinence of English teaching, so as to fully meet the diversified and dynamic needs of students (Hudson 2005). Under the application of big data, we can also strengthen the dynamic monitoring of teaching quality and improve the timeliness of teaching. In addition, the application of information technology can help students understand knowledge and enrich classroom content, so as to improve students' learning efficiency and teaching quality (Guo 2021). Therefore, in order to meet the needs of the development of major industries, colleges and universities at home and abroad gradually combine data mining and other related contents to carry out a wide range of English teaching, including basic grammar, semantics and so on (Lou 2020).

However, big data brings both opportunities and challenges to English teaching. The challenges are mainly reflected in two aspects. First of all, the massive teaching resource in big data's era have weakened the English teaching model based on teaching materials. In the current efficient English teaching system, due to the solidification of the teaching materials used, with the continuous reform and development of teaching, it may have been unable to meet the needs of the current development (Weng 2020). Moreover, a large amount of English teaching resource are usually discrete and there are a lot of repetitive content, which makes it very difficult to obtain effective English knowledge (Bienkowski 2012). Therefore, although big data is rich in resource, students have a negative attitude towards finding effective resource from the vast amount of data on the Internet, so it is difficult to improve their interest in learning. In addition, the teacher-led classroom learning model leads to students' passive acceptance of knowledge and lack of interaction. In the long run, it will not only lead to professional exhaustion of teachers, but also can not bring effective feedback to students' English learning effect (Mihaescu 2021).

Based on the above consideration, in order to improve the quality of English teaching, this paper explores the important writing features of English sentences at the grammatical and syntactic level by using random forest and logical regression machine learning algorithms. Based on this feature, the decision tree model is used to optimize and predict and judge the grammatical and syntactic correctness of sentences, so as to improve the quality of English teaching. The purpose of this paper is to provide a basis for improving English teaching management and improving the quality of English teaching. The main contributions of this paper are as follows:

- By using the random forest theory, he fully analyzes and excavates the grammatical and syntactic features of the text in English teaching, and then extracts the English sentence features at the grammatical and syntactic levels, which can be used for further modeling and analysis of English grammar teaching.
- According to the extracted effective sentence features, an English sentence classification method based on decision tree method is proposed, and an English grammar prediction model is established by using a large amount of English grammar teaching data for learning and classification. and then provide the model and method basis for efficient and automatic English teaching.
- By using a large number of data for statistical analysis and theoretical verification of the proposed model method, the results show that the proposed method can effectively improve the accuracy of English grammar recognition, and then improve students' autonomous learning ability.

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