

# *Path of College English Teaching Reform under the Background of Big Data*

Huan Liu\*

*Nanchang Institute of Science and Technology, Jiangxi 330108, China*

*56600883@qq.com*

*\*corresponding author*

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**Abstract:** College English is one of the basic core courses for college students in China. This course involves many difficult concepts and grammatical structures, which is very difficult for most students. The starting point of any teaching plan is to determine whether teaching is needed to specify what teaching should accomplish. Therefore, the needs of students are the key to the success of College English teaching. The traditional college English teaching does not consider the students' individual learning ability and feedback, which will lead to the students' lack of key knowledge and make them lose interest in English. This paper discusses the cognitive and motivational effects of animation teaching agent and alternative delivery system (simple flashing arrow with audio) when college English level students learn English relative clauses in big data and multimedia environment. This study also examined the cognitive efficiency of the two media systems in English grammar teaching. Therefore, the platform can improve students' autonomous learning ability and English ability. The results show that: in 2020, 601 papers with "artificial intelligence" and 526 papers with "English Teaching" as keywords will be published the most.

## 1. Introduction

The most important part of AI is interaction. The system receives the input from the terminal, processes it, and returns the result to the terminal, that is, man-machine dialogue. Interaction is the exchange of information between sender and receiver. It exists in all kinds of teaching activities and is one of the most basic characteristics of teaching activities.

With the development of science and technology, artificial intelligence information technology has been applied to all aspects of modern teaching. Many experts have studied College English teaching. For example, some teams in China have studied the design and development of adaptive English learning system. This paper briefly analyzes the requirements of each part of the credit system, and discusses in detail the achievements and experience of the reform of College English

credit system. Using the method of natural investigation, the National Excellent Course videos of many universities are selected as samples. This paper analyzes and discusses the data from four aspects, and establishes a college English teaching platform. Years of statistical data show that the average score of students who use the platform to learn college English is far higher than that of students who do not use the platform, to explore the factors affecting its effectiveness. By using the method of questionnaire survey, this paper analyzes the principles of current AI translation products, and through the analysis of three focus group interviews and writing samples in myaccess online archives, attempts to explore the Enlightenment of new technologies on translation teaching, especially in translation teaching, which requires systematic research and construction of translation corpus [1]. According to the characteristics of English teaching and computer science, some experts introduced the application of artificial intelligence in the online examination platform, analyzed the important role of artificial intelligence in the teaching platform, and used computer-aided teaching to improve the organizational structure teaching system (CAI). The results show that using artificial intelligence to design online examination platform can effectively improve students' autonomous learning ability. In addition, the application can diagnose learners' errors and provide effective experience for AI training of other education methods. Secondly, based on Agent Technology of artificial intelligence, a multi-agent system is established. The simulation results show that the model can make intelligent response according to the emotional characteristics of students in English Classroom: the application of intelligent module is conducive to students' English learning and teachers' information exchange in English classroom [2]. Some experts have studied the design and implementation of English Autonomous Learning Platform Based on constructivism teaching mode, analyzed the problems existing in College English teaching, and put forward the implementation scheme of College English CAI System Based on artificial intelligence technology. The system is mainly composed of two parts: teacher English CAI expert system module, application of expert knowledge in English knowledge field and framework combination. Using fuzzy reasoning to analyze, teachers can understand the knowledge that students master. Establish a student self-learning system based on BP neural network module, test students, so that students can self diagnose and provide suggestions to students, so that students can carry out targeted learning [3]. Although the research on College English is fruitful, there are still some deficiencies in the path research of College English Teaching Reform under the background of artificial intelligence.

In order to explore the path of College English Teaching Reform under the background of artificial intelligence, this paper studies the relationship between artificial intelligence and College English, and establishes a neuron model. The results show that using artificial intelligence to learn college English can improve students' autonomous learning ability.

## 2. Method

### 2.1. Artificial Intelligence and College English

#### (1) Autonomous Learning of College English

Autonomous learning itself is conceptually a tool, that is, the ability to design and manage one's own learning plan[4]. Autonomous learning is students' autonomous learning, and autonomous learning mode is opposite to other leading learning modes[5]. Autonomous learning is mainly reflected in three aspects: first, plan your own learning in advance; second, actively monitor, evaluate and feedback the learning effect; third, timely correct, adjust and master the learning process[6]. Students' autonomous learning has the characteristics of effectiveness, feedback, initiative, adjustment and transfer[7]. Autonomous learning can be summarized into four aspects:

"comprehensive theory", "ability theory", "environment theory" and "responsibility theory"[8]. Among them, the definition of autonomous learning is called "comprehensive theory" from many aspects; the ability of learners' autonomous learning is called "ability theory"; the environment theory thinks that learners are strict with themselves and can study seriously in any environment; the responsibility theory emphasizes that autonomous learners are responsible for their own learning effect and have a strong sense of responsibility for their own learning[9].

### (2) Learning measurement

With the advent of big data era and the rise of data mining technology, learning measurement has received unprecedented attention in the field of education[10]. It refers to the process of objectively quantifying students' real behavior (eye movement, micro expression, etc.) and performance (understanding, communication, expression, etc.), skill acquisition and other educational needs by using a variety of methods and measuring tools according to certain laws. On the one hand, teachers can obtain the relevant data produced by learners in the process of learning through learning measurement, and timely adjust the teaching strategies according to the data description and feedback results to carry out personalized teaching; on the other hand, teachers can carry out personalized teaching according to the data description and feedback results, and learners can evaluate the learning value and obtain their own learning achievements through learning measurement results: find problems in time, overcome negative factors, improve learning methods and improve learning efficiency.

### (3) Artificial intelligence

With the arrival of the new era of AI driven education reform and development, the future education must have the characteristics of intelligent education. The emergence of new teaching ideas, teaching methods and teaching tools will promote the transformation of the whole teaching mode, and the teaching effect will also be significantly improved. It plays a vital role in the development of social economy and has gradually become an important symbol of the new era of information technology. The integration of education and new technology will bring bright changes to education. In particular, AI education will pay more attention to the details of teaching, far beyond experiential education. The integration of education and new technology will bring bright changes to education. In particular, AI education will pay more attention to the details of teaching, far beyond experiential education.

## 2.2. Neuron Model

$X_1, x_2, \dots, X_n$  represents  $n$  inputs of neural network. It represents the strength of the  $N$  connection between our input and the neuron, and  $B$  represents the corresponding threshold of the neuron. We can regard it as the weight of the network aspect with constant input 1, which is represented by the column vector  $x$ , as follows (1):

$$X = [x_1, x_2, \dots, x_n]^T \quad (1)$$

The summation unit can complete the weighted summation of the input signal  $V$ , as shown in equation (2):

$$net = \sum_{k=1}^n x_k w_{1,k} + b \quad (2)$$

When the input signal is acted by the weighted summation function and transfer function of the neuron, the final output result is obtained, as shown in equation (3):

$$y = f(wx + b) \quad (3)$$

The transformation function of the hidden layer is a kind of locally distributed nonlinear function with radial symmetric attenuation of the central point, which is usually a Gaussian function, as shown in equation (4):

$$\varphi_j(x) = \exp\left(-\frac{\|X - C_j\|^2}{2\sigma_j^2}\right) \quad (j = 1, 2, \dots, h) \quad (4)$$

### 3. Experience

#### 3.1. Experimental Object Extraction

From the perspective of network, knowledge node itself does not contain meaning, and the meaning of knowledge points is contained in the connection between knowledge points. According to the "Double Coding Theory" of psychology, there are two ways to store knowledge in the brain: representation storage and semantic network storage. Without symbols, concepts and other knowledge, expression would not be so systematic. Because some personality characteristics have the nature of talent, it is difficult to change, so in the design process, we mainly consider how to adapt to these personality characteristics. Some personality traits are the result of cultural influence and can be changed through education. If these personality characteristics are not conducive to learning in a specific cultural background, we need to consider how to change them in teaching design. Student model is a framework to describe students and a thinking tool to analyze learners. Learner analysis is to fill in the values of each element in the student model for a specific learner. There are two steps, the first step is to determine the scope of the syntax variable, and use graphics. The second step is to learn the conditional probability distribution table of each node through Bayesian network.

#### 3.2. Experimental Analysis

The general process of design research includes three stages: design conception and creation based on theoretical basis, implementation and record of design in reality, and systematic review and analysis of process data. The first stage: theoretical basis stage and design innovation stage. In order to achieve the dual purpose of theoretical progress and practical progress, design research emphasizes to deepen the understanding of theory through literature research while the research is rooted in reality, so as to feed back the further understanding to practice. These two aspects of research at the same time, promote each other, so that the relationship between theory and practice is closer. The second stage: the implementation of design in reality. When the design does not achieve the expected effect in a certain round of practice, people will think that the design is invalid, which needs to revise the design theory or redesign the product according to the results obtained in practice. Through field observation, in-depth interviews, case studies, questionnaires and other ways to collect different types of data, detailed records of important events occurred in the process of research and the basis of design changes, the formation of mutual confirmation relationship between different data, so as to improve the reliability of research results and conclusions. The third stage: the stage of systematic retrospective analysis of process finance. Understand if and how design works in a certain situation. Design research usually adopts process oriented explanatory logic, so research phenomena are not expressed in the form of the relationship between variables,

but in the form of events and their sequences. It is necessary to establish a causal relationship between events to explain that the change originated from the implementation or modification of the design.

## 4. Discussion

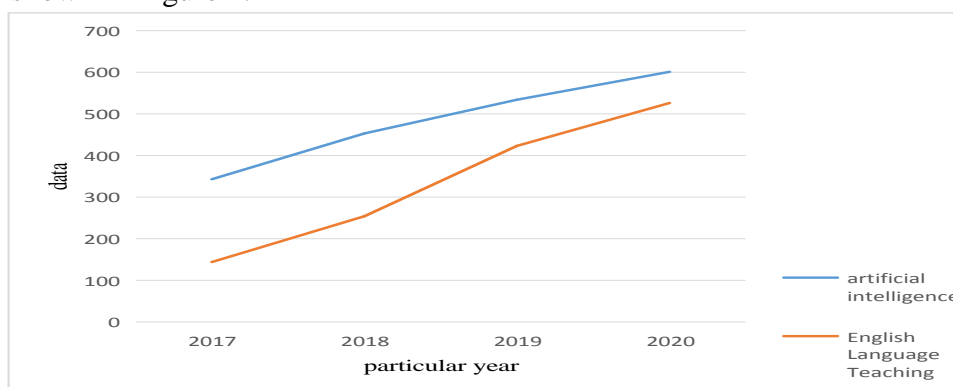
### 4.1. The research status of English Teaching

Taking "artificial intelligence" and "English Teaching" as key words, this paper analyzes the distribution of colleges and universities from 2017 to 2020. According to statistics, the research institutions of artificial intelligence and English teaching are mainly universities, and universities are mainly distributed in normal universities. As shown in Table 1.

*Table 1. Distribution of institutions on artificial intelligence and English teaching from 2017 to 2020*

particular year	2017	2018	2019	2020
artificial intelligence	343	453	534	601
English Language Teaching	144	254	423	526

It can be seen from the above that in 2017, 343 papers were published on the key words of "artificial intelligence", 453 papers were published on the key words of "artificial intelligence" in 2018, 534 papers were published on the key words of "artificial intelligence" in 2019, 601 papers were published on the key words of "artificial intelligence" in 2020, and the key words of "English Teaching" were published in 2017 There are 144 articles, 254 articles on "English Teaching" in 2018, 423 articles on "English Teaching" in 2019 and 526 articles on "English Teaching" in 2020. The results are shown in Figure 1.



*Figure 1. Distribution of institutions on artificial intelligence and English teaching from 2017 to 2020*

It can be seen from the above that the number of published articles related to "artificial intelligence" and "English Teaching" is positively correlated with the growth of years. In 2020, 601 papers were published on the "artificial intelligence" keyword, and 526 papers were published on the "English Teaching" keyword.

### 4.2. The Orientation of Foreign Language Learning Purpose and Attitude

Different from the concept of motivation used in second language acquisition research, foreign

language learning culture adopts the concept of purpose. Limited by the unique learning environment of our country, foreign language course is a compulsory course from the stage of compulsory education. Students' attitude towards foreign language learning can be seen from their attitude towards homework. The statistical results of all learners' attitudes towards foreign language learning are shown in Table 2.

Table 2. Statistical results of all learners' attitudes towards foreign language learning

Type	Data
Very disagreeable	6%
Disagree	3%
Uncertain	15%
Agree	30%
Very much	46%

It can be seen from the above that 6% of the learners disagree with the foreign language learning attitude, 3% disagree with it, 15% are uncertain, 30% agree with it and 46% agree with it. The results are shown in Figure 2.

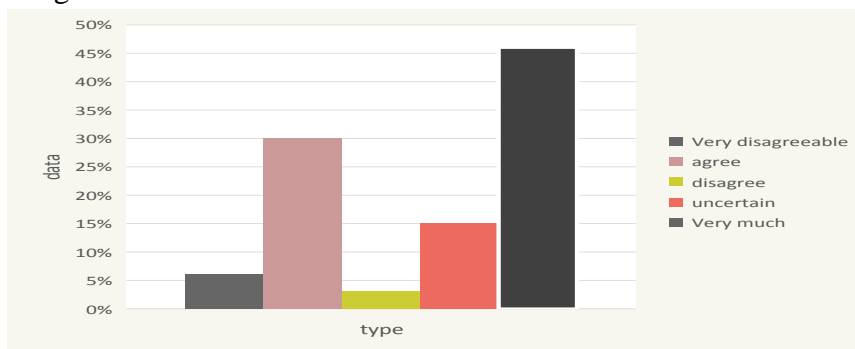


Figure 2. Statistical results of all learners' attitudes towards foreign language learning

It can be seen from the above that 76% of the learners have a positive attitude towards foreign language learning. The proportion of learners with negative attitude towards foreign language learning is 24%.

## 5. Conclusion

The application of artificial intelligence language service products has brought great challenges and opportunities to language teaching in Colleges and Universities: it has promoted the innovation of teaching mode, changed students' learning style, and changed teachers' translation training mode in the context of artificial intelligence. It is constructed from the following aspects: artificial intelligence based on corpus, Artificial Intelligence College English translation teaching based on robot, Artificial Intelligence College English Writing Teaching Based on error correction network and Artificial Intelligence College English translation teaching based on cloud service. This paper puts forward three ideas to improve the current situation of College English teaching. First of all, the classroom should be an environment where all kinds of foreign language learning activities and multimedia materials can be carried out. Secondly, analyze the advantages and disadvantages of the existing teaching materials to help teachers choose teaching materials. Finally, the coordinating professor must coordinate the whole Russian curriculum and provide suggestions for students' enrollment. Teaching them a foreign language must be different from the traditional foreign

language teaching methods. In order to achieve the goal of building an educational system with foreign language learning culture and history, it is necessary to build an effective foreign language learning system. In addition to learning how to communicate, foreign language learning can also make students have different views on the world.

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### Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

### Conflict of Interest

The author states that this article has no conflict of interest.

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