GRADIVA

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

Research on the Historical Development and Current Situation of "Artificial Intelligence" Assisted College English Writing Teaching Model Innovation

Congli Li

Foreign Languages Department of the University, ZheJiang YueXiu University,
Shaoxing, China. Email: polly@uok.edu.gr

Abstract

With the rapid development of artificial intelligence technology, the application scenarios in the field of education continue to upgrade, and traditional teaching methods can no longer meet the actual needs, which puts forward new requirements for college English writing education guidance. How college teachers use artificial intelligence platform to obtain classroom teaching data to analyze classroom teaching situation, improve classroom teaching mode, and truly provide students with appropriate teaching services is the main topic of teaching reform in the new era. Therefore, after understanding the current situation of college English writing teaching in China, this paper identifies the unique advantages of AI-assisted teaching mode innovation. An integrated platform of online virtual experiment and teaching based on Internet technology is constructed, and a mixed teaching model and corresponding measures are proposed to provide technical support for the implementation of practical teaching guidance.

Keywords: *Artificial Intelligence; College English; Writing Teaching; Integrated Platform.*

This paper is a phased research achievement of the following project: Exploration and Teaching Practice of Ideological and Political Education Elements in College English Courses Based on Shaoxing Intangible Cultural Heritage (2505270003)

INTRODUCTION

In order to fully implement the strategic action requirements of education digitization proposed by the Ministry of Education and accelerate the pace of college education informatization construction in the new era, the relevant departments, under the organization and coordination of superior leaders, actively carried out various artificial intelligence research platform research activities, gradually deepened the integration of intelligent technology and teaching, and comprehensively implemented the research work of "artificial intelligence pilot". In order to create favorable conditions for the implementation of college English writing teaching in the new era, this paper explores the innovative application strategies of teachers with artificial intelligence technology as the core.

1. An analysis of the current situation of college English writing teaching in China

English writing ability, as one of the four basic language cultivation abilities proposed by Chinese college English teaching requirements, embodies the highest form of language expression and belongs to the highest level of language ability. It is the focus of college English teaching guidance and is crucial to the comprehensive development of college students [1]. Therefore, how to ensure a more standardized and accurate expression in English writing is an important problem for every language learner and every language teacher. As a new direction for college teachers to start thinking about AI education recently, relevant scholars are

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

committed to studying curriculum requirements and teaching guidelines, and teaching reform plans that are more suitable for the needs of international talents.

Break through the restrictions of traditional teaching mode, and truly realize the sharing application of teaching and learning resources. Based on the results of the exploration of college English teaching modes in recent years, college teachers use advanced technology such as language recognition and intelligent teaching to provide convenient conditions for the implementation of college English teaching guidance, which can not only accelerate students' understanding and application of what they have learned, but also carry out in-depth teaching guidance in an orderly manner, and build an ecological teaching mode of teacher-guided and student-dominated. It provides more opportunities and challenges for college personnel training in the new era [2].

2. Analysis of unique advantages of AI-assisted teaching model innovation

(1) Improve students' learning efficiency

In college English teaching, the research and development and application of artificial intelligence teaching technology has transformed the traditional teaching model concept, which is embodied in the design of personalized learning path. Traditional college English teaching adopts a unified teaching strategy, ignoring the differences in students' ability, needs, interests and hobbies. Artificial intelligence technology can systematically analyze the learning data of college students, accurately evaluate the learning level of students, and finally formulate learning plans that meet the needs of personal growth [3]. From the perspective of practical teaching, AI-based assisted teaching can help teachers sort out and analyze students' online learning behaviors. Common data include learning time, homework completion, test scores, learning preferences, etc. Based on pattern recognition, the system can grasp each student's weak points and recommend more suitable learning materials and exercises for students. Scientifically adjust the existing teaching difficulty and learning speed to better meet the needs of students' learning and growth, so as to improve the efficiency of classroom teaching and encourage students to actively participate in teaching work.

In addition, when designing the teaching path of college English writing classroom, artificial intelligence technology also shows continuous learning and strong adaptability. As the accumulated data and information of students become more and more abundant, the intelligent system will continue to optimize the learning recommendation algorithm, ensure that the practical teaching content can be constantly adjusted according to the needs of students, demonstrate the effectiveness and flexibility of efficient English writing teaching, and improve students' mastery of language knowledge, which meets the basic requirements of higher education in the new era to develop in the direction of precision and personalization [4].

(2) Improve the timeliness of classroom teaching feedback.

In traditional English writing teaching in colleges and universities, teachers mainly evaluate students' language ability based on test scores or homework completion, and cannot accurately grasp students' learning status in time, and the feedback often lacks accuracy. In contrast, artificial intelligence technology can facilitate teachers to assess students' language competence in real time and accurately, providing effective support for classroom teaching reform and innovation [5]. Specifically, the artificial intelligence system can analyze the expression of students in oral writing in real time and accurately identify the errors in grammar, vocabulary, pronunciation and other aspects. Such rapid and direct feedback results can make

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

students accurately aware of their learning errors and promote their rapid adjustment and effective improvement in language application.

At the same time, this new evaluation mechanism improves the accuracy and timeliness of teaching feedback, enabling teachers to adjust teaching strategies and teaching content in a timely manner according to the feedback information provided by the system, so as to meet the learning and growth needs of students [6]. Artificial intelligence technology has outstanding advantages in processing large amounts of data information and providing personalized teaching suggestions. The corresponding system platform can not only accurately record every mistake made by students, but also predict the problems encountered by students through the types and frequency of mistakes, and finally formulate targeted learning plans for students according to these results, so as to improve their language ability. At present, the application of the implementation language ability assessment system with artificial intelligence technology as the core in college English classes has been verified. It makes full use of the unique advantages of modern education technology, optimizes the technical methods of college English writing teaching, improves various experiences of students in learning guidance, and improves various abilities of teachers in classroom design guidance. It shows the positive influence of artificial intelligence in promoting the development of higher education [7].

3. Analysis on the construction of online virtual teaching integration platform based on Internet technology

(1) The general mode of college English writing teaching

In college English teaching guidance, practical teaching guidance is usually divided into three stages. First, before class, teachers will ask students to read the content of the textbook and provide relevant video materials if conditions permit. Then, they will ask students to ask questions according to their own learning results to provide directions for the next class guidance. Secondly, in class, teachers will check what they have learned. According to the questions left by group communication and discussion, students can obtain learning results through communication and finally acquire more knowledge under the guidance of teachers. Finally, after class, teachers can have an in-depth understanding of students' learning ability and classroom teaching through student feedback and peer evaluation, and make adjustments according to students' homework correction. The following teaching mode is shown in the figure:

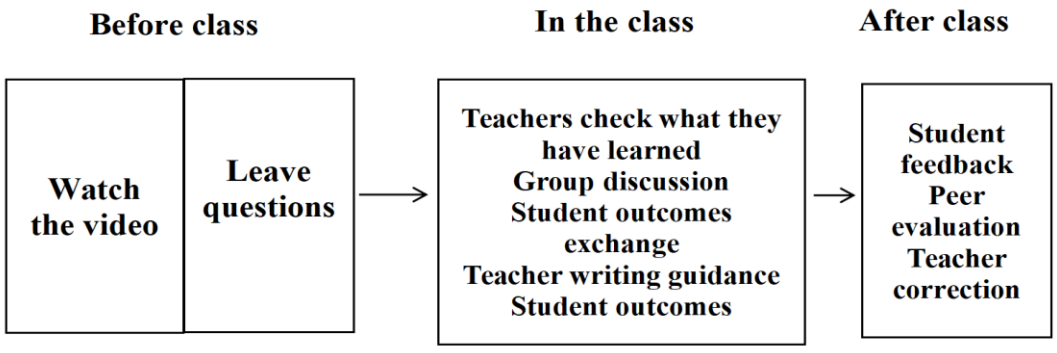

Figure 1: General mode of college English writing teaching

Based on the analysis of the overall model, it is found that there are some defects in the above teaching process, there is less communication between students and teachers, classroom teaching adopts a single guidance mode, there is a serious shortage of on-site teaching guidance

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

time, and the classroom teaching evaluation results are not conducive to showing the overall teaching process, and problems in the classroom guidance process cannot be found. It is not conducive to actively cultivating all-round development of outstanding talents, so artificial intelligence technology is used to assist the creation of virtual teaching integration platform, whose purpose is to allow students to complete more teaching training in the virtual environment.

(2) Building an integrated platform

According to the requirements of the current college English writing teaching mode, this paper proposes an online integration scheme, regards Internet technology as the basic operating platform, and effectively integrates virtual design technology [8]. The architecture has the characteristics of cross-platform, high scalability, good maintenance and strong concurrency, so it is more advantageous to build an integrated experimental teaching platform with Internet technology as the core to actively carry out college English writing teaching. The specific architecture is shown in Figure 2 below:

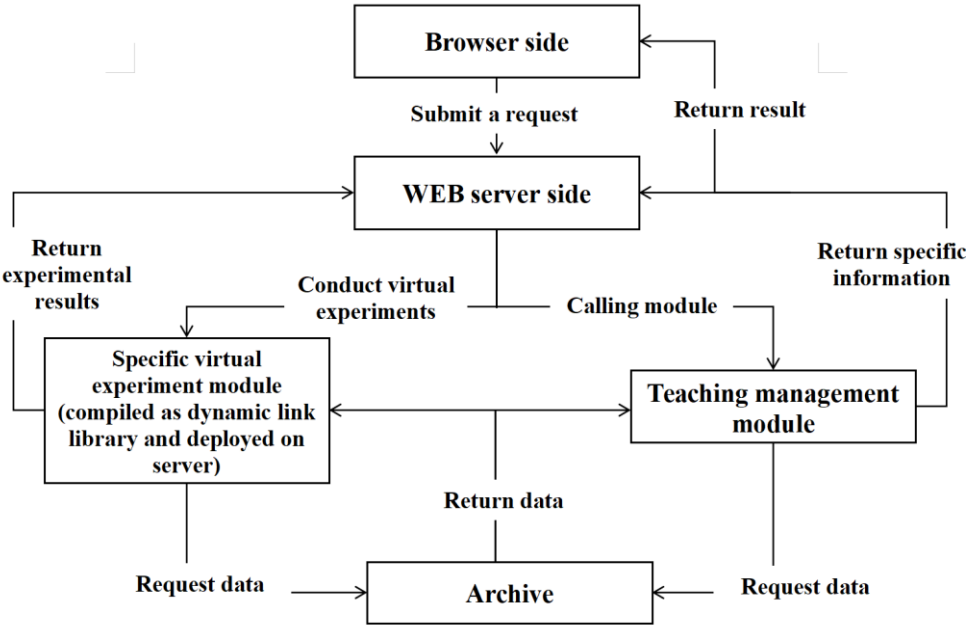

Figure 2: Architecture diagram of the integrated platform

Based on the above analysis, it can be seen that the client uses a browser without installing additional software, and users can directly use the browser to carry out simulation experiment analysis. In the process of system operation, the virtual experiment software is highly professional and can provide more targeted learning materials. The Internet technology platform is easier for students and teachers to operate and apply, so as to carry out real online teaching guidance and training. On the Internet server side, it can receive simulation operation instructions and reasonably call the virtual experiment sub-layer and teaching management sub-layer, the latter will be directly implemented on the Internet server side and independently developed according to the needs of college English writing teaching.

The virtual experiment sub-layer will be realized by means of dynamic link library. Virtual software will be used to develop corresponding teaching project modules. The developed modules will be compiled and deployed on the Internet side, and dynamic link

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

library will be used to ensure that the platform can be easily integrated and applied. The data layer builds a database, which is mainly used to store various data information of teaching management and teaching design [9].

As an open-source project, NS3 virtual network software can accurately simulate complex networks and their performance, which is mainly used for scientific research activities and teaching management. Various basic virtual network objects have been designed and realized in advance, and virtual network experiment objects can be combined and configured to form diversified virtual network equipment when applied in the above integrated platform. In order to ensure the orderly implementation of equipment connection and practical teaching guidance [10]. In combination with the component system structure shown in Figure 3 below, there are four types of virtual network objects: First, nodes. In computers and routers, the relevant network nodes will only install applications, only with network protocols and network equipment can be used normally, nodes belong to the starting point of all network activities; Second, applications.

It refers to the application layer and the transport layer in the TCP/IP model, which will communicate in real time between nodes and need to be installed on the corresponding nodes; Third, the network protocol stack. It refers to the Internet interconnection layer in the TCP/IP model, which can be used to configure the corresponding device and needs to be installed in the node; Finally, network equipment. The network access layer in the corresponding model contains network cards and drivers, which are used to design various data link layer protocols. A single node can be configured with multiple network devices. After connecting the network devices, the communication channels between them are established.

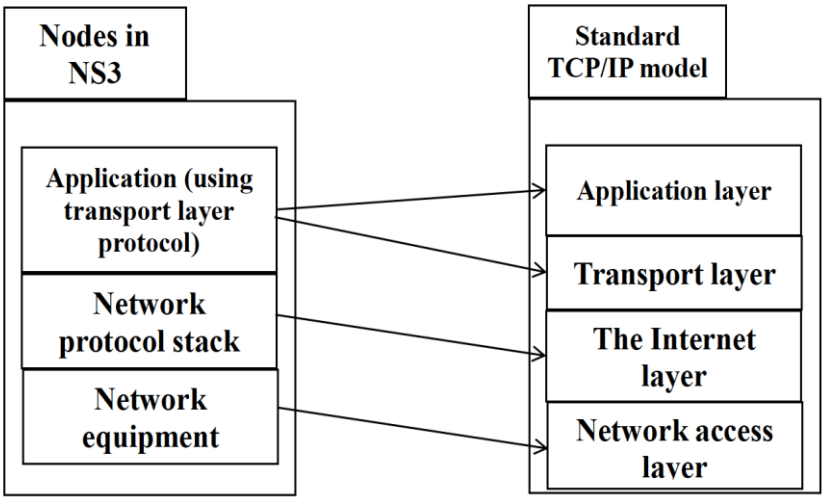

Figure 3: Component system design structure

According to the flow chart shown in Figure 4 below, to apply NS3 to the design of the integrated platform, it is necessary to develop and design simulation experiment code in accordance with the requirements of college English writing teaching, and use dynamic link library compilation to save the compiled code to the Internet server [11]. The front-end uses HTML language to realize the virtual teaching scene, and uses AJAX technology to process the user's operations. During the operation test, the scene is converted into JSON data format according to JavaScript language. JSON, as a lightweight data exchange format, can transmit the scene data to the server. The Internet server will use PYTHON as the processing language,

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

after obtaining the user's request, there should be relevant network simulation experiment code according to the request content, and the scene data will be passed into it as parameters. During the running of NS3 network simulation experiment code, the JSON string will be parsed, corresponding network devices and network topology will be created, and IP packets will be obtained by each node through simulation, thus forming a series of PCAP packets. The final playback of experimental results is to simulate and analyze the acquired data packets, so as to re-present the complete experimental results for users [12].

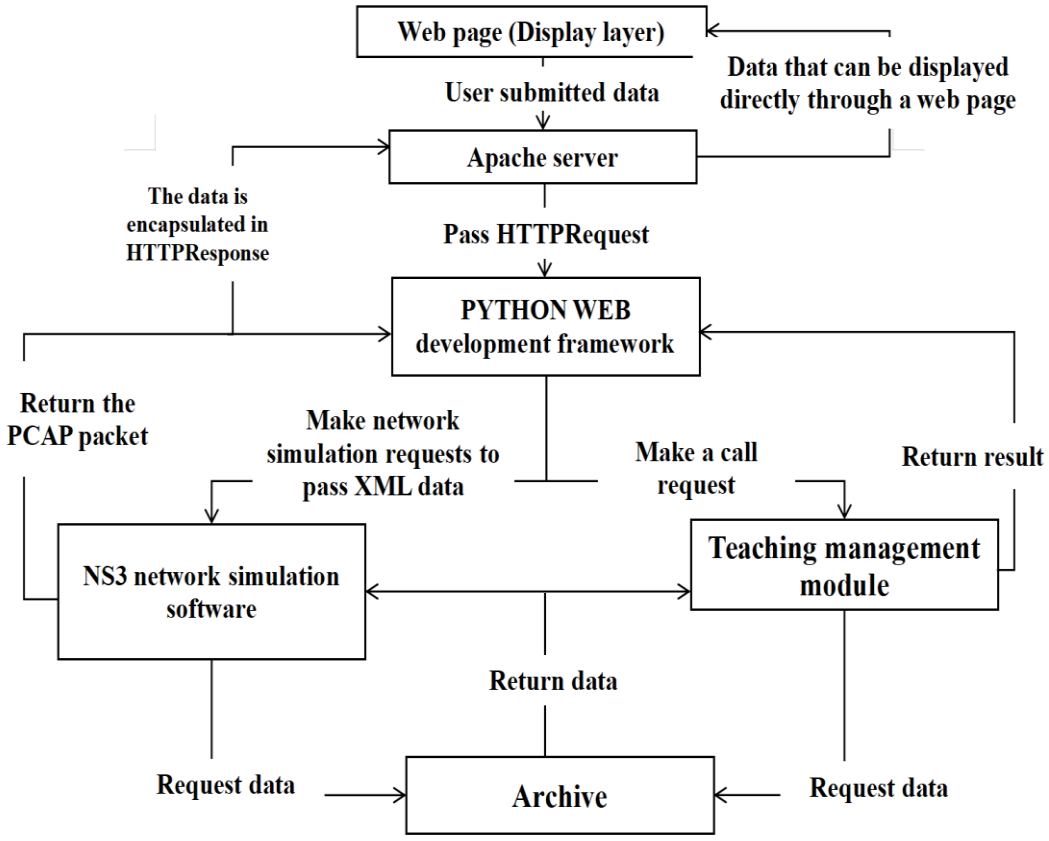

Figure 4: Platform flow chart

From the perspective of experimental application, the overall platform architecture design can better complete the teaching of college English writing and provide favorable conditions for innovative experimental training. Students can find their own writing errors according to the corresponding guidance modules and show the guiding function of online simulation teaching. Teachers can view the implementation results of previous teaching training and obtain more objective evaluation data according to the various performances of students in the experiment process, so as to provide reference for the next teaching guidance.

4. Analysis of mixed teaching mode of college English writing assisted by "artificial intelligence" and corresponding measures

Based on modern information technology means such as Internet big data and artificial intelligence, a hybrid teaching model including pre-class preparation, classroom teaching, after-class learning, classroom discussion, course evaluation and other links is constructed, and artificial intelligence technology is infiltrated into each link to completely optimize the whole process of teaching and education. It can also create a personalized and intelligent teaching

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

environment, provide strong support for actively carrying out college English writing teaching, and further strengthen college students' language writing ability and expression ability [13].

First, prepare before class. Before the formal teaching of college English writing, teachers should first clarify each teaching project, which includes teaching objectives, time arrangement, teaching content and activity design, etc. At the same time, when implementing the blended teaching mode with the assistance of artificial intelligence, they should understand the optional teaching platform, operation method, and students' requirements for class, learning tasks and homework. Create favorable conditions for the follow-up practical work.

Second, classroom teaching. On the basis of continuing the advantages of traditional teaching, the combination of online learning platform and online teaching platform of Chinese University Woodcut makes reasonable use of high-quality network resources to enrich the teaching content and teaching forms, so as to improve the classroom teaching environment and teaching design, such as constructing the trinity teaching mode of listening, speaking, reading and writing as shown in Figure 5 below. Teachers can use modern software to test students' preview status in real time, accurately understand students' questions before class, and then use network platforms to store and publish rich course resources, timely follow up students' learning and mastering status, clarify the key and difficult points of classroom teaching, and complete more teaching tasks within a limited time [14].

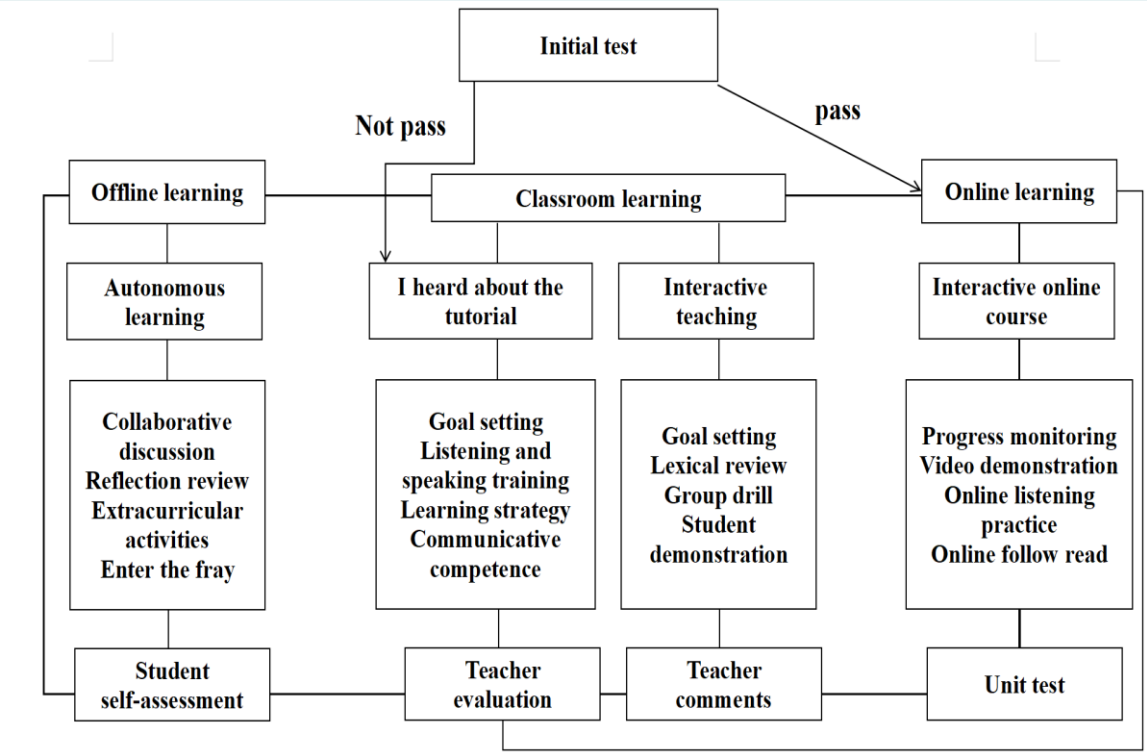

Figure 5: Structure diagram of Trinity teaching mode

Third, study after class. The main content of after-class learning refers to the in-depth interpretation and application of the content of the lecture, how to divergent self-thinking to understand more English knowledge, and orderly completion of the homework assigned by the teacher. On the one hand, teachers can use the network platform to publish learning tasks and push courseware materials and extended materials to students in real time; on the other hand, teachers can use the network platform to monitor students' online learning situation in real time,

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

comprehensively and dynamically understand students' learning level, so that students have a more flexible learning space, and can freely choose places and methods according to their own situations. Break through the space limitation of teaching to meet the individual learning needs of students.

Fourth, class discussion. This part mainly refers to the discussion process from group discussion to whole class communication, including students showing their writing content, groups answering questions, sharing their learning experience, group summary report, etc. In the whole process, teachers play the role of supervision and guidance to ensure that the classroom discussion is more orderly and targeted. At the same time, multimedia technology is used to show network teaching resources or common problems, etc., to help students expand their thinking awareness, improve the participation and interaction of discussion activities, stimulate students' interest in language expression, and activate the classroom interactive atmosphere, so that every student can gain something.

Fifth, curriculum evaluation. Under the guidance of artificial intelligence technology, the efficient English writing teaching mode can build a diversified comprehensive evaluation system, which includes process evaluation, performance evaluation and result evaluation. The achievement evaluation mode needs to be quantitatively processed, and comprehensive consideration is given to students' overall classroom performance, homework submission, classroom interaction, online question-answering, doubt solving and other information. The use of online learning platforms and writing software for comprehensive assessment can not only stimulate students' enthusiasm for learning, but also ensure that the assessment content can be based on evidence [15].

CONCLUSION

To sum up, the innovation of AI-assisted college English writing teaching mode does not regard information technology as an auxiliary tool, but should be comprehensively infiltrated into the entire teaching process, improve various traditional teaching and learning modes, and then improve the teaching mode of college English writing and improve the guidance level of college English teaching. At the same time, the teaching reform and innovation assisted by artificial intelligence should actively cultivate more excellent technical teacher talents, change the traditional teaching guidance concept, and create favorable conditions for actively carrying out intelligent teaching classrooms.

Reference

1) Make Zheng, Yan Zhao, Guirong Wang, et al. Research progress of non-invasive markers in predicting immunotherapy effect of non-small cell lung cancer [J]. Cancer, 2024, 43(5):238-245.

2) Jinfen Xu, Qiaoling Deng. College English learners' acceptance of live teaching platform: A study based on the Technology acceptance model [J]. Foreign Language Teaching and Research, 2024, 56(2):262-273.

3) Zengxia Guo. Research on Online College English Teaching Practice based on O-AMAS Effective Teaching Model [J]. Overseas English, 2024(7):161-163.

4) Jun Wang. Research on Blended College English Teaching Model based on BOPPPS Teaching Model [J]. Science and Education Guide, 2023(22):134-137.

Volume 64 | Issue 08 | August 2025
DOI: 10.5281/zenodo.16892954

5) Xin Liu, He Tian, Xuan Xiao, et al. An Exploration on the Optimal Practice of Ideological and Political Teaching in College English Majors from the student-oriented perspective [J]. Progress in Education, 2024, 14(4):776-781.

6) Yijun Chen. The application of Large Language Model in College English Writing teaching [J]. Journal of Qiqihar Normal College, 2024(3):141-144.

7) Na Liu, Haobo Liu. A study on Teacher Autonomy in Blended College English Teaching based on BOPPPS model [J]. Think Tank Times, 2023(5):148-151.

8) Guojin Li. Construction of Ideological and political teaching system for College English classes based on BOPPPS model [J]. Hyperactivity, 2023(17):0241-0243. (in Chinese)

9) Na Wang, Liwei Zheng. Ecological evaluation system of College English teaching based on DPSIR model [J]. Journal of Inner Mongolia Normal University: Education Science Edition, 2023, 36(1):89-99. (in Chinese)

10) Yun Feng. Design and practice of Ideological and Political Teaching in College English Courses for art and Sports students based on BOPPPS model [J]. English Square (Academic Research), 2024(16):75-79.

11) Xiaoling Lin. Role Positioning and professional Development Path of college English teachers in the era of "AI+ Education "[J]. Journal of Qingyuan Vocational and Technical College, 2023, 16(1):64-70.

12) Jihua Dong, Shuai Dong, Hao Wang. Establishment and application of English writing Scoring index model based on text features [J]. Chinese Journal of Examinations, 2023(2):42-48. (in Chinese)

13) Junli Li. A study on the Collaborative Development of College English Teachers' moral Cultivation and Curriculum Ideological and Political Teaching Ability [J]. Knowledge Window (Teachers Edition), 2024(6):126-128.

14) Yanyan Yu. Blended Ideological and political teaching Practice of College English courses based on ADDIE model: A case study of Chinese Culture English Course [J]. Forestry Teaching, 2024(11):43-46.

15) Fengying Zhao, Wenbin He, Xiaoxia Ji. A study on the integration of ideological and political elements into College English Online Teaching under the BOPPPS model: A case study of "College English Intercultural Communication" [J]. Forestry Teaching, 2024(4):74-79.