

The Evaluation of College Chinese Teaching Effect Based on Internet of Things Technology

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ABSTRACT

Aiming at the problem of the evaluation of College Chinese teaching, based on the development of internet of things technology, this paper discusses the teaching rules of internet of things technology in detail and makes relevant analysis. Then, college students of different grades are selected and applied to the specific evaluation of College Chinese teaching based on internet of things technology. The experimental results show that college students of different grades have different effects on College Chinese teaching based on internet of things technology. In addition, in the process of College Chinese teaching, freshmen and sophomores have a positive evaluation of the effect of Chinese teaching and have a strong interest in Chinese learning while senior students have the worst evaluation and interest in learning. Finally, the paper analyzes the possible problems in the evaluation of College Chinese teaching based on internet of things technology.

KEYWORDS

College Chinese, College Student, Evaluation, Internet of Things, Teaching Effect

INTRODUCTION

The main symbol of the difference between higher vocational education and ordinary undergraduate education is to cultivate applied talents required by society. College Chinese should be a public basic course in applied undergraduate colleges with humanistic quality education as the core, integrating language instrumentality and humanistic education, aesthetics, and cultivating students' comprehensive professional quality and ability (Huang, 2021).

The most important questions in the standard curriculum of college Chinese are how to:

- make students' Chinese potential generate into realistic professional quality,
- adapt to the development of social politics, economy, and culture,
- keep pace with the development and changes of production mode and lifestyle in modern society,
- become a high-quality worker with culture, technology and morality required by the real society, and
- realize the goal of higher vocational and technical education (Xia, 2020; Chen, 2021).

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After the reform and opening up, some colleges and universities resumed teaching college Chinese and made it a public compulsory course. After that, the whole country began to compile college Chinese textbooks, and college Chinese entered a new stage. With the progress and development of society, college Chinese has been listed as a compulsory course even for college students outside the Chinese department. The development of college Chinese has thus taken a big step forward.

It should be different from the construction of college Chinese courses in general undergraduate colleges (Hang et al., 2024). According to the characteristics of vocational education, clarifying the standards of college Chinese courses, and discussing the construction of college Chinese teaching materials, teaching methods, teaching effect detection, and evaluation are the directions for the application of undergraduate colleges to further improve the construction of college Chinese courses (Zhao, 2021). The specific constraints in the development of college Chinese are as follows: unclear target orientation, insufficient teaching quality, and low student satisfaction.

In addition, with the continuous development of society, the traditional college Chinese teaching content needs to be constantly updated to increase the degree of integration with students' learning needs and social development needs. The current college Chinese teaching content increases students' learning difficulty and strikes students' learning enthusiasm, resulting in students losing their interest in learning college Chinese. Without reading and writing, college Chinese teaching has no meaning (Feng, 2021). Students only learn college Chinese material mechanically, which does not recognize the value of Chinese discipline. Teachers often ignore the importance of Chinese reading and writing to save classroom time (M.Wang et al., 2021). According to the book, students learn by rote (Davies et al., 2020).

In recent years, under the influence of the new curriculum standards, quality education has been adjusted and reformed accordingly (Ogata et al., 2024). As a basic subject, college Chinese is closely connected with students' life, especially the research on the evaluation of the effect of teaching Chinese teaching, which can not only stimulate students' enthusiasm for life, but also effectively improve students' academic achievements. It is the key to improving the further development of Chinese teaching (Feng, 2010). Therefore, how to improve students' inquiry ability is very important. Recently, the internet of things (IoT) has had a far-reaching impact on the education industry, giving birth to a series of new teaching modes such as Mu classes, micro classes and flipped classes (Lu et al., 2020). This is conducive not only to improving achievement of diversified teaching objectives but also facilitating the implementation of emerging modern educational ideas.

In modern educational theories and models, constructivism emphasizes that students gain a profound learning experience by constructing their own knowledge and understanding. IoT technology provides many new opportunities for education, which can help students play their role in the learning process better. For example, using IoT devices in classrooms or laboratories can help students explore and practice concepts, while promoting cooperation and communication between students. On the other hand, social learning theory suggests that students learn by observing and imitating the behavior of others. In this situation, IoT technology can provide a more interactive classroom environment, enabling students to better communicate and share their experiences and insights. For example, in the interconnected classroom of the IoT, teachers can use real-time data to showcase students' reactions and opinions, which can better encourage students to participate in the classroom. IoT technology can improve the education mode of college Chinese, enhance students' interest in learning, and increase the diversity of college Chinese education methods. IoT is a new measurement and control network technology integrating computer science, communication engineering, microelectronics, sensor technology, and other disciplines (Chen & Huang, 2021).

The emergence of the IoT makes it possible to create a connection between things and develop in an intelligent direction, which will greatly increase the convenience of life (Jiang, 2021). Real-time monitoring and operation can not only improve people's living standards but also improve people's quality and promote social harmony.

The IoT may also have a positive impact on family life, communication and entertainment, human health, and other fields in the future. IoT technology will make it possible to monitor each human organ dynamically and in real time and find some lesions in time. With the improvement of related technologies, the IoT must be popularized and used on a large scale. In the future, with the improvement of its performance, the application cost will be significantly reduced, the service will be more humanized, the real communication between things will be realized, and the intelligent and all-round management of people's lives will be carried out. An important feature of the IoT is its long-term stable operation and rapid large-scale deployment (Yang & Feng, 2021). Such characteristics determine that IoT products must have the ability of reliability, security, wireless, seamless, and green. The most basic, extensive, and core unit cells that constitute the IoT are sensors and related control units (Chen, 2021).

The IoT is a technology that takes the internet as the foundation and organically combines all items with the internet through Radio Frequency Identification (RFID) and other relevant information to achieve the goal of intelligence (Zhou et al., 2021). Technology's definition and connotation are gradually broadened, and it has widely covered all fields of society. In short, the IoT connects all information, and time and place are connected to form a network. For college Chinese teaching, integrating IoT in the process can create interconnection between knowledge, strengthen students' basic knowledge, and stimulate students' interest, to improve the experimental effect and promote the sustainable development of college Chinese teaching.

IoT technology has three characteristics (Lou, 2020):

1. **Comprehensiveness.** This essentially means that the IoT includes all information. It has a large amount of information and covers a comprehensive range, similar to the way human nerves run through every corner of the body. People can obtain the information they want to know through sensors.
2. **Reliable transmission.** It is mainly through relevant technologies that society can realize the reliable transmission of information, broadband network, and other technologies. The IoT continues to deepen the level of information.

The organic combination of these characteristics and inquiry-experimental teaching can promote the development of inquiry-experimental teaching (Maijala & Mutta., 2024).

Connectivism learning theory is a relatively new theory that suggests learners should combine thoughts, theories, and general information in a useful manner. It also emphasizes the role of technology in the learning process and how it enables learners to access and share information through various online platforms and networks (Siemens, 2005). Connectivism learning theory is relevant to this study because it provides a theoretical framework for understanding how students learn Chinese based on IoT technology. IoT technology is a form of digital technology that connects physical objects and devices to the internet and allows them to communicate and exchange data (Gubbi et al., 2013). IoT technology can enhance Chinese language learning by providing interactive and personalized learning experiences, facilitating collaborative and social learning, and enabling real-time feedback and assessment. Therefore, this study aims to explore how IoT technology affects the learning outcomes and attitudes of different grade levels of college students who learn Chinese.

IoT technology can vividly reflect the content of college Chinese teaching, students' learning methods, and classroom interaction, which is conducive to the evaluation of the teaching method. Therefore, according to the different teaching methods of college Chinese, an evaluation system of college Chinese teaching methods is established according to the IoT. Based on the current situation of online university teaching, we will further develop the breadth, deeply think about and explore the mixed teaching mode of college Chinese courses, make the application of IoT technology penetrate the whole process of Chinese teaching, and fully integrate modern teaching elements in multiple dimensions such as teaching content, activity form, and course evaluation. Then, we will

expand students' horizons with the help of the network, realize the purpose of educating people in the way students like (Dinihari et al., 2024). The purpose of this study is to explore the impact of IoT technology on Chinese language teaching at the university level and evaluate its effectiveness through various indicators.

Teaching Design Based on IoT Technology

In the teaching design of IoT, the objectives should be clear and the methods should be appropriate (Yao et al.,2020). The specific design methods include (He & Li, 2020): design principles, design contents, and teaching implementation effects, as shown in Figure 1.

Teaching Design Principles of IoT

The teaching goal of an IoT control technology course is to help students build common IoT systems with the control technologies commonly used in IoT engineering and preliminarily master the:

- relevant concepts,
- key technologies,
- basic composition, structure, design methods, and application examples of perception, identification, and control levels in IoT engineering,
- basic knowledge, basic principles, and basic methods of IoT sensing and detection system, and
- ability to design a low-power IoT system and intelligent device. (S.Wang et al., 2021).

The IoT control technology course also seeks to inspire students to introduce IoT control technology into future work projects

The teaching principles of the IoT are set according to the specific teaching content of college Chinese and are closely related to students' preferences and classroom performance forms. Therefore, in the course's task-driven instructional design, according to the concepts of technology, principles, methods, and characteristics in the course chapters, it is designed according to the four hierarchical requirements of primary, intermediate, advanced, and expansion, as shown in Figure 2. In addition, to meet the requirements of students at different basic levels, students can implement it individually or in groups.

Figure 1. Teaching Design Method of IoT

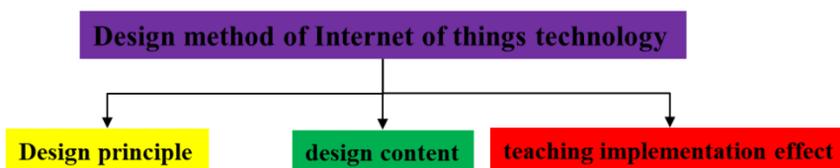
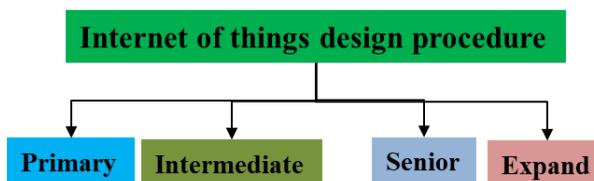


Figure 2. Flow Diagram of IoT Design Procedure



Teaching Design Content of IoT

The content design of the curriculum level task-teaching plan is the starting point and material basis of the whole task-driven teaching mode (Arbi, 2024). It is necessary to summarize the teaching skills accumulated by teachers in the process of IoT control teaching, and skillfully compile it into four hierarchical task cases of primary, intermediate, advanced and expansion (Yan et al., 2024). At the same time, different task objectives and specific examination details are set for students at different levels.

The design content generally follows the principle of covering material from easy to difficult. For the task case samples in each class, through design, modification, demonstration, and discussion, we strive to comprehensively reflect the relevant contents of the course, inspire and guide students to study actively, cultivate students' drive to consciously complete, and finally improve their ability. For example, in the relevant chapters of serial communication of IoT in this course, the case that can be designed is the smart home acquisition and control system, which can be arranged into different levels of tasks: completed with ready-made serial port debugging assistant, using IoT configuration software, using communication control, and using Win API function. These tasks meet the requirements of hierarchy.

Implementation of College Chinese Teaching Effect Based on IoT Technology

Through IoT technology, students' evaluation and learning methods in the process of college Chinese teaching can be truly displayed, which helps teachers change teaching strategies according to the actual situation, thus better promoting the development of college Chinese education. Following the requirements of the combination of hierarchical teaching and task-driven teaching, this course formulates a practical application and implementation scheme to meet the task-driven requirements in combination with the actual situation of the specific requirements of cultivating various abilities of the IoT specialty and the specific basic differences of students. The specific implementation contents are described in the following sections.

Scientific and Dynamic Hierarchical Grouping of Courses by IoT Technology

Task-driven teaching requires assigning different learning problems to students at different levels. Therefore, students should be grouped at the beginning. Grouping can be based on the learning achievements of students' previous related disciplines, or students can be grouped freely. Grouping can be dynamically adjusted with the progress of course learning, to give full play to the maximum effect of hierarchical learning. When all students are in the corresponding appropriate level, each time through the completion of the task will be improved accordingly.

Development of Task-Driven Teaching Website of IoT Control Technology Course

Students' dynamic grouping, pre-class preview tasks, viewing course-related resources, after-class summary, discussion, and improvement all need a set of effective systems for management. Some colleges and universities have a ready-made Pan Asian network teaching platform. Those that do not need to develop a set of task-driven teaching websites for this course. These websites can support computer web pages, mobile phones, tablets, and other devices. It is convenient for students to quickly access and download by relying on the campus network at any time. Through these websites, students can also conduct online tests according to their own level, interact with classmates and teachers, and make use of the network resources provided by teachers to give students with spare power more opportunities to learn.

Carefully Arrange In-Class Discussion Activities in the Classroom of IoT Technology

In a task-driven teaching classroom, teachers should arrange and carefully organize students to participate in in-class discussion activities in advance, which can encourage students who complete different tasks to learn from each other and make common progress. At the same time, students can

give full play to learning from each other, actively cross-discuss, and finally realize the comprehensive internalization of curriculum knowledge. By answering questions in class, showing task answers, and questioning each other, we can further cultivate students' good qualities such as teamwork, language communication, and excellence. At the end of the class, teachers can evaluate students' mastery of curriculum knowledge according to the task-driven situation, and score for the next dynamic grouping. In addition, teachers can answer questions and solve problems in real time.

Reform the Evaluation Mechanism of Teaching Mode in Line With IoT Technology

Hierarchical task-driven teaching also needs to reform the existing evaluation and assessment mechanism of the curriculum, change the previous single-theory course examination results as the basis, and change into a composite evaluation mechanism combining the learning process, task completion, classroom participation, and discussion. This can completely change the adverse phenomenon of students not studying at ordinary times and rushing during exams. Students enter the state of being evaluated from the beginning of the course, which promotes students to take the initiative to enter a set of virtuous circle modes of preparing for courses, completing tasks, participating in interactive discussions, and accepting evaluation.

RESULTS AND DISCUSSION

Technical Features of IoT

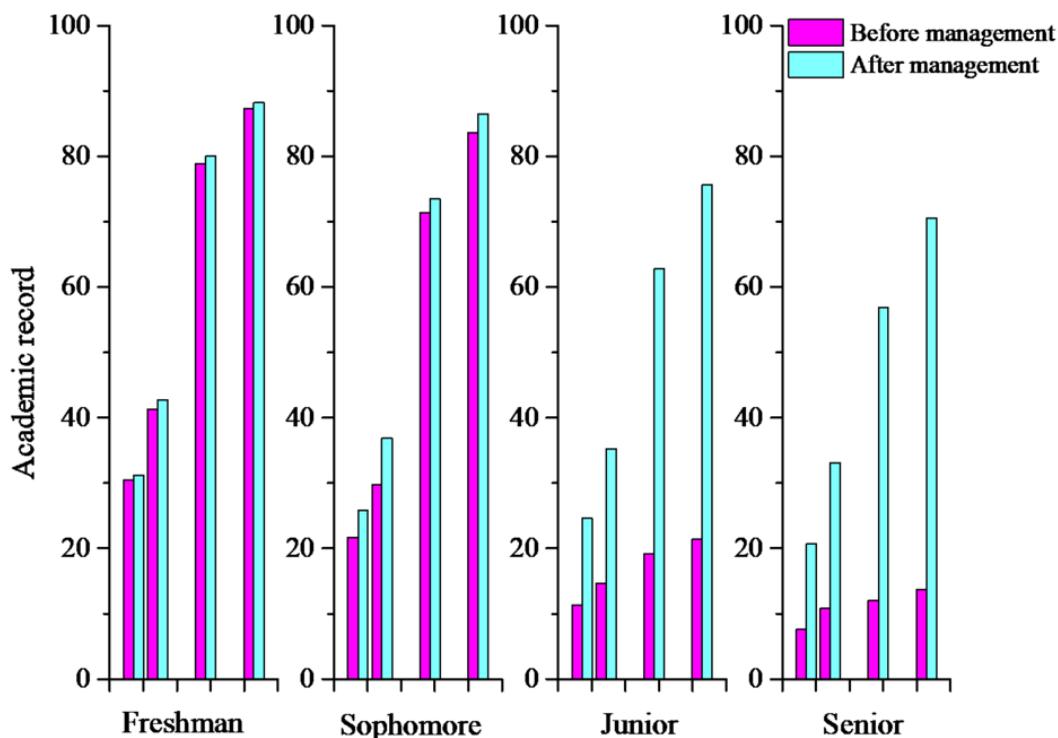
The traditional college Chinese teaching mode mainly takes teachers as the teaching subject, overemphasizing the guiding role of teachers, and the teaching effect is not obvious. Therefore, teaching with IoT technology in the new era should gradually seek a more perfect way, increase the integration with college Chinese experimental teaching, encourage students to actively participate in college Chinese classroom discussions, and adopt heuristic teaching methods. Combined with the technical characteristics of the IoT, all the daily contacts of students are combined with the classroom discussion of college Chinese, to stimulate students' learning enthusiasm and fully mobilize students' learning enthusiasm and complete the goal of the inquiry experiment. In addition, the IoT has high sensitivity and convenient operation and can well represent different teaching effects. The IoT technology is fast, efficient, and ready to reflect problems according to the actual situation, vivid and accurate. The specific schematic diagram is shown in Figure. 3.

Evaluation of College Chinese Teaching Effect Based on IoT Technology

The teaching content of college Chinese is relatively boring, and it is difficult for students to devote themselves to learning. Teachers can create teaching situations, create a good exploration atmosphere for students and attract students' attention by combining students' mastery of basic knowledge. Situational teaching should make the situation closer to students' life, realize network teaching, and stimulate students' learning motivation. Teachers should create a lively classroom, allowing students to ask questions and explore divergent thinking. The IoT technology can be prepared to reflect the characteristics of different students in college Chinese learning, help students reflect problems in time according to their own conditions, and promote the development of college Chinese education. It can then guide students to explore and create a good atmosphere for teacher-student interaction. For example, in the study of "classical Chinese," to make it easier to understand the connotation of classical Chinese, teachers should first ask students to talk about their understanding of classical Chinese in their own lives before class. Then, they can discuss with students to stimulate students' interest in classical Chinese and improve students' classroom enthusiasm.

Figure 4 shows the scores obtained by college students in different grades before and after management. For freshmen and sophomores, Chinese scores are very good both before and after management. There is little difference between them, and their Chinese scores are relatively high

Figure 3. Characteristics of IoT

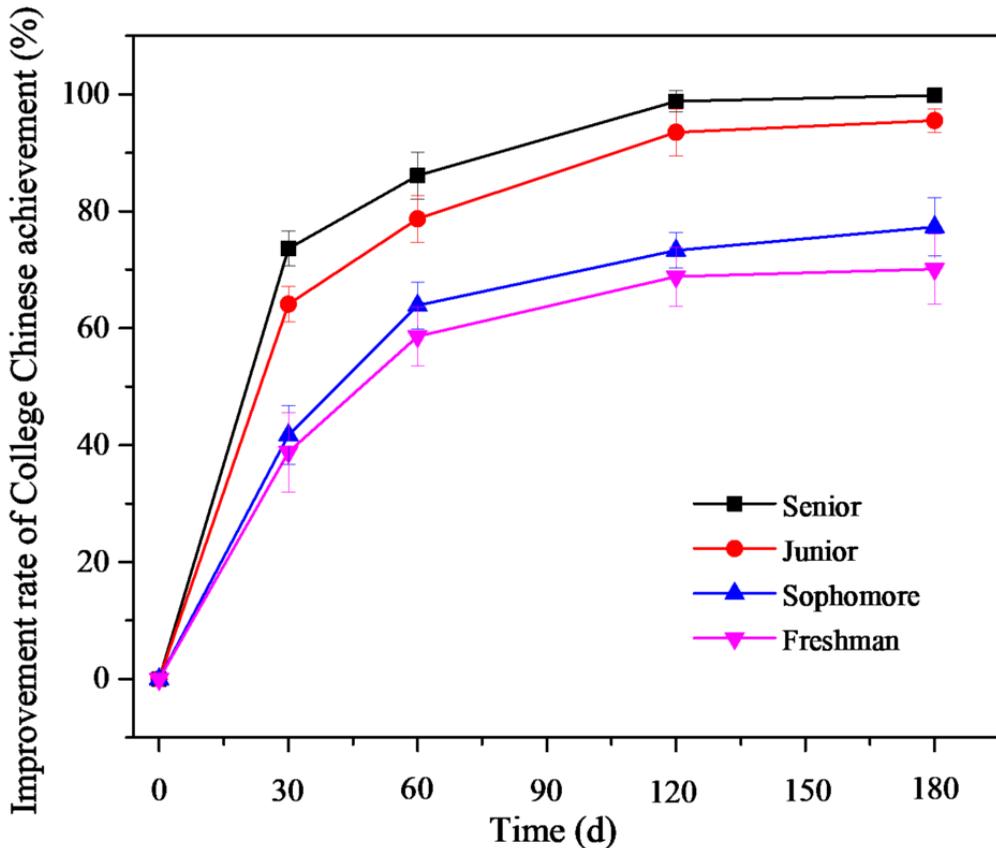


with the increase of learning time. However, for junior and senior students, before management, the students' college Chinese performance is poor, but after management, the students' college Chinese performance has been greatly improved, and the extension of learning time will help to improve their Chinese performance. The main reason may be that freshmen and sophomores have better self-control and can learn Chinese well, so their Chinese scores are better. The junior and senior students have relatively poor self-control and have no interest in Chinese learning, resulting in poor academic performance before management. If the corresponding management is carried out, it will help to improve their academic achievements in college Chinese.

Therefore, we should strengthen the management of Chinese learning in the third and fourth years of college and let them maintain their interest in learning Chinese. We should strengthen the interest of students of different grades in learning Chinese and improve their interest in learning Chinese according to local conditions by establishing different learning strategies. Only in this way can we contribute to the development of college Chinese. In this study, we selected a sample of college students from different grades and applied the IoT-based technology in Chinese language teaching to evaluate its effectiveness. We collected data through pre-and post-tests, surveys, and observations during the teaching process. Use descriptive statistics and analysis of variance to test and analyze data to determine significant differences between groups.

Figure 5 shows the improvement rate of college Chinese achievement of college students in different grades. Compared with freshmen and sophomores, junior and senior students have a higher improvement rate in Chinese performance. This is mainly because freshmen and sophomores have better Chinese performance, so their improvement rate is low, while junior and senior students' Chinese is poor at the beginning, and then after management learning, their Chinese performance improvement rate has increased significantly. Therefore, the teaching plan should focus on the requirements of

Figure 4. Academic Record of University Students of Different Grades in College Chinese Before and After Management

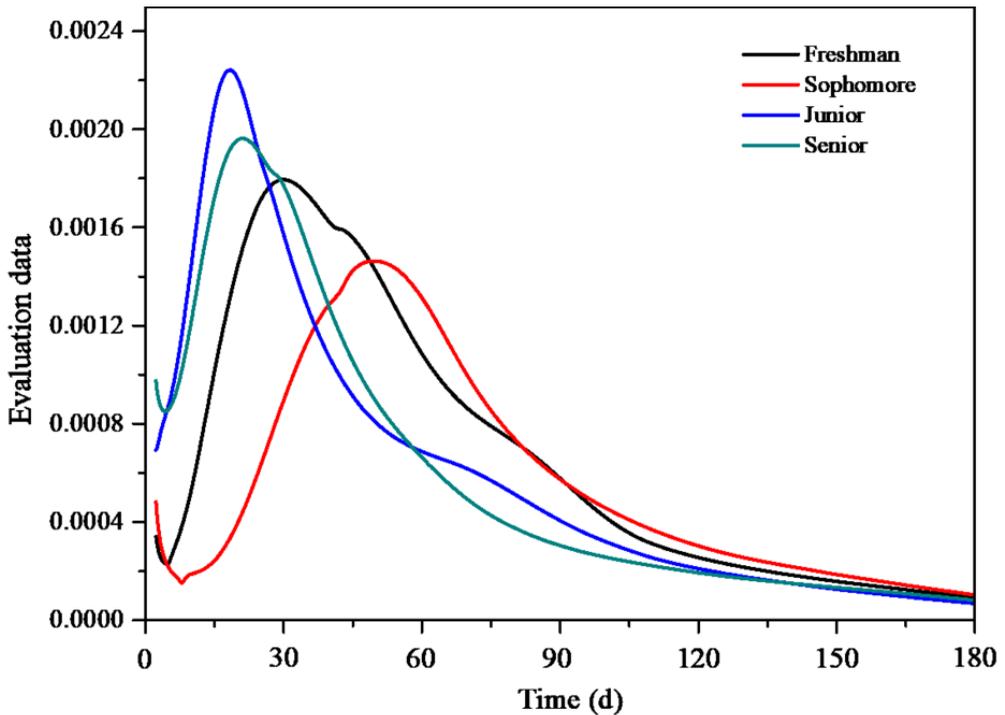


post-vocational ability and cultivate it in stages. The teacher should carry out a comprehensive test focusing on cultivating students' professional ability. For example, in an exam, you can prepare one or more topics for students to debate in the competition based on the performance evaluation of the whole process from finding information, dividing labor, and assigning roles to each team member to competing and handling pressure between organizations. The better the teaching results of college Chinese, the more conducive to the development of students' interests. That is, the results of college Chinese can reflect the evaluation of IoT technology on the teaching effect of college Chinese, which is very representative. To some extent, this examination reform has completed the transformation from knowledge to ability. It has both theory and practice. While training students' listening and speaking skills, these two objectives are to cultivate students' team consciousness, competition consciousness, cooperation and creativity, information ability, oral expression ability, social activity ability, and so on. Although some students have poor psychological quality and poor performance, this evaluation method is very useful in training students' practical abilities.

Learning college Chinese requires long-term accumulation, which emphasizes subtle influence rather than quick success. Therefore, we must pay attention to the learning process, the combination of theory and practice, and realize the long-term and healthy development of college Chinese by constantly summarizing the learning situation at ordinary times.

Curriculum assessment and evaluation should follow the principles of comprehensiveness, objectivity, convenience, and dynamics, evaluate all links of learning, truly reflect the quality of learning, and scientifically select indicators and set weights. In the traditional college Chinese

Figure 5. Improvement Rate of University Students of Different Grades in College Chinese



classroom, the assessment and evaluation are offline. The feedback on the process assessment lags behind, especially the homework such as writing practice, and cannot be commented on in real time. The effective integration of IoT technology makes it easy to embody the traces of process learning and monitor students' learning situation at any time by setting quantitative assessment criteria. At the same time, through timely feedback through the network, students can interact with teachers at any time, abandoning the limitations of time and place. Meanwhile, students' problems can be recorded in time, to urge college Chinese teachers to change teaching information and help students improve their learning.

Figure 6 is the evaluation data of college Chinese teaching effects based on IoT technology. With the increase in learning time, the evaluation of college Chinese teaching effect in different grades shows a trend of first increasing and then decreasing, and finally tends to be stable. Among them, in 15–60 days, college students of different grades evaluate the effect of Chinese teaching better. However, freshmen and sophomores have a good evaluation effect on college Chinese after 30–60 days, while junior and senior students are mainly concentrated in the first 15–30 days.

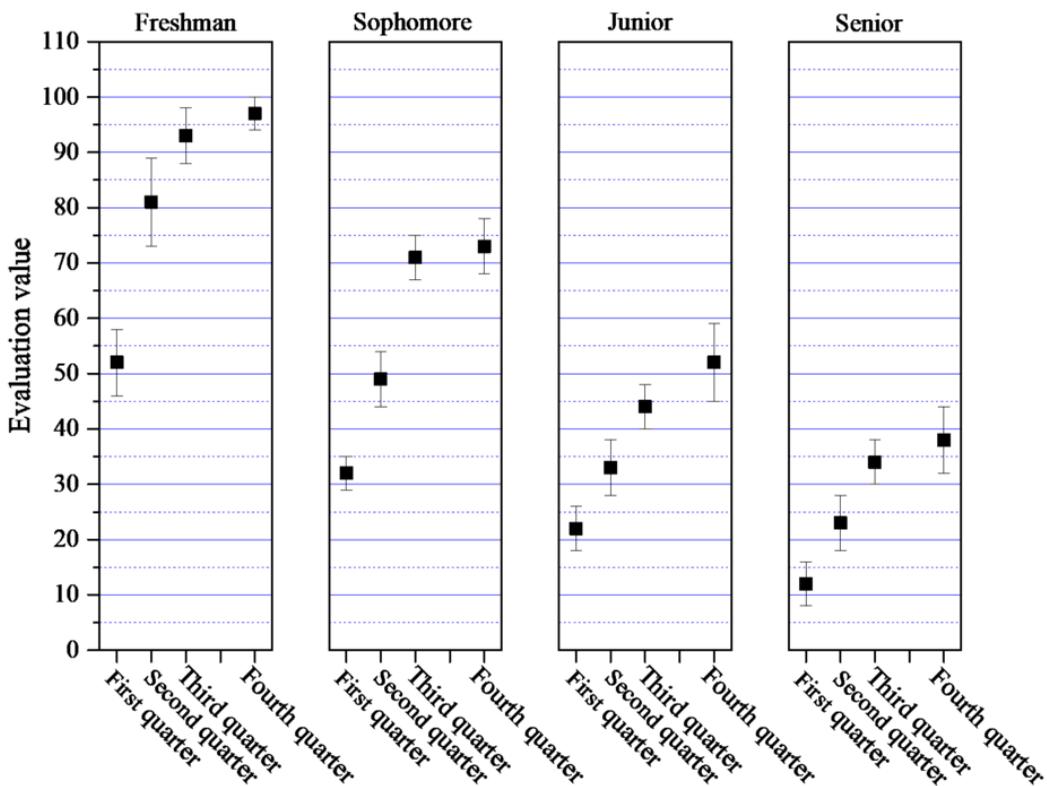
The above results show that college Chinese learning is a gradual process. In the beginning, junior and senior students will be full of interest in Chinese, and then with the increase of learning time, their laziness begins to show, resulting in the reduction of the evaluation of college Chinese teaching effect. Freshmen and sophomores are still full of interest in Chinese learning because they have just entered school, but with the increase in teaching time, their interest in learning will also decrease, resulting in the reduction of the evaluation of the Chinese teaching effect. Therefore, if you want to improve students' interest in learning, you should make a detailed plan for the curriculum and initial intention of Chinese teaching. As we all know, instrumentality and humanism are the nature of being Chinese, which cannot be abandoned in a moment; otherwise, it will not be Chinese. Of course, paying attention to the teaching of Chinese knowledge, emphasizing the cultivation of Chinese ability,

and meeting the personalized needs of students are ways in which Chinese learning is a changing dynamic adjustment process. It is an adaptive performance and the trend of the Chinese curriculum is to keep pace with the times and change according to the situation. There is no mutual exclusion and opposition. It does not mean that we do not need Chinese knowledge and Chinese ability now, or that we did not pay attention to the cultivation of Chinese ability and did not consider meeting the requirements of students' Chinese learning, but that the curriculum must be adjusted adaptively with the changes of learners in a certain period of development. Through real-time and dynamic analysis of student evaluation data, it is of timely significance to grasp the students' language learning situation and adjust teaching strategies according to the evaluation results of different students.

Figure 7 shows the evaluation values of Chinese learning achievements of college students of different grades in different quarters. The Chinese scores of college students in different grades are very different, and the score evaluation value in the fourth quarter of a school year is the highest. In addition, freshmen in different learning quarters have higher Chinese performance evaluation values, followed by sophomores and junior students, and senior students have the lowest Chinese performance evaluation values. The evaluation value of Chinese performance this time is consistent with the analysis of the above results; that is, freshmen have the best Chinese learning performance, followed by sophomores, and seniors have the worst Chinese learning performance. Therefore, we must focus on improving the Chinese learning interest of senior college students.

Given the discipline characteristics, the assessment of the Chinese curriculum cannot be simple and one size fits all. We should comprehensively consider the phased learning results. In the evaluation, we should formulate clear evaluation standards and integrate the subjective elements of learning attitude, learning performance, ideological understanding, and so on. Therefore, in terms of teaching

Figure 6. Evaluation Data of College Chinese Teaching Effect Based on IoT Technology



methods and means, there is an urgent need to move from closed one-way discourse explanation and single-knowledge teaching to open two-way interaction, and the mobile internet provides an effective platform for it. The author believes that if we can pay attention to this platform, it will be conducive to promoting the teaching reform of college Chinese courses.

Because hybrid teaching integrates many information technologies and information resources and applies them to college Chinese teaching, it is bound to expand curriculum teaching resources, innovate curriculum teaching ideas, activate students' learning interest, improve students' Chinese application ability, cultivate students' innovative thinking habits, and change the current situation of college Chinese teaching. At the same time, it will also help to promote the local transformation of the new teaching theory. After its introduction in China, mixed teaching theory has mostly paid attention to the technical level or theoretical research. If it focuses on the implementation and application in combination with the reality of college Chinese curriculum, it can not only enrich the form of mixed teaching theory but also reflect its local transformation value with specific results. It will also help to promote the teaching reform of public compulsory platform courses for non-Chinese majors such as science and engineering. Through the evaluation of students' achievements and the use of IoT technology, we can grasp students' learning situations in real time, optimize teaching measures, and promote the development of college Chinese education.

Figure 7. Evaluation Value of Chinese Learning Achievement of College Students of Different Grades in Different Quarters

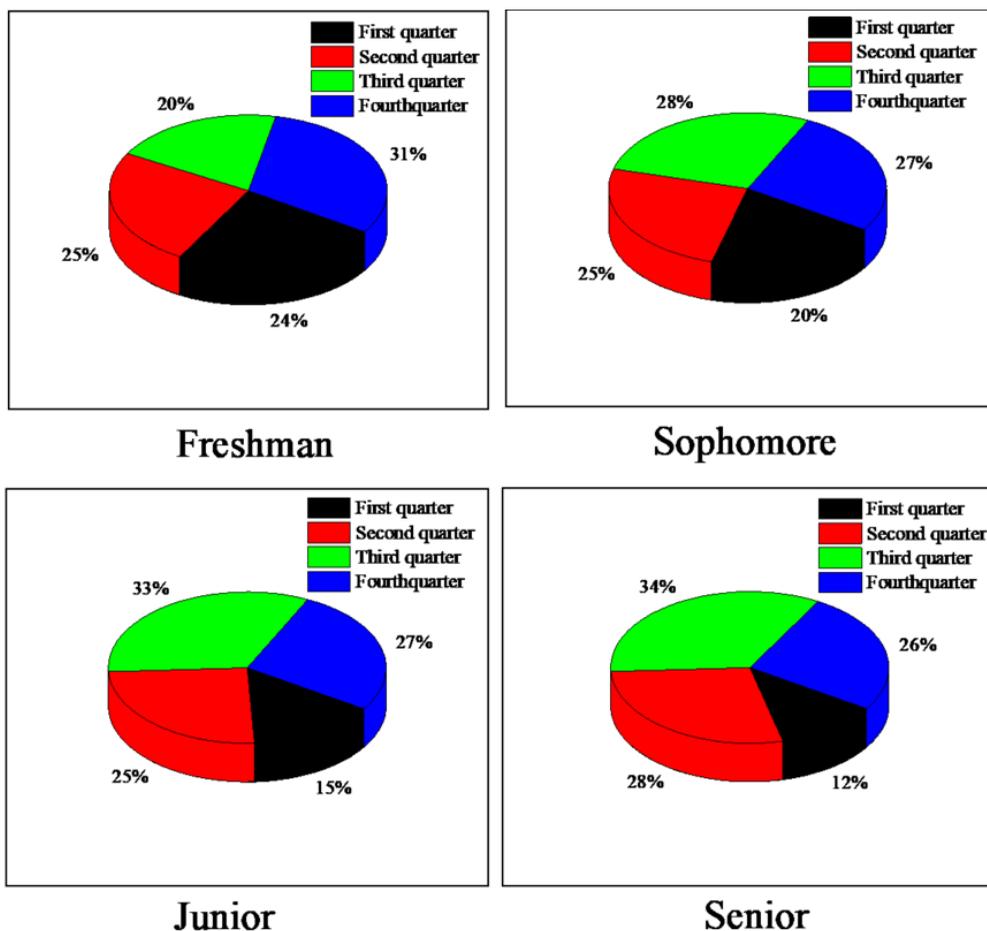


Figure 8 shows the statistical data of college students' interest in Chinese teaching in different seasons in different grades. Freshmen's interest in Chinese teaching in the first quarter is higher than that of college students in other grades, and seniors' interest in Chinese teaching is the worst in the first quarter. Then, with the increase in learning time, the learning interest of college students in different grades in Chinese teaching generally shows an increasing trend, reaching the highest in the fourth quarter, which shows that after learning for different times, the students' interest in Chinese learning is increased, which is helpful to improve their college academic achievements. In addition, with the help of the IoT platform, it will be conducive to promoting the teaching reform of college Chinese courses.

Hybrid teaching is a new teaching mode, which involves not only teaching objectives, teaching contents, and teaching resources but also teaching methods, teaching means, and teaching evaluation. These are bound to develop with the trend of educational digitization and informatization. The practice and effect of college Chinese will provide reference cases for the teaching reform of similar courses. Its operation path and effect evaluation system can also be used as a reference for the teaching mode of the reform of other courses from traditional to modern. Learning interest is the main factor in students' motivation to learn Chinese. Only by improving the teaching quality and content of college Chinese and teaching according to the characteristics of students of different grades can students' learning be stimulated and the effect of college Chinese education be improved.

In addition, teachers should use network technology and pay attention to learning attitudes. Attendance, notes, and discussion can help judge students' learning attitudes, which determines the learning effect to a certain extent. At the beginning of the class, teachers should tell students about the specific requirements of online learning, including:

- the number of stage tests and participation forms,
- an overview of the online learning approach, duration, and interaction requirements,
- the team cooperation mode in the report, and
- the specific task of online submission and writing.

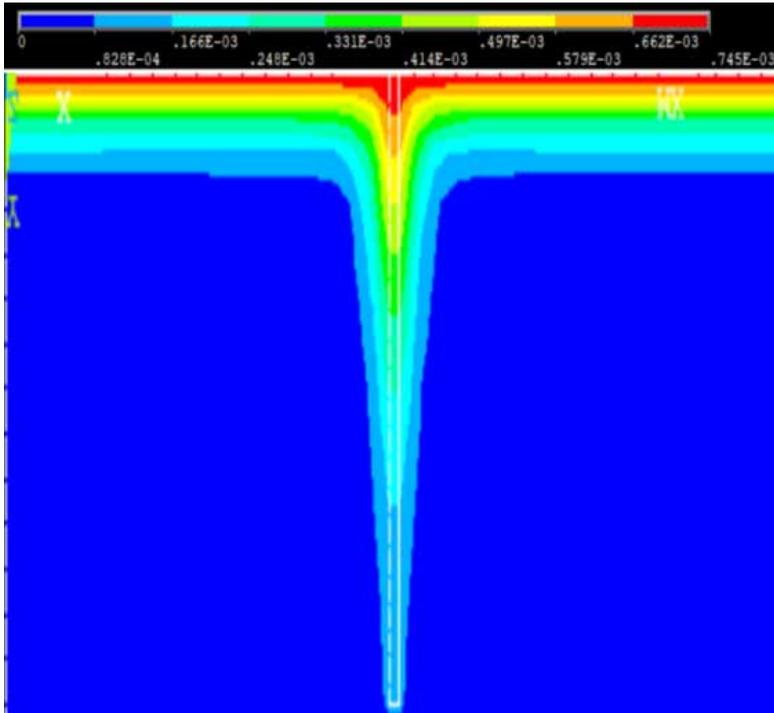
Teachers should focus on the quality and quantity of learning output. Writing practice, reading comprehension, and Chinese activities can reflect students' ideological attitudes and judge students' growth and change through Chinese course learning from the depth, breadth, and dimension of understanding. Through the learning platform, students can obtain basic scores on the premise of meeting the quantity. Secondly, according to the requirements of design quality, the gradient score is obtained according to the specific evaluation criteria of each task and the completion of students. With clear learning output, students get real scores on the surface and can come up with Chinese learning results. In depth, what students get is the improvement of ability and literacy. Learning attitude can indirectly affect the teaching quality and evaluation effect of college Chinese. By correcting learning attitudes, it can effectively improve the evaluation efficiency of college Chinese.

CONCLUSION

Based on IoT technology, this paper studies the design principles of the teaching effect of IoT technology in detail. Then, IoT technology is applied to college Chinese teaching, the evaluation of learning interest and teaching effect of college students in different grades are studied, and the possible problems in college Chinese teaching of IoT technology are analyzed. The conclusions are as follows:

1. Based on IoT technology, college Chinese teaching evaluation can well reflect college students' Chinese learning and the evaluation effect is accurate, which has a potential evaluation application effect.

Figure 8. Statistical Data of College Students' Interest in Chinese Teaching in Different Quarters in Different Grades



2. The results of the evaluation of college Chinese teaching effect using the IoT model show that the freshmen and sophomores have good learning interests, outstanding learning achievements, and good teaching evaluation effect, while the junior and senior students lack the corresponding learning interests, resulting in poor Chinese achievement, and poor evaluation of Chinese teaching, which shows the importance of establishing college Chinese evaluation effect.

In general, this paper provides some experimental and data support for the evaluation of college Chinese teaching effect of IoT technology.

Through this study, we aim to provide a more comprehensive analysis, explore the impact of the IoT on language teaching and learning, and demonstrate its potential to change traditional language education paradigms, to better understand how the IoT enhances language learning through personalized teaching, real-time feedback, and enhancing learner motivation. The specific population and setting of the study may affect the applicability of the results. Future research can explore the impact of different types of IoT technologies on the effectiveness of Chinese language education in universities.

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REFERENCES

- Arbi, A. P. (2024). Optimizing The Use Of Artificial Intelligence In English Language Learning: A Literature Review. *Gudang Jurnal Multidisiplin Ilmu*, 2(2), 25–30. doi:10.59435/gjmi.v2i2.278
- Chen, H., & Huang, J. (2021). Research and application of the interactive English online teaching system based on the internet of things. *Scientific Programming*, 2021, 1–10. doi:10.1155/2021/5089236
- Chen, S. (2021). Design of internet of things online oral English teaching platform based on long-term and short-term memory network. *International Journal of Continuing Engineering Education and Lifelong Learning*, 31(1), 104–118. doi:10.1504/IJCEELL.2021.111851
- Chen, Y. (2021). Evaluation of teaching effect of internet of things education platform based on long-term and short-term memory network. *International Journal of Continuing Engineering Education and Lifelong Learning*, 31(1), 36–52. doi:10.1504/IJCEELL.2021.111839
- Davies, D., Beauchamp, G., Davies, J., & Price, R. (2020). The potential of the ‘Internet of Things’ to enhance inquiry in Singapore schools. *Research in Science & Technological Education*, 38(4), 484–506. doi:10.1080/02635143.2019.1629896
- Dinihari, Y., Rafli, Z., & Boeriswati, E. (2024). Preferences of Primary School Teachers and Students for Electronic Technology in Literacy Language Learning: Implications for English Language Teaching. *Migration Letters : An International Journal of Migration Studies*, 21(2), 1008–1024. doi:10.59670/ml.v21i2.6430
- Feng, M. (2021). Research on the construction of student ability evaluation system based on computer application. *Journal of Physics: Conference Series*, 1915(2), 022037. doi:10.1088/1742-6596/1915/2/022037
- Gubbi, J., Buyya, R., Marusic, S., & Palaniswami, M. (2013). Internet of Things (IoT): A vision, architectural elements, and future directions. *Future Generation Computer Systems*, 29(7), 1645–1660. doi:10.1016/j.future.2013.01.010
- Hang, Y., Khan, S., Alharbi, A., & Nazir, S. (2024). Assessing English teaching linguistic and artificial intelligence for efficient learning using analytical hierarchy process and Technique for Order of Preference by Similarity to Ideal Solution. *Journal of Software (Malden, MA)*, 36(2), e2462. doi:10.1002/smr.2462
- He, Y., & Li, Y. (2020). Research on teaching method of computer application course based on evidence-based teaching method. *Journal of Physics: Conference Series*, 1648(3), 032182. doi:10.1088/1742-6596/1648/3/032182
- Huang, J. (2021). An internet of things evaluation algorithm for quality assessment of computer-based teaching. *Mobile Information Systems*, 2021, 1–10. doi:10.1155/2021/9919399
- Jiang, Z. (2021). Real-time monitoring of track and field teaching based on internet of things and sensors. *Microprocessors and Microsystems*, 103840. Advance online publication. doi:10.1016/j.micpro.2021.103840
- Lou, H. (2020). Design of college English process evaluation system based on data mining technology and internet of things. *International Journal of Data Warehousing and Mining*, 16(2), 18–33. doi:10.4018/IJDWM.2020040102
- Lu, Z., Tang, J., Zhu, S., Su, W., & Li, H. (2020). Research on the evaluation of digital academic competence of Chinese humanists. *Library Trends*, 69(1), 30–56. doi:10.1353/lib.2020.0028
- Ma, R. (2020). Research on the cultivation of college students’ ideology based on the practice of education. *International Journal of Social Science and Education Research*, 3(2), 186–191. doi:10.6911/WSRJ.202111_7(11).0046
- Maijala, M., & Mutta, M. (2024). The Teacher’s Role in Robot-assisted Language Learning and its Impact on Classroom Ecology. *The EuroCALL Review*, 30(2), 6–23. doi:10.4995/eurocall.2023.17018
- Ogata, H., Majumdar, R., Flanagan, B., & Kuromiya, H. (2024). Learning analytics and evidence-based K12 education in Japan: Usage of data-driven services for mobile learning across two years. *International Journal of Mobile Learning and Organisation*, 18(1), 15–48. doi:10.1504/IJMLO.2024.135123
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10. https://www.itdl.org/Journal/Jan_05/article01.htm

- Wang, M., Liang, X., & Li, Z. (2021). Research on the evaluation index system of the soil remediation effect based on blockchain. *Land (Basel)*, *10*(11), 1274. doi:10.3390/land10111274
- Wang, S., Zhang, H., & Meng, X. (2021). Design of video teaching system based on virtual reality technology. *Electronics Science Technology and Application*, *7*(4), 72. doi:10.18686/esta.v7i4.167
- Xia, Y. (2020). Resource scheduling for piano teaching system of internet of things based on mobile edge computing. *Computer Communications*, *158*, 73–84. doi:10.1016/j.comcom.2020.04.056
- Yan, Y., Bava Harji, M., & Kannan, S. (2024). English teacher identity measure: Development and validation in a Chinese EFL context. *Cogent Education*, *11*(1), 2293983. doi:10.1080/2331186X.2023.2293983
- Yang, Z., & Feng, B. (2021). Design of key data integration system for interactive English teaching based on internet of things. *International Journal of Continuing Engineering Education and Lifelong Learning*, *31*(1), 53–68. doi:10.1504/IJCEELL.2021.111836
- Yao, K. C., Huang, W. T., Hsu, L. C., Yang, C. K., & Lai, J. Y. (2020). Evaluation of the established IoT smart home robot teaching module based on embedded thematic-approach strategy. *Mathematical Problems in Engineering*, *2020*, 1–10. doi:10.1155/2020/6696155
- Zaafour, A. (2024). Incorporating Technology into CPBL to Enhance English Learning. *International Arab Journal of English for Specific Purposes*, *7*(1), 127–142.
- Zhao, Y. (2021). Research on the application of university teaching management evaluation system based on Apriori algorithm. *Journal of Physics: Conference Series*, *1883*(1), 012033. doi:10.1088/1742-6596/1883/1/012033
- Zhou, H., Lu, J., Huang, Y., & Chen, Y. (2021). Research on key technology of classroom teaching evaluation based on artificial intelligence. *Journal of Physics: Conference Series*, *1757*(1), 012014. doi:10.1088/1742-6596/1757/1/012014

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