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Application and Practice of Information Technology in Language and Character Teaching in Colleges and Universities

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Abstract

Against the backdrop of the transformation of digital education, integrating information technology into language and character teaching in colleges and universities is a crucial path to advance teaching reform and improve teaching quality. Based on the actual situation of language and character teaching in colleges and universities, this paper analyzes the role of information technology in enriching the forms of teaching content, stimulating students' learning initiative, and realizing personalized and precise teaching. It also sorts out the current application status, including the popularization of multimedia courseware, the construction of online platforms, the exploration of intelligent speech technology, and the imbalance in resource development. Furthermore, specific application strategies are proposed from four dimensions: deepening technology integration, making flexible use of platform data, introducing intelligent tools, and jointly building and sharing resources. This provides practical references for the digital upgrading of language and character teaching in colleges and universities, and helps to promote the coordinated improvement of students' comprehensive language ability and cultural literacy.

Keywords

Information technology; Colleges and universities; Language and character teaching; Teaching reform; Digital education

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1. Introduction

Language and characters are not only the carriers of cultural inheritance but also the basic content of talent cultivation in colleges and universities. With the advent of the digital era, the traditional teaching mode, which mainly relies on classroom lectures and textbook reading, has gradually shown limitations and is difficult to meet the diverse learning needs and personalized development demands of students. Information technology, with its advantages of resource integration, interactive communication, and real-time feedback, provides a possibility for breaking through the traditional bottlenecks in language and character teaching in colleges and universities [1]. From the early use of multimedia

courseware as an auxiliary teaching tool to the current widespread attempts of online teaching platforms, intelligent speech systems, and AI correction tools, information technology is gradually penetrating into all aspects of language and character teaching.

However, in the process of practice, issues such as how to avoid the superficial application of technology, how to deeply integrate technology with teaching objectives, and how to solve the imbalance of teaching resources between regions and schools still need further exploration. Based on this, this paper systematically analyzes the application value, current situation, and strategies of information technology in combination with the characteristics and needs of language and character teaching in colleges and universities, aiming to provide ideas for promoting the high-quality development of language and character teaching in colleges and universities.

2. The role of information technology in language and character teaching in colleges and universities

2.1. Enriching teaching content and forms

Traditional language and character teaching in colleges and universities mostly relies on teaching materials and teachers' lectures, with a single form of content presentation, which is difficult to fully arouse students' sensory experience. Information technology can break this limitation and transform abstract language and character knowledge into intuitive and perceivable teaching resources through the integration of multiple media such as text, images, audio, and video [2]. For example, in literature appreciation courses, teachers can use documentary clips to restore the historical background of the creation of works, analyze the imagery structure of poems through animation demonstrations, and play audio recordings of classic text recitations using audio resources, enabling students to deepen their understanding of the text through an audio-visual integrated experience. Information technology can also link a large number of online resources, such as digital libraries, academic databases, and cultural thematic websites, providing students with extended content beyond the scope of teaching materials, helping them build a more complete knowledge system and broaden their language and cultural horizons.

2.2. Stimulating students' learning initiative

The learning of language and characters requires students to actively participate in thinking and practice. However, the traditional teaching mode, where teachers lecture and students listen passively, easily makes students in a state of passive acceptance, resulting in insufficient learning enthusiasm. Information technology creates opportunities for students to actively participate by building interactive teaching scenarios, effectively stimulating their interest in learning. Functions such as discussion boards, bullet screen interactions, and group collaboration on online teaching platforms allow students to share their interpretations of texts, exchange writing ideas, and even debate on a certain language and cultural topic inside and outside the classroom [3]. This breaks the time and space limitations of the classroom and enhances students' sense of participation. Information technology also supports students to formulate their own learning plans independently. They can arrange their learning progress independently through online course resources, and use interesting designs such as checkpoint answering and point rewards to transform language learning into challenging tasks, further stimulating students' learning motivation and exploration desire [4].

2.3. Realizing personalized and precise teaching

There are significant differences in college students' language foundations, learning abilities, and interest preferences. The traditional teaching mode is difficult to meet the personalized needs of different students. Information technology can accurately grasp students' learning status through data collection and analysis, providing support for personalized teaching. In the pre-class preview stage, teachers can assign preview tasks and test questions through online platforms. The system automatically counts students' answer results and quickly identifies their knowledge weaknesses. For example, in grammar teaching, if most students make mistakes in complex sentence analysis questions, teachers can intensively strengthen this knowledge point in class [5]. In the in-class teaching stage, interactive answering tools can be used to collect students' learning feedback in real

time, and the teaching rhythm and depth of content can be adjusted according to students' mastery of knowledge. In the after-class review stage, personalized review resources can be recommended based on students' learning data, improving the accuracy and effectiveness of teaching.

3. The current application situation of information technology in language and character teaching in colleges and universities

3.1. Popularization of multimedia courseware application

At present, multimedia courseware has become a basic auxiliary tool for language and character teaching in colleges and universities. Almost all courses use software such as PPT and Keynote to create courseware, replacing the traditional blackboard writing. Courseware integrates key teaching points, text excerpts, case analyses, and audio-visual materials. In basic Chinese courses, they can display animations of Chinese character stroke sequences; in literature courses, they can present videos related to writers' life stories and works, improving the efficiency of information transmission in the classroom. Most teachers adjust the content of courseware according to the teaching progress and students' feedback, supplementing the latest language application cases or cultural hotspot materials. However, some courseware still remain in the simple combination of "text + pictures", lacking interactive designs. There is even a situation where "courseware replaces lectures", failing to give full play to the advantages of multimedia technology, and the problem of students passively receiving information is still prominent [6].

3.2. Extensive construction of online teaching platforms

Colleges and universities have generally introduced online teaching platforms such as Chaoxing Xuexitong and Rain Classroom, providing diversified support for language and character teaching. Teachers can publish course outlines, preview materials, and after-class assignments on the platforms, allowing students to access resources at any time. The platforms support the submission of electronic assignments and the automatic correction of objective questions, saving teachers' correction time. The discussion board and live broadcast functions can also extend classroom teaching, such as launching discussions on language and cultural topics and conducting lectures on writing guidance [7]. During the epidemic period, the platforms became the core carriers of online teaching, ensuring the continuity of teaching. However, in daily teaching, some students only complete the submission of assignments and the viewing of materials, with low enthusiasm for actively participating in discussions and browsing extended resources. At the same time, some teachers have insufficient development of functions such as platform data statistics and learning situation analysis, only using them for basic resource management, making it difficult to optimize the teaching process.

3.3. Preliminary exploration of intelligent speech technology

Intelligent speech technology has begun to be applied in oral English teaching and speech training, and some colleges and universities have introduced tools such as iFlytek's oral evaluation system. Through speech recognition technology, such systems can conduct real-time evaluation on the accuracy and fluency of students' pronunciation and generate feedback reports [8]. For example, in Chinese oral courses, they can point out problems such as tone deviations and confusion between flat and retroflex sounds, and provide standard pronunciation demonstrations; in Pu Tong Hua proficiency test training, they can simulate the test process to help students familiarize themselves with the test format in advance. In addition, intelligent speech technology is also used in listening teaching, generating listening materials with different speeds and accents, or realizing speech-to-text conversion in classroom interactions to facilitate students in organizing their thoughts. However, the current application of the technology is still in the preliminary stage. The speech recognition error for voices with dialect accents is relatively large, and the application scope is mostly concentrated on speech training, with less exploration in fields such as text analysis and writing guidance.

3.4. Unbalanced construction of teaching resources

Although information technology has promoted the

accumulation of teaching resources, there is an obvious imbalance in resource construction. At the regional level, colleges and universities in the eastern region have more complete digital resource reserves and can obtain high-quality resources through inter-school and enterprise cooperation; local colleges and universities in the central and western regions, restricted by funds and technology, mostly rely on external free resources, and the resources have weak pertinence and timeliness. At the inter-school level, key colleges and universities have dedicated resource development teams and can create high-quality online courses and virtual simulation projects; ordinary colleges and universities, especially private ones, have limited investment, and teachers mostly collect scattered resources, making it difficult to form a systematic resource database. In addition, the resource sharing mechanism is not perfect. Some high-quality resources of colleges and universities are only open to the internal campus, and cross-regional and cross-school sharing is insufficient, further exacerbating the gap in resource allocation.

4. Application strategies of information technology in language and character teaching in colleges and universities

4.1. Deepening technology integration and going beyond one-way display of courseware

To break the application mode of one-way display of multimedia courseware, it is necessary to deeply integrate technology with the objectives, content, and methods of language and character teaching, and build interactive and generative teaching scenarios. In terms of courseware design, teachers can use tools such as Authorware and Prezi to add interactive elements to the courseware. For example, in text analysis courses, interactive links such as "drag-and-drop matching of text excerpts" and "opinion voting" can be set up. Students participate in classroom interactions through operations such as clicking and dragging, and teachers adjust the teaching content in real time according to the results of students' interactions [9]. In writing courses, the annotation function of the courseware can be used to allow students to directly annotate and revise the model essays in class[5]. Teachers select typical cases for display and comment in the whole class, transforming students from passive receivers to active participants.

In addition to optimizing courseware, it is also necessary to expand the dimensions of technology integration and apply multimedia technology in combination with other information technologies. For example, in literature appreciation courses, virtual reality (VR) technology can be introduced to build an immersive experience module of literary scenes. In the teaching of "A Dream of Red Mansions", students can be placed in the Grand View Garden to intuitively feel the connection between scenes and characters. In oral teaching, multimedia courseware can be combined with real-time video connections to invite off-campus experts or students from other colleges and universities to participate in discussions, breaking the limitations of time and space. The application of technology should be flexibly adapted to the course content and student characteristics, avoiding the use of technology for technology's sake, and ensuring that it serves the realization of teaching objectives.

4.2. Making flexible use of platform data to drive the optimization of teaching process

The learning behavior data of online teaching platforms is a key basis for optimizing the teaching process. Teachers need to establish a data-driven concept, master basic analysis methods, and apply data throughout the entire teaching process. In the pre-class preview stage, teachers can check students' preview progress and test accuracy through platform data to accurately identify knowledge weaknesses [10]. For example, in grammar courses, if the accuracy rate of "non-finite verbs" is low, the key points of the class will be explained and additional cases will be supplemented. For students who have not completed the preview, teachers can remind them through platform private messages or conduct a brief review in class to help them keep up with the progress. In the in-class teaching stage, real-time data from the platform can be used to adjust the teaching rhythm [11]. For example, the accuracy rate and answering time can be counted through interactive answering tools.

If the accuracy rate is low and the time taken is long, the teaching speed will be slowed down and the content will be explained again; otherwise, the teaching progress will be accelerated. After class, it is necessary

to comprehensively evaluate students' learning status by combining data such as homework scores, submission time, and discussion board speeches. For example, if a student's homework is average but they are active in speaking and revise their work many times, guidance on learning methods can be provided; if a student's score is low and the submission is delayed, teachers should communicate with them in a timely manner and provide personalized tutoring. Long-term tracking of data can also help analyze the progress trend of students, providing references for the adjustment of subsequent teaching plans.

4.3. Introducing intelligent tools to expand language practice scenarios

Introducing intelligent tools in accordance with teaching needs can make up for the shortcomings of traditional teaching in real-time feedback and personalized training. In writing teaching, AI essay correction tools such as Grammarly and Juku Correction Network can be introduced to quickly identify grammatical errors and logical problems, provide revision suggestions, and score the structure and content richness of the essay. Students can obtain feedback and make revisions in real time, while teachers can focus on in-depth comments on the theme and cultural connotation, improving the efficiency and quality of correction. For example, in applied writing courses, students first use AI to correct the format and grammar of the survey report, and then teachers comment on the data analysis logic and the feasibility of the conclusion. In oral teaching, intelligent dialogue systems such as Microsoft Xiaoice and iFlytek can be introduced to simulate scenarios such as interviews and business negotiations. Students can have real-time conversations with virtual characters through voice, and the system provides feedback on the accuracy and fluency of pronunciation. Students can practice repeatedly in their spare time, and teachers can check the practice data through the background and provide targeted guidance in class. In cultural teaching, intelligent cultural knowledge database tools can be introduced, allowing students to inquire about cultural-related issues at any time. Teachers can use the tools to integrate resources and design exploration tasks, helping students improve their cultural literacy and independent learning ability [12].

4.4. Jointly building and sharing resources to promote balanced regional development

To solve the problem of unbalanced resources, it is necessary to establish a cross-regional and cross-school mechanism for joint construction and sharing of resources. Educational administrative departments can take the lead in building provincial or national resource-sharing platforms for language and character teaching in colleges and universities, integrating high-quality courses, digital teaching materials, case databases, and other resources, formulating unified classification standards and evaluation systems to facilitate teachers and students to search and use, and ensuring the quality of resources through user ratings.

Inter-school pairing cooperation should be promoted. Key colleges and universities should give full play to their advantages in resources and technology to assist local colleges and universities in developing characteristic resources. For example, resources such as local literature interpretation and dialect-Pu Tong Hua comparison can be created in combination with the regional culture of the central and western regions. Local colleges and universities provide regional cultural materials to enrich the content of resources. Cross-school resource development teams should be established, combining teachers and technical personnel from different colleges and universities to ensure the scientificity and practicality of resources.

Enterprise-university cooperation should be strongly encouraged to develop high-quality resources with the help of enterprises' technology and funds. For example, cooperation can be carried out to create virtual simulation language training projects and intelligent speech training systems. Enterprises can obtain benefits through resource promotion, forming a sustainable cycle of development, application, promotion, and re-development. At the same time, an incentive mechanism should be established, and the achievements of resource construction should be included in the indicators for teachers' professional title evaluation and teaching excellence selection, so as to stimulate the enthusiasm of colleges and universities and teachers to participate and promote the long-term development of resource sharing.

5. Conclusion

Information technology provides a broad space for the reform and development of language and character teaching in colleges and universities. Its application can not only enrich the forms of teaching content, stimulate students' learning initiative, and realize personalized and precise teaching but also promote the transformation of language and character teaching from the traditional mode to a digital and intelligent one. At present, colleges and universities have achieved certain results in the application of information technology in language and character teaching, but they still face problems such as insufficient technology integration, inadequate data application, and unbalanced resources. It is necessary to further release the value of information technology through strategies such as deepening technology integration, making flexible use of platform data, introducing intelligent tools, and jointly building and sharing resources.

Disclosure statement

The author declares no conflict of interest.

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