Research and Implementation of a Data Analysis Platform for the Current Situation of Traditional Chinese Medicine Culture in Primary and Secondary School Teaching

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Abstract: Traditional Chinese medicine culture is an important component of Chinese traditional culture and also a precious cultural heritage of the Chinese nation. However, in primary and secondary education, there are generally some problems in the teaching of traditional Chinese medicine culture, such as outdated teaching content and single teaching methods. In order to enhance the understanding and understanding of traditional Chinese medicine culture among primary and secondary school students, this article studies and implements a data analysis platform for the current situation of traditional Chinese medicine culture in primary and secondary school teaching. Through this platform, teachers can understand students' cognitive level of traditional Chinese medicine culture, carry out targeted teaching design and improvement, and enhance students' learning effectiveness and interest.

Keywords: Traditional Chinese medicine culture; Teaching in primary and secondary schools; Data analysis platform; instructional design

1 Introduction

Traditional Chinese medicine culture is an important part of Chinese traditional culture, covering Chinese herbal medicine, acupuncture and moxibustion, massage, Qigong and other aspects. Traditional Chinese medicine culture is a precious cultural heritage of the Chinese nation, with a long history and rich theoretical system[1]. However, in primary and secondary education, there are generally some problems in the teaching of traditional Chinese medicine culture, such as outdated teaching content and single teaching methods. Therefore, studying how to improve the quality and effectiveness of traditional Chinese medicine cultural education based on the cognitive characteristics and learning needs of primary and secondary school students has important practical significance.

NMDME 2023, October 13-15, Xi'an, People's Republic of China

DOI 10.4108/eai.13-10-2023.2341344

2 Analysis of the current situation of traditional Chinese medicine culture in primary and secondary school teaching

2.1 Obsolete teaching content

At present, the introduction of traditional Chinese medicine culture in primary and secondary school textbooks mainly focuses on historical evolution and basic concepts, lacking relevance to students' actual life and learning needs. The teaching content is outdated and difficult to arouse students' interest and learning motivation[2].

2.2 Single teaching method

In primary and secondary school teaching, traditional classroom teaching methods are often used, lacking interactivity and interest. Students' understanding and cognition of traditional Chinese medicine culture mainly rely on teachers' oral and textbook knowledge, lacking opportunities for practice and experience.

3 Design and Implementation of a Data Analysis Platform for Traditional Chinese Medicine Culture

In order to solve the problems in primary and secondary school teaching, this article designs a data analysis platform for traditional Chinese medicine culture to improve teaching effectiveness and students' learning interest[3].

3.1 Platform Functional Design

This platform mainly includes two modules: teacher side and student side. The teacher side provides teaching resources and teaching management functions, including teaching courseware, teaching videos, online quizzes, etc. The student end provides learning resources and learning management functions, including learning materials, learning tasks, online assignments, etc. (Figure 1).

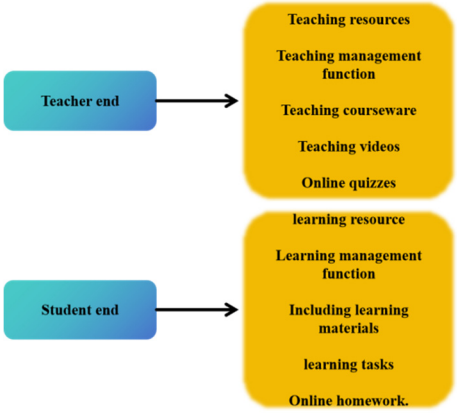

Figure 1. Platform Function Design

3.2 Data Analysis Algorithm Design

By collecting data on students' learning process, such as learning time, progress, and grades, combined with the teaching content of traditional Chinese medicine culture, data analysis algorithms are used to evaluate and analyze students' learning status. Based on students' learning situation, teachers can design and improve teaching in a targeted manner to enhance students' learning effectiveness and interest[4].

4 Experiment and Evaluation

Based on the above content, we have decided to conduct experiments and evaluations on this platform to verify its effectiveness in primary and secondary education. We have selected a primary and secondary school in a certain city for pilot teaching, allowing teachers to use the platform for teaching traditional Chinese medicine culture and collecting students' learning data at the same time. We will use the total duration of each student's stay in various resources, visits, and weeks obtained as independent variables to analyze the correlation between these variables and grades[5]. When analyzing the correlation between stay time, number of visits, and grades, we established linear regression and CHAID tree models respectively. The correlation coefficients under each model are shown in Table 1. Due to the differences in data mining model algorithms themselves, we can see from Table 1 that the number of visits is more important than the dwell time. This requires students to study more on cloud platforms in order to achieve better grades. Under the CHAID tree model, we found that if we access the platform[6].

If the number of visits is less than 150 and the duration of stay on the platform is less than 4.5 hours, the probability of the student failing is very high. However, if the number of visits is more than 690 and the duration of stay is more than 50 hours, the probability of achieving a score of 80 or above is very high.

Table 1 Correlation between Stay Time, Number of Visits and Performance

	linear regression model	CHAID model
Stay time	48%	30%
Number of visits	52%	70%

We used the C5.0 decision tree algorithm to analyze the correlation between daily learning and grades from Monday to Sunday, and the importance coefficients are shown in Table 2.

Table 2 Correlation coefficient between weeks and grades

week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Importance coefficient	7%	9%	11%	45%	6%	2%	20%

Through the analysis of student learning data, we found that students' interest in learning and learning outcomes have significantly improved. We have provided sufficient training to school teachers to familiarize them with the usage methods and teaching resources of the platform.

During the training, we introduced the characteristics and advantages of the platform to teachers and provided a series of teaching cases for their reference. Through training, teachers have doubled their confidence in using the platform and actively invested in pilot teaching[7].

After the pilot teaching started, we arranged a period of time to collect students' learning data. Through this platform, we can real-time understand students' learning situation, including learning progress, question answering status, and learning feedback. At the same time, we also designed a questionnaire to understand students' evaluation of the platform's user experience and learning effectiveness. Through the collection and analysis of these data, we can comprehensively evaluate the effectiveness of the platform in primary and secondary education[8].

After a period of pilot teaching and data collection, we analyzed students' learning interests and learning outcomes. Firstly, based on students' learning progress and problem-solving situation, we found that when using the platform for traditional Chinese medicine culture learning, students are more proactive and actively involved in learning. Compared to traditional teaching methods, this platform can provide more vivid and interesting learning resources and interactive links, stimulating students' interest in learning. In addition, when students use the platform for learning, their accuracy in answering questions has also improved, indicating an improvement in their understanding and mastery of the learning content[9].

In addition to analyzing learning data, we also conducted a questionnaire survey to understand students' evaluation of the platform's user experience and learning effectiveness. The questionnaire includes evaluations of platform interface design, richness and quality of learning resources, and students' self-evaluation of learning outcomes. Through statistical analysis of the questionnaire results, we found that the vast majority of students are very satisfied with the user experience of the platform, believing that the platform provides rich learning resources and can help them better understand traditional Chinese medicine cultural knowledge. At the same time, they also believe that their understanding and mastery of traditional Chinese medicine culture have significantly improved after using the platform for learning.

Based on the analysis of the above data, we can conclude that the platform has significant effectiveness in primary and secondary education. By using this platform for teaching traditional Chinese medicine culture, students' interest in learning has been significantly improved, and the learning effect has also been improved. This platform provides rich learning resources and interactive links, which can stimulate students' interest and enthusiasm in learning and help them better understand and master traditional Chinese medicine cultural knowledge.

Based on the verification of the above experimental and evaluation results, we are confident in promoting this platform to more primary and secondary schools, in order to improve the education quality of traditional Chinese medicine culture. At the same time, we will continue to improve and improve the platform, based on feedback from teachers and students, to further enhance the teaching effectiveness and user experience of the platform. I hope that through the promotion and application of this platform, we can better inherit and promote traditional Chinese medicine culture, and make contributions to the comprehensive development of primary and secondary school students[10].

5 Conclusion and Outlook

This article studies and implements a data analysis platform for the current situation of traditional Chinese medicine culture in primary and secondary school teaching. Through this platform, teachers can understand students' cognitive level of traditional Chinese medicine culture, carry out targeted teaching design and improvement, and enhance students' learning effectiveness and interest. In the future, we will further improve the platform's functions, expand the pilot scope, promote the application of the platform, and improve the quality and effectiveness of traditional Chinese medicine cultural education in primary and secondary schools.

Acknowledgment:

1.Jilin Provincial Department of Education Science and Technology Research Project,(JJKH20230961KJ);

2.2022 Jilin Province College Student Practice and Innovation Training Program, (S202210199023X)

3.2022 Higher Education Teaching Research Project(XJDJ202218)

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