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Exploration of AI-Enabled Integration of Cantonese Culture into the Higher Vocational Course "Design and Guidance of Kindergarten Language Education Activities"

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Abstract: Against the background of cultural inheritance and the digital development of education, integrating local traditional culture into higher vocational preschool education courses is an important path to cultivate preschool teachers' awareness of cultural inheritance. This paper focuses on the key points of integrating Cantonese culture into the higher vocational course "Design and Guidance of Kindergarten Language Education Activities", explores the enabling value of AI technology, and constructs a trinity teaching innovation model of "AI technology + culture + curriculum". By analyzing the current teaching situation of the course, specific discussions are carried out from four dimensions: curriculum design concept, teaching objective reconstruction, curriculum content system optimization, and teaching process design, aiming to provide reference for higher vocational preschool education courses to implement cultural education and technology-enabled teaching.

Keywords: AI-enabled; Cantonese culture; Kindergarten language education activity design; Curriculum integration

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1. Introduction

Culture is the spiritual lifeblood of a nation. The Vocational Education Law of the People's Republic of China clearly states that "vocational education shall inherit fine traditional Chinese culture". As the core component of Lingnan culture, Cantonese culture covers rich contents such as Cantonese dialect, Cantonese nursery rhymes, folk stories, and traditional crafts. Its popular, vivid, and life-oriented characteristics are highly consistent with the interesting and life-oriented needs of kindergarten language education activities. The higher vocational course "Design and Guidance of Kindergarten Language Education Activities" is a core course for preschool education majors, undertaking the important task of cultivating students' ability to design, implement, and guide

language education activities. Integrating Cantonese culture into this course can not only enrich the curriculum connotation but also lay a foundation for students to carry out early childhood cultural enlightenment education in the future, enhance cultural confidence, and promote the inheritance of local culture [1].

Currently, digital transformation has become an important direction of vocational education reform. The Catalogue of Vocational Education Majors (2024) issued by the Ministry of Education emphasizes "promoting the in-depth integration of information technology with education and teaching". The rapid development of AI technology (such as speech synthesis, virtual simulation, and intelligent interaction) provides technical support for the in-depth integration of traditional culture and curriculum teaching. However, there are many difficulties in integrating Cantonese culture into higher vocational preschool education courses, such as insufficient visualization of cultural content and superficial application of technology. In this context, exploring the teaching path of AI-enabled integration of Cantonese culture into the higher vocational course "Design and Guidance of Kindergarten Language Education Activities" has important practical significance.

2. Definition of Core Concepts

2.1. AI-Enabled

With the development of AI (Artificial Intelligence) technology, it has become a key technology leading the future. It can not only simulate human thinking but also generate new content based on massive data, showing great application potential [2]. The definition of AI-enabled in this paper mainly refers to the application of AI technology in the field of preschool education, that is, using artificial intelligence technologies such as speech recognition, natural language processing, virtual simulation, and intelligent recommendation to optimize the teaching process, enrich teaching resources, innovate teaching interaction forms, and achieve the efficient achievement of teaching objectives and the improvement of teaching quality.

2.2. Cantonese Culture

Originating in the Qin and Han dynasties and rooted in Guangzhou, Guangdong, Cantonese culture has a history of more than 2,000 years [3]. It has rich connotations and diverse contents, mainly including Cantonese dialect, Cantonese nursery rhymes, folk stories, Cantonese opera, "three carvings, one color, one embroidery", Cantonese-style architecture, Cantonese cuisine, folk customs and etiquette, etc., with the characteristics of popularity, interest, and life-orientation [4].

3. Current Situation and Problems of the Higher Vocational Course "Design and Guidance of Kindergarten Language Education Activities"

3.1. Analysis of Current Teaching Situation

At present, the teaching of the higher vocational course "Design and Guidance of Kindergarten Language Education Activities" mainly focuses on theoretical teaching, supplemented by practical links such as case analysis and simulated teaching. The teaching content focuses on the basic principles of kindergarten language education, activity design methods, and teaching implementation strategies. The involved cultural elements are mostly general traditional culture (such as classic ancient poems and fables). In Guangzhou, some higher vocational colleges' preschool education majors have begun to try to integrate Cantonese culture into the course "Design and Guidance of Kindergarten Language Education Activities", mainly in the forms of adding

Cantonese nursery rhymes and folk story interpretation to the course content; organizing students to collect and sort out Cantonese cultural resources and design simple language education activity plans; inviting folk artists to give special lectures, etc. However, on the whole, the integration level is relatively shallow, mostly staying at the "knowledge supplement" level, and has not yet achieved in-depth integration with curriculum teaching. In terms of teaching methods, traditional lecturing is still the main method. Some courses have introduced virtual simulation teaching platforms, but most of them focus on simulating kindergarten teaching scenarios, lacking in-depth integration of culture and technology, which is difficult to meet students' practical needs.

3.2. Main Teaching Problems

3.2.1. Insufficient Visualization of Cantonese Culture Integration and Cultural Content, Difficulties for Students to Understand, and Weak Cultural Education Function

Contents such as Cantonese dialect, folk stories, and folk customs in Cantonese culture have strong regionality and visualization. Traditional teaching presents them through text, pictures, and other forms, making it difficult for students to intuitively feel their cultural connotation and expressive charm, leading to inadequate understanding. In addition, in terms of local cultural inheritance, the course has not systematically integrated Cantonese cultural resources, resulting in students' lack of cognition of the core connotation and educational value of Cantonese culture.

3.2.2. Single Teaching Interaction Form and Low Learning Interest

Course teaching is mostly dominated by teacher lecturing, with students passively accepting knowledge, lacking opportunities for active participation and interactive inquiry, leading to students' low interest in learning Cantonese culture and insufficient initiative in cultural inheritance [5].

3.2.3. Superficial Application of Technology and Unobvious Enabling Effect

AI technology is mostly used as an auxiliary display tool, not deeply integrated into the teaching process, and fails to use technology to solve core problems in cultural integration such as scenario creation, interactive inquiry, and personalized creation.

4. Exploration of AI-Enabled Integration of Cantonese Culture into the Higher Vocational Course "Design and Guidance of Kindergarten Language Education Activities"

Based on the analysis of the current teaching situation and problems of the higher vocational course "Design and Guidance of Kindergarten Language Education Activities", the author attempts to carry out specific discussions from the following four aspects:

4.1. Design Concept

Adhere to the principles of "cultural adaptability, technical suitability, and practice orientation", deeply integrate Cantonese cultural elements with curriculum teaching objectives, use AI technology to solve teaching dilemmas, and construct a progressive teaching model of "cognition - experience - practice - innovation" to realize the coordinated improvement of students' cultural literacy and professional abilities.

4.2. Reconstruction of Teaching Objectives

Combine the talent training objectives of higher vocational preschool education majors, the needs of Cantonese culture inheritance, and the requirements of AI technology application capabilities to reconstruct the curriculum teaching objectives.

4.2.1. Knowledge Objectives

Master the connotation and educational value of core elements of Cantonese culture (Cantonese nursery rhymes, folk stories, folk culture, etc.); understand the application scenarios and operation methods of AI technology in kindergarten language education activities; master the design principles and methods of integrating Cantonese culture into kindergarten language education activities [6].

4.2.2. Ability Objectives

Be able to use AI technology to collect, sort out, and develop Cantonese cultural language education resources; be able to independently design kindergarten language education activity plans integrating Cantonese culture; be able to proficiently use AI equipment and facilities for language education activities.

4.2.3. Literacy Objectives

Enhance the sense of identity and inheritance awareness of Cantonese culture, cultivate the sense of responsibility for early childhood cultural enlightenment education, and improve digital teaching literacy and innovative thinking [7].

4.3. Optimization of Teaching Content System

Based on the "curriculum - culture - AI technology" logic, construct a modular teaching content system to organically integrate Cantonese culture with the curriculum, as shown in **Table 1** below:

Table 1. Curriculum Content Integration Based on the "Curriculum - Culture - AI Technology" Structure

Core Curriculum Modules	Integrated Cantonese Culture Content	AI-Enabled Forms
(1) Foundation of Design and Guidance of Kindergarten Language Education Activities	Educational value, integration principles, and paths of Cantonese culture	AI intelligent recommendation of Cantonese cultural education cases, online Q&A
(2) Guidance of Listening and Expression Activities	Standard Cantonese pronunciation, Cantonese nursery rhyme singing, Cantonese opera appreciation, daily language expression	AI speech synthesis technology (standard Cantonese demonstration), AI speech recognition (pronunciation correction), AI interactive Cantonese opera roles and nursery rhyme games
(3) Guidance of Reading and Writing Preparation Activities	Interpretation of Cantonese folk stories, adaptation of traditional picture books, Cantonese character recognition	Virtual simulation picture book reading, AI story creation tools, AR Chinese character culture display (such as Cantonese character origin)
(4) Design of Language Game Activities	Cantonese folk games, word solitaire (Cantonese version), riddles (Cantonese characteristics)	Virtual scenario games, AI group competition system, intelligent scoring and feedback
(5) Design of Comprehensive Language Education Activities	Integration of Cantonese festival culture (flower market, Dragon Boat Festival) and traditional crafts (paper cutting) into activities	3D virtual festival scenes, AI activity plan generation and optimization, virtual simulation activity implementation drills

4.4. Teaching Process Design

Taking the AI-enabled integration of the Cantonese folk story "He Xiangu and Gualü Litchi" into the design and guidance of kindergarten early reading activities as an example [8], the main teaching process design is as follows:

(1) Problem Introduction and Group Discussion

Students are divided into groups to discuss and analyze the current situation of early childhood reading in kindergartens. Starting with the dilemmas of kindergarten reading activities, stimulate students' sense of responsibility and mission, and infiltrate the concept of caring for young children and innovative teaching [9].

(2) Focus on Key and Difficult Points, Intuitive Discussion and Display

Centering on the key points of guiding young children's independent reading and teacher-student interaction in collective reading, play case videos. Teachers and students jointly discuss the advantages and disadvantages of the cases, and teachers demonstrate design skills through on-site interaction with "AI virtual young children" [10].

(3) AI-Enabled Teaching Skills, Integration of the Cantonese Folk Story "He Xiangu and Gualü Litchi" into the Course

With the help of tools such as Doubao and Jimeng AI, explain how to use AI to generate picture books and convert the story into illustrated digital picture books. Use AI tools to generate scene and character images according to the story content, and provide a variety of artistic style choices [11]. Try to add dubbing, background music, and interactive elements to the picture books to enhance the interest and experience of reading. Guide students to use AI tools to further design extended language activities, such as story continuation, role dialogue, and scenario performance [12].

(4) Group Practice and AI Simulation Interaction

Students are divided into groups of 5-6 to design and drill activities around Cantonese folk story picture books. Use the AI virtual child dialogue system to simulate interaction and adjust activity design according to feedback.

(5) Simulated Teaching and Joint Evaluation by Teachers and Students

Groups display design fragments, teachers conduct process evaluation, and students conduct peer evaluation.

In addition, in the creative teaching of AI-enabled integration of Cantonese nursery rhymes into the course, guide students to use AI speech synthesis technology to convert traditional Cantonese nursery rhymes (such as Moonlight Bright) into versions with different styles and rhythms, allowing students to feel the changes in the rhythm of different nursery rhymes [13]. Use AI image generation tools to create modern-style illustrations for nursery rhymes. For Cantonese opera-themed language role-playing, guide students to use AI to adapt Cantonese opera-themed content to be age-appropriate [14].

Through observation and analysis of teaching practice, it is found that AI-enabled Cantonese culture integration teaching has produced positive effects in many aspects. First, it has improved students' cultural literacy and digital teaching capabilities. Through the application of AI technology, students not only have a visualized experience of Cantonese culture but also master the methods and skills of converting traditional culture into educational resources [15]. Through interviews, students reported having a deeper understanding of Cantonese culture and mastering the application of at least two AI tools in class. Second, AI empowerment has

enriched curriculum resources and improved teaching interaction methods. AI technology has greatly reduced the threshold for the digitization of cultural resources. Third, it has stimulated students' learning interest and creativity. The application of AI technology has transformed students' learning from passive acceptance to active exploration, and the teaching plans designed by students are more diverse and innovative.

5. Conclusion

AI technology provides an innovative path for integrating Cantonese culture into the higher vocational preschool course "Design and Guidance of Kindergarten Language Education Activities". Practice has shown that this model can effectively solve problems such as insufficient visualization of cultural teaching, single teaching interaction form, and lack of learning interest, and improve students' Cantonese cultural literacy, language education activity design capabilities, and digital teaching capabilities. In the future, it is necessary to further optimize AI teaching resources and equipment, strengthen teachers' and students' application of AI technology, promote the in-depth integration of AI technology with Cantonese culture and curriculum teaching, and realize the coordinated development of cultural inheritance, ability training, and technology empowerment.

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