

Development and Practice of AI-Empowered English Teaching Resources for Hainan Culture: A Case Study of Hainan Free Trade Port Construction

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Abstract: Against the backdrop of the construction of the Hainan Free Trade Port, the development and promotion of English teaching resources related to Hainan culture through AI technology has become a practical issue in contemporary educational practice. Through a review of relevant literature, this study identified representative cultural elements of Hainan and employed AI technologies to generate multi-modal teaching resources, including intelligent dialogue content and virtual reality scenario videos. These resources were subsequently applied in both classroom-based and online teaching contexts. The findings indicate that such resources not only enrich teaching approaches and diversify instructional formats, but also enhance students' English expression and cross-cultural communicative competence, thereby supporting cultural dissemination and talent cultivation for the Hainan Free Trade Port.

Keywords: AI empowerment; Hainan culture; English teaching resources; Hainan Free Trade Port construction

1. Introduction

1.1 Research Background

The construction of the Hainan Free Trade Port represents a major national initiative aimed at deepening reform and opening-up in China. Through institutional innovation and industrial upgrading, the initiative seeks to promote high-quality regional economic development while fostering a more open and inclusive international image. In this context, English, as a global lingua franca, plays a crucial role in facilitating cultural exchange and economic cooperation between Hainan and the international community.

In recent years, the rapid development of artificial intelligence (AI) technology has profoundly transformed the educational sector. AI has been widely applied in various aspects of education, including instructional resource design, personalized learning support, and teaching evaluation. Particularly in language education, AI not only provides intelligent learning tools but also optimizes teaching content through data mining and analysis. Therefore, in response to the practical demands of Hainan Free Trade Port construction, the development of English teaching resources with distinctive local characteristics constitutes both a response to regional development needs and a

valuable exploration of AI applications in education.

1.2 Problem Statement

Although the construction of the Hainan Free Trade Port has injected new vitality into regional development, the development of English teaching resources related to Hainan culture still faces numerous challenges. On the one hand, existing resources are insufficient in both quantity and quality, making it difficult to comprehensively present Hainan's rich historical and cultural heritage as well as its modern achievements. On the other hand, traditional teaching approaches rely excessively on textbooks and classroom lectures, lacking sufficient interactivity and diversity to stimulate students' learning interest.

Moreover, the integration of Hainan cultural elements into English teaching remains relatively limited, resulting in students' inability to accurately convey regional cultural characteristics in cross-cultural communication contexts. These issues not only constrain the effectiveness of English teaching but also weaken the international dissemination of Hainan culture. Consequently, leveraging AI technology to improve the development and implementation of teaching resources has become a critical breakthrough for addressing these challenges.

1.3 Research Objectives

This study aims to systematically develop English teaching resources related to Hainan culture through the application of AI technology in order to enhance teaching effectiveness and cultivate students' comprehensive competencies. Specifically, the study focuses on extracting core cultural elements suitable for English teaching from areas such as Hainan's history, folk customs, and tourism, and integrating them organically into resource design.

At the same time, the research explores innovative applications of AI technologies in resource development, including multi-modal resources such as intelligent dialogue systems and virtual reality scenario videos, thereby providing students with more immersive learning experiences. Through these practices, the study seeks not only to improve students' English language proficiency but also to strengthen their understanding and identification with Hainan culture, thus contributing to cultural exchange and the international image construction of the Hainan Free Trade Port.

Ultimately, the findings of this study may also provide valuable references for English teaching related to other regional cultural themes and further promote the in-depth application of AI in education.

2. Literature Review

2.1 Theoretical Foundations

The application of AI in education is grounded in multiple theoretical perspectives, among which constructivist learning theory and cultural communication theory are particularly relevant to this study. Constructivism emphasizes that learners construct knowledge systems through active participation and interaction, while AI-supported tools such as personalized learning pathways and intelligent dialogue systems effectively facilitate this process. For example, in the development of English teaching resources related to Hainan culture, AI can generate customized content based on students' language proficiency levels and interests, thereby promoting deeper learning. Meanwhile, cultural communication theory highlights language as a crucial medium for cultural dissemination. Accordingly, English teaching resources should integrate regional culture into language learning in

order to enhance students' cultural identity and intercultural communicative competence.

These theoretical perspectives provide a solid foundation for integrating Hainan culture into English teaching and further demonstrate the potential of AI in cultural content mining and instructional resource innovation.

2.2 Research Progress at Home and Abroad

In recent years, significant progress has been made in research on AI-empowered English teaching resource development. Internationally, AI has been widely utilized in areas such as personalized tutoring, intelligent assessment, and multi-modal resource design. For instance, some studies have employed natural language processing technologies to develop intelligent writing evaluation systems, significantly improving students' writing abilities.

In China, studies in vocational education have shown that AI can optimize teaching resources and provide immersive learning experiences through big data analysis and intelligent environment construction. However, existing studies have primarily focused on improving general language skills, while explorations concerning the integration of specific regional cultures into English teaching remain relatively limited.

Particularly within the context of Hainan Free Trade Port construction, insufficient attention has been paid to how Hainan cultural elements can be organically integrated into English teaching. This gap in the literature provides an important entry point for the present study.

2.3 Research Gaps

A review of the existing literature reveals that current studies on AI-empowered English teaching resource development mainly focus on the improvement of general language skills, while relatively little attention has been paid to the integration of regional culture and language teaching. Particularly in the context of the Hainan Free Trade Port construction, insufficient attention has been given to the potential application of AI in extracting Hainan cultural elements, designing multi-modal teaching resources, and cultivating intercultural communication competence. In addition, current approaches to teaching resource development still rely heavily on traditional methods and lack deep integration with AI-generated content, resulting in limited resource diversity and adaptability. Therefore, this study seeks to address these gaps by exploring innovative applications of AI in the development of English teaching resources related to Hainan culture. The study also aims to provide new perspectives for integrating regional culture with international language education and to support cultural exchange and talent cultivation for the Hainan Free Trade Port.

3. Analysis of the Current Development of English Teaching Resources Related to Hainan Culture

3.1 Characteristics of Existing Resources

At present, English teaching resources related to Hainan culture mainly consist of textbooks, teaching slides, and limited multimedia materials covering topics such as Hainan's history and culture, tourist attractions, and folk customs. Most resources are primarily text-based, supplemented by images and simple audio materials, with the aim of helping students acquire basic knowledge of Hainan culture and relevant English expressions. The advantage of these resources lies in their relatively systematic presentation of core elements of Hainan culture and their provision of foundational terminology and expressions for learners. However, several limitations are also evident. First, the depth and breadth of the content remain insufficient, failing to fully demonstrate the

diversity and uniqueness of Hainan culture, especially in relation to themes associated with the construction of the Hainan Free Trade Port. Second, the forms of presentation are relatively monotonous, lacking interactivity and immersive learning experiences. Third, the low frequency of content updates makes it difficult for the resources to keep pace with social changes and evolving teaching demands.

3.2 Limitations of Traditional Development Models

Traditional models of teaching resource development exhibit clear limitations in terms of efficiency, diversity, and personalization. In terms of efficiency, manual writing and organization require considerable time and are constrained by developers' expertise and workload, resulting in slow resource updates that cannot effectively respond to the rapid development of the Hainan Free Trade Port. In terms of diversity, traditional approaches are often confined to fixed content structures and presentation formats, lacking flexibility and innovation and therefore failing to meet the needs of diverse learners. For example, existing resources tend to emphasize the transmission of basic knowledge while neglecting practice-oriented and situational instructional design. With respect to personalization, traditional approaches are unable to fully implement differentiated instruction because they lack in-depth analysis of learners' characteristics. The existence of these issues highlights the urgency of introducing AI technologies to empower teaching resource development.

3.3 New Demands on Teaching Resources under the Construction of the Hainan Free Trade Port

The strategic objectives of the Hainan Free Trade Port construction have generated new requirements for English teaching resources, mainly in terms of content, format, and dissemination. In terms of content, teaching resources should incorporate more themes related to Free Trade Port policies, economic development, and international cooperation in order to help students understand and participate in these developments. Meanwhile, the resources should also reflect the contemporary value and innovative achievements of Hainan culture, such as demonstrating the integration of ecological civilization construction and cultural tourism industries through digital approaches. In terms of format, traditional static resources are no longer sufficient to meet students' learning needs; greater emphasis should therefore be placed on multimedia and interactive design. Examples include the use of virtual reality technology to simulate Free Trade Port operational scenarios and intelligent dialogue systems to provide real-time language support. In terms of dissemination, the Hainan Free Trade Port aims to establish itself as an internationally influential open platform, which requires teaching resources to possess stronger communication and dissemination capacities. By integrating AI technologies, intelligent recommendation and global sharing of resources can be achieved, thereby expanding their coverage and application value.

4. AI-Empowered Development of English Teaching Resources Related to Hainan Culture

4.1 Exploration of Resource Content

4.1.1 Extraction of Hainan Cultural Elements

As China's only tropical island province, Hainan possesses abundant historical culture, folk traditions, and tourism resources, all of which provide rich materials for English teaching. Historically, Hainan served as an important node along the ancient Maritime Silk Road, and related historical sites and cultural symbols can be disseminated internationally through English education. For example, introducing intangible cultural heritage such as Qiong Opera and Li brocade weaving in

English can help students understand the uniqueness of Hainan culture. In terms of folk customs, traditional festivals such as the Junpo Festival and the “March Third” Festival embody strong regional characteristics. Transforming these cultural elements into English teaching content can not only help students master relevant vocabulary and expressions but also strengthen their identification with local culture. In addition, tourist attractions such as Tianya Haijiao, Wuzhi Mountain, and the Qilou Old Street can all be incorporated into teaching through English descriptions.

During the extraction of cultural elements, attention should also be paid to their compatibility with English teaching content. For instance, for Hainan specialties such as Wenchang chicken and coconut rice, specialized English dialogues or reading materials can be designed to help students master expressions related to ingredients, cooking methods, and cultural background. Furthermore, in combination with the context of Free Trade Port construction, cultural elements associated with economic development and international cooperation can be further explored, such as introducing policies related to the International Tourism Island and their influence on the local economy. In this way, students can gain an understanding of the practical significance of regional development while learning the language.

4.1.2 Integration with English Teaching

The effective integration of extracted Hainan cultural elements into English teaching content is crucial for ensuring the practicality of the resources. First, cultural themes appropriate to students' cognitive levels should be designed according to instructional objectives. For example, English dialogues centered on the theme of “cultural exchange” may include policy interpretation, international cooperation, and intercultural communication, enabling students to practice language skills in authentic contexts while understanding the strategic significance of Free Trade Port construction. In addition, project-based learning approaches can be adopted by requiring students to complete group projects such as English reports or presentations related to Hainan culture, including introductions to traditional festivals or local cuisine presented through multimedia formats. Such activities not only improve students' comprehensive language application abilities but also cultivate teamwork and innovative thinking.

To achieve effective integration between cultural elements and English teaching, modern educational technologies should also be fully utilized. For example, AI generation systems can automatically produce English exercises, reading comprehension materials, and listening texts related to Hainan culture. At the same time, natural language processing technologies can provide real-time error correction and feedback on students' English production, helping them improve language accuracy. Based on AI-driven data analysis functions, teaching content can also be dynamically adjusted according to students' learning behaviors, thereby ensuring a high degree of alignment between instructional objectives and learning needs.

4.2 Innovation in Resource Formats

4.2.1 Enriching Resource Formats through AI Technology

The rapid development of artificial intelligence technology has created new possibilities for the development of educational resources. In the development of English teaching resources related to Hainan culture, AI has been employed to generate various types of instructional materials, significantly enhancing the expressiveness and attractiveness of the resources. For example, intelligent dialogue systems enable students to acquire English knowledge related to Hainan culture

through voice interaction. These systems can not only respond to questions in real time but also utilize natural language processing technologies to correct expression errors and provide personalized support. The application of virtual reality technology has further expanded the boundaries of teaching resources. By constructing simulations of port operations or recreating ancient Maritime Silk Road trade scenes, students can experience the historical evolution and modern development of Hainan culture within immersive environments.

In addition, AI has supported the generation of intelligent voice-explanation materials. Through text-to-speech technology, introductions to Hainan's historical events, folk activities, and tourist attractions can be transformed into English audio resources, enabling students to study anytime and anywhere. AI-generated data visualization charts also provide new approaches to presenting complex information. For example, when explaining Free Trade Port policies and their economic impacts, dynamic charts can visually demonstrate trends in data changes. These diversified resource formats not only enrich teaching methods but also create conditions for multi-sensory learning.

4.2.2 Principles for Multi-modal Resource Design

In designing multi-modal teaching resources, several fundamental principles should be followed to ensure effectiveness. The first is the principle of consistency, which requires a high degree of alignment between resource format and instructional content, avoiding situations in which overly elaborate forms distract students' attention. For example, when designing virtual reality scenarios, the scene layout, character dialogues, and background sound effects should closely correspond to instructional objectives. The second is the principle of adaptability, which requires resource formats to be optimized according to the characteristics of learners at different stages. For beginner learners, static resources combining images and text may be more appropriate, whereas advanced learners can be introduced to more challenging interactive resources such as intelligent dialogue systems or virtual reality exploration tasks.

In addition, the design of multi-modal resources should remain flexible so that teachers can further adapt or redevelop them according to practical instructional needs. For example, editable intelligent dialogue scripts or customizable virtual reality scenarios may be provided, allowing teachers to add or modify content in ways that better meet classroom requirements. Finally, the principle of accessibility should not be overlooked. Teaching resources should operate smoothly across multiple device platforms to ensure that students can obtain a consistent learning experience whether using computers, tablets, or mobile phones.

5. Practical Application of AI-Empowered English Teaching Resources Related to Hainan Culture

5.1 Application in Teaching Contexts

5.1.1 Application in Classroom Teaching

In classroom instruction, AI-empowered English teaching resources related to Hainan culture provide teachers and students with diversified teaching tools and interactive approaches. Intelligent dialogue systems significantly improve the efficiency of students' oral English practice by correcting grammatical errors in real time and offering authentic expression suggestions, thereby helping students quickly master English expressions related to Hainan culture. For example, in role-playing activities involving simulated negotiations on Free Trade Port policies, students can obtain policy-related information through interaction with intelligent dialogue systems and practice language application abilities within authentic communicative contexts. The application of virtual

reality technology further enriches classroom scenario construction. Through port operation simulations or virtual field visits, students can experience the actual operational processes of the Free Trade Port firsthand. This immersive learning approach not only strengthens students' understanding of regional culture but also stimulates their learning interest. Research has shown that the classroom application of AI-integrated teaching resources can effectively promote teacher-student interaction while enhancing student participation and learning outcomes.

5.1.2 Application in Online Teaching

Within online teaching platforms, AI-empowered English teaching resources related to Hainan culture demonstrate strong integrative capacity and flexibility, providing learners with more open and personalized learning spaces. Intelligent recommendation systems automatically generate learning resource lists that correspond to students' learning behaviors and preferences. For example, when studying topics related to the economic development of the Free Trade Port, the system can recommend multi-modal resources such as data visualization charts, policy interpretation videos, and English report templates in order to meet the learning needs of students at different levels. In addition, AI-based virtual field-visit learning further breaks through the temporal and spatial limitations of traditional classrooms. Through virtual platforms, students can "visit" Free Trade Port construction sites, understand planning layouts and functional zoning, and develop deeper understandings of the cultural characteristics and developmental goals of different regions through intelligent voice-explanation materials. This blended online-offline teaching model not only improves resource accessibility but also provides students with richer learning experiences.

5.2 Impact on Student Learning

5.2.1 Enhancement of Learning Motivation

The engaging and interactive teaching resources empowered by AI demonstrated notable effectiveness in stimulating students' interest in learning English through Hainan culture. Questionnaire surveys and classroom observations revealed that the application of intelligent dialogue systems and virtual reality scenarios substantially increased students' learning motivation. Through functions such as immediate feedback and personalized guidance, intelligent dialogue systems enabled students to experience a stronger sense of achievement during oral practice, thereby enhancing their willingness to participate actively in learning activities. Virtual reality technology, by constructing realistic learning scenarios, allowed students to explore the distinctive features of Hainan culture within immersive environments, effectively alleviating the monotony often associated with traditional instruction. For example, during tasks simulating international investment negotiations related to the Free Trade Port, students generally reported significantly increased interest in Hainan culture after completing role-playing activities and expressed greater willingness to consult additional materials to deepen their understanding. These findings indicate that the application of AI technology not only enriches instructional approaches but also gradually cultivates students' identification with regional culture and enthusiasm for learning.

5.2.2 Cultivation of Intercultural Communication Competence

AI-empowered English teaching resources related to Hainan culture also played an important role in helping students understand and disseminate Hainan culture while enhancing their intercultural communication competence. Analysis of students' project reports and English

presentation outcomes demonstrated that students in the experimental group showed significantly stronger abilities in information integration and logical expression than those in the control group. The incorporation of multi-modal learning resources enabled students to understand the core connotations of Hainan culture from multiple perspectives. For example, students could analyze changes in the industrial structure of the Free Trade Port through data visualization charts or learn about the achievements of ecological civilization construction through virtual field-visit videos. These resources not only broadened students' knowledge horizons but also provided abundant supporting materials, enabling them to communicate Hainan culture more accurately and comprehensively in intercultural contexts. At the same time, the real-time correction functions of intelligent dialogue systems in oral training significantly improved students' language expression abilities, allowing them to convey cultural information more confidently in international communication settings.

6. Evaluation of Practical Effectiveness

6.1 Evaluation Indicators and Methods

To comprehensively evaluate the practical effectiveness of AI-empowered English teaching resources related to Hainan culture, this study adopted multidimensional evaluation indicators and employed multiple research methods for data collection and analysis. Students' English achievement was selected as one of the core indicators because it directly reflects the role of teaching resources in improving language competence. The research team designed a standardized English test bank covering four dimensions—listening, reading, writing, and speaking—and conducted pretest and post-test comparisons between the experimental and control groups. The quality of project reports was used to assess students' comprehensive analytical and information integration abilities. During the project-based learning activities, students were required to complete English reports on the future development of the Hainan Free Trade Port. The research team evaluated these reports in terms of content completeness, clarity of logical structure, and accuracy of data analysis. In addition, English presentation performance was incorporated into the evaluation system to measure students' improvement in language expression and confidence in intercultural communication contexts. Presentation videos were recorded and evaluated by expert reviewers to ensure the objectivity of the assessment results.

In terms of evaluation methods, this study mainly adopted comparative experimental methods and questionnaire surveys. By establishing experimental and control groups, the comparative experiment effectively controlled for the influence of other variables on teaching outcomes, thereby enabling more accurate verification of the practical contribution of AI technologies. Questionnaire surveys were used to collect students' subjective feedback regarding the teaching resources, including changes in learning motivation, acceptance of resource formats, and satisfaction with AI-assisted functions. The questionnaire was designed based on a five-point Likert scale and consisted of 20 items covering aspects such as content relevance, technological stability, and learning experience.

6.2 Analysis of Evaluation Results

Systematic analysis of the evaluation data demonstrated that AI-empowered English teaching resources related to Hainan culture played a significant role in improving teaching effectiveness. First, regarding English achievement, the average scores of students in the experimental group improved significantly compared with those of the control group, particularly in speaking and writing, indicating that AI-generated intelligent dialogue systems and multimodal learning resources

effectively enhanced students' language output abilities. Second, concerning the quality of project reports, students in the experimental group produced reports that were more detailed and structurally coherent, especially in the areas of data analysis and policy recommendations. The data showed that after using AI-generated data visualization charts and intelligently recommended reading lists, students' abilities in information integration and logical thinking improved substantially. In the English presentation component, students in the experimental group demonstrated greater fluency and accuracy in language expression than those in the control group, largely due to the personalized oral training support provided by intelligent dialogue systems. Expert reviewers generally agreed that students in the experimental group exhibited particularly strong cultural confidence and intercultural communication competence in their presentations.

Further data analysis indicated that AI technologies not only improved students' academic performance but also significantly enhanced their learning interest and participation. Questionnaire results revealed that more than 85% of students in the experimental group believed that the engaging and interactive AI-empowered teaching resources stimulated their interest in learning English through Hainan culture. At the same time, most students reported that virtual reality scenarios and intelligent voice-explanation materials provided more intuitive learning experiences, helping them better understand and disseminate Hainan culture. These findings strongly support the hypothesis of this study: namely, that AI technologies can significantly improve teaching effectiveness and promote students' comprehensive competence development through diversified resource formats and personalized learning support.

6.3 Problems and Improvement Measures

Although AI-empowered English teaching resources related to Hainan culture achieved significant effectiveness in teaching practice, several problems also emerged during implementation. First, technical malfunctions constituted one of the primary issues. For example, intelligent dialogue systems occasionally exhibited semantic comprehension deviations when processing complex sentence structures or specialized terminology, resulting in inaccurate information for students. In addition, virtual reality scenario videos experienced lagging issues on some low-performance devices, negatively affecting the learning experience. Second, insufficient resource adaptability also requires further attention. Although AI generated abundant multi-modal resources, some resources still showed limited alignment with instructional objectives. For instance, the difficulty level of certain intelligently recommended reading lists exceeded students' actual comprehension abilities, thereby reducing learning effectiveness.

In response to these issues, this study proposes several improvement measures. First, AI algorithms should be optimized to enhance system stability and accuracy. For example, by expanding the scale and diversity of the corpus, the semantic comprehension ability of intelligent dialogue systems in specialized domains can be improved. At the same time, virtual reality scenario videos should be adapted to multiple resolutions to ensure smooth operation across different devices. Second, greater emphasis should be placed on the design and review stages of teaching resources. During the initial phase of resource development, instructional objectives and students' actual needs should be fully considered to ensure a high degree of alignment between resource content and instructional purposes. In addition, an expert review mechanism may be introduced to conduct quality control of generated resources, thereby improving their practicality and effectiveness. Through these improvements, it is expected that more refined AI-empowered teaching resources can

be provided for future teaching practice, further promoting the development of English teaching related to Hainan culture.

7. Conclusion

7.1 Summary of Research Findings

Against the backdrop of Hainan Free Trade Port construction, this study explored the application of AI technologies in the development and practice of English teaching resources related to Hainan culture and achieved relatively significant results. In terms of resource development, the study employed AI technologies to realize the in-depth exploration and multi-modal presentation of Hainan cultural elements, thereby constructing an innovative resource system integrating local characteristics with English teaching. For example, AI-generated intelligent dialogue content, virtual reality scenario videos, and intelligent voice-explanation materials not only enriched resource formats but also enhanced expressiveness and interactivity. In terms of teaching practice, AI-empowered resources demonstrated positive application effects in both classroom and online teaching contexts. The findings indicate that these resources can effectively stimulate students' learning interest, improve their intercultural communication competence, and promote noticeable progress in areas such as project report quality and English presentation performance. In addition, this study further verified the application potential of AI technologies in education and provided useful references for the teaching of other regional cultural themes.

7.2 Significance for the Construction of the Hainan Free Trade Port

This study carries important practical significance for cultural exchange, talent cultivation, and the enhancement of the international image of the Hainan Free Trade Port. In terms of cultural exchange, by integrating Hainan cultural elements into English teaching resources, the study provides a new pathway for the dissemination of local culture. AI-generated multi-modal resources not only help students better understand Hainan's history, folk customs, and tourism resources but also lay the foundation for them to communicate Hainan culture in international contexts, thereby promoting cultural interaction between Hainan and the wider world. In terms of talent cultivation, the development and implementation of AI-empowered teaching resources improved students' comprehensive abilities, particularly in key competencies such as data analysis, policy interpretation, and intercultural communication. These competencies represent core qualities required of high-level internationalized talents needed for the construction of the Hainan Free Trade Port and are therefore conducive to promoting regional economic and social development. In terms of enhancing the international image of the Free Trade Port, this study supports international publicity efforts through the development of high-quality English teaching resources. The English project reports and presentations completed by students using these resources not only demonstrate Hainan's developmental achievements but also strengthen international awareness and recognition of the Hainan Free Trade Port.

7.3 Future Research Directions

Although this study achieved certain outcomes, there remain numerous directions worthy of further exploration. First, future studies may further deepen the application of AI in teaching models and explore more intelligent instructional scenarios. For example, by integrating natural language processing and machine learning technologies, intelligent teaching systems capable of dynamically

adjusting instructional content and strategies according to students' personalized needs could be developed. Second, greater attention should be devoted to the personalized development of learning resources by designing more targeted teaching materials according to students' learning characteristics and interests. For instance, big data analysis technologies could be used to accurately recommend learning content that aligns with students' needs, thereby improving learning efficiency and outcomes. In addition, future research may expand the application of AI technologies in educational assessment by exploring how AI can be utilized to conduct comprehensive and multidimensional evaluations of students' learning processes and outcomes, thus promoting the scientific and precise development of teaching evaluation. With the continuous advancement of AI technologies, their application prospects in education remain broad. Future research should continue to explore the potential value of AI in the development of English teaching resources related to Hainan culture, thereby providing stronger intellectual support and talent cultivation for the construction of the Hainan Free Trade Port.

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