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AI-Assisted Intercultural EFL Pedagogy: An Activity-Theoretical Teaching Model for Cultural Awareness and Communication

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ABSTRACT

This study proposes a three-stage AI-assisted intercultural EFL pedagogy model structured as experience–reflection–creation to address the persistent challenges of superficial cultural teaching and the separation between language learning and cultural awareness development. Grounded in activity theory and sociocultural theory, AI functions in this framework as both a transformative mediating tool and a cultural–cognitive partner, systematically reshaping instructional elements and guiding students from multicultural experience and critical comparative reflection to creative cultural communication.
Using the lesson "New Year Celebrations Around the World" as an instructional case, classroom implementation demonstrates that the model effectively fosters the integrated development of intercultural communicative competence and cultural awareness at both cognitive and practical levels. The study offers a theoretically grounded and classroom-feasible pathway for integrating generative AI into intercultural English education.

1. Introduction

The report of the 20th National Congress of the Communist Party of China clearly put forward the strategic task of "enhancing the communication power and influence of Chinese civilization" and gave foreign language education the mission of the times to "tell Chinese stories well and spread Chinese voices well." At the same time, the national education programmatic document "English Curriculum Standards for Compulsory Education (2022 Edition)" lists "cultural awareness" as the core literacy, aiming to cultivate students with "family and country feelings, international vision and cross-cultural communication skills". This profoundly reveals that foreign language teaching has gone beyond the purely instrumental orientation and entered a new stage of coordinated development of language, culture and value shaping. In this context, the cultural awareness and intercultural communicative competence are not binary opposites, but the dialectical unity of value mutual certification and identity in the in-depth dialogue between "self" and "other".

However, there is still a significant gap between ideal vision and teaching practice. At present, English cultural teaching is faced with double dilemmas: First, at the cognitive level, cultural teaching is easy to fall into the shallow rut of "symbol memorization", and students' understanding of foreign cultures stays in the list of factual knowledge, which makes it difficult to touch the value core behind it and make critical reflection; Secondly, at the level of value guidance, the cultivation of cultural awareness is often separated from language teaching and cross-cultural context, which makes it difficult to grow naturally in dialogue and easily alienated into blunt and formal moral education indoctrination. Its root lies in the inherent limitations of traditional classrooms in creating real cross-cultural context, supporting deep cultural experience and providing diversified expression channels.

The rapid development of generative artificial intelligence (AIGC) technology provides an unprecedented historic opportunity to systematically solve the above dilemmas. Its powerful multi-modal discourse generation, situational simulation and personalized interaction ability make it possible to build a complete closed-loop teaching of "cultural experience-deep

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cognition-creative communication" in a single course. However, looking at existing research, the application of AI in foreign language teaching mostly focuses on the training and automated evaluation of language skills such as vocabulary and grammar. It acts as a "cultural intermediary" and a "cognitive partner" and promotes in-depth cultural understanding and value The great potential in recognition is still a "value depression" that needs to be reclaimed urgently.

Based on this, this study aims to face the core question: how to effectively use easy-to-use generative AI tools to build a set of theoretically solid and practical English teaching mode, so as to organically integrate the cultivation of home and country feelings with the development of intercultural communicative competence ability, so as to respond to the national strategic demand of "enhancing the influence of Chinese civilization communication power" and fill the gap in teaching research under the current "technology-value" two-wheel drive background? In order to answer this question systematically, this paper first sorts out the relevant research, then constructs the theoretical framework, elaborates the teaching mode in detail, and provides classroom practice cases and reflections, in order to provide a reference with both theoretical depth and practical path for foreign language education innovation.

2. Literature review

In recent years, with the deepening of globalization and the advancement of national cultural strategy, cultural teaching and values guidance in foreign language education have been paid more and more attention. Scholars at home and abroad have made multi-dimensional exploration on this. In terms of cultural teaching, the intercultural communicative competence model proposed by Byram (2021) emphasizes the importance of critical reflection while understanding the culture of the other. Domestic scholar Wu Yun (2022) pointed out that cross-cultural dialogue is an effective way to cultivate cultural awareness, and we should deepen the recognition of our own culture on the basis of understanding and respecting cultural differences. Li Zhengtao (2021) explained the connotation of family and country feelings from a pedagogical perspective, emphasizing that they should be rooted in individual cultural consciousness and emotional belonging, rather than empty preaching.

In the field of technology-empowered education, the rise of generative artificial intelligence has injected new impetus into teaching reform. Zhang Shuai and Zou Deping (2023) reviewed the application of GPT models in language learning and pointed out their advantages in providing personalized feedback and generating contextualized learning materials, but also pointed out that current research mostly focuses on language skills. Luckin et al. (2023) demonstrated the potential of AI as an "intelligent partner" in "Intelligence Unleashed", which can expand learners' cognitive boundaries and support the solving of complex problems. However, the relevant empirical research on how to deeply integrate AI into the more comprehensive and humanistic teaching goal of cultural understanding and value shaping is still insufficient, and the theoretical exploration needs to be deepened.

In addition, activity theory (Engeström,2015) and sociocultural theory (Vygotsky,1978) provide an important theoretical lens for this study. Activity theory emphasizes the holistic and systematic change, which is suitable for analyzing the reconstruction relationship of various elements in the teaching system after the intervention of technology. Sociocultural theory focuses on the mediating role of cultural tools in individual cognitive development. Studies have tried to use these theoretical analysis techniques to assist language learning (such as Huang & Li, 2024), but there are few studies on systematically integrating them to guide the integrated teaching of family and country feelings and intercultural communicative competence under AI empowerment. Under this research background, this study tries to integrate the above theoretical perspectives, construct and verify a systematic teaching model, so as to connect the fracture zone between technology application, cultural cognition and value cultivation.

3. Theoretical framework

In order to construct a theoretical model that is theoretically solid and can effectively explain the empowerment mechanism of AI, this study integrates activity theory and social and cultural theory to form a complementary analytical framework to redefine the core role and function of AI in the teaching system

3.1. System reconstruction from the perspective of activity theory: AI as a "transformative intermediary tool"

Activity theory regards learning as a dynamic and hierarchical activity system composed of "subject-tool-object-community-rule-division of labor". In this study, the intervention of AI is not a simple superposition of tools, but as a key "transformative intermediary tool", which triggers the structural reconstruction of the entire cultural learning activity system. On the one hand, the transformation of tools (AI) and objects (cultural understanding). AI tools (such as AIGC and word cloud generator) directly change the relationship between students (subjects) and learning objects (objects, that is, from shallow cultural knowledge to deep intercultural communicative competence and family and country feelings). It enables students to visually analyze, simulate experience and creatively transform cultural phenomena, thus promoting the transformation of objects from "passive knowledge" to "meaning that can be explored, manipulated and internalized". On the other hand, the reshaping of community, rules and division of labor. In the community composed of teachers, students and students, the introduction of AI has established new rules (such as human-computer collaborative inquiry, critical discussion based on AI-generated content) and new division of labor (such as student-led inquiry, AI providing cognitive scaffolds, Teacher design guidance and empowerment). This systematic reconstruction ultimately aims at overcoming the core contradiction between cultural teaching and value guidance in traditional classrooms and driving the whole system to a higher level.

3.2. Cognitive expansion from the perspective of social and cultural theory: AI as a "cultural intermediary" and an "intelligent partner"

Vygotsky's sociocultural theory holds that the development of advanced psychological functions originates from social interaction and is mediated by Cultural Tools. In this model, AI is a "cultural tool" in the digital age and plays a dual role. First, as a Cultural Mediator. AI makes abstract cultural concepts, implicit cultural characteristics and complex language expressions concrete and explicit. For example, "reunion" is visualized through the Wenshengtu tool, and the cultural orientation of "collectivism" and "individualism" is made clear at a glance through the word cloud tool. It acts as a bridge between students'cognition and the world of cultural significance. Second, as a more capable companion and intelligent partner More Capable Peer/Intelligent Partner. According to the theory of "proximal development zone", AI supports students to complete complex cognitive tasks that they are not competent for independently by providing dynamic and

personalized scaffolds. Whether it is polishing English lecture notes through conversational AI or using design platforms to assist creation, AI effectively raises students' potential cross-cultural cognition and communication abilities to a new level.

To sum up, the theoretical framework of this study can be clearly expressed as explaining how AI reconstructs the structural elements of teaching with activity theory as the macro-system architecture; Using social and cultural theory as a micro-cognitive development mechanism, this paper clarifies how AI mediates the internal psychological process of individuals. The integration of the two jointly endows AI with the dual identities of "system reconstructor" and "cognitive catalyst", which provides a strict theoretical basis for the construction and case analysis of the following "experience-inquiry-creation" teaching model, and also makes The deep mechanism of AI in integrating family and country feelings and intercultural communicative competence can be thoroughly analyzed.

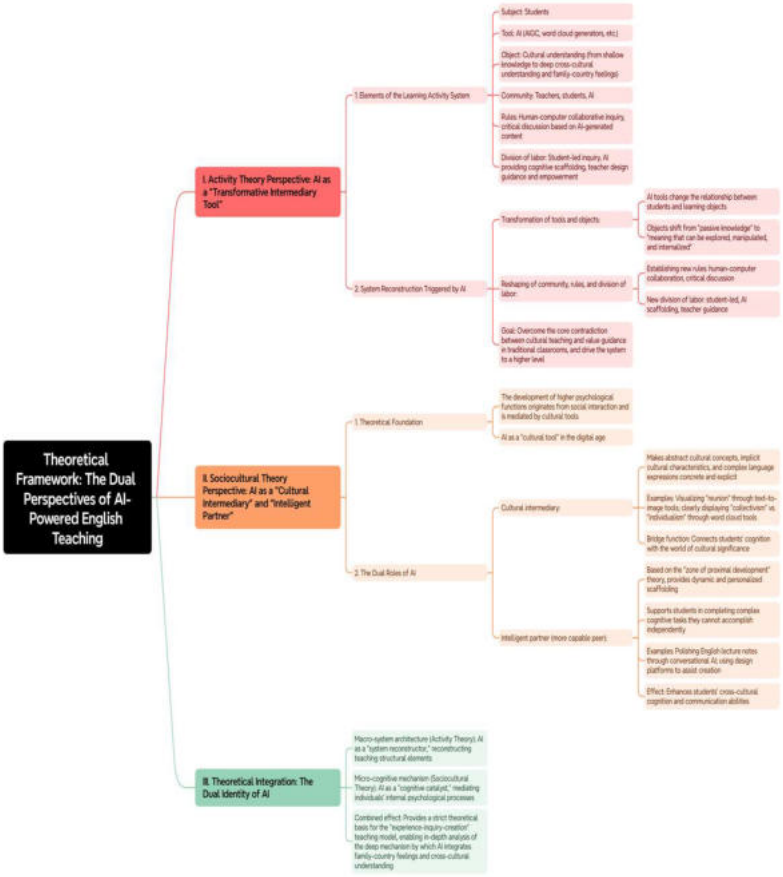


Fig. 1. A Dual-Theoretical Conceptual Framework for AI-Powered English Teaching

4. Research methods and design

In order to ensure the scientificity and reliability of the research, this study adopts the Design-Based Research paradigm and follows the cycle path of "theoretical construction-model design-teaching implementation-analysis and reflection-iterative optimization". The research was carried out in the eighth grade of an ordinary middle school in a city, and a nature teaching class composed of 45 students was selected as the practice object. In terms of data collection, multi-method triangular mutual verification is adopted, including, first, analysis of students' works, collection of word cloud images generated at each stage, cultural observation records, manuscripts before and after AI polishing, final multi-modal cultural communication works, etc.; Second, classroom observation, video recording and transcripting the whole teaching process, focusing on the interaction mode between students and AI, the depth of group discussion and the quality of cultural reflection; Third, teacher-student interviews. After teaching, semi-structured interviews are conducted with some students and instructors to understand their feelings about the use of AI tools, changes in cultural understanding and experience of value recognition; Fourthly, the teaching reflection log, written by the researcher and the instructor, records the challenges and adjustments in the implementation process. Qualitative content analysis method is adopted for data analysis, and the above data are systematically coded and classified, so as to refine the validity evidence of the model and the improvement direction. This study strictly abides by the ethics of educational research, obtains the informed consent of schools, teachers and students in advance, and anonymizes all personal information.

5. Teaching model construction and classroom practice path

Based on the dual guidance of activity theory and social and cultural theory, this study constructs a three-stage spiral teaching model of "experience-reflection-creation". The model is driven by easily available generative artificial intelligence tools, and aims to achieve the organic integration and two-way strengthening of intercultural communicative competence and family and country feelings by reconstructing the learning activity system. The following will take the lesson "New Year Celebrations around the World" as an example to specifically explain the practical path and operating mechanism of this model.

5.1. Stage 1: Multicultural Experience-AI as Situation Creator

In practice, teachers use the text graph function of platforms such as "Wenxin Yige" or "Canva AI" in the pre-learning process to input such as "London New Year's Eve crowd fireworks", "Chinese family reunion dinner scene during Spring Festival", "Egyptian Sham El-Nessim picnic in spring" Wait for a series of accurate prompt words to generate a set of high-quality visual materials that are highly consistent with the teaching theme, and make a "cultural observer" exploration task list accordingly. In class, students are divided into groups to observe these typical AI-generated scenes that go beyond traditional galleries, and record their "first cultural impressions" with keywords (such as "carnival", "reunion" and "nature"), and share them in groups. The design principle of this stage is that AI, as a situation creator, breaks through the limitations of matching and richness of traditional teaching resources, and can generate visual stimuli on demand and efficiently that can trigger cognitive conflicts and cultural curiosity. This not only provides an equal and high-quality perceptual material library for students' subsequent in-depth exploration, but also lays a preliminary foundation for cultural understanding across geographical boundaries through strong visual immersion.

5.2. Stage 2: In-depth contrast and reflection-AI as a thinking manifester

This stage is the core link of the model, which aims to guide students to transcend cultural appearances, understand the values behind cultural differences through quantitative analysis and critical dialogue supported by AI, and in the process, reflect and deepen their identity with their own national culture.

On the practical level, intelligent text analysis is carried out first. Students divided into groups to import text paragraphs about New Year celebrations in Britain, the United States, China and Egypt into tools such as "WordArt.com" to generate visual word cloud diagrams. Subsequently, the teacher guides a series of progressive inquiry activities. At the level of cultural difference analysis, students are guided to compare the visual weight of words in the word cloud. For example, the core position of words such as "family", "reunion" and "home" in China is in sharp contrast with the prominence of words such as "crowd", "clock" and "ball" in the United Kingdom and America. The teacher then asked, "What kind of cultural value orientation does the image difference between 'family' and 'crowd' reflect behind 'family standard' and 'public celebration'?" At the level of cultural commonality pursuit, students are guided to pay attention to the common high-frequency words in all word clouds, such as "new", "hope" and "happiness", and think about "what are the common feelings and expectations of human beings for the new Year beyond cultural appearance?" Finally, at the level of local cultural reflection, according to the word cloud characteristics of Chinese new Year. The design principle of this stage is that AI, as a thinking manifester, transforms implicit and abstract cultural text features into explicit and visible objective data. This makes students' cultural comparison and critical thinking process concrete, and provides an anchor point for teachers to implement precise teaching intervention. Through a carefully designed problem chain, teaching shifts from "knowledge transfer" to "meaning negotiation", driving students to understand other people's cultures while completing in-depth cognition and value confirmation of their own cultural characteristics, thus achieving the educational goal of "two-way mirror".

5.3. Stage 3: Creative cultural dissemination-AI as a creative scaffold

This stage is the sublimation and transfer stage of learning results. Its goal is to guide students to use English for effective cross-cultural communication with the assistance of AI through real project tasks, and to solidify their cultural awareness into a kind of self-confident expression ability and identity in creative practice.

Its practice path is based on the project-based learning of "I am the spokesperson of Chinese culture". Students choose any traditional Chinese festival (such as Spring Festival, Mid-Autumn Festival and Dragon Boat Festival), and the task is to create a cultural communication program for international audiences. In the AI-assisted creation process, students first write the first draft of the English introduction, and then use large conversational models such as "ChatGPT" or "Doubao" to polish the following introduction about the Mid-Autumn Festival through such things as "Please use a more authentic and attractive tone for foreign teenagers.", and add structured prompt words such as an interesting short story about mooncakes "to optimize and expand the text. Subsequently, students use the AI design function of "Canva" to transform the polished copy into multi-modal works such as promotional posters, social media tweets or short videos. Finally, the course is displayed and evaluated in the form of "Chinese Culture Digital Exhibition", and teachers and students jointly evaluate according to multi-dimensional gauges covering cultural accuracy, language authenticity, creative expression and cross-cultural attraction. The design principle of this stage is that AI, as a creative scaffold, greatly lowers the technical threshold of language output and artistic design, enabling students to concentrate their limited cognitive resources on the cultural depth of content and communication strategies. Driven by the real task of "explaining one's own culture for others", students have successfully realized the identity transformation from passive "cultural learners" to active "cultural understanders" and "cultural communicators". Therefore, the cultural awareness are no longer an abstract concept, but are naturally sublimated and consolidated in creative externalization expression.

6. Reflection

This teaching practice research shows that the empowering value of artificial intelligence is by no means a simple technical superposition, but a deep reconstruction of the traditional English culture teaching paradigm. This reconstruction is mainly reflected in three dimensions.

First of all, AI technology has significantly improved the embodiment and exploration of cultural learning. Through AIGC situation creation and word cloud visualization analysis, the cultural cognitive process changes from passive knowledge reception to active meaning construction. Students no longer rely on teachers' conclusive narrations, but independently discover textual evidence of cultural differences in data-driven visualization results by operating AI tools. This process is in line with embodied cognitive theory, allowing abstract cultural concepts to be perceived and explorable through embodied interactions, thereby realizing deep learning. Secondly, this model effectively strengthens the tracelessness and profundity of value guidance. The cultivation of cultural awareness has successfully got rid of the traditional external indoctrination mode and is organically embedded in the cognitive cycle of "understanding the other-reflecting on oneself-explaining oneself". In-depth comparative reflection supported by AI, such as the quantitative comparison of Chinese and Western New Year cultural symbols, makes the establishment of cultural self-confidence rooted in rational critical thinking rather than emotional blind pride. When

students creatively interpret their own national culture for the "other" with the assistance of AI, value identity is naturally endogenous in real discourse practice, realizing the organic unity of knowledge transfer and value guidance. Furthermore, this study pays special attention to the accessibility and universality of teaching practice. The selected AI tools, such as Microword Cloud, Canva, Doubao, etc., are mostly free or low-cost general-purpose platforms, which greatly reduce the technical threshold. This "lightweight" technical path effectively alleviates the anxiety of front-line teachers in the face of technological innovation, enabling the model to be promoted in conventional classroom environments without relying on expensive hardware or complex training, and has the potential for large-scale application. potential.

However, this practice also reveals two types of challenges that need to be vigilant about in AI-enabled teaching. One is technical challenges, which are mainly manifested in cultural biases that may be embedded in AI tools, such as one-sided representation or stereotyped presentation of certain cultural phenomena. The second is the cognitive challenge, that is, students' over-reliance on AI-generated content may lead to the weakening of critical thinking and the dissolution of subjectivity. Faced with these challenges, the leading role of teachers is becoming more and more critical. At the technical level, students need to be guided to critically examine AI output, for example, by comparing the differences between cultural introductions generated by AI and authoritative texts to cultivate students' digital literacy and cultural critical awareness. At the cognitive level, the "instrumental" positioning of AI should be clarified, and students' dominant position in cultural understanding and creative expression should be emphasized through instructional design, so as to ensure that the application of technology serves the essence of educating people and avoid teaching becoming a vassal of technical rationality. In the future, English teaching should continue to explore the best balance point of human-machine collaboration while embracing technology, so as to achieve the harmonious unity of technological empowerment and humanistic spirit.

7. Conclusion

Based on activity theory and social and cultural theory, this study constructs a three-stage English teaching model of "experience-reflection-creation" with artificial intelligence as the key intermediary, and verifies its effectiveness through specific teaching cases. The research shows that this model successfully solves the double dilemma of "superficiality" of cultural teaching and "isolation" of value guidance by systematically reconstructing the learning activity system. AI tools play multiple roles in teaching: as situational creators, they provide an immersive cultural experience field; As a mind manifester, it transforms implicit cultural traits into analyzable visual data; As a creative scaffold, it significantly lowers the technical threshold of cross-cultural expression.

The core theoretical contribution of this model lies in the two-way construction and circular strengthening of "intercultural communicative competence" and "cultural awareness" in teaching practice. Deep intercultural communicative competence provides a rational cognitive basis for the cultivation of cultural awareness, while confident cultural communication practice becomes the highest manifestation of cross-cultural communication ability. This two-way interaction mechanism ensures that value identification is based on critical thinking and cultural consciousness, rather than simple emotional indoctrination.

From the perspective of practical value, the lightweight and easily accessible technical scheme adopted in this study makes this model have the potential to be popularized on a large scale in conventional classroom environment, and provides a teaching paradigm with both theoretical height and operability for front-line teachers. It not only echoes the requirements of the new curriculum standard for core literacy, but also responds to the strategic needs of enhancing the influence of Chinese civilization communication in the new era. It is worth pointing out that there are still some limitations in this study, including the short-term research period and the limited scope of application topics. Future research can continue to be deepened in the following directions to explore the application path of AI in richer cultural themes (such as traditional art and philosophical thoughts); Promote the integration with new technologies such as virtual reality, and create a more present cross-cultural interactive situation; Construct a more refined teaching effect evaluation system. Through continuous technological iteration and teaching innovation, we are expected to cultivate young people in the new era who are rooted in Chinese context and have global competence, and contribute educational wisdom to the construction of Community of Shared Future for Mankind.

Author Contribution

Hui Nie: Conceptualization; Methodology; Theoretical framework development; Instructional model design; Classroom implementation; Data curation; Formal analysis; Writing – original draft; Writing – review & editing.

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Competing Interest declaration

The author declare that, to their knowledge, they have no financial, personal, or professional relationships that could be construed as a potential competing interest regarding the work described in this manuscript.

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