

Construction of Chinese Language Teaching and Training Platform for International Students Based on Multimodal Tourism Language Landscape

Bingchen Ma^{1,2,a,*}, Yang Yuan^{3,4,b}

¹*School of Chinese Language and Literature, Shaanxi Normal University, Xi'an, China*

²*School of Foreign Languages, University of Sanya, Sanya, China*

³*Faculty of Education, Shaanxi Normal University, Xi'an, China*

⁴*School of Humanities and Communication, University of Sanya, Sanya, China*

^a419805828@qq.com, ^byangyuan@sanyau.edu.cn

^{*}Corresponding author

Keywords: Teaching and Practical Training; Multimodal Theory; Tourism Language Landscape; Chinese Language Learning for International Students; Cloud Platform Design

Abstract: Current Chinese language teaching resources are often limited to traditional forms such as textbooks, PPTs, videos, etc., lacking diverse teaching methods. There is a significant gap between the language environment in real life and the content of classroom teaching, which cannot fully meet the learning needs of international students from different countries and language backgrounds. Therefore, this article constructed a Chinese language teaching and training platform for international students based on a multimodal tourism language landscape. This article first provided an overview of the definition and characteristics of multimodal concepts and tourism language landscapes, and elaborated on the current situation and problems of Chinese language teaching for international students. Subsequently, the Chinese language teaching and analysis for international students were introduced, and the application of multimodal tourism language landscape in Chinese language teaching was listed. Then, a cloud environment based on multimedia network was constructed for platform operation, and a virtual simulation training platform and different module functions were designed under situational teaching mode. Finally, the Chinese language teaching and training platform for international students can be put into practical application. The experimental results demonstrated that the average exam scores of students in the listening, speaking, reading, and writing modules were 28.56, 26.14, 24.56, and 27.34, respectively, all showing excellent progress. The impact of multimodal teaching on the learning of Chinese dietary vocabulary is particularly significant. The performance gap between groups began to show, especially after 22.5 hours, when the total scores of the three groups of students significantly widened, with nearly half of the participants preferring multimodal teaching methods.

1. Introduction

In recent years, the concept of multimodal teaching has gradually gained attention, emphasizing the integration of various forms of expression such as text, images, and audio to provide a rich learning experience. Multimodal tourism language landscape, as an emerging teaching resource, can provide international students with a real language environment and help them better understand and apply Chinese. Based on this, this article aims to construct a multimodal tourism language landscape Chinese language teaching and training platform, providing more vivid and effective learning experiences for international students through innovative teaching design and training modes.

This study focuses on the application of multimodal teaching in the learning of Chinese dietary vocabulary by international students. The article first outlines the shortcomings of current teaching resources and their impact on the learning outcomes of international students in the introduction section, and then explores the theoretical basis of multimodal teaching and related research progress in the world through literature review. Next, in the research methodology section, the experimental design, participants, data collection, and analysis process were described in detail. The results section quantitatively analyzed the vocabulary learning effects under different teaching modes, using data visualization tools such as bar charts and line graphs to display the differences in learning outcomes. In the discussion section, this article deeply analyzes the role of multimodal teaching in enhancing learning motivation based on experimental results, and explores the application value and potential problems of this method in practical teaching. Finally, the article summarizes the main findings of the research through conclusions and provides prospects for future research directions.

2. Related Works

There are already many relevant literature on Chinese language teaching for international students. Xu C L conducted a thematic narrative review of 128 English and 74 Chinese articles from 2015 to 2020, and based on postcolonial theory, analyzed four thematic positions of Chinese international students: neoliberalism, politics, education, and racism [1]. Xu W explored the Chinese language learning experience of African students at a vocational college in Southeast China. Based on Watkins' teaching emotion theory, data was collected through participant observation, diary recording, and interviews [2]. Deuchar critically analyzed existing research on the experiences of international students and pointed out the problem of starting from the concept of "experience", believing that it ignores the agency of international students [3]. Wu & Koh explored the differences and similarities in the characteristics of Chinese international schools, and analyzed the positioning of American, British, and Sino Canadian international schools in China [4]. Lomer reviewed literature on teaching methods for international students in the UK from 2013 to 2019. International students are often seen as disadvantaged or passive roles, rarely serving as partners or knowledge agents [5]. Lee & Yang examined college students' views on group collaborative learning and explored how it supports active learning and participation [6]. Dai & Hardy interviewed 35 international doctoral students and found that they faced challenges of certainty and uncertainty before adapting to the academic environment in China, gradually forming an international habit [7]. Wilczewski & Alon used bibliometrics and content analysis to determine the main research streams: second language proficiency and interaction in the host country. They found that the role of same nationality communication in student adaptation is still inconclusive, and proposed the need to theoretically improve the relationship between interaction variables and adaptation domains [8]. Tsang & Yuan conducted a mixed method study to investigate cross-cultural activities on Hong Kong campuses. The results showed that consciousness and attitude significantly influenced

participation, explaining a total of 36% of the variance [9]. Ou & Gu found through multimodal dialogue analysis that the combination of multiple resources in the classroom can help participants overcome language barriers and effectively complete teaching tasks [10].

Wu & Leung found through ethnographic records and interviews that teachers flexibly utilize language resources to provide effective classroom practice for students [11]. Through a comparative case study of two international students from Myanmar at the University of Hong Kong, Sung found significant differences between the two students in handling the meaning of the "non local" label, responding to local students' perceptions of their national identity, and the compatibility of national identity with global identity [12]. Chiang et al. compared the social context level of students in active learning classrooms between China and the United States, and explored the impact of student teacher and student student interaction on learning experience and outcomes [13]. Cho used a sequential explanatory mixed method to quantitatively examine the relationship between self-supporting environment and classroom emotions (language anxiety), behavior (discussion participation), and cognition (adaptive beliefs in classroom assessment) in stages [14]. Ergenc explored the impact of transnational educational environments, particularly Sino British joint universities, on the education and career paths of university students [15]. Most research focuses on theoretical exploration and descriptive analysis, lacking empirical data support, especially in the specific implementation effects of cross-cultural communication and multimodal teaching practices. Moreover, most studies view international students as passive learners, neglecting their agency and subjectivity in the learning process.

3. Methods

3.1 Theoretical Framework

3.1.1 Multimodal Concept

The multimodal concept not only needs to stimulate students' multiple senses, but also integrate multiple teaching strategies. In daily cultural experiences, teachers should pay attention to both the preparation of materials in the early stage and guidance in the middle stage, as well as the summarization and sublimation in the later stage. Generally speaking, cultural learning is a systematic and long-term process. When students begin to reflect on their cultural experiences, they can start from their own cultural behaviors and concepts, and subconsciously reflect on their behaviors, language, thoughts, and attitudes in cultural experience activities. As an important stage of cultural experience teaching, teachers should explore their own guiding ideas. On the one hand, they should attach importance to guiding students' attitudes towards their own ethnic culture and non ethnic culture, so that they can form a sense of national cultural identity. On the other hand, they should guide students to develop a consciousness of "telling Chinese stories well". Combining writing summaries with oral expression summaries can continuously increase students' knowledge accumulation and enhance their cultural literacy.

3.1.2 Definition and Characteristics of Tourism Language Landscape

The tourism language landscape consists of two parts: language and non language. Traditional tourism language landscape appears in the form of text in tourist areas, which is relatively simple, static, and fixed. However, multimodal tourism language landscape refers to a tourist destination that includes multiple modalities such as text, images, animations, auditory (sound, video), and tactile (physical activity, virtual reality tactile). However, the characteristics and value of multimodal tourism language landscapes are not simply the sum of single form features and

functions. The superposition of their systematic, structural, and complementary effects has a transcendent and holistic effect on the sensory channel system, thus forming a three-dimensional and multi-level perception experience.

3.2 Current Situation of Chinese Language Teaching for International Students

With the continuous improvement of China's national strength, more and more international students choose China as their ideal country for studying abroad, hoping to gain different knowledge and experiences in China. However, the study life in a foreign country presents learners with a dual challenge of language and culture.

On the one hand, for international students, there is a certain distance between the language and culture in books and in daily life, and the knowledge they learn in the classroom may not fully digest the language and cultural difficulties in daily life. Most of the dietary vocabulary in books is general vocabulary such as "noodles, rice, dumplings, beer, roast duck" or representative vocabulary of Chinese cuisine. However, in real life, the food signs on the streets are not limited to this. International students find it difficult to apply the knowledge learned in class when they see numerous food signs with regional characteristics. On the other hand, Chinese language teaching classrooms in China need to constantly expand new teaching resources and forms. At present, in addition to textbooks, Chinese classroom teaching resources in China are still mainly based on PPT, pictures, and videos. Chinese classrooms need to inject "fresh blood", enrich international Chinese classroom forms, and stimulate international students' interest and motivation in learning.

3.3 Platform Construction Plan

3.3.1 Building a Platform and Running a Cloud Environment Based on Multimedia Networks

To ensure the stable operation of the Chinese education and training platform after its completion, a cloud environment can be established to ensure the smooth operation of the platform. In this process, the platform uses Internet technology to build a direct information exchange interface for teachers and students. Based on this model, collaboration is carried out among various information nodes, and virtual machines are used to configure the resources of the main node. A unified Chinese language teaching platform resource management model is established to finely support the hardware facilities of the Chinese language education and training platform, to enhance its adaptability to the network operating environment. The most important step is to allocate network nodes and IP addresses reasonably. To solve this problem, a storage method for IP addresses in the environment can be designed on the terminal to ensure stable operation of the platform in the network.

3.3.2 Teaching Content and Methods

Chinese language courses should be designed according to the language proficiency and needs of international students, including basic Chinese, tourism Chinese, practical dialogue, etc. The cultural module requires highlighting China's tourism culture, integrating local characteristics, customs, etiquette, and other content to enhance students' cultural literacy.

3.3.3 Platform Design Concept

(1) Designed a virtual simulation training platform under situational teaching mode

The "five types" of situational teaching can be deeply integrated with the virtual simulation training platform through the teaching process of "pre class physical display - simulated training

environment - voice and text prompts - guiding students' imagination - unfolding systematic reasoning". In the specific teaching process, teaching steps such as "pre class life oriented scenario introduction - construction of teaching scenario - classroom training oral presentation, situational dialogue presentation - use of multimedia materials such as pictures and sounds - construction of scenario through practical training simulation platform operation language description" can be used. The "six paths" of situational teaching mode can be deeply integrated with the virtual simulation training platform. In actual teaching, the classroom is divided into three teaching stages: "pre introduction stage - practical operation stage - post class testing stage", allowing students to apply their learned knowledge in different contexts, helping to achieve knowledge transfer, and enhancing students' practical Chinese application ability.

(2) Platform architecture design

By adopting a distributed architecture, the platform can be divided into multiple independent service modules to achieve horizontal expansion of services and load balancing. Each functional module, such as user management, course management, and experimental environment management, can be developed and deployed as an independent microservice. The communication and collaboration between modules are achieved through mechanisms such as message queues, ensuring loose coupling and fast iteration of the system. The adoption of microservice architecture enables modular development and deployment. Each functional module can be independently developed, deployed, and expanded. In this way, communication between different modules through Application Programming Interface (APIs) is beneficial for improving the flexibility and maintainability of the platform. For example, the user management module can be independently deployed and provide user authentication and permission control services, while the course management module can be independently extended to support different types of courses and teaching resources.

(3) Interactive learning module

According to the disciplinary connotation of the Chinese language major, relevant courses can be combined with practical training platforms. This is the use of modern technological means to reflect the characteristics of the times of "technology empowerment", improving teaching ability and teaching effectiveness, and is also an inevitable trend of practical teaching reform. The training platform course modules mainly include 3D simulation business Chinese comprehensive training, cross-border e-commerce practical platform, 3D business Chinese document training, business Chinese 3D scenario oral training, 3D virtual simulation international business negotiation training, business Chinese comprehensive training, and business Chinese audio-visual and oral training.

(4) Evaluation and Feedback Module

The video recording can be replayed, analyzed, discussed, evaluated, and reflected upon, allowing students to upload their video teaching practice videos to the class grouping tasks on the platform. Teachers and team members can replay the videos in a network environment and conduct a 2+2 collaborative evaluation between teachers and students. During the feedback review stage of video teaching, each team member and teacher can provide 2 positive highlights and 2 suggestions for improvement on the student's video teaching records, and grade the student's micro lesson videos in detail according to the survey form. By using both qualitative and quantitative evaluation methods, students have gained a clearer understanding of their professional skills training. In addition, the use of the practical internship platform is integrated with the principle of the first classroom, and the model of "theory-observation (case or micro-class record)-analysis-feedback-reflection" is adopted in the classroom. After class, the "Chaoxing" platform can be used to carry out "theory-watching-learning-recording-feedback", gradually guide students to master, consolidate and improve the business capabilities of Chinese teachers, and give full play to the practical value of the online platform.

4. Results and Discussion

4.1 Experimental Design

This experiment explores the application effect of multimodal tourism language landscape in Chinese language teaching for international students by constructing a virtual simulation training platform. The research objective is to evaluate the impact of the platform on enhancing students' interest and learning outcomes in Chinese language learning. The experimental participants are 60 undergraduate international students, and the experimental design includes three stages: pre class learning, practice testing, and final examination. Both process evaluation and summative evaluation are covered.

4.2 Experimental Steps

Platform construction: Build a virtual simulation training platform based on multimodal concepts, simulate the tourism language environment, and enhance the learning experience through multimedia elements.

Sample selection: Select 60 undergraduate international students with different levels of Chinese language proficiency, conduct random grouping, and participate in platform learning.

Teaching arrangement:

Pre class preview: Conduct independent preview through simulated scenarios on the platform, including exercises in listening, reading, speaking, and other modules.

In class practice: Teachers conduct interactive teaching through platforms, simulate real language landscape situations, and students participate online.

After class exercises and tests: The platform provides examination and practice functions, allowing students to practice independently based on their own learning progress and record their scores.

Data collection and analysis: Collect students' practice and exam scores, conduct statistical analysis, and evaluate the impact of the platform on learning outcomes.

Table 1: Practice and Exam Scores for Different Modules

Module	Practice Scores (Mean \pm Standard Deviation)	Exam Scores (Mean \pm Standard Deviation)
Listening	25.34 \pm 3.12	28.56 \pm 2.67
Speaking	21.89 \pm 2.31	26.14 \pm 2.98
Reading	19.76 \pm 2.05	24.56 \pm 2.45
Writing	22.90 \pm 1.88	27.34 \pm 2.12
Total Score	89.89 \pm 5.34	106.60 \pm 6.54

From Table 1, it can be seen that students' exam scores are higher than their contact scores. This indicates that students have made significant progress in practicing Chinese listening, speaking, reading, and writing through the platform, and have performed well in all exams.

4.3 Module Division

According to the needs of Chinese language learning, the experiment is divided into four modules:

Listening: Use multimodal tourism language landscape audio to play scenic area guides or real-life tourism conversations.

Oral English: Simulated tourism scenarios require students to practice Chinese oral English in

tourism scenarios through simulated dialogues and feedback systems.

Reading: Provide tourism promotional materials with illustrations and text, combined with multimodal visual design to help understand.

Writing: Using multimodal graphic and textual materials, students are required to write descriptions or short essays based on the tourist attractions they have seen.

Table 2: Experimental data analysis of the impact of multimodal teaching on the learning of Chinese dietary vocabulary by international students

Teaching Method	Number of Food Vocabulary in Class	Number of Food Vocabulary Encountered in Real Life	Mastery Level (1-5)	Usage Frequency (per Week)
Traditional Teaching (Textbook)	10	20	3	1
Multimedia Teaching (PPT)	15	25	4	2
Multimodal Teaching (Visual + Text)	20	30	4.5	3
Multimodal Teaching (Visual + Text + Audio)	25	35	5	4

In multimodal teaching (visual+text+audio), the number of dietary vocabulary learned in the classroom has further increased to 25, while the actual number of vocabulary in real life is 35. The mastery level has reached 5 points, and the frequency of use has also increased to 4 times a week. This indicates that the teaching model greatly stimulates students' learning interest and motivation through rich multi-sensory stimulation, enabling them to better grasp and apply Chinese dietary vocabulary, as shown in Table 2.

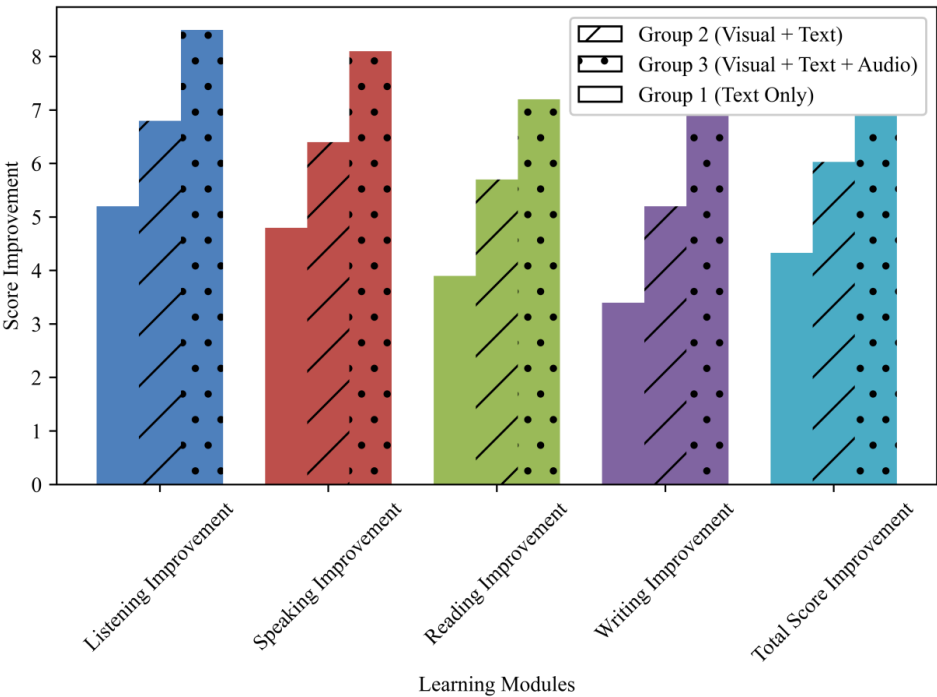


Figure 1: Comparison of teaching effects of multimodal tourism language landscape

From the data in Figure 1, it can be seen that Group 3 (visual+text+audio) has higher scores in listening, speaking, reading, and writing than Group 1 and Group 2. The experimental data fully shows that the effect of multimodal education is better than that of single mode education.

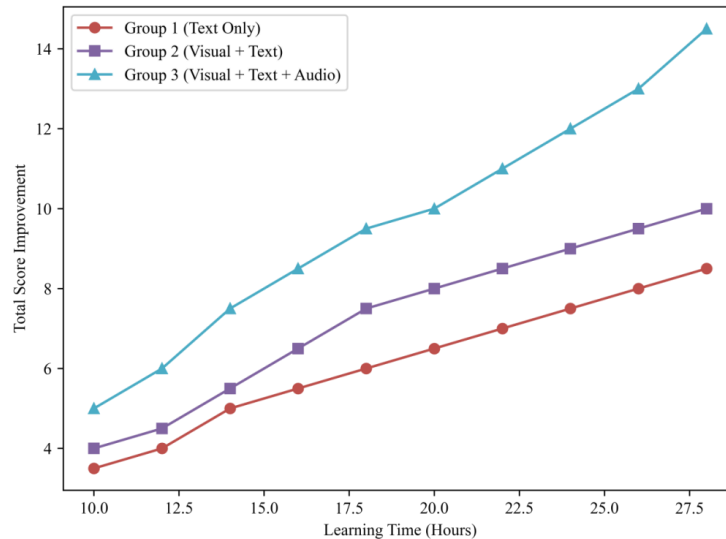


Figure 2: The relationship between learning time and overall grade improvement

From the data in Figure 2, it can be seen that with the increase of learning time, although there is a difference in the overall scores at the beginning of groups 1 to 3, the difference is not significant. However, after reaching 22.5 hours of study time, there began to be a significant difference in the overall grades of groups 1 to 3. This is because by combining various modalities such as text, images, audio, and video, students can come into contact with and understand Chinese from different perspectives. This diverse learning approach makes learning more vivid and interesting, and can attract students' attention. Moreover, multimodal learning can help students establish deeper understanding through the combination of visual and auditory senses. At the same time, through the integration of cultural background, students can establish emotional connections with the learning content and enhance their sense of meaning in learning.

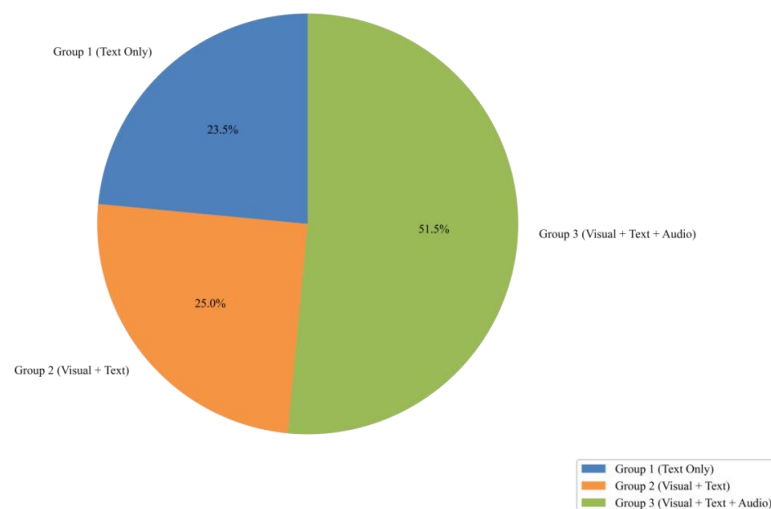


Figure 3: Student preferences

According to the student evaluations in Figure 3, nearly half of the students prefer the classroom education method of Group 3. Multimodal learning platforms typically have real-time feedback capabilities, allowing students to quickly understand their learning progress through simulation exercises, online assessments, and other methods. This timely feedback helps students adjust their learning strategies and maintain their learning motivation.

5. Conclusions

Chinese traditional culture, literature, festival customs, philosophical ideas, and national psychology are interdependent. Chinese language teaching for international students in China is aimed at students from different countries and ethnic groups. This study explored in depth the application of multimodal teaching in the learning of Chinese dietary vocabulary by international students, and constructed a Chinese language teaching and training platform for international students based on multimodal tourism language landscape. The results showed that multimodal teaching effectively improved students' vocabulary mastery and practical application ability, especially in the teaching mode combining visual, text, and audio, students' learning interest and motivation were significantly enhanced. However, there are limitations to the research, including limited sample size and limitations in the research environment, which may affect the generalizability of the results. Future research should expand the sample size, conduct longer-term observations, and combine more modern technological means such as online learning platforms and interactive software to further improve the learning outcomes of international students. Through these improvements, it can better meet the learning needs of students from different cultural backgrounds and provide support for the sustainable development of international Chinese education.

Acknowledgement

This work was supported by the national social science youth project "Research on the Construction of a 'Multi-modal' Emergency Language Service System in Hainan Free Trade Port" (Project No. 22CYY013).

References

- [1] Xu C L. Portraying the “Chinese international students”: A review of English-language and Chinese-language literature on Chinese international students (2015–2020)[J]. *Asia Pacific Education Review*, 2022, 23(1): 151-167.
- [2] Xu W. Pedagogic affect and African international students' attunement to Chinese language learning[J]. *Journal of Multilingual and Multicultural Development*, 2024, 45(7): 2369-2381.
- [3] Deuchar A. The problem with international students' 'experiences' and the promise of their practices: Reanimating research about international students in higher education[J]. *British Educational Research Journal*, 2022, 48(3): 504-518.
- [4] Wu W, Koh A. Being “international” differently: A comparative study of transnational approaches to international schooling in China[J]. *Educational Review*, 2022, 74(1): 57-75.
- [5] Lomer S, Mittelmeier J. Mapping the research on pedagogies with international students in the UK: A systematic literature review[J]. *Teaching in Higher Education*, 2023, 28(6): 1243-1263.
- [6] Lee W W S, Yang M. Effective collaborative learning from Chinese students' perspective: a qualitative study in a teacher-training course[J]. *Teaching in Higher Education*, 2023, 28(2): 221-237.
- [7] Dai K, Hardy I. Pursuing doctoral research in an emerging knowledge hub: An exploration of international students' experiences in China[J]. *Studies in Higher Education*, 2023, 48(6): 784-796.
- [8] Wilczewski M, Alon I. Language and communication in international students' adaptation: a bibliometric and content analysis review[J]. *Higher Education*, 2023, 85(6): 1235-1256.
- [9] Tsang A, Yuan R. Examining home and international students' awareness of, attitudes towards and participation in intercultural activities on campus[J]. *Journal of Studies in International Education*, 2022, 26(3): 390-409.

- [10] Ou W A, Gu M M. *Competence beyond language: translanguaging and spatial repertoire in teacher-student interaction in a music classroom in an international Chinese University*[J]. *International Journal of Bilingual Education and Bilingualism*, 2022, 25(8): 2741-2758.
- [11] Wu M H, Leung G. *'It's not my Chinese': a teacher and her students disrupting and dismantling conventional notions of 'Chinese' through translanguaging in a heritage language classroom*[J]. *International Journal of Bilingual Education and Bilingualism*, 2022, 25(5): 1811-1824.
- [12] Sung C C M. *International students' identity negotiation in the context of international education: Experiences of Burmese students in Hong Kong*[J]. *Research Papers in Education*, 2023, 38(6): 987-1007.
- [13] Chiang F K, Brooks D C, Chen H. *Cross-cultural social contexts: a comparison of Chinese and US students' experiences in active learning classrooms*[J]. *Interactive Learning Environments*, 2023, 31(3): 1623-1635.
- [14] Cho H J, Levesque-Bristol C, Yough M. *How autonomy-supportive learning environments promote Asian international students' academic adjustment: a self-determination theory perspective*[J]. *Learning Environments Research*, 2023, 26(1): 51-76.
- [15] Ergenc C. *An action research on teaching in multicultural classrooms at joint-venture universities in China*[J]. *Asia Pacific Journal of Education*, 2022, 42(4): 730-743.