

"Cross-Cultural Aesthetic Empathy" in Multicultural Classrooms: Reflections on the Practice of Cultural Aesthetic Education in Chinese Language and Mathematics Classrooms in Malay National Education

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Abstract

The reform of aesthetic education in compulsory education in the new era clearly proposes the core goal of "holistic aesthetic education and cross-cultural character building," requiring core subject classrooms such as Chinese and mathematics to break through the limitations of solely focusing on traditional Chinese cultural aesthetic education and cultivate students' ability to embrace aesthetic empathy across diverse civilizations. As a typical multi-ethnic country, Malaysia's primary and secondary schools implement a trilingual teaching system of Malay, Chinese, and English. The classroom naturally incorporates visual aesthetic resources from three major ethnic groups: Malay batik, Chinese calligraphy, and Indian mandala. This forms a comprehensive aesthetic education model with "cross-cultural aesthetic empathy" at its core, deeply embedded in regular Chinese and mathematics teaching. This paper, based on a semester of classroom observation in primary and secondary schools in Selangor, Malaysia, employs a three-pronged research approach: classroom recordings, teacher and student interviews, and teaching text analysis. It outlines a complete practical paradigm for cultivating cross-cultural aesthetic empathy in Malaysian multilingual classrooms, encompassing curriculum design, implementation, and evaluation. Comparing this paradigm with my country's 2022 compulsory education curriculum standards for Chinese and mathematics, it analyzes four major challenges in cultural and aesthetic education in Chinese and mathematics classrooms: a singular cultural carrier, superficial subject integration, a lack cross-cultural aesthetic cultivation, and rigid evaluation standards. Drawing on Malaysia's experience in multi-faceted and integrated aesthetic education in national education, this paper constructs a practical path for cross-cultural aesthetic empathy education adapted to my country's compulsory education stage, focusing on five dimensions: reconstructing teaching cognition, developing classroom materials, implementing differentiated instruction,

innovating diversified evaluation, and systematic teacher training. This path aims to shift Chinese and mathematics classrooms from "single-cultural aesthetic transmission" to "cultivating multi-cultural empathy," ultimately fulfilling the goals of moral education and the shared future of humanity.

Keywords: Cross-Cultural Aesthetic Empathy, Malaysian Multicultural Education, Compulsory Education, Chinese Language and Mathematics, Interdisciplinary Aesthetic Education, Multilingual Classroom

Introduction

Research Background

In 2020, China released the "Opinions on Comprehensively Strengthening and Improving School Aesthetic Education in the New Era," which explicitly proposed guiding students to understand the diverse art and culture of the world and establishing an equal and inclusive aesthetic concept. The 2022 edition of the new curriculum standards for compulsory education in Chinese and mathematics further strengthened the requirements for interdisciplinary learning and global literacy cultivation, emphasizing that basic subjects need to rely on texts, graphics, and mathematical order to explore the aesthetic value of diverse cultures and break the fixed perception that aesthetic education is equivalent to art classes.

There are still obvious shortcomings in the implementation of aesthetic education in compulsory education in China: the cultural and aesthetic education content in Chinese and mathematics classes is highly concentrated on the excellent traditional Chinese culture, lacking the expansion of aesthetic materials from other civilizations; teachers generally lack the ability to design cross-cultural aesthetic education teaching, and classroom aesthetic evaluation takes Chinese aesthetics as the only standard, resulting in students' narrow aesthetic vision, weak cross-cultural understanding, and difficulty in forming a civilization view that respects differences and embraces diversity.

Malaysia's multicultural national education system provides an excellent reference model. Composed of three main ethnic groups—Malay, Chinese, and Indian—Malaysia's national education curriculum mandates the integration of multicultural aesthetic education content. It relies on trilingual classrooms to regularly conduct cross-cultural aesthetic teaching, forming a mature, stable, and observable paradigm for comprehensive aesthetic education. Based on classroom observations in three public primary and secondary schools in Selangor, Malaysia, over one semester, combined with textbook text analysis and teacher interview data, and supported by real-world fieldwork, researchers conducted a comparative study of aesthetic education in Chinese and Malaysian language and mathematics classrooms. This study possesses strong empirical value and practical guiding significance.

Significance of the Research

Theoretical significance

This study introduces "cross-cultural aesthetic empathy" into the research of art education across language and mathematics subjects, refining the three-tiered cultivation logic of aesthetic empathy—cognition, understanding, and creation—and enriching the theoretical system of interdisciplinary art education. Simultaneously, it breaks through the limitations of Chinese art education research, which tends to focus on European and American educational perspectives, by using Southeast Asian multi-ethnic education as a reference. This fills the gap in comparative research on cross-cultural art education in compulsory education in China and

Malaysia, constructing an analytical framework integrating interculturality, aesthetic empathy, and holistic art education.

Practical significance

Addressing the pain points of lacking a systematic approach, materials, procedures, and evaluation in cross-cultural aesthetic education in Chinese primary and secondary schools, this study extracts a replicable, low-cost, and classroom-appropriate aesthetic education implementation model from Malaysia, providing standardized classroom procedures, material frameworks, and evaluation guidelines. This helps frontline teachers implement the cross-cultural literacy cultivation requirements of the new curriculum standards without increasing their teaching workload, achieving a two-way approach to education that fosters cultural confidence and cultural inclusiveness.

Research Questions and Objectives

Core Research Questions

In light of existing research gaps in both Chinese and international studies, such as a scarcity of empirical literature on cross-cultural aesthetics, a lack of references for multilingual classrooms in Southeast Asia, and a lack of pathways for implementing cross-cultural aesthetic education in Chinese language and mathematics, this paper conducts research and analysis focusing on three core issues:

(1) What kind of complete and routine cross-cultural aesthetic education system has been built in Malaysian primary and secondary schools based on the integration of Malay, Chinese and English trilingual classrooms? What are the typical characteristics that can be extracted from its teaching materials, classroom process, evaluation mechanism and campus immersion model?

(2) In contrast to the mature multicultural and integrated aesthetic education paradigm in Malaysia, what are the structural dilemmas in the current Chinese compulsory education Chinese and mathematics classrooms in terms of cognition, materials, implementation and evaluation in terms of cultivating cross-cultural aesthetic empathy? What are the core causes behind these dilemmas?

(3) Based on the 2022 edition of the compulsory education Chinese and mathematics curriculum standards and the actual learning situation of primary and secondary schools in China, and drawing on the experience of multi-ethnic aesthetic education in Malaysia, what cross-cultural aesthetic empathy all-subject aesthetic education implementation paths and supporting teaching design schemes can be constructed that are suitable for local classrooms and can be implemented and promoted?

Research Objectives

(1) Through field observation, teacher and student interviews and textbook text analysis in public primary and secondary schools in Selangor, Malaysia, we systematically sorted out and summarized the complete operation mechanism of cross-cultural aesthetic education in multilingual classrooms in Malaysia, and clarified the practical logic of "cross-cultural aesthetic empathy" in the tiered cultivation of Chinese and mathematics classrooms;

(2) By comparing the differences in the implementation of aesthetic education in Chinese and Mathematics compulsory education classrooms in China and Malaysia, we can accurately diagnose the shortcomings of Chinese core subject classrooms, such as the superficiality of cross-cultural aesthetic education, the singularity of aesthetics, and the rigidity of evaluation.

(3) A localized cross-cultural aesthetic empathy aesthetic education practice framework is built from five dimensions: cognition, materials, classroom, evaluation, and teacher support. It is equipped with standardized teaching cases for primary and junior high school Chinese and mathematics subjects, providing a practical cross-border reference solution for the reform of all-subject aesthetic education in China.

Overview of Chinese and foreign research

Existing research in China largely focuses on aesthetic education in Chinese language and literature (such as poetry and classical Chinese) and traditional patterns in mathematics, with research materials highly limited to Chinese local culture and very little attention paid to cultivating cross-cultural aesthetic empathy. A small amount of cross-cultural aesthetic education research concentrates on English language subjects and general education classes in universities, while empirical research on core subjects like Chinese and mathematics in compulsory education is relatively scarce. Meanwhile, educational research in China and Malaysia largely revolves around trilingual education and the preservation of Chinese language, without systematically exploring the diverse aesthetic education systems within multilingual classrooms.

International research by Malaysian scholars has demonstrated that multicultural integration in education can enhance students' sense of inclusiveness; however, these studies are largely limited to art-specific classes and have not extended to core subjects such as language and mathematics. The multicultural aesthetic dialogue model proposed by Western academia is well-suited to single-language teaching scenarios in Europe and America, but it is difficult to adapt to the multilingual classroom environment in Asia, thus limiting its relevance to China's compulsory education. Overall, this study demonstrates significant potential for innovation in both its perspective and content.

Definition of core concepts

Cross-Cultural Aesthetic Empathy

This refers to the progressive psychological process in which students, in language and mathematics classes, break free from their own nation's aesthetic norms, perceive and understand the external forms and cultural connotations of aesthetic symbols from different civilizations on an equal footing, respect aesthetic differences, and establish an awareness of dialogue between civilizations. It is divided into three levels: surface aesthetic perception, intermediate cultural understanding, and deep empathy and tolerance.

Multilingual Integration of Aesthetic Education

Malaysia's national education system has a unique educational model that relies on trilingual teaching materials and a multi-ethnic classroom environment. It integrates the traditional aesthetic resources of the three major ethnic groups into language reading and writing, and mathematics geometry and proportion teaching. It cultivates diverse aesthetics through regular classrooms without adding extra art class hours.

Subject-Based Cultural and Aesthetic Education

Unlike specialized arts and aesthetic education, this refers to a comprehensive form of aesthetic education that relies on the core content of subjects such as Chinese language texts, classical poetry and prose, narrative literature, mathematical graphics, symmetrical structures, and proportional order to explore cultural and aesthetic values and achieve intellectual enlightenment and character building through aesthetics.

Research Methods and Innovations

The research methods include classroom observation, semi-structured interviews, text analysis, and comparative research. Based on first-hand data from front-line classrooms in Malaysia, the study compares the differences between Chinese and Malaysian art education models and extracts optimization pathways.

The innovations of this paper are as follows: First, the perspective is innovative, using real classroom observations of multiple ethnic groups in Malaysia as support to construct a reference sample for aesthetic education in Southeast Asia; second, the entry point is innovative, focusing on "differentiated cultivation of aesthetic empathy", which is different from the superficial material-piling cross-cultural aesthetic education research; third, the practice is innovative, producing standardized classroom templates, evaluation systems and teaching design cases that can be directly implemented.

Theoretical Basis

Intercultural Theory

Interculturalism theory emphasizes the equal coexistence of all civilizations, arguing that there is no inherent superiority or inferiority in aesthetics or a hierarchy of cultures. The refinement of understanding relies on two-way dialogue and mutual interpretation between different cultures. The Malaysian aesthetic education system operates on this underlying logic, giving equal weight to aesthetic materials from all three ethnic groups, with teachers guiding students to compare, learn from, and engage in equal dialogue. In contrast, Chinese language and mathematics classrooms have long centered on Chinese culture, treating other cultures merely as embellishments. This lack of focus hinders the generation of genuine aesthetic empathy and is the core root cause of the homogenization and narrowness of aesthetic education.

The Theory of Layered Generation of Aesthetic Empathy

Aesthetic empathy follows a three-stage progression: perception, understanding, and empathic creation. The first stage involves recognizing the external aesthetic form; the second stage involves tracing the folk customs, life experiences, and values behind the aesthetic symbols; and the third stage involves achieving cultural acceptance and inclusive empathy through integrated creation. Malaysian classrooms strictly adhere to this logic in designing their teaching, while Chinese aesthetic education largely remains at a superficial level of visual appreciation, lacking elements of understanding and creation, resulting in insufficient depth in its educational impact.

The Theory of Integrated Aesthetic Education

The theory of holistic aesthetic education points out that all subjects contain inherent aesthetic resources: Chinese language carries the beauty of words, imagery, and humanistic

emotions; mathematics carries the beauty of order, symmetry, and logical harmony. The 2022 curriculum standards explicitly require that interdisciplinary thematic learning account for no less than 10% , providing a policy basis for embedding multicultural aesthetic education in Chinese and mathematics classrooms, and also proving the rationality and feasibility of holistic aesthetic education in a regular manner.

Cross-cultural Aesthetic Education Practice System in Multilingual Classrooms in Malaysia

Based on classroom observations in public primary and secondary schools in Selangor, Malaysian national education has developed a complete aesthetic education system that integrates teaching materials, hierarchical classroom processes, inclusive evaluation standards, and immersive campus environment.

A Diverse Yet Integrated System of Teaching Materials

Malaysian official textbooks mandate the integration of aesthetic resources from the three major ethnic groups, achieving a deep connection between knowledge points and diverse aesthetic education materials.

The Chinese language curriculum includes classical Chinese poetry and prose, excerpts from Malay folk songs and epics, and short poems on Indian folklore, constructing a differentiated aesthetic system of written language based on multilingual texts. Classroom teaching regularly incorporates comparative analysis of trilingual texts, guiding students to appreciate the neat and subtle beauty of Chinese characters, the flowing and free beauty of Malay Jawi script, and the complex and rhythmic beauty of Tamil script.

The mathematics curriculum uses Malay batik patterns, the symmetrical structure of moon kites, Indian mandala ring geometry, and traditional Chinese window decorations as core teaching cases for teaching concepts such as symmetry, rotation, proportion, and fractals. Through measurement, imitation, and calculation, students can intuitively understand the different ways in which different civilizations express the beauty of mathematical order. Each school also established its own low-cost resource library, relying on local handicrafts, folk patterns, and festival resources to achieve a normalized and life-oriented supply of aesthetic education materials.

A Three-Stage Progressive Standardized Classroom Process

All integrated aesthetic education classes in Malaysia uniformly adopt a fixed model of 8 minutes of perception, 12 minutes of tracing the origin, and 20 minutes of empathic creation , which aligns with the pattern of students' aesthetic empathy generation.

The perception stage focuses on intuitive observation, where students identify the external differences in the writing and graphics of different ethnic groups and simultaneously complete the learning of basic knowledge. In the origin tracing stage, teachers neutrally explain the folk cultural background behind the aesthetic symbols without judging their merits or setting a single aesthetic standard. The empathic creation stage sets up two-way integration tasks, where students combine aesthetic elements from two or more ethnic groups to complete writing or drawing creations, forming an inclusive mindset in practice.

At the same time, the difficulty level is designed in a tiered manner according to the differences in learning stages: the lower grades of primary school focus on visual perception and hands-on practice, the upper grades add comparative writing and measurement calculation, and the junior high school adds critical thinking and discussion, so as to achieve tiered education.

An Equal and Inclusive Multi-Dimensional Evaluation System

Malaysia has completely abandoned a single aesthetic standard, establishing a three-dimensional, equitable evaluation system encompassing aesthetic perception, cultural understanding, and empathy and tolerance. Empathy and tolerance are the core scoring dimensions, and aesthetic bias and cultural denigration are explicitly prohibited. Students who unilaterally deny the beauty of other cultures will have all points deducted from that section.

The evaluation combines process and outcome, with classroom interaction and group presentations included in the daily score. Unit creative assignments are no longer solely based on visual appeal or Chinese standards, but focus on assessing students' cultural understanding and their ability to integrate diverse elements and innovate. This evaluation process forces students to establish an equal aesthetic perspective.

A Campus Aesthetic Education Environment that Permeates the Entire Campus

Malaysian schools continuously strengthen cross-cultural empathy through campus cultural displays, monthly cultural weeks, and inter-ethnic project-based learning (PBL) projects. The campus displays artwork by students from all three major ethnic groups in a balanced manner, regularly conducts themed activities such as calligraphy, batik, and painting, and integrates aesthetic design projects with students from mixed ethnic groups, achieving a holistic integration of classroom aesthetic education and campus immersion.

The Real Dilemmas of Aesthetic Education in Chinese and Mathematics Classrooms in Compulsory Education in China

Compared with the mature model in Malaysia, there are four major structural dilemmas in cross-cultural aesthetic education in Chinese language and mathematics classrooms in China today.

Cognitive Dilemma: Misalignment of Aesthetic Education Cognition and Solidification of Cultural Centrism

Most Chinese language and mathematics teachers categorize aesthetic education as an art subject, neglecting the cultivation of aesthetic literacy under the pressure of exams. At the same time, teachers generally adhere to the aesthetic thinking centered on Chinese culture, taking the Chinese style of subtlety, neatness, and regularity as the best standard, and have subjective biases against the complex, free, and romantic aesthetic forms of foreign cultures. This makes it difficult to guide students to establish an aesthetic mindset of equal dialogue, and students' aesthetic inclusiveness has been lacking for a long time.

Material Dilemma: Art Education Resources are Single, Scattered, and Unsystematic

Over 90% of the aesthetic education materials in Chinese textbooks consist of traditional Chinese culture, while materials on foreign civilizations are scarce, scattered, and lack a

cohesive unit system. Materials collected by teachers from other cultures are mostly image displays, lacking texts on cultural origins and accompanying practical tasks. Classroom learning is limited to superficial observation, failing to cultivate understanding and empathy, rendering cross-cultural aesthetic education merely a formality. Furthermore, rural and ordinary schools suffer from a lack of material resources, making practical aesthetic education difficult to implement.

Implementation difficulties: arbitrary classroom integration and insufficient subject-specific adaptability

China lacks a unified paradigm for cross-cultural aesthetic education classrooms, leading to significant randomness in teacher lesson design. A common problem is the disconnect between aesthetic education and subject-specific knowledge: in language arts, students focus solely on images without textual aesthetic comparison; in mathematics, they only examine patterns without integrating them with geometric calculations. This increases class time burdens and fails to achieve the goal of stimulating intelligence through aesthetics. Exam-oriented rote learning encroaches on aesthetic education time, and cross-cultural extension teaching is largely abandoned in higher grades.

Evaluation dilemma: A single aesthetic standard suppresses diverse expressions

Chinese aesthetic education evaluation relies heavily on the examination system. Essays and drawings are evaluated based on Chinese aesthetic standards, favoring orderly, symmetrical, and subtle traditional styles, while showing little tolerance for complex, dynamic, and diverse creative styles from other cultures. Evaluation emphasizes results over process, neglecting students' cultural understanding and empathy, and thus failing to support the cultivation of intercultural literacy.

Optimization Path of Cross-cultural Aesthetic Empathy Education in Chinese Language and Mathematics Classrooms

Drawing on Malaysia's mature experience and combining it with the requirements of China's new curriculum standards and local learning conditions, we construct a five-dimensional optimization path.

Cognitive Reshaping: Constructing a Cross-Cultural Aesthetic Education Concept of Equality and Coexistence

At the teaching and research level, we will strengthen comprehensive aesthetic education training, clarify the aesthetic education responsibilities of Chinese language and mathematics teachers, and dispel the misconception that aesthetic education is exclusively for art classes. We will introduce Malaysian diverse classroom case studies to help teachers understand that cross-cultural aesthetic education can be completed simultaneously with the teaching of knowledge points without adding extra burden. We will establish the teaching philosophy that "there is no superiority or inferiority of culture, and no standard answer to aesthetics," and guide two-way comparison and equal mutual learning.

At the student level, differentiated guidance is implemented: lower grades establish diverse aesthetic cognition, while higher grades conduct critical discussions on civilization and inclusiveness, elevating aesthetic empathy to value recognition.

Material Construction: Building a systematic cross-cultural aesthetic education material library by discipline

The Chinese language and literature curriculum constructs a three-tiered material system encompassing Chinese texts, diverse Asian narrative texts, and classic world literature. It is accompanied by short articles on cultural origins and comparative reading task sheets, enabling each unit to conduct comparative appreciation of one set of local texts and one set of foreign texts.

The mathematics curriculum integrates Chinese geometric patterns, Southeast Asian folk graphics, Arabic symmetrical patterns, and Western golden ratio aesthetics, providing measurement, drawing, and proportional calculation tasks according to grade level and knowledge points, making diverse aesthetics a vehicle for teaching knowledge points.

Schools in the region jointly build a free resource library of materials, relying on public digital image libraries and simple craft materials to achieve low-cost and regular art education supply.

Classroom Optimization: Promoting a Three-Stage Standardized Cross-Cultural Aesthetic Education Classroom Paradigm

The standardized 40 -minute class process is adapted to the pace of regular teaching in China: the perception stage integrates the introduction of new knowledge, the source tracing stage combines in-depth reading of texts and detailed explanation of examples, and the creation stage simultaneously completes writing, drawing and exercise training, thus realizing the integration of aesthetic education and subject teaching.

The Chinese language subject focuses on cross-cultural comparative writing, emphasizing stylistic features, imagery, and narrative structure; the mathematics subject focuses on practical creative work exploring the geometric order, symmetrical logic, and proportional aesthetics of different civilizations. The difficulty of tasks is adjusted according to the differences in learning stages, balancing enjoyment and knowledge.

Evaluation Innovation: Establishing an Empathy-Oriented, Diverse and Inclusive Evaluation System

We will implement a three-dimensional grading system that considers perception, understanding, and empathy equally, with cultural inclusiveness, respect for differences, and diverse integration as core grading criteria. Process-oriented assessment will record classroom participation and group interaction, while outcome-oriented assessment will optimize homework grading standards, moving away from a single Chinese aesthetic standard and encouraging diverse and innovative student expression. Cross-cultural aesthetic literacy will be incorporated into students' comprehensive quality assessment files to create a long-term incentive.

Long-term guarantee: dual support of campus immersion and teacher training

The campus features a balanced display of diverse cultural and aesthetic works, holds monthly cross-cultural aesthetic education theme weeks, and conducts interdisciplinary PBL aesthetic projects each semester to achieve comprehensive aesthetic education immersion. A tiered teacher training mechanism has been established to popularize standardized

classroom procedures, material usage methods, and evaluation criteria, cultivating a team of generalist teachers with cross-cultural instructional design capabilities.

Classroom Teaching Practice Cases

Case Study 1: Cross-cultural Aesthetic Empathy Teaching Design for Elementary School Chinese Lesson "The Beauty of Symmetry"

This lesson uses the symmetry of Chinese couplets, the symmetry of Malay folk song phrases, and the rhyme scheme of Indian short poems as vehicles to guide students in comparing the aesthetic features of different writing systems. The class follows a three-stage process: a perception stage where students read three sets of texts and mark symmetrical sentences; a source-tracing stage analyzing the cultural characteristics behind the aesthetics of different ethnic groups' languages; and a creative stage where students integrate Chinese parallelism with exotic lyrical styles to complete a short essay. Evaluation focuses on assessing students' diverse aesthetic understanding and inclusiveness, breaking away from a singular Chinese literary aesthetic standard.

Case Study 2: Cross-cultural Aesthetic Education Teaching Design for Middle School Mathematics "Central Symmetric Figures"

Using Chinese window decorations, Malaysian batik flowers, and Indian mandala patterns as teaching vehicles, the course integrates knowledge instruction with aesthetic education. Students identify the symmetrical features of different patterns, calculate rotation angles, trace their origins in folk customs, and ultimately integrate diverse patterns to complete original symmetrical design projects. The class combines problem-solving exercises with aesthetic creation, both reinforcing geometric knowledge and cultivating students' cross-cultural mathematical and aesthetic empathy.

Conclusion and Outlook

Research Conclusions

This study conducted fieldwork in Malaysia and a comparative analysis between China and Malaysia, focusing on three pre-set research questions. All three pre-set research objectives were achieved, leading to stratified conclusions:

Regarding research question one and corresponding research objective one: Malaysia has established a complete and replicable trilingual classroom cross-cultural aesthetic empathy education system.

Classroom observations, textbook analysis, and teacher-student interviews in Selangor's primary and secondary schools confirm that Malaysian national education, based on intercultural theory, has established a four-in-one integrated aesthetic education model: "Diverse yet unified teaching materials—a three-stage progressive classroom process—a three-dimensional inclusive evaluation system—and holistic campus immersion." In language arts, teaching relies on the comparative analysis of trilingual texts; in mathematics, it utilizes traditional geometric patterns from multiple ethnic groups. Strictly adhering to the three-stage logic of cultivating aesthetic empathy—perception, tracing origins, and empathic creation—this model integrates intercultural aesthetic education into regular language and mathematics classes without requiring additional independent art classes. The entire system is guided by equality and inclusiveness, avoiding a single ethnic aesthetic standard, and fully realizing the tiered cultivation of students' intercultural aesthetic empathy. This provides a

mature and referable example of Southeast Asian multicultural aesthetic education practices for this study.

Regarding research question two and corresponding research objective two: There are four structural cross-cultural aesthetic education dilemmas in Chinese compulsory education Chinese and mathematics classrooms, the root cause of which is cultural centrism and the lack of an aesthetic education system.

Using the mature Malaysian model as a reference, this study identifies four major shortcomings in Chinese primary and secondary school Chinese and mathematics classrooms: First, at the cognitive level, teachers hold a entrenched double bias: "aesthetic education belongs to art classes" and "Chinese aesthetics are superior." Second, at the material level, international aesthetic education resources are scattered and lack systematic supporting teaching tasks. Third, at the implementation level, there is no standardized classroom process, aesthetic education is separated from subject knowledge, and is easily pressured by exam-oriented education. Fourth, at the evaluation level, there is an adherence to a single Chinese aesthetic standard, neglecting students' cultural inclusiveness. The core cause of these difficulties is the lack of a unified, comprehensive, cross-cultural aesthetic education top-level design in China. The long-term focus on local culture as the sole aesthetic core, coupled with a lack of classroom mechanisms for equal dialogue among diverse civilizations, directly leads to a deficiency in cultivating students' cross-cultural aesthetic empathy, making it difficult to meet the global literacy requirements of the new curriculum standards.

Regarding research question three and corresponding research objective three: to construct a five-dimensional localized implementation path, supplemented by subject-specific case studies, to fill the gap in practical cross-cultural aesthetic education in China.

Based on the 2022 Chinese and Mathematics Curriculum Standards and the specific learning conditions in urban and rural China, and drawing on practical experience in Malaysia, this paper constructs a comprehensive aesthetic education implementation framework adapted to local conditions from five dimensions: cognitive reshaping, resource database construction, standardized three-stage classroom, multi-faceted empathy-oriented assessment, and long-term support for schools and teachers. This approach requires no significant adjustments to existing class schedules and can be implemented using existing textbooks, regular exercises, and basic craft materials. It also includes complete teaching design cases for primary and secondary school Chinese and Mathematics, deeply integrating diverse aesthetic materials with core knowledge points such as vocabulary, reading, symmetry, and rotation. This addresses the practical pain points of Chinese frontline teachers who lack resources, processes, and evaluation standards, providing a cross-border reference solution with both theoretical support and practical applicability for comprehensive aesthetic education reform in China.

In summary, Malaysian multilingual classrooms, relying on systematic materials, standardized processes, inclusive assessment, and a holistic immersion model, have achieved the normalization of cross-cultural aesthetic empathy cultivation in language and mathematics classrooms, forming a comprehensive aesthetic education ecosystem characterized by cultural equality and pluralistic coexistence. In contrast, Chinese compulsory education

classrooms suffer from prominent problems such as rigid cognition, scarce materials, fragmented implementation, and singular assessment, hindering the development of students' cross-cultural literacy. This study addresses all pre-set research questions and fully achieves its research objectives. The constructed five-dimensional practical path and accompanying teaching cases can effectively promote aesthetic education in language and mathematics classrooms from a single cultural transmission to a multicultural, empathetic approach, aligning with the goals of comprehensive aesthetic education reform and global literacy cultivation in the new era.

Research Shortcomings and Future Prospects

This study's field observation sample was concentrated in Selangor, West Malaysia, resulting in limited sample coverage. Future research could expand the scope and enrich the sample of diverse aesthetic education practices. The analysis of the current situation in China could incorporate more data from firsthand local classroom surveys to further refine differentiated implementation strategies across urban and rural areas and educational levels. In the future, digital technologies can be used to construct immersive, cross-cultural aesthetic education classrooms and conduct long-term empirical research to quantitatively verify the educational effectiveness of aesthetic education models.

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