

Design and Practice of Marine Education Curriculum based on the Inheritance of Marine Culture

Weidong Duan

Graduate University of Mongolia, Ulaanbaatar 999097, Mongolia

Abstract: As the strategy of becoming a maritime power advances, the inheritance of maritime culture and maritime education have become increasingly important. This article focuses on the design and practice of maritime education courses based on the inheritance of maritime culture, elucidating the significant importance of maritime cultural heritage for maritime education. It analyzes existing issues in current maritime education courses, such as an incomplete curriculum system, monotonous teaching methods, and insufficient exploration of cultural connotations. Through literature review and case analysis, a course system centered on maritime culture is constructed, covering topics like maritime history, maritime folklore, and maritime art. Diverse teaching methods, including project-based learning, practical teaching, and digital teaching, are employed to enhance students understanding and inheritance of maritime culture, thereby improving their maritime literacy. Practice has shown that this course design can effectively stimulate students' interest in maritime culture, strengthen their awareness of marine conservation, and provide valuable references for the development of maritime education.

Keywords: Marine Culture Inheritance; Marine Education; Curriculum Design; Practical Teaching.

1. Introduction

1.1. Research Background

The ocean covers about 71% of the Earth's surface, serving as a cradle for life, a treasure trove of resources, and a vital artery for transportation. In the process of globalization, the importance of the ocean in economics, culture, and ecology has become increasingly evident. China boasts a long coastline and abundant marine resources, with a rich maritime culture that dates back to ancient times through the Maritime Silk Road to modern marine economic development. The ocean has always been a crucial support for the development of the Chinese nation. In recent years, the state has placed great emphasis on the development of marine affairs, proposing a strategy for becoming a maritime power and highlighting the strategic importance of the ocean in national development. [1] [2] As an essential component of marine endeavors, the inheritance and development of marine culture play a significant role in enhancing ethnic identity and boosting the country's cultural soft power. Marine education, as a crucial channel for disseminating marine knowledge and nurturing marine talent, bears the important mission of passing down marine culture. However, there are still many issues with China's marine education curriculum in terms of system construction, teaching content, and methods, making it difficult to meet the needs of inheriting marine culture and cultivating marine talent. Therefore, conducting research and practical studies on marine education course design based on the inheritance of marine culture holds significant practical significance.

1.2. Research Purpose and Significance

This study aims to construct a scientifically sound, innovative, and practical marine education curriculum system through in-depth research on the inheritance of maritime culture and marine education courses. It seeks to enrich the content and methods of marine education, promote the effective inheritance and development of maritime culture in

educational settings, cultivate students awareness of the ocean, their cultural literacy, and their sense of identity with maritime culture, thereby providing talent support and intellectual assurance for the construction of a strong maritime nation. From a theoretical perspective, this study contributes to enriching the theoretical framework of marine education and deepening our understanding of the relationship between marine culture and marine education. [3] It provides new theoretical insights and research ideas for curriculum design in marine education. From a practical standpoint, the research findings can offer specific course plans and teaching guidance for schools and educational institutions to implement marine education, promoting reforms in marine education and teaching, enhancing the quality of marine education, and cultivating marine talents that meet the demands of the times.

1.3. Research Status at Home and Abroad

Foreign marine education started earlier and has accumulated rich experience in curriculum system construction and teaching method innovation. For example, the United States has integrated marine education into its national education system, offering diverse marine courses with a focus on practical teaching and interdisciplinary integration; Japan emphasizes maritime safety education, fostering public awareness and responsibility towards the ocean through various channels such as school education and community education. Domestic marine education has developed rapidly in recent years, but there are still shortcomings in curriculum design and practice. Some studies focus on the importance of marine education and development strategies, while research on specific course design and implementation is relatively scarce; the curriculum system suffers from obvious disciplinary fragmentation and insufficient exploration of cultural connotations; teaching methods are primarily traditional lectures, lacking innovation and practical components. In recent years, with the rise of marine culture research, some scholars have begun to pay attention to integrating marine

culture into marine education courses, but related research remains at an exploratory stage, lacking systematicness and depth.[4]

1.4. Research Methods and Innovations

This study employs the literature review method to sort through relevant documents on marine education and marine culture both domestically and internationally, aiming to understand the current research status and development trends, thus providing a theoretical foundation for this study; it uses case analysis to select typical marine education course cases from both domestic and international sources for in-depth analysis, summarizing experiences and shortcomings to provide references for course design; it also adopts questionnaire surveys and interviews to understand the needs and opinions of students and teachers regarding marine education courses, ensuring that the course design meets actual teaching requirements. The innovation points mainly lie in the research perspective, designing marine education courses from a unique angle of ocean cultural inheritance, emphasizing the core role of culture in the curriculum and enriching its content; in terms of course content, breaking traditional disciplinary boundaries to integrate cultural elements from multiple fields such as marine history, folklore, and art, building a comprehensive curriculum system; in teaching methods, combining various innovative teaching approaches, focusing on practical and digital instruction to enhance students interest and participation.[5]

2. Overview of Marine Culture and Marine Education

2.1. The Connotation and Characteristics of Marine Culture

Marine culture is the sum total of material and spiritual wealth created by humans in their interactions with the ocean. It encompasses marine material culture, such as fishing tools and maritime transportation; marine institutional culture, including maritime trade systems and management regulations; and marine spiritual culture, comprising maritime beliefs, literature and arts, and value systems related to the sea. Marine culture is characterized by openness and inclusiveness. As a natural conduit, the ocean facilitates exchanges and integration among different regions and ethnic groups, allowing marine culture to absorb diverse cultural elements. It also embodies adventure and innovation. In the face of the unknowns and challenges of the ocean, marine culture has nurtured a spirit of bravery and innovation. Additionally, it is commercial and pragmatic. The development of maritime trade has enhanced the commercial aspects of marine culture, emphasizing practical benefits and economic returns.

2.2. The Value and Significance of Marine Cultural Inheritance

From the cultural perspective, Marine culture is an important part of national culture. The inheritance of Marine culture helps to enrich the connotation of national culture, enhance the diversity and uniqueness of national culture, and maintain the inheritance and development of culture. At the social level, the inheritance of Marine culture can enhance social cohesion and promote the sense of identity and belonging among social members through common memories and values of Marine culture; at the same time, the inheritance

and development of Marine culture can also drive the rise of Marine cultural industry, create more employment opportunities and promote regional economic development. For individuals, contact and learning about Marine culture can broaden their horizons, cultivate innovative thinking and open mind, and improve their cultural literacy and comprehensive quality.

2.3. Objectives and Contents of Marine Education

The goal of marine education is to cultivate talents with a sense of the ocean, knowledge of the ocean, skills in the ocean, and values related to the ocean. A sense of the ocean includes awareness of its importance, rights, and protection; knowledge of the ocean covers scientific aspects such as marine geography, marine biology, and marine physics, as well as cultural aspects like maritime history, culture, and law; skills in the ocean include those for observation, surveying, and the development and utilization of marine resources; values in the ocean emphasize respect, protection, and sustainable use. Marine education should revolve around the aforementioned goals, including marine science education, marine humanities education, and marine practice education. Marine science education imparts fundamental knowledge and research methods in marine science; marine humanities education focuses on education in marine culture, history, and law, cultivating students cultural literacy and humanistic spirit regarding the ocean; marine practice education enhances students practical skills and problem-solving abilities through activities such as marine observation internships, marine scientific expeditions, and marine cultural surveys.[6]

2.4. The Relationship Between Marine Cultural Inheritance and Marine Education

The inheritance of marine culture is a crucial mission and core content of marine education. Marine education provides a platform and means for the transmission of marine culture, conveying knowledge about marine culture to students through course instruction and practical activities. This helps cultivate their interest and sense of identity with marine culture, promoting its inheritance and development. The rich connotations of marine culture offer vivid teaching materials for marine education, making it more culturally profound and appealing. The two complement each other, mutually reinforcing and jointly advancing the development of marine endeavors.

3. Design of Marine Education Curriculum Based on the Inheritance of Marine Culture

3.1. Course Design Concept and Principles

The curriculum design concept takes ocean culture as the core and student development as the center, focusing on cultivating students ocean cultural literacy, innovative spirit and practical ability. It emphasizes interdisciplinary integration, breaking down disciplinary boundaries, and organically integrating knowledge from multiple disciplines such as Marine science and Marine humanities to build a comprehensive curriculum system. The principles to follow include the principle of scientific accuracy, where course content should accurately reflect the knowledge system of

marine culture and marine science, in line with educational laws; the principle of interest, which involves stimulating students interest and enthusiasm through diverse teaching methods and vivid content; the principle of practicality, which emphasizes increasing practical teaching components so that students can experience and inherit marine culture through

practice, enhancing their practical skills; and the principle of openness, which means that course content and teaching methods should be open, encouraging students to explore and innovate independently, keeping up with the latest developments in marine culture, and updating course content in a timely manner.

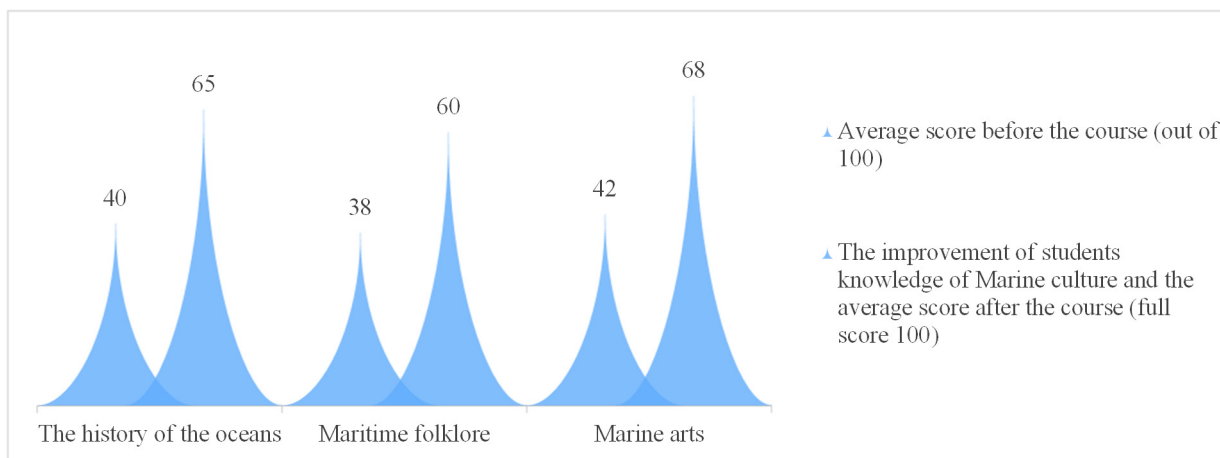


Figure 1. The improvement of students knowledge of Marine culture

3.2. Course Goal Setting

Knowledge and Skills Objectives: Students will be able to master systematic knowledge of maritime culture, including maritime history, maritime folklore, maritime art, and

maritime literature; understand the basics of marine science, such as marine ecology and marine resources; possess certain practical skills in the maritime field, such as conducting maritime cultural research and preparing marine specimens.

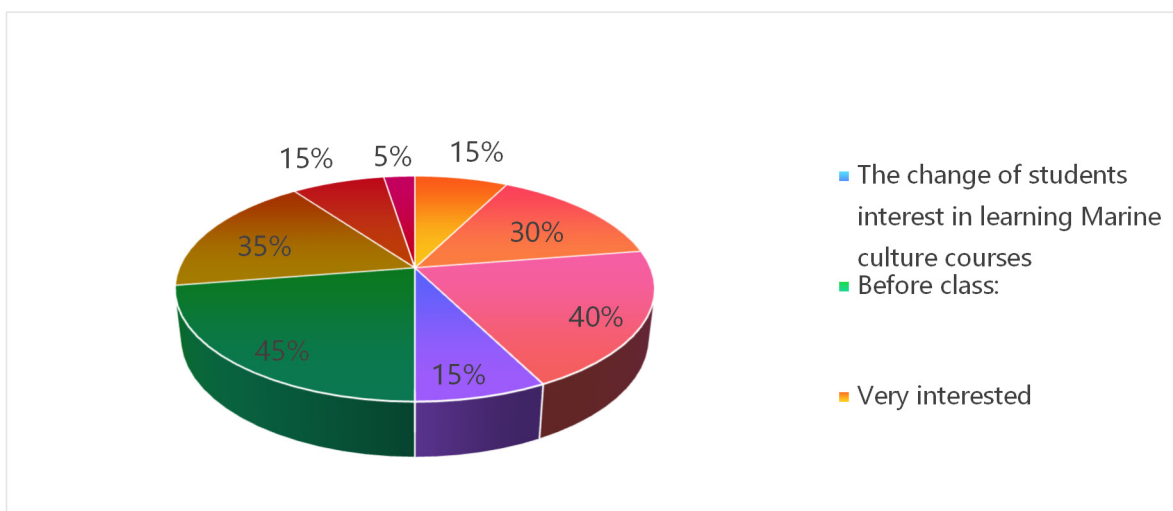


Figure 2. The change of students interest in learning Marine culture courses

Process and method objectives: Through project-based learning, group cooperative learning and other methods, students independent learning ability, cooperation ability and problem solving ability are cultivated; learn to use literature research, field investigation and other methods to obtain Marine cultural knowledge, improve information collection and processing ability **Attitude and values goals:** stimulate students love and interest in Marine culture, enhance their awareness of the ocean and their sense of responsibility for Marine protection; cultivate students open mind and global vision, recognize the diversity of Marine culture, and establish correct Marine values.

3.3. Course Content Framework Construction

The course content framework is divided into three levels: basic course, core course and extended course. The basic courses include an introduction to Marine culture, which

introduces the connotation, characteristics and classification of Marine culture; and a foundation of Marine science, which explains the basic concepts and principles of Marine geography, Marine biology and Marine physics. The core curriculum covers maritime history and culture, narrating the development of Chinas and the worlds maritime history, including the ancient Maritime Silk Road, modern maritime trade, and naval battles; marine folk culture, introducing the maritime customs of coastal areas, such as oceanic rituals, maritime festivals, and traditional fishing village customs; marine art culture, appreciating artistic forms like marine painting, sculpture, music, and dance to experience the charm of marine art; selected readings in marine literature, interpreting classic works of marine literature to appreciate the spirit of marine culture they embody. The extended curriculum includes the protection of marine cultural heritage, exploring the current status and methods of protecting marine

cultural heritage to foster students awareness of cultural heritage protection; the development of marine culture and tourism, researching the application of marine culture in the tourism industry, and understanding the development models and strategies for marine cultural tourism; the marine creative industry, stimulating students innovative thinking, and exploring the integration paths of marine culture with creative industries.

3.4. Suggestions for Course Implementation

In terms of teaching methods, project-based learning is adopted, such as the "Marine Culture Themed Exhibition Planning" project, where students work in groups to complete tasks like determining exhibition themes, collecting and organizing content, and designing displays, thereby fostering comprehensive skills; practical teaching methods are employed, organizing students for on-site research on marine culture, visiting coastal fishing villages and marine cultural sites, allowing them to experience marine culture firsthand; digital teaching tools are introduced, utilizing multimedia resources and online course platforms to enrich the presentation of teaching content and expand students learning space. In terms of teaching resources, develop distinctive textbooks that integrate local marine cultural characteristics and practical teaching needs, creating vivid and engaging materials with rich illustrations and text. Establish a marine cultural course resource library to collect and organize images, videos, documents, and other materials related to marine culture for use by teachers and students. Make full use of social resources by establishing partnerships with marine museums, marine cultural research institutions, and others to conduct off-campus teaching activities and build practical bases. Teaching evaluation adopts a diversified approach, including formative assessment, which focuses on students performance in class, participation in group work, and their attitude towards learning during project completion; summative assessment, which evaluates students mastery of knowledge through exams, assignments, and project

presentations; self-assessment and peer assessment, where students reflect on their learning process and outcomes, and engage in group peer reviews to promote mutual learning and collective progress. Fourth, the practice and effect analysis of Marine education curriculum based on the inheritance of Marine culture.[7]

4. Introduction of Course Practice Cases

A middle school was selected as the course practice school to set up a Marine culture characteristic course in the junior high grade. The course implementation cycle is one academic year, with two class hours arranged every week. In the teaching process, diversified teaching methods are adopted according to the course design scheme. For example, in the "Marine Folk Culture" teaching unit, organize students to conduct field research in local fishing villages, interview fishermen, and learn about traditional marine sacrificial rituals and fishing family customs. Students work in groups to complete their research tasks, record the process and findings, and present their findings in class. In the "Marine Art Culture" teaching, invite marine artists to give lectures and workshops at school, guiding students in creating marine-themed paintings and handicrafts, with student works exhibited at the school cultural festival.

4.1. Survey Methods and Process of Practical Effects

The survey was conducted using questionnaires and interviews to investigate the effectiveness of course practices. The questionnaire survey was carried out after the course, with 200 questionnaires distributed to students participating in the course, and 185 valid responses collected. The content of the questionnaire included students mastery of marine cultural knowledge, changes in learning interest, improvements in marine awareness, and evaluations of teaching methods and course content.

Table 1. Students Evaluation of Different Teaching Methods

Teaching method	Very satisfied	Satisfaction	General	Not satisfied
Project-based learning	80	70	30	5
Practical teaching method	75	75	30	5
Digital teaching methods	60	80	40	5

Table 2. Parents provide feedback on changes in students after studying the curriculum

Changes	Number of respondents (100 parents)
Pay more attention to Marine-related information	85
Develop a strong interest in ocean culture	70
Overall quality has improved	60
More positive learning attitude	40
Teamwork has improved	50

The interview subjects include students, teachers, and parents. Random interviews with students are conducted to understand their gains and experiences in course learning; conversations with teaching staff are held to hear about issues and suggestions encountered during the course implementation; telephone interviews are conducted with some parents to gain insights into their views on the course and changes in their children at home.

4.2. Data Analysis and Discussion of Practical Effects

The data analysis shows that students have made significant improvements in their grasp of marine cultural knowledge, with a noticeable increase in understanding of maritime history, folklore, and art. In terms of learning interest, over 80% of students expressed strong interest in marine culture courses, indicating a substantial rise in interest compared to before the course was offered. Regarding marine awareness, most students have enhanced their consciousness of marine protection and rights, recognizing the importance of the ocean to human society. In the evaluation of teaching methods, students rated project-based learning and practical teaching methods higher, believing that these methods made them more active in learning and improved their practical ability and teamwork ability. As for the course content, students generally thought it was rich and interesting, but some parts were difficult and needed further optimization. Through interviews, students expressed that the course has deepened their understanding of the marine culture in their hometown, broadened their horizons, and cultivated innovative thinking. Teachers noted issues such as insufficient teaching resources and tight schedules during the implementation of the course. Parents reported that after learning the course, students have become more attentive to information related to the ocean, developed a strong interest in marine culture, and improved their overall quality. To sum up, the practice of Marine education curriculum based on the inheritance of Marine culture has achieved good results, effectively stimulating students interest in Marine culture and improving their Marine literacy. However, some problems have been exposed in the course implementation process, which need to be further improved and perfected.[8]

5. Summary

This study, based on the perspective of marine cultural inheritance, conducts an in-depth investigation into the design and practice of marine education courses. By analyzing the connotations, characteristics, and relationship between marine culture and marine education, it clarifies the significant role and value of marine cultural inheritance in marine education. A marine education curriculum system centered on marine culture is constructed, including course design philosophy, principles, objectives, content framework, and implementation suggestions, which are validated through practical case studies. The practical results show that the

course design can effectively enhance students knowledge of maritime culture, stimulate their interest in learning, strengthen their awareness of the ocean and their sense of responsibility for marine conservation, and cultivate their innovative spirit and practical abilities. However, during the implementation of the course, there are also issues such as insufficient integration of teaching resources, inflexible application of teaching methods, and the need for improvement in the course evaluation system. The lack of research is mainly reflected in the limited scope of study, with only one middle school selected for course implementation, lacking broader sample validation; insufficient depth and breadth in studying the integration of maritime culture with other disciplines, failing to fully tap into the potential of interdisciplinary teaching; during the course implementation process, there is inadequate attention to individual differences among students, and the relevance of teaching methods needs improvement. Looking ahead, we hope to further expand the scope of research, conducting course practice studies in multiple regions and schools, refining the curriculum system and teaching methods; enhancing the deep integration of marine culture with other disciplines, exploring interdisciplinary teaching models to cultivate students comprehensive qualities; paying attention to individual differences among students, implementing personalized instruction to meet the diverse learning needs of different students; leveraging the development of modern educational technologies such as artificial intelligence and virtual reality, innovating teaching approaches and learning experiences for marine education courses, promoting high-quality development in marine education, and nurturing more outstanding talents for the construction of a strong maritime nation.

References

- [1] Zhang San Construction and Practice Exploration of Ocean Education Curriculum System [J]. Education Research, 2022,567-908.
- [2] Li Si, Wang Wu The Development Status and Implications of Marine Education Abroad [J]. Comparative Education Research, 2023. (36);344-683.
- [3] Zhao Liu Research on the Connotation, Characteristics, and Value of Marine Culture [D]. University, 2024.274-393.
- [4] Sun Qi Research on Innovative Teaching Methods of Marine Education Based on Project based Learning [J]. Teaching and Management, 2021. 839-943.
- [5] Week 8 The Inheritance and Development Strategy of Marine Culture in Marine Education [J]. Educational Theory and Practice, 2023.990-1045.
- [6] A certain institution National Marine Education Development Report [R], 2023.903-1320.
- [7] Official website of a foreign marine education project [EB/OL]. [Specific URL], 2019.
- [8] A domestic marine education policy document [EB/OL]. [specific website], 2018.