

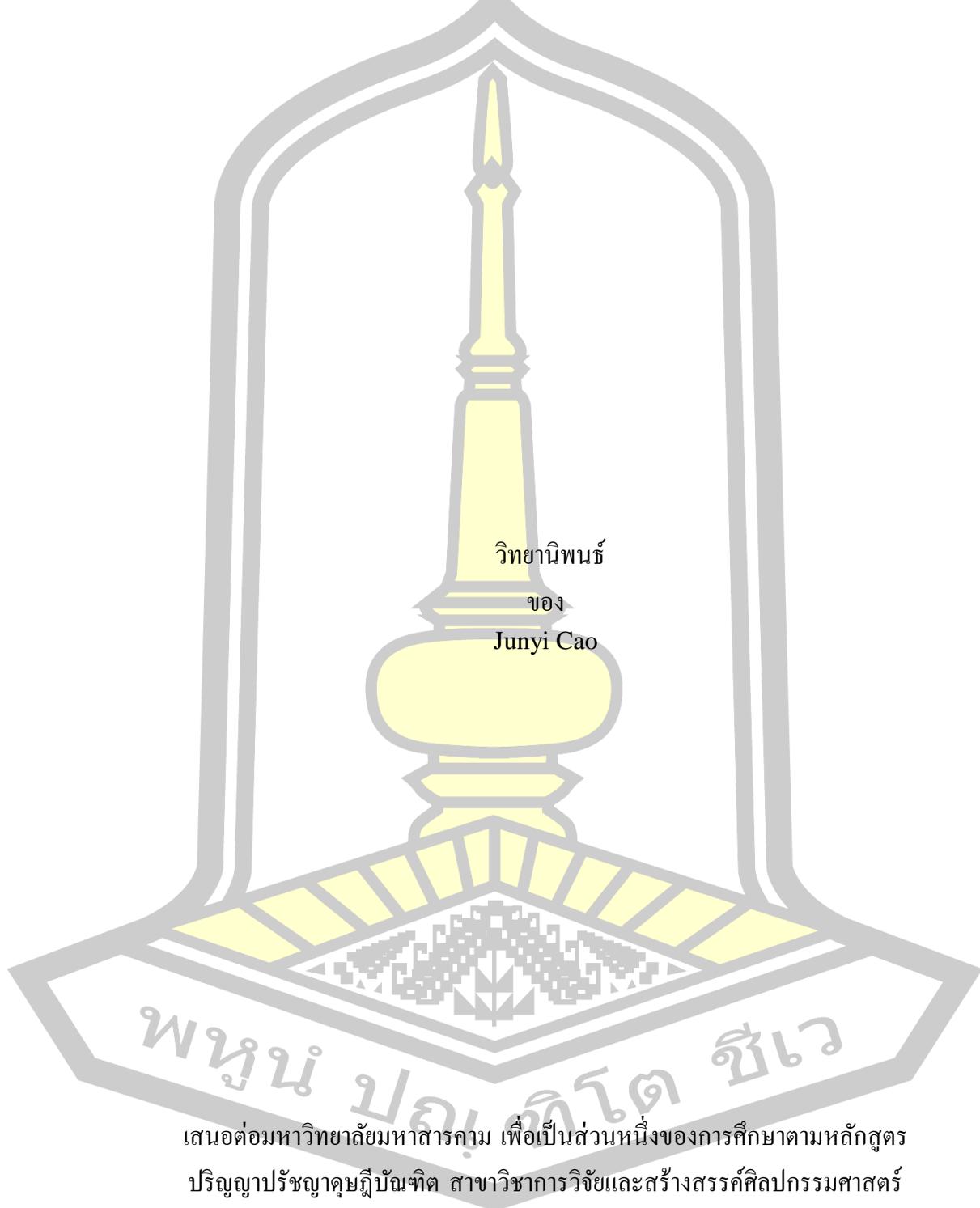
Ceramic Arts in Zhongdukou of Jingdezhen: Ecological Communication and Practice
for Modernization

Junyi Cao

A Thesis Submitted in Partial Fulfillment of Requirements for
degree of Doctor of Philosophy in Fine and Applied Arts Research and Creation
December 2024

Copyright of Mahasarakham University

ศิลปะเซรามิกใน Zhongdukou ของ Jingdezhen: การสื่อสารและปฏิบัติงานด้านนิเวศวิทยาเพื่อ
การทันสมัย



วิทยานิพนธ์
ของ
Junyi Cao

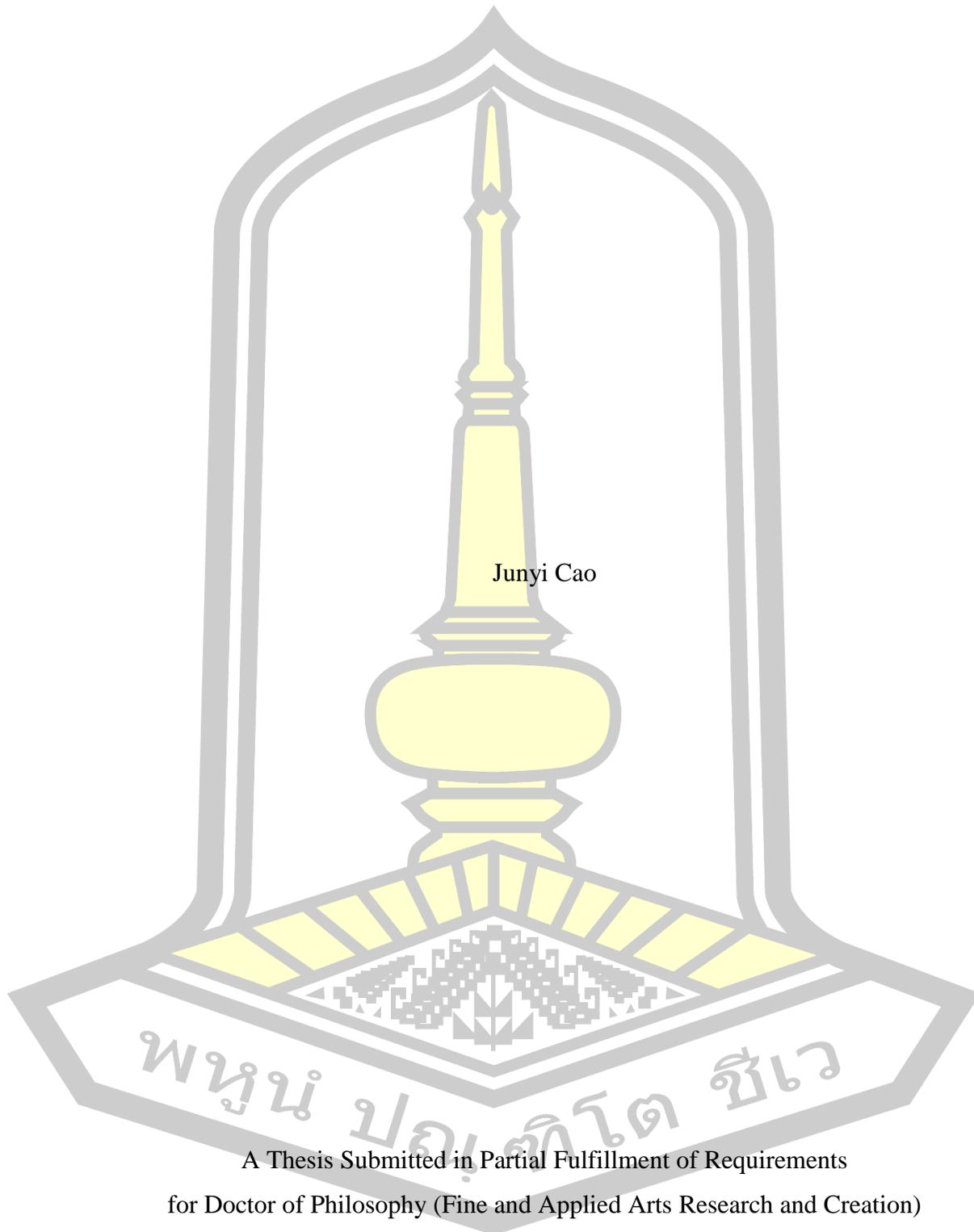
พหุบัณฑิต

เสนอต่อมหาวิทยาลัยมหาสารคาม เพื่อเป็นส่วนหนึ่งของการศึกษาตามหลักสูตร
ปริญญาปรัชญาดุษฎีบัณฑิต สาขาวิชาการวิจัยและสร้างสรรค์ศิลปกรรมศาสตร์

ธันวาคม 2567

ลิขสิทธิ์เป็นของมหาวิทยาลัยมหาสารคาม

Ceramic Arts in Zhongdukou of Jingdezhen: Ecological Communication and Practice
for Modernization



Junyi Cao

A Thesis Submitted in Partial Fulfillment of Requirements
for Doctor of Philosophy (Fine and Applied Arts Research and Creation)

December 2024

Copyright of Mahasarakham University



The examining committee has unanimously approved this Thesis, submitted by Ms. Junyi Cao , as a partial fulfillment of the requirements for the Doctor of Philosophy Fine and Applied Arts Research and Creation at Mahasarakham University

Examining Committee

Chairman

(Assoc. Prof. Niyom
Wongphongkham , Ph.D.)

Advisor

(Yihan Ke , Ph.D.)

Committee

(Asst. Prof. Peera Phanlukthao ,
Ph.D.)

Committee

(Prof. Supachai Singyabuth , Ph.D.)

Committee

(Assoc. Prof. Arkom Sa-
Ngiamviboon , Ph.D.)

Mahasarakham University has granted approval to accept this Thesis as a partial fulfillment of the requirements for the Doctor of Philosophy Fine and Applied Arts Research and Creation

(Asst. Prof. Peera Phanlukthao , Ph.D.)

Dean of Faculty of Fine - Applied Arts
and Cultural Science

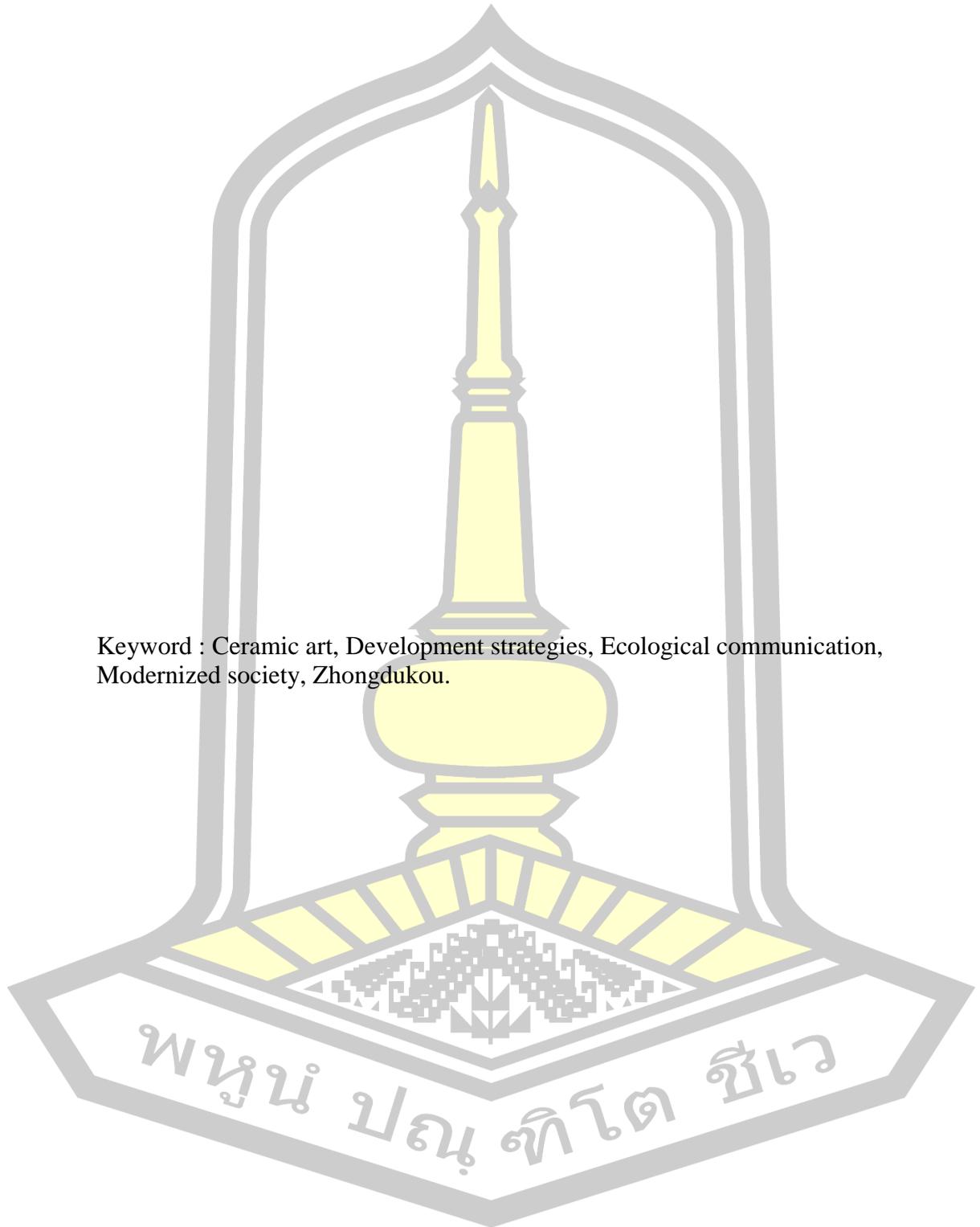
(Assoc. Prof. Krit Chaimoon , Ph.D.)

Dean of Graduate School

TITLE	Ceramic Arts in Zhongdukou of Jingdezhen: Ecological Communication and Practice for Modernization		
AUTHOR	Junyi Cao		
ADVISORS	Yihan Ke , Ph.D.		
DEGREE	Doctor of Philosophy	MAJOR	Fine and Applied Arts Research and Creation
UNIVERSITY	Mahasarakham University	YEAR	2024

ABSTRACT

This thesis employs an interdisciplinary research approach, applying Niklas Luhmann's ecological communication theory to the study of Jingdezhen Zhongdukou ceramics art, revealing the complex dynamic interactions between ceramic art and the socio-ecological environment. The research aims to achieve the following objectives: To study the history of ceramic arts and the development of its society in Zhongdukou of Jingdezhen. This is accomplished by reviewing the historical trajectory of ceramic art and its societal context, highlighting how the art form has evolved alongside social changes, and how it has impacted the local community over time. To research the ecological communication mechanisms of ceramic arts in Zhongdukou of Jingdezhen, the study applies Luhmann's ecological communication theory to explore how ceramic art interacts with the environment, economy, and society, forming complex communication networks that influence both the cultural and economic landscapes. To analyze the practice of ceramic arts in Zhongdukou of Jingdezhen within the context of modernization. By examining the challenges posed by modernization—such as unstable infrastructure and the disconnection between modern business models and traditional ceramic art—the research provides a multi-level analysis of how government policies and community participation shape the practice of ceramic art in a modern context. It demonstrates the critical role of governmental support, policy direction, market demand, and local engagement in ensuring the sustainability of ceramic art. To analyze the ecological communication development strategies of Jingdezhen Zhongdukou ceramic art dissemination in the context of modernization, the research explores strategies for sustainable development, such as the promotion of cultural tourism and the creative industries. This section emphasizes how Zhongdukou ceramics can be preserved and advanced in a modernized society through integrating ecological and economic viewpoints, with a focus on innovative dissemination techniques and community involvement. The research also discusses its limitations and outlines directions for future studies, recommending further research to expand these findings. This would include incorporating broader datasets and leveraging modern technological methods, such as big data and digital platforms, to enhance the understanding of the communication mechanisms and sustainable development strategies for ceramic art.



Keyword : Ceramic art, Development strategies, Ecological communication, Modernized society, Zhongdukou.

ACKNOWLEDGEMENTS

In the blink of an eye, I have reached the final chapter of my Ph.D. journey, reflecting on all the times spent studying and "adventuring" in Thailand. From confusion to growth, from anxiety to now fond memories of the past, I have imagined the future countless times and drafted many thank-you notes for this final chapter of my studies in Thailand. But as I face the blank document, words fail me in the moment of reflection on my academic journey and gratitude for everyone I encountered.

Yesterday is too close, tomorrow is too far. The deep friendship between China and Thailand facilitated my opportunity to study in Thailand. I admired and longed for the warm, easy-going, and free-spirited lifestyle of the Thai people. This cultural openness and inclusiveness made me feel warmth even in a foreign country, with each day filled with freshness and learning opportunities. Looking back at 2021, I experienced the pressure of job hunting after my master's graduation, the determination to pursue a Ph.D. after repeated setbacks, the nervousness of flying alone on flight 9C7419 from China to Thailand for the first time, the continuity of my student identity as I first stepped into Mahasarakham University, and the anxiety of meeting Thai professors in person for the first time. Each scene, each thought of the past, remains unforgettable.

During this academic journey, from initial timidity to current calmness, I deeply felt the power of path dependence. Each choice and decision was deeply influenced by past experiences. As the saying goes, "Regret for the past is futile, but the future is still within reach," I realized that past mistakes cannot be undone, but the future path is still waiting for me to pursue and achieve. Although past experiences have formed a certain path dependence, it is precisely these experiences that have strengthened my resolve to strive for higher goals.

First and foremost, I want to sincerely thank my supervisor, Dr. Yihan Ke. Thank you for your meticulous guidance and selfless encouragement in both life philosophy and academic research methods. Your patience and professionalism have allowed me to gain many valuable experiences on the road of scientific research, which will serve as a beacon in my future academic career. Your rigorous academic attitude and innovative thinking have deeply influenced me, enabling me to constantly explore

and progress in academic research. Whether it was academic confusion or life's uncertainties, you always provided me with inspiration and guidance, helping me avoid many detours on my journey. Thank you for guiding me to open up a new world of academic research.

I would also like to thank the Thai professors and teachers. Your help and encouragement to us Chinese students have made me feel warmth and kindness. Because of this, I have been able to better understand Thai culture during my studies, broadening my international perspective.

Next, I want to thank my senior and junior fellow students and all the classmates I met in Thailand. The mutual help in an unknown environment and the inspiration and support during academic discussions are precious treasures on my scientific research path. Every academic exchange has benefited me greatly, allowing me to find different interesting viewpoints and ideas through constant brainstorming. At the same time, I thank my good friends in China. Your companionship day and night, your encouragement when I couldn't write my thesis and felt frustrated, and even your valuable data support for my thesis, gave me the motivation to keep going during difficult times.

Special thanks to my parents. At the age of thirty, I have ended this long study abroad journey, and my parents have gradually aged with the passage of time. Your continuous support and help in my studies have been my unwavering motivation. No matter what difficulties and uncertainties I encountered, you were always silently supporting and encouraging me, giving me the courage to face everything. Thank you for respecting my ideas and giving me the opportunity to study abroad for my further education.

Life is like the sea, and each step is like smoke. Countless moments from night to day, from starry skies to glowing sunsets, have witnessed my growth and gains on foreign land. This experience has not only enriched my knowledge but also made me appreciate the diversity and preciousness of life.

As I conclude this chapter, the sun still shines brightly, and I am still full of anticipation for the next journey, a brilliant second life of my own! Taking away new memories from unfamiliar places, I am grateful to everyone who supported and helped

me on this journey. Your presence has filled my Ph.D. journey with warmth and emotion. No matter what the future holds, I will cherish this time and continue to move forward, pursuing my dreams.

Junyi Cao

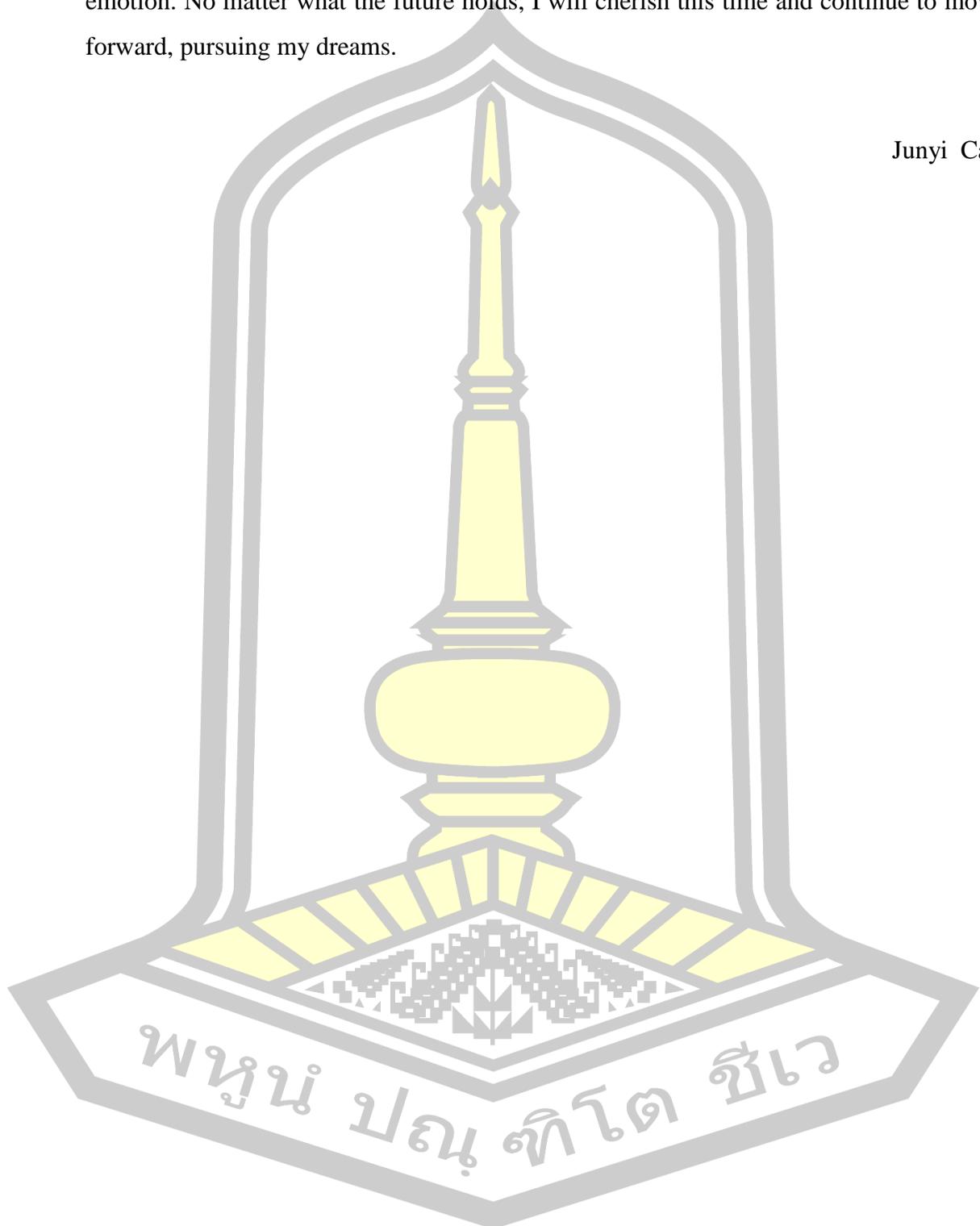


TABLE OF CONTENTS

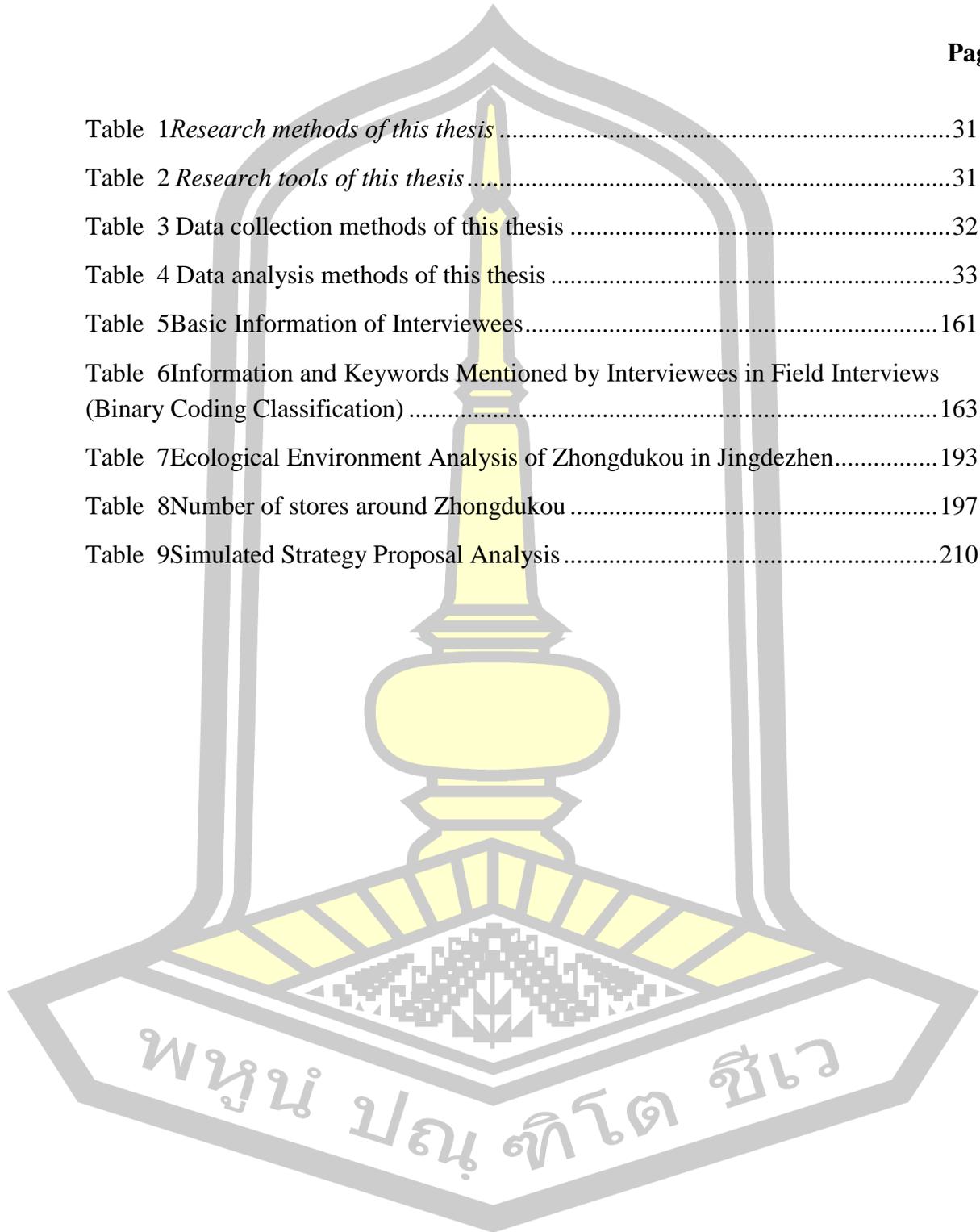
	Page
ABSTRACT.....	D
ACKNOWLEDGEMENTS.....	F
TABLE OF CONTENTS.....	I
LIST OF TABLES.....	L
LIST OF FIGURES.....	M
CHAPTER I.....	15
Research Proposal.....	15
1. Background of Research (with Research).....	15
2. Purpose of Objective.....	22
3. Research Question.....	22
4. Definition of Terms/Concise/More Compact.....	23
4.1 Ceramic Art.....	23
4.2 Chinese path to modernization.....	24
4.3 Ecological Communication.....	25
4.4 Zhongdukou Wharf.....	26
5. Scope of Research.....	28
5.1 Research area.....	28
5.2 Time.....	30
5.3 Another.....	30
6. Research Methodology.....	30
7. Literature Review.....	34
7.4 National and International research on.....	45

8. Concept, Theory and Conceptual Framework	51
The Historical Evolution of Zhongdukou Ceramic Art in Jingdezhen	56
Part I The Rise of Jingdezhen Ceramics	58
1. 1 The ecological environment and geographical location of Jingdezhen ...	58
1. 2 The unique environmental conditions of Jingdezhen produce distinctive ceramic raw materials	59
1. 3 The historical development of Jingdezhen ceramics	60
Part II From the "Silk Road" to the "Ceramic Road"	66
2. 1 The birth of Jingdezhen overseas trade market - The "Silk Road"	70
2. 2 Jingdezhen's unique "Ceramic Road"	73
Part III The Prosperity of the "Straw Sandal Wharf"	79
3. 1 The origins of the development of Jingdezhen's porcelain industry	79
3. 2 A mark of the prosperity of Jingdezhen's ceramic industry - "Straw Sandal Wharf"	82
Part IV Zhongdukou in the Landscape of Jingdezhen's Ceramic Industry 84	
4. 5 The landscape of Jingdezhen's ceramic industry	84
4. 6 The Zhongdukou in Jingdezhen	88
Summary	92
CHAPTER II	94
The Ceramic Art of Zhongdukou in Jingdezhen: Ecological Communication Mechanisms	94
Part I Ecological Communication Theory	95
Part II The Interaction Between the Ceramic Art of Zhongdukou in Jingdezhen and Ecological Communication	118
Ecological communication of Zhongdukou in Jingdezhen	123
Summary	134
CHAPTER III	137
The Ceramic Art of Zhongdukou in Jingdezhen: Modernization Practices	137

Part I Chinese-style Modernization Practices	138
Part II The Unique Ceramic Art of Jingdezhen in the Context of Modernization Practices	149
Part III Retracing Modern Memories of Zhongdukou in Jingdezhen.....	158
Part IV The Struggles and Predicaments of Zhongdukou's Ceramic Art in Jingdezhen in the Context of Modernization Practices	184
Summary.....	186
CHAPTER IV	187
Analysis of Development Strategies for the Dissemination of Jingdezhen Zhongdukou Ceramic Art Ecological Communication in the Context of Modernization	187
Part I Modern Ecological Development Positioning of Jingdezhen Zhongdukou Ceramic Art (Self-Observation)	187
Part II Dialectical Relationship of Sustainable Development (Application of Binary Coding).....	201
Part III Analysis of Ecological Dissemination Strategies for Sustainable Development (Risk Prediction and Problem Reflection).....	203
Part IV Sustainable Development Strategy Guidelines Based on Ecological Communication	209
Summary.....	219
CHAPTER V	224
Conclusion Discussion and Suggestions	224
Conclusion.....	224
Discussion.....	225
Suggestion.....	227
REFERENCES	232
BIOGRAPHY	241

LIST OF TABLES

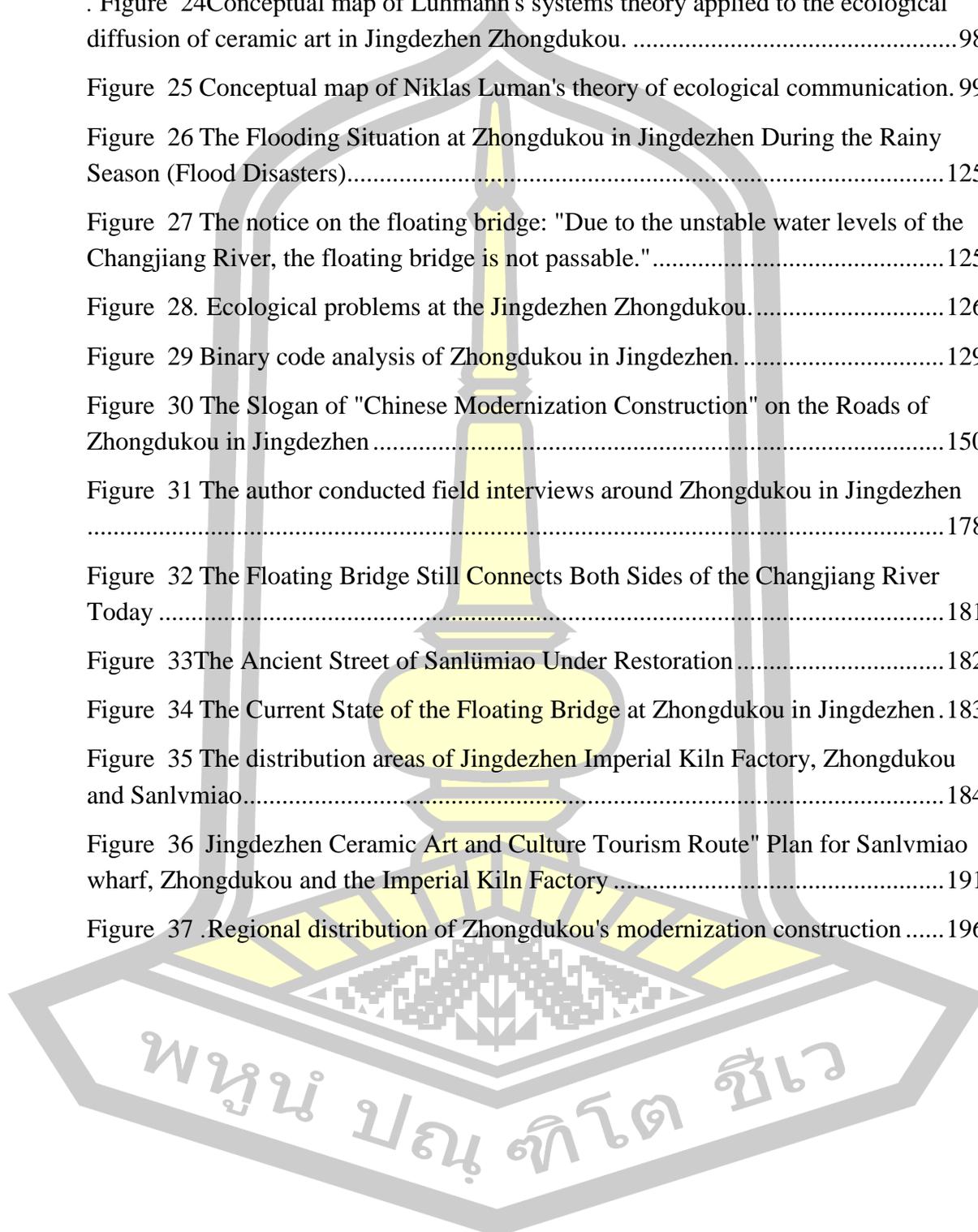
	Page
Table 1 <i>Research methods of this thesis</i>	31
Table 2 <i>Research tools of this thesis</i>	31
Table 3 Data collection methods of this thesis	32
Table 4 Data analysis methods of this thesis	33
Table 5 Basic Information of Interviewees.....	161
Table 6 Information and Keywords Mentioned by Interviewees in Field Interviews (Binary Coding Classification)	163
Table 7 Ecological Environment Analysis of Zhongdukou in Jingdezhen.....	193
Table 8 Number of stores around Zhongdukou	197
Table 9 Simulated Strategy Proposal Analysis.....	210



LIST OF FIGURES

	Page
Figure 1 Map of the Zhongdukou area.....	29
Figure 2 Network visualization of research hotspots and keyword associations on...	39
Figure 3 Conceptual framework diagram of this thesis.....	53
Figure 4. Research plan timetable of this thesis.	53
Figure 5The Historical Development of Zhongdukou in Jingdezhen.....	58
Figure 6 Jingdezhen city administrative district, geological, and hydrographic map.	59
Figure 7 Timeline of the development history of ancient Jingdezhen ceramics.....	61
Figure 8 Illustration of the Yuyaochang in Jingdezhen during the Qing Dynasty.	63
Figure 9 Map of the four famous towns of the Ming and Qing dynasties.	66
. Figure 10 Map of Ming Dynasty Imperial ceramic Water Transportation Routes to Beijing (partial).....	68
Figure 11 Road map of Jingdezhen Changjiang water transport within China.	70
Figure 12Main routes of the Silk Road picture.....	71
Figure 13 Jingdezhen Ceramic Water Transport International Route.	71
Figure 14 . Schematic representation of world distribution of Jingdezhen ceramic...	73
Figure 15	79
Figure 16 . Qing Dynasty blue and white ceramic panel depicting the Imperial Kiln Factory with alleyways and houses.....	81
Figure 17china workers' straw shoes.....	83
Figure 18 <i>The</i> ferry port and the imperial kiln factory on the Qing Jiaqing map of Jingdezhen.....	85
Figure 19 China Arts and Crafts Master Zhang Songmao's "Changjiang Sail" ceramic plate painting, painting the whole Changjiang River in Jingdezhen in the 1980s.....	88
Figure 20 Crossing the beach (Chinese Landscape Paintings)	89
Figure 21Old photo of the scenery on both sides of the Changjiang River in Jingdezhen.....	90
Figure 22. Old photo of the original Zhongdukou pontoon bridge.....	91

Figure 23. Jingdezhen Zhongdukou and Pontoon Bridge today.....	91
. Figure 24 Conceptual map of Luhmann's systems theory applied to the ecological diffusion of ceramic art in Jingdezhen Zhongdukou.	98
Figure 25 Conceptual map of Niklas Luman's theory of ecological communication.	99
Figure 26 The Flooding Situation at Zhongdukou in Jingdezhen During the Rainy Season (Flood Disasters).....	125
Figure 27 The notice on the floating bridge: "Due to the unstable water levels of the Changjiang River, the floating bridge is not passable."	125
Figure 28. Ecological problems at the Jingdezhen Zhongdukou.....	126
Figure 29 Binary code analysis of Zhongdukou in Jingdezhen.....	129
Figure 30 The Slogan of "Chinese Modernization Construction" on the Roads of Zhongdukou in Jingdezhen	150
Figure 31 The author conducted field interviews around Zhongdukou in Jingdezhen	178
Figure 32 The Floating Bridge Still Connects Both Sides of the Changjiang River Today	181
Figure 33 The Ancient Street of Sanlümiao Under Restoration.....	182
Figure 34 The Current State of the Floating Bridge at Zhongdukou in Jingdezhen	183
Figure 35 The distribution areas of Jingdezhen Imperial Kiln Factory, Zhongdukou and Sanlvvmiao.....	184
Figure 36 Jingdezhen Ceramic Art and Culture Tourism Route" Plan for Sanlvvmiao wharf, Zhongdukou and the Imperial Kiln Factory	191
Figure 37 .Regional distribution of Zhongdukou's modernization construction	196



CHAPTER I

Research Proposal

1. Background of Research (with Research)

In Jingdezhen's history, Zhongdukou initially emerged as a wharf. It holds significant historical importance. This ancient wharf, once a key docking point for firewood boats, features a 150-meter-long berth, providing convenience for transportation in ancient times. As one of Jingdezhen's iconic sites, it has witnessed the prosperity and changes of Jingdezhen ceramics over centuries. Ancient Chinese ceramic and the ceramics industry represent a glorious chapter in world civilization, with Jingdezhen ceramics being a crucial representative of ancient China's ceramic industry.

Domestic economic development, overseas trade demand, and the needs of the imperial court have always been the three main factors influencing Chinese ceramic production. To meet these demands, Zhongdukou Wharf was established during the Song Dynasty, becoming a crucial node for waterway transportation and trade in ancient Jingdezhen. Since the Song and Yuan Dynasties, large quantities of Jingdezhen's Qingbai Ceramic and Blue and White ceramic have been transported worldwide, gaining immense popularity and earning a stellar reputation abroad.

During the Song Dynasty, Jingdezhen ceramic was exported to over fifty countries through the commercial ports of Guangzhou and Quanzhou. The earliest ceramics transported to Europe were sold at prices almost equal to their weight in gold. In the Yuan Dynasty, ceramic from Jingdezhen was distributed worldwide, with Blue and White Ceramic being widely shipped to the Arab regions along the "Silk Road¹." The export of Jingdezhen ceramic reached unprecedented heights during the

¹ The Silk Road is an ancient network of trade routes formally established during China's Han Dynasty around 130 BCE. Between 130 BCE and 1453 CE, it facilitated commercial connections among various regions of the ancient world. The Silk Road was not a single route from east to west, which is why historians prefer the term "Silk

Ming and Qing Dynasties, marking a nearly 300-year "Golden Age"² for Jingdezhen's ceramics industry. In the "Jiangxi Province Records: Ceramics Book" by Wang Zongmu during the Ming Dynasty, he described the prosperity of the Jingdezhen ceramic market. He mentioned that during the Jiajing to Wanli Era periods, the Jingdezhen ceramic market extended south to Jiaozhi (present-day Vietnam) and east to the ocean. Products from Jingdezhen were sought after everywhere, and merchants often made substantial profits from them.

In the 25th year of the Wanli Era period during the Ming Dynasty, Wang Shixing wrote in Volume 4 of "Guang Zhi Yi" that the ceramics of Raozhou³ were found everywhere, from within the country to the lands of foreign tribes overseas. Everywhere boats and carriages could reach, there were Raozhou ceramics. The prosperity of the trading markets made Zhongdukou Wharf the hub of ceramic trading not only within the country but also worldwide, serving as a link between traditional Chinese ceramic culture and the international community. Due to the extensive use of maritime trade routes for transporting ceramics, these routes were dubbed the "Ceramic Road"⁴, transitioning from the "Silk Road" to "Ceramic Road." Jingdezhen ceramics ranked first in both quantity and value nationwide, becoming a tremendously appealing commodity worldwide and exerting significant influence on Eastern and Western cultural arts.

In Zheng Tinggui's "Tao Yang Zhu Zhi Ci," he vividly depicts the bustling scene at Zhongdukou wharf: Finished ceramic bodies with applied white glaze are selected and shipped out from the kilns, while yellow clay is brought in from the clay factories. There is a flurry of activity as boats rush to load and unload at Zhongdukou wharf; once charcoal boats dock, raft boats immediately set off. Due to the frequent

Roads," though "Silk Road" is the more commonly used name.

² The reference here is not to the fact that gold was made in this era, but to the prevalence of the era.

³ Raozhou in the Ming and Qing Dynasties refers to Raozhou Prefecture, now Poyang County in Jiangxi Province.

⁴ Silk Road has land and sea two transport channels, ceramics road only to take the sea a transport channel, the Maritime Silk Road is also the road of ceramics.

foreign trade activities, Zhongdukou gradually developed into a market. The high demand for ships led to the emergence of shipbuilding and ship parts industries. Surrounding Zhongdukou, numerous businesses engaged in the production and distribution of ship parts, forming a region integrating industrial production, transportation, and commercial trade.

The emergence of the term "Straw Sandal Wharf"⁵ also signifies the illustrious history of Jingdezhen's trading wharf, embodying the bustling scene of the wharf marketplace, where workers from various pottery workshops, porters on the riverside docks, laborers carrying ceramic on the alleys, and workers in the clay workshops all wore straw sandals. The entire area was filled with the sight of barefoot workers bustling about silently, creating a spectacle that was not to be marvelled at. However, with the changes in social history and the continuous development of transportation, the mode of transportation by ships has long been replaced by convenient modes such as cars and airplanes. Consequently, Jingdezhen ceramics have also suffered to some extent in history, almost on the brink of collapse.

With the liberation of Jingdezhen on April 29, 1949, the millennium-old ceramic capital experienced a rebirth. Against the backdrop of a time ripe for reconstruction and people taking charge of their own destiny, a new chapter in Chinese ceramic history unfolded. However, Zhongdukou wharf underwent an evolution from prosperity to decline and then to reconstruction. Once a bustling hub of ceramic trade, the wharf fell silent amidst the decline of the ceramic industry. The erstwhile thriving trade at the wharf has ceased to exist, and Zhongdukou, devoid of its function as a wharf has turned into a place for nearby residents to leisurely stroll.

Today, Zhongdukou, as the core area of Jingdezhen National Ceramic Culture Heritage and Innovation Pilot Zone, is under construction, positioned as "one axis,

⁵ Straw shoes are Jingdezhen ceramics workers' labour insurance products, the old general by the factory owner to provide free straw shoes, ceramic billet workshop in the billet workers, handyman, dock workers wear straw shoes work for many years. Other industries, work types of personnel also wear grass shoes, the whole city is full of barefoot grass shoes save.

one belt, one zone, and multiple points⁶ along the Changjiang Hundred-Mile Scenic Belt. The city's planning department has decided to open up a section at Zhongdukou Wharf to create a waterfront scenic platform for the residents, deviating somewhat from the historical and artistic values of Zhongdukou as an ecological zone for Jingdezhen's ceramic culture. Therefore, the main objective of this thesis is to explore how to align with government planning and develop an ecological dissemination strategy suitable for the development of ceramic art at Zhongdukou Wharf under the practice of Chinese path to modernization policies. Additionally, it aims to find the intersection between the artistic core of "Ceramic Art"⁷ as an outstanding traditional culture in the Zhongdukou area and the value of modernization practice.

In the contemporary context, Chinese path to modernization, led by the Communist Party of China (CPC), encompasses vast population scale, shared prosperity among all people, coordinated development of material and spiritual civilization, harmonious coexistence between humans and nature, and the pursuit of modernization through peaceful development. Cultural modernization is the process of modernizing cultural development and is an integral part of Chinese path to modernization, with its core focus on human modernization.

Human modernization refers to the comprehensive abilities and consciousness of individuals as the main subjects of modernization, enabling them to adapt to modern society. It primarily involves two dimensions: external material changes and internal spiritual transformations, both of which are intertwined in the process of cultural evolution. The leadership, social nature, fundamental direction, and developmental focus of cultural modernization in China all vividly demonstrate the supremacy of the

⁶ Planning Layout of Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Area.

⁷ It is a traditional craft of mankind that involves manufacturing, colouring and repairing techniques dating back to the Stone Age. The earliest pottery was used only for household utensils, but with the development of technology and manufacturing tools, pottery-making gradually turned into an art. Modern pottery has several artistic styles such as primitive, classical, folk, modernism and post-modernism, and is classified as a plastic art together with painting and sculpture.

people, highlighting that the main task of advancing cultural modernization in our country is to meet the growing spiritual needs of the people and contribute to the great rejuvenation of the Chinese nation.

Advancing the modernization of Chinese culture in the new era should fully leverage the subjectivity of "human beings," with a focus on achieving thorough understanding, effective measures, and concerted efforts. In the report of the 20th National Congress of the Communist Party of China (CPC), General Secretary Xi Jinping emphasized the importance of safeguarding China's cultural stance, and pointed out the need to tell excellent Chinese stories and convey positive Chinese voices as a way of demonstrating China's credibility, loveliness and respectability, so as to enable more people to learn about and understand Chinese culture, and to promote its better development in the world (People's Daily, 2022).

The Opinions on Further Strengthening the Protection of Intangible Cultural Heritage, jointly issued by the General Office of the CPC Central Committee and the General Office of the State Council, aims to strengthen the protection of intangible cultural heritage, in order to promote the inheritance and carrying forward of the outstanding traditional Chinese culture, to carry on the Chinese historical lineage, to build up China's cultural self-confidence, and to promote exchanges and mutual understanding among civilizations, to further strengthen the protection of intangible cultural heritage, and to promote the socialist cultural The construction of a strong nation (People's Daily, 2021). In the context of such an era of policy, Jingdezhen, a thousand-year-old city of ceramic culture has attracted much attention.

Since the Song Dynasty, Jingdezhen has been known as the "ceramic Capital"⁸, with at least a thousand years of history in ceramics production. Its ceramics have

⁸ This refers to the city that is famous for producing ceramic. In China, the most famous ceramic capital is Jingdezhen in Jiangxi Province, known as the "ceramic Capital", which is not only the birthplace of Chinese ceramic, but also one of the world's largest ceramic production centres. Other cities are also known for their ceramic production, such as Dehua in Fujian Province and Liling in Hunan Province, but they have not been known as ceramic capitals since ancient times, but gradually acquired this name after the middle of the 20th

been exported all over the world for their excellent quality and craftsmanship, and became one of the most important commodities of foreign trade in ancient China. Jingdezhen ceramics are not only practical objects, but also artistic treasures, reflecting the aesthetic pursuit and innovative spirit of traditional Chinese culture. Ceramic techniques such as blue and white ceramic, pastel colors, and glazed reds, all highlight the high achievements of Chinese ceramic art.

Nowadays, with the continuous progress of society and the arrival of the new media era, Jingdezhen ceramic culture heritage and development is facing a series of difficulties. Problems such as the shortage of inheritors, the lagging level of innovation and technology, and the single mode of dissemination have become increasingly prominent. In an era dominated by information technology and intelligence, how ceramic culture can find a foothold in modern society has become a topic worthy of deep thinking.

In July 2019, in response to the challenges of the new era, the State Council established the "Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Zone"⁹. This initiative aims to establish a new platform for foreign cultural exchanges, reaffirming the importance of Jingdezhen ceramic culture in spreading China's outstanding traditional culture. General Secretary Xi Jinping emphasized that historical and cultural heritage is a precious and non-renewable resource, and its protection and inheritance should be a top priority. The establishment of this pilot zone provided new opportunities for the development of ceramic art in Zhongdukou.

Subsequently, the Ministry of Culture and Tourism established the "Jingdezhen Ceramic Culture and Ecological Protection Experimental Zone" as a national cultural and ecological protection zone¹⁰ in June 2020, and the "Jingdezhen Ceramic Culture

century.

⁹ This is of great significance for the protection of the inheritance of good use of Jingdezhen excellent ceramic culture, play a positive role in the transformation and upgrading of culture on the industry, and coordinated to promote the high-quality development of the region.

¹⁰ It refers to a specific area established with the consent of the Ministry of Culture and Tourism for the holistic

and Ecological Protection Experimental Zone" and "Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Zone" were established. The collaborative implementation of the construction of the "Cultural Heritage Innovation Pilot Zone" has injected new vitality into Zhongdukou. However, how Zhongdukou, as a once thriving ceramic trading center, can find new value in the modernization process is a question that requires serious consideration. On the one hand, urban regeneration and economic development have put pressure on the traditional industries in the area; on the other hand, more attention has been paid to the protection and inheritance of traditional culture.

This in a social context, this thesis research will adopt Niklas Luhmann's theoretical framework of ecological communication, which emphasizes the interactions between social systems and the environment, viewing society as a self-sustaining ecosystem. It is as a theory that examines how information communication affects and is affected in a given environment, providing a new framework for understanding and analyzing the communication of ceramic art. It will also combine interdisciplinary research using multi-methodology from multiple perspectives such as environmental factors, interaction, communication mechanisms, self-organization, cultural identity, and complexity perspectives respectively, in order to gain a deeper understanding of the communication mechanisms of Zhongdukou's ceramic art under the framework of Ecological Communication theory and its evolution in modern practice.

The theory will combine qualitative and quantitative research methods to deepen the understanding of the communication mechanism of ceramic art in Zhongdukou, and will be important in promoting its modernization practice, doing so by focusing on the role of culture, art and other ecological elements in social communication.

Through the study, we can have a more comprehensive understanding of the communication mechanism of Jingdezhen Zhongdukou ceramic art in modern society.

Under the guidance of Xi Jinping's thought of socialism with Chinese characteristics in the new era, this study will dig deeper into the ecological dissemination mechanism of ceramic art in Zhongdukou. By emphasizing the dissemination of ecological elements such as culture and art, the government has promoted the reconstruction of the Zhongdukou, and how to make it a carrier for the dissemination of culture and art, and create favorable conditions for the re-exploitation of the Jingdezhen ceramic industry is the direction of the research in this thesis, and this research will help to promote the dissemination and development of Jingdezhen ceramic art in the global scale, and contribute new theoretical support and practical experience for the protection and inheritance of the excellent traditional Chinese culture. support and practical experience.

2.Purpose of Objective

- 2.1 To study the history of ceramic arts and the development of its society in Zhongdukou of Jingdezhen;
- 2.2 To research the ecological communication mechanisms of ceramic arts in Zhongdukou of Jingdezhen;
- 2.3 To analyze the practice of ceramic arts in Zhongdukou of Jingdezhen within the context of modernization;
- 2.4 To analyze the ecological communication development strategies of Jingdezhen Zhongdukou ceramic art dissemination in the context of Modernization.

3. Research Question

- 3.1 How has the role played by ceramic arts in Zhongdukou of Jingdezhen changed in the development of society?
- 3.2 What are the ecological communication mechanisms of ceramic arts in Zhongdukou of Jingdezhen?
- 3.3 How has the practice of ceramic arts in Zhongdukou of Jingdezhen changed in the context of modernization?
- 3.4 Can the strategic pattern based on ceramic arts in Zhongdukou of Jingdezhen influence its sustainable economic and cultural development?

4. Definition of Terms/Concise/More Compact

4.1 Ceramic Art

Early existing scholars' study of art was always linked to culture, because they believed that art was an integral part of culture, that art was mixed with people's daily life, politics and economy, and that the study of the social structure and social organization of primitive tribes necessitated the study of their art and their rituals. In his "Primitive Art", Boas discusses the relationship between technology and art, arguing that only highly developed and operationally perfected technology can produce perfected forms, so that art is a product of technology that has reached a certain level (Boas, 1955).

Malinowski also pointed out in his Theory of Culture that art has many secondary functions in relation to other cultural activities, and that it is often one of the important driving forces in the development of technology, crafts, and economy (Malinowski, 1987). Necton's work on the Anthropology of Art is concerned with the relationship between art and social life, the language and life of art, and the creativity of the artist (Layton, 1991). In Art as Culture: An Introduction to the Anthropology of Art, Payne examines a number of issues in art: the natural environment in which the artist works, the medium in which the craftsman works, the materials and techniques used, the personality of the artist and his or her role in society, the uses and functions of art in society, the nature of the visual language used by the artist, the history of the artist's encounters with foreign peoples outside of his or her own history, the history of contact with foreign peoples, and the nature of the art forms used in the Created process. of the art forms, the attributes of the aesthetic standards by which the Created process is guided and judged, etc (Fang & LI, 2013).

Then again, Geier pays close attention to the social context of art, and in his book Art and Enactment: An Anthropological Theory, he proposes that art is a system of action and interaction, and that the anthropology of art should pay attention to the social contexts of the production, circulation, and reception of works of art, and study

the act of art as a system (Moore, 2009). In the same book, it mentions Geertz in his "Local Knowledge" discussing "the discussion of art should not be confined to the technical dimension or to the spiritual dimension related to technology alone, but is more importantly heavily fused to the modes of experience that are imported into and sustained by other manifestations of human intention and their endeavors."(Moore, 2009). Similarly, it also mentions Bourdieu in his "The Historical Genesis of Pure Aesthetics," proposing the concept of the "field of art", explains the formation of the art field, the elements it contains, and the value of its existence, etc., and argues that all the people in the art field who are closely related to art have almost become the value of art and the producers of the artist's beliefs. Producers (Moore, 2009).

Therefore, ceramic art in this thesis can be seen as a form of cultural expression in the Zhongdukou area of Jingdezhen, covering multiple aspects of ceramic culture such as production, dissemination, and market demand. Ceramic art can be understood as a system of social action and interaction, involving multiple dimensions of technology, craftsmanship, economy, and social life.

4.2 Chinese path to modernization

Chinese path to modernization, also called the Chinese modernization or the Chinese path to modernization, is a political slogan promoted by the Chinese Communist Party (CCP), a model of modernization that purportedly contrasts with Western-style development, and emphasizing the strengths of the Chinese economic and political model.

Chinese path to modernization refers to China's search for a path of modernization and development that suits its own national conditions by combining its local cultural traditions and national conditions with reforms and innovations in the economic, social and political fields in the face of the challenges of modernization from the end of the 20th century to the beginning of the 21st century. It is the only correct path for the construction of a strong nation and the rejuvenation of the nation, and the most important thing is to adhere to the leadership of the Communist Party of

China (CPC). Chinese path to modernization is "deeply rooted in the excellent traditional Chinese culture, embodies the advanced nature of scientific socialism, draws on and absorbs all the achievements of the excellent civilization of mankind, represents the direction of the advancement of human civilization, and shows a new picture that is different from that of the Western modernization model, and is a completely new form of human civilization. A new form of human civilization. Chinese path to modernization breaks the myth of modernization = westernization." (CPCNews, 2023).

Chinese path to modernization emphasizes maintaining cultural uniqueness and combining traditional values with modernization requirements to achieve the goal of comprehensive modernization. This process includes economic reform and opening up, urbanization, scientific and technological innovation, and the development of Chinese characteristics in globalization.

Western modernization focuses more on individualism, market economy and political freedom, while Chinese path to modernization focuses more on collectivism, state intervention and social stability. The aim of this thesis is to explore the ecological dissemination of traditional Chinese culture in the context of Chinese path to modernization.

4.3 Ecological Communication

"Ecological Communication" (Luhmann, 1989) uses the concept of "Resonance" to represent the interaction between a system and its environment. The complexity of the environment always creates problems for the system, but it also provides solutions. In realizing these solutions, the components of the system work together. Social and psychological systems are unique in that the connections between them can be modified through the process of meaning.

According to Luhmann, meaning is a strategy for choosing between alternatives. The essence of meaning is understood less as a property of the system components and more as the basis for their connectedness and integration. The importance of

meaning in ecological communication lies in the essential reciprocity and self-referentiality of communication systems. Phenomenology suggests that meaning is the basis of the self; therefore, it is self-referential. It also specifically refers to other meanings. Communication communicates because it has meaning; thus, for Luhmann, communication is not the transmission of information but the realization of meaning (Wahyuni, 2019).

Cultural ecology focuses more on the interaction between the cultural system and the external environment, emphasizing the adaptation and evolution of culture under specific environmental conditions. This thesis, however, uses Luhmann's "Ecological Communication" as a theoretical framework to focus more on communication and information processing within the social system, comparing society to a self-sustaining ecosystem, and emphasizing the importance of internal interaction. Through the use of systems theory, the dissemination of information within and outside the system is emphasized, focusing on the processing and feedback of information by the social system, as well as the role of information dissemination in the self-regulation and adaptation of the system, in order to achieve an analysis of the dissemination and evolution of Zhongdukou ceramic art in modern society.

4.4 Zhongdukou Wharf

In academic research, some scholars have defined the concept of wharf. Have proposed that the title of "wharf" appeared in the Ming Dynasty at the latest (Deng & He, 2012). Also, have believed that the wharf was historically used as a place for ships to dock and loading and unloading of goods, travelers up and down the river (Li & Xiao, 2014). According to (Liu, 2020), believes that the wharf is built in the harbor, river or canal along the coast, used to dock the ship, loading and unloading of goods and up and down the passenger's facilities, (p.70). According to (Dai, 2007), "The Old Wharf" describes the wharf as a harbor for ships to avoid the wind and waves and docking, which is a place for people to do business, (p.5-6).

Now all kinds of dictionaries are so explained to the wharf: "dictionary" in the explanation of the wharf for docking ships, up and down the passengers and loading and unloading of goods of the waterworks building, (p.1417); "modern Chinese dictionary" recorded in the riverbanks and harbors for the docking of loading and unloading of goods and passengers on and off the building or traffic convenient commercial city, (p.864); "Chinese dictionary" on the wharf there are three kinds of explanations, respectively, for the ship berthing place, the traffic convenient Commercial city, in the old days, specifically refers to the activities of hooligans, the occupation of the territory, (p.10687).

Comprehensive view of the above content, although there is no neat definition of the concept of wharf, but the concept of wharf concept but tend to agree. First of all, the dock is a building facility for ships to berth, secondly, the dock is a space for the distribution of people and materials in the transport, and again, the dock extends the node of the transport network, the trade center, the concept of commercial city.

The Zhongdukou Wharf studied in this thesis, Zhongdukou refers to the name of a place in Jingdezhen City, located at the northern end of the East Road along the river and at the eastern end of the Changjiang Floating Bridge. Zhongdukou was the ancient entrance for ceramic raw materials¹¹ and an area for ceramic trade and transport. It is not only a characteristic residential agglomeration area, but also a gathering place for industries doing auxiliary production and transport such as Zizania Hong¹², Boat Hong¹³, and Kiln Faggot Hong¹⁴. The area from Zhongdukou to Ceramic Bridge is rich in businesses, which since ancient times have been divided

¹¹ Firewood and ceramic clay.

¹² An industry specialising in the packaging of finished ceramic products.

¹³ An industry that serves ceramic merchants transporting goods and raw materials and facilitates pedestrians to cross the river.

¹⁴ An auxiliary industry specialising in the buying and selling of firewood.

into shops serving the daily life of residents¹⁵, teahouses and theatres, and ceramic shops serving ceramic production (Group, 2011).

5. Scope of Research

This thesis will focus on the ceramic art of the Zhongdukou area of Jingdezhen, including the historical status of the Zhongdukou wharf, its role in ancient transport, and its role in witnessing the prosperity and change of the ceramic art of Jingdezhen over the centuries. The research will also extend to the impact of socio-historical changes, advances in transport and government urban planning on the evolution of the area, in particular the transformation of the Zhongdukou wharf from a busy center of ceramic trade into a recreational area. The research focuses on the intersection of the region's historical and artistic values with contemporary challenges and the need to find ecological strategies in harmony with modernization policies.

5.1 Research area

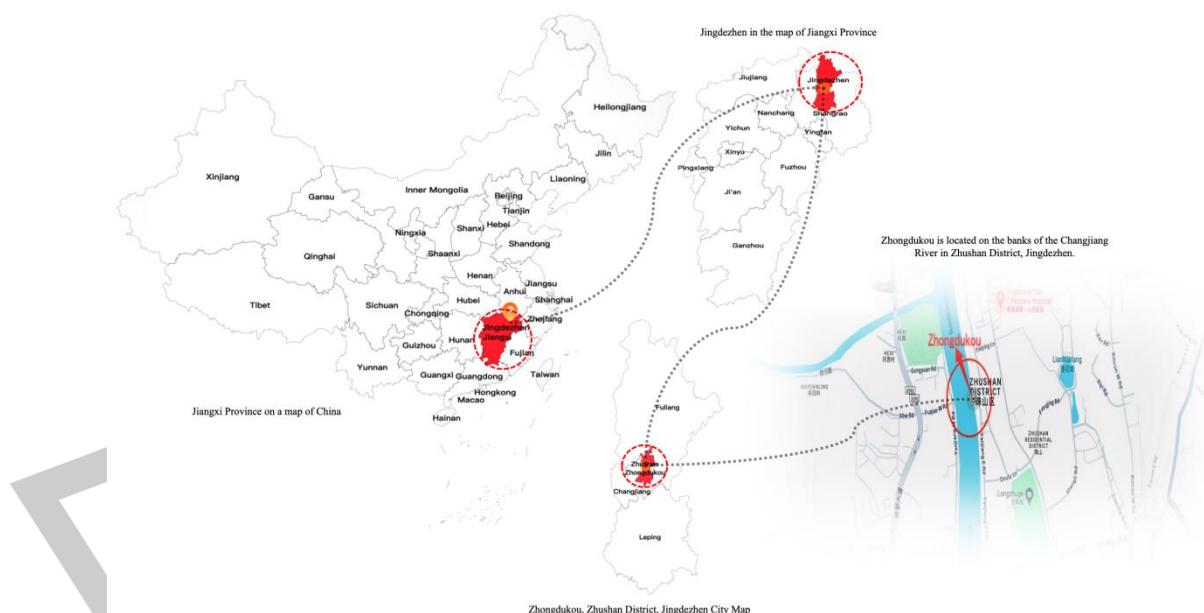
Jingdezhen City is located in the northeast of Jiangxi Province, China, south of the Yangtze River, in the junction of Jiangxi Province, Zhejiang Province and Anhui Province, is an important transport hub in China, adjacent to Anhui Province; its north-west junction with Dongzhi County of Chizhou City, Anhui Province, the north side of the city is close to the Huangshan City Qimen County, the north-east of Huangshan City Xiuning County. It is close to Wuyuan County of this province in the east, Dexing City in the southeast, Goyang County and Wannian County in the south, and Poyang County in the west. It is located at 116°57'-117°42' east longitude and 28°44'-29°56' north latitude.

Jingdezhen is a beautiful scenery, a long history, surrounded by mountains in the south of the city, a river from north to south through the whole territory is the Changjiang River. Jingdezhen because of its position according to the southeast of the

¹⁵ Shoe nail shops, gabion shops, rice and fruit shops, coffin shops, etc.

Changjiang River, was named "Changnan Town"¹⁶, and because of the soil and water suitable for ceramics, history known as "Tao Yang"¹⁷. Because of its splendid ceramic culture, regional characteristics and long history, after the Song Dynasty with Henan Zhuxian Town, Hubei Hankou Town and Guangdong Foshan Town, and known as the country's four major ancient towns; to the Ming and Qing dynasties has become a famous ceramic capital.

Zhongdukou is named after its location in the middle of Jingdezhen's Lishidu and Shibadu; its scope from the east in the present Zhongshan North Road, the west to the east of the Yangtze River Road. The river is forty meters long and twelve meters wide at its widest point; the water level is relatively shallow; it is suitable for mooring wooden boats (mainly Donggang and Crow's Tail boats) that do not have a large carrying capacity and are small in size. The main purpose of Zhongdukou was to cross the river.



. Map of the Zhongdukou area.

Source: Created by Junyi Cao, 2023.

Figure 1 Map of the Zhongdukou area.

Source: Created by Junyi Cao, 2023

¹⁶ Harmonised with China.

¹⁷ In ancient times, "the south of the mountain and the north of the water for the sun", pottery and ceramic are called pottery, "Tao Yang" name in the industry characteristics and geographical dual factors.

5.2 Time

The time frame of this paper is mainly the inheritance and protection of ceramic culture and historic areas in the context of Chinese path to modernization, but the scope of the relevant theories and methods is not limited to this. The time frame of this paper is mainly the inheritance and protection of ceramic culture and historic areas in the context of Chinese path to modernization, but the scope of research on related theories and methods is not limited to this.

5.3 Another

The group will cover a wide range of scholars, professionals, and stakeholders in different fields to explore the evolution of ceramic art in Jingdezhen's Zhongdukou in modern society. Groups include, but are not limited to, art historians, sociological researchers, regional ceramicists and merchants, urban planning experts, and local government representatives in fields ranging from historiography, art history, urban planning, to cultural communication in order to gain a comprehensive understanding of the region's history, culture, art, and social dynamics. Using qualitative and quantitative multi-methodological research, the groups will provide insights into how to promote their ecological dissemination and modernization practices, and contribute to the preservation of the Zhongdukou cultural area and the transmission of ceramic art.

6. Research Methodology

6.1 Population and Sample

This thesis generally adopts an integrated approach, combining various research methods such as historical research method, case study method, participant observation method, data collection and analysis method, and cross-scientific research method, in order to explore the ecological dissemination mechanism of ceramic art in Zhongdukou in a comprehensive and in-depth way.

Table 1

Table 1 *Research methods of this thesis*

Research Method	Sample and Scope
Historical Research Method	Involves historical documents and ancient trade records of Jingdezhen, aiming to trace the development history of the Zhongdukou.
Case Study Method	Taking Zhongdukou as the main case, this method focuses on a detailed study of its history, culture, and dissemination mechanisms to deeply understand its role in the spread of ceramic art.
Participant Observation Method	Includes Zhongdukou and the surrounding community, engaging in deep participant observation of the daily life and cultural atmosphere of Zhongdukou through interactions with local residents and practitioners.
Data Collection and Analysis Method	Involves local residents and ceramic practitioners, collecting data through surveys and in-depth interviews, followed by appropriate qualitative and quantitative analysis.
Interdisciplinary Research Method	Engages multiple fields, including sociology, cultural studies, economics, etc., to comprehensively understand the multidimensional mechanisms of ceramic art dissemination in Zhongdukou.

Source: Created by Junyi Cao, 2023

6.2 Instrumentation

This thesis will be conducted both online and offline, using a number of different research tools.

Table 2 *Research tools of this thesis*

Research methodology and tools	Specific Methods
Literature Website	China National Knowledge Infrastructure (CNKI), Google Scholar, ScienceDirect.
Flowchart Design	Microsoft Visio, Lucidchart, SmartDraw.
Basic Graphic Research Drawing Software	PS(Photoshop), Ai(Illustrator), PPT(PowerPoint).
Online Plotting Software for Statistical Analyses	PASS, SPSS, EXCEL.
Office Software	Latex, WPS, Word, Excel, PPT(PowerPoint), Adobe Acrobat.
Public Number	Wechat.

	Grammar Correction	Grammarly, Checker.
	Literature Translation	Youdao Translate, Google Translate, DeepL, Copytranslator, SCI Translate.
	Historical Literature	Libraries, Archives, Fovernment Documents, etc.
Offline	Participant Observation	Observation Records, Logs, etc.
	Field Survey	Questionnaires, In-Depth Interviews, etc.

Source: Created by Junyi Cao, 2023

6.3 Data Collection

The data will be analyzed in the following ways: Questionnaire Survey, In-depth Interviews, Observation Records, Archival Research, Digital Data, and Media Analysis Involvement.

Table 3 Data collection methods of this thesis

Questionnaire Survey	In-depth Interviews	Observation Records	Archival Research	Digital Data	Media Analysis Involvement
Design targeted questionnaires that include questions about the history of Zhongdukou, cultural perceptions, and the ceramic industry. Conduct the survey among local residents, tourists, and ceramic industry practitioners to gather a large amount of quantitative data.	Conduct semi-structured in-depth interviews, inviting relevant local government officials, ceramic artists, port managers, and ceramic industry workers for in-depth discussions to obtain their deep insights on Zhongdukou and the ceramic industry.	Utilize participatory observation methods to personally engage in daily activities around Zhongdukou, recording various phenomena observed, including foot traffic, cultural activities, and commercial transactions.	Thoroughly consult historical archives, port construction and development planning documents, government policies, etc., to understand the past development trajectory and policy support for Zhongdukou	Utilize existing digital data, such as local economic statistics and records of cultural activities, to provide quantitative support for the research.	Analyze comments, shares, likes, and other information about the Zhongdukou area on social media to gather public perceptions and evaluations of Zhongdukou.

Source: Created by Junyi Cao, 2023

6.5 Data Analysis

The data will be analyzed in the following ways: Statistical Analysis, Principal Component Analysis, Qualitative Date Analysis, Spatio-temporal Analysis, Correlation Analysis, SWOT Analysis, Network Analysis, Comprehensive Analysis.

Table 2

Table 4 Data analysis methods of this thesis

Principal Component Analysis	Qualitative Data Analysis	Spatio-temporal Analysis	Correlation Analysis	SWOT Analysis	Comprehensive Analysis
Perform principal component analysis on multiple related variables to identify the main factors within the data, aiming to better understand the key elements of Zhongdukou's development.	Analyze qualitative data such as in-depth interviews and observation records to extract key themes and perspectives, supporting qualitative research.	Carry out spatio-temporal analysis based on the temporality and geographical information of the data to reveal the developmental changes and characteristics of Zhongdukou across different times and spatial scales.	Explore the correlations between different variables, such as the ceramic industry and the number of tourists, the implementation of government policies, and port activities, to provide clues for causal relationships.	Analyze the strengths, weaknesses, opportunities, and threats of Zhongdukou to understand the internal and external environments it faces in its development process.	Combine quantitative and qualitative data for comprehensive analysis to identify key points, providing an important basis for subsequent conclusions and recommendations.

Source: Created by Junyi Cao, 2023

The above multi-faceted data analyses will help to provide an in-depth understanding of the current situation, development patterns, and potential problems of the Zhongdukou.

6.6 Research presentation

The dissertation research employs a variety of methods, including historical research, case study, participant observation, data collection and analysis, and cross-scientific research, and will be able to comprehensively explore the historical position and modern development of the Zhongdukou Wharf in the ceramic art of Jingdezhen. The selection of research methods are all based on the need to solve the research problem and achieve the objectives, demonstrating applicability and uniqueness.

During the implementation of the methodology, the feasibility and effectiveness of the methodology may need to overcome some of the difficulties, especially regarding the quality of the data. The study will endeavor to achieve as much accuracy and completeness of data as possible as well as answers to the

research questions. Through the use of these methods, the study will make important discoveries that will lead to a deeper understanding of Zhongdukou's historical contribution and modern influence on Jingdezhen's ceramic culture. This finding not only responds to the research question, but also achieves the goal of this thesis research.

However, methodological limitations, such as limitations in sample selection and data collection tools, were also honestly faced during the methodological research process. Future studies will be able to make more improvements in these areas. Overall, these methods play a role in revealing the cultural heritage of ceramic art in Zhongdukou and its relevance to modern society.

7.Literature Review

This review focuses on the study of the ceramic art of Jingdezhen Zhongdukou and analyses its dissemination mechanisms in modern social systems with the theoretical framework of ecological communication, which is divided into six parts and adopts a multi-level structure, with the literature analyzed in terms of the history and dissemination of the ceramic art, the theoretical application of ecological communication, the interdisciplinary research methodology, and modernization practices and governmental policies, respectively.

Firstly, the first part will provide a comprehensive study of the ceramic art of Jingdezhen, including its origins, development history, and the impact of external communication, and focus on the key role of cultural inheritance in the ceramic art, especially how to protect and pass on traditional skills and cultural values in the process of modernization. This part will emphasize how Jingdezhen ceramic art, as a representative of traditional Chinese culture, has found a way to develop in modern society. Secondly, the second part will provide a comprehensive overview of Niklas Luhmann's ecological communication theory, including its basic concepts and applications in different fields. The application of ecological communication theory in the field of art communication is then examined in depth, particularly in relation to the production, dissemination and consumption of ceramic art. This section will highlight how ecological communication theory offers new perspectives to better understand the complex communication mechanisms of ceramic art.

The third part focuses on the application of interdisciplinary research methods in the field of ceramic art, especially how to combine them with ecological communication theory. It will explore how this interdisciplinary approach contributes to a comprehensive understanding of ceramic art, and analyze how policy, economic and social factors affect the ecological communication of ceramic art. This part aims to reveal the importance of multidisciplinary integration in ceramic art research. The fourth part will focus on analyzing the impact of current government policies on the ceramic art of Jingdezhen Zhongdukou, as well as exploring how the ceramic art of Jingdezhen has adapted to the requirements of modernization, including technological innovation, marketing strategies, and cultural tourism. This section will lead to a comprehensive understanding of the challenges posed by modern society to ceramic art and the role of government policies in promoting the art.

The fifth part will point out the gaps and future directions of current researchers in their studies, emphasize the lack of research on specific applications of ecological communication in the field of ceramic art, and propose future research directions, such as an in-depth exploration of the role of ecological communication in artistic innovation and cultural inheritance, as well as the further application of interdisciplinary research methods. Ultimately, Part VI will summarize the main findings of this paper, highlighting the contribution of an ecological communication perspective to understanding and promoting the modernization practices of ceramic art in Zhongdukou, Jingdezhen, as well as emphasizing the importance of interdisciplinary research in deepening the understanding of the ecological communication process of ceramic art, and providing insightful theoretical discussions and practical guidance on cultural inheritance, artistic development as well as ecological and cultural preservation of ceramic art in Zhongdukou.

7.1 Domestic and International Ceramic Art Research

Ceramic art, especially Jingdezhen pottery, is an essential part of Chinese culture. The ancient and current Chinese and international records of its early history are attributed to the Jingdezhen ceramics art specialization. In early China, a precise historical record chronicled the creation and evolution of Jingdezhen ceramic art, carefully arranged ceramic methods and crafts, and highlighted the rich cultural meanings inherent in ceramics. In addition, it tracks the commercial operations of the ceramic industry in Jingdezhen, such as merchant transactions and market circumstances. It is an essential historical reference and foundation for the study of Jingdezhen ceramic art (Lan et al., 2004).

At the same time, there are also works that focus on the circulation and dissemination of ceramics, providing insights into points of contact between Eastern and Western civilizations. They emphasize the unique role of Jingdezhen ceramics in cultural exchange. "From the ninth and tenth centuries, people suddenly set off a boom in maritime trade, from the Arab and Indian side of the big ships, an endless stream of Guangzhou, Quanzhou, Mingzhou [This refers to the present-day city of Ningbo in China.] and Hangzhou, etc., China's huge ships, but also open sails sailing in the South China Sea. Due to the development of maritime transport, the output of these bulky and fragile ceramics became easier than ever. The main role of Chinese ceramics throughout the Western world is the sea route. In the medieval era, the East and West between the two worlds, linked to a strong ceramic tie, was also the bridge of cultural exchanges between East and West. For this maritime route linking East and West, I will call it the 'Road of Ceramics' for the time being." The term "ceramic road" is further used to liken the sea route to a link between Eastern and Western civilizations and to emphasize its important role as a bridge of cultural exchange in medieval times (Mikami, 1969).

There are also scientific results from years of field studies on Jingdezhen folk kilns. From an artistic and humanistic standpoint, it goes into great detail on the history and evolution of Jingdezhen folk kilns, as well as the features and appreciation of Jingdezhen folk ceramic art. This book will assist researchers in better understanding the complexity and multilayered nature of Jingdezhen ceramic art by contributing to an understanding of the continuity and innovation of Jingdezhen ceramics in terms of craftsmanship, as well as exploring the cultural role of ceramics in Jingdezhen society and the practical role of the ceramics industry in Jingdezhen society (Fang, 2002).

Some also explore the history of ceramics over time and location, placing Jingdezhen ceramics within the larger framework of ceramic history. The expansion and effect of ceramic are also highlighted, demonstrating how Jingdezhen ceramics expanded to many locations via trade processes, affecting the local economy, culture, and society. The multidimensional study gives academics a thorough knowledge of Jingdezhen ceramics' rich meaning and effect on world history and culture (Finlay, 2010).

In the context of globalization, academics at home and abroad have shown a strong interest in Jingdezhen ceramic art and have done extensive studies. In the study of Jingdezhen ceramic art, a researcher takes on several tasks. An in-depth ethnographic study of art was conducted utilizing art anthropology theories and viewpoints, as well as the "fieldwork" approach, with the Laoyatan ceramic art region serving as a case study. It is expanded from both ephemeral and cotemporal perspectives, offering a methodical examination of the modernization of traditional handicrafts in Jingdezhen. Furthermore, he has developed a thorough understanding of the collision, intertwining, and fusion of places between traditional and modern cultures, contemporary cultures, and local and global cultures by investigating the cotemporal correlates of collective activities, functions, and structures, as well as

interactions and fusions. He used the metaphor of a "melting furnace" to underline the collaborative efforts of ancient abilities with contemporary technology and media, which resulted in the ongoing regeneration and recreation of culture. This study not only examines the changes in Jingdezhen but also provides a better understanding of the resuscitation and reinvention of the traditional handicraft city after Chinese society's reform and opening up (Guo, 2016).

Others do in-depth studies utilizing an anthropological approach and field investigations, using techniques such as questionnaire surveys, interviews, and case studies. They remind us that in the postmodern era, Jingdezhen, a traditional handicraft city, has experienced alteration and growth. By investigating the experiences and actions of Korean potters in Jingdezhen, it investigates the rebuilding and modification of traditional ceramic handicrafts in the face of foreign cultural influence, as well as how Jingdezhen attracts and inspires these visitors. This multidimensional study allows academics to better understand the growth patterns and trends in ceramic art in the context of cross-cultural contact and globalization (Kim, 2018).

Some have noted that Jingdezhen has been the world's ceramic center since the Yuan Dynasty, and its ceramic artworks are well-known across the globe. The highest prices recorded in the worldwide auction market for ceramics manufactured in this area indicate the high degree of recognition of Jingdezhen's ceramic art and highlight its significance in the international ceramic art world (Xu & Tian, 2022). There are also those who focus on the self-realization of freelance artisans in Jingdezhen and their search for alternative paths, providing insight into the life and working conditions of ceramic practitioners in Jingdezhen as well as important clues to understanding the social context of the Jingdezhen ceramic industry (Liu, 2022).

Scholars The study of the creation of a digital archive of Jingdezhen's ceramic cultural heritage using blockchain technology investigated the effectiveness of digital means for preserving and passing on the history of Jingdezhen's ceramics, as well as

providing innovative, practical experience for the digitization of ceramic cultural heritage (Yang, 2022). In addition, scholars performed comparative evaluations of urban regeneration and Created industries at the Jingdezhen Ceramic Art and Culture Created Industry Centre. They stress Jingdezhen ceramic art's effect on urban development, as well as the cultural and Created sectors. This sheds light on the local and worldwide contributions of Jingdezhen ceramic art (He & Jin, 2023). As can be seen, the researchers' study of ceramic art incorporates a variety of research methodologies, including the revival of traditional crafts, freelance perspectives, fieldwork, cultural reinvention, historical documents, and domestic and international journals, all of which contribute to a thorough understanding of the complexity, multilayeredness, and global impact of ceramic art in Jingdezhen.

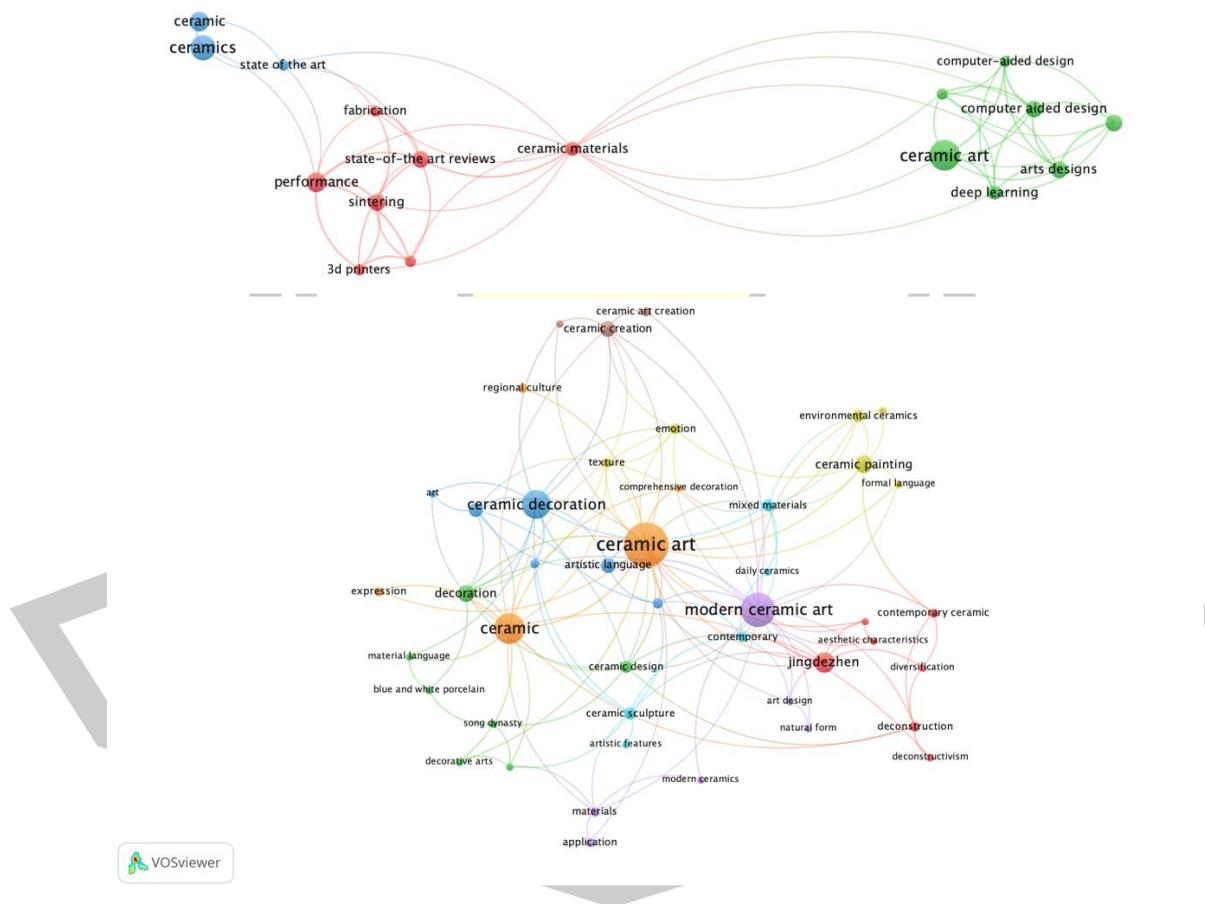


Figure 2 Network visualization of research hotspots and keyword associations on Ceramic Art field collected by Scopus (above) and CNKI (below).

Source: Created by VOSviewer, Junyi Cao, 2023.

7.2 Domestic and international research on ecological communication theory

Niklas Luhmann (1927-1998) was a German sociologist, philosopher of the social sciences and a prominent thinker in systems theory (Bechmann & Stehr, 2002). He wrote prolifically on a variety of topics, including law, economics, politics, art, religion, ecology, mass media, and love. Luhmann, Niklas and Luhmann, Niklas (1975) systems theory focuses on three themes: systems theory as societal theory, communication theory and Evolution theory Evolutionary theory, these three themes are interrelated throughout his work (p.154-168). Luhmann, Niklas (2012) defined social systems not in terms of action but in terms of recursive communication. Modern society is defined as a world system consisting of the sum of all communications occurring simultaneously (p.83-99), Luhmann, N. and Barrett, R. (2013) while individual functional systems¹⁸ are described as social sub-systems that "diverge" from the social system and achieve their own operational closure and autopoiesis (p.65).

The research in this thesis is mainly based on the theoretical framework of Ecological Communication (Luhmann, 1989), whose basic concepts are mainly related to systems theory and sociology. Luhmann emphasized the self-sustainability and self-observation of social systems and applied the theory of ecological communication to different fields. Luhmann's theory is based on the Systems theory, which argues that society is made up of interconnected autonomous systems. Each system maintains its stability by processing information, and communication is seen as a way of processing information. Social systems are capable of self-observation and response, which means that they have the ability to adapt to internal and external changes. Such self-observing and self-sustaining mechanisms are essential for the survival of social systems.

The book emphasizes the duality of ideas, i.e. ideas contain both the viewpoint of the observer and the observed object itself. This is essential for understanding how

¹⁸ Economy, politics, science, love, art, media, etc.

information travels through social systems and affects other systems. Social systems are seen as highly complex and differentiated, and communication is an important mechanism that works within this complexity. Communication, on the other hand, prompts the system to adapt to change by transmitting information. It also emphasizes the functional differentiation of social systems, i.e. subsystems with different functions operate relatively independently in society. Communication is seen in this framework as a bridge between these subsystems, facilitating the flow of information. Nicholas Luhmann's theory of ecological communication provides a framework for understanding communication in the context of ecological issues.

Ecological Communication in Information Society: Reflections on Niklas Luhmann's Thought in Understanding Ecological & Disaster Issues in Indonesia (Wahyuni, 2019). In response to the study of how modern societies respond to ecological problems, Luhmann's framework has been used to understand ecological problems in the information society, especially in Indonesia. This research not only focuses on the theoretical aspects, but also incorporates practical examples that provide important references for understanding the ecological challenges facing developing countries.

Demoralizing: integrating J.D. Peters' communication "chasm" with Niklas Luhmann's (1989) ecological communication to analyzing climate change mitigation inaction (Miller, 2022). Luhmann's theory has been applied to analyzing the limited mitigation of climate change in American society by integrating communication "divide" theory and Niklas Luhmann's ecological communication theory. Luhmann's theory of ecological communication provides an in-depth analysis of issues in climate change mitigation actions. Its integrative research approach provides a more holistic perspective that helps to understand why there are shortcomings in responding to society, and provides lessons for future responses to global ecological problems.

The article "A Communication-Ecological Account of Groups" (Kurilla, 2022). States that Luhmann's theory emphasizes the role of communication in complex social systems and how it shapes responses to ecological problems. The theory incorporates concepts such as social entities, collective behavior and different environments that influence group processes. Furthermore, it investigates the parameters and outputs of ecological communication, emphasizes the importance of integrating accurate science into the public sphere, and provides an essential theoretical framework for understanding the nature and significance of ecological communication through the examination of ecological principles and practices. This theoretical framework not only leads ecological communication research but also serves as a robust platform for practical applications.

Few local and foreign scholars apply Luhmann's Ecological Communication Theory to the subject of art. Instead, the Ecology of Communication, often known as Communication Ecology, is more commonly used in fields such as communication, media studies, and sociology. These two theories are commonly applied to explore the relationships between human societies and media, information, and culture, as well as the interactions between society and the environment. Existing research has demonstrated that local cultural festivals, by establishing community interactions and network connections, effectively enhance cultural resonance and dissemination (Yihan et al., 2022). Ceramic art research is likely to include topics such as cultural studies, art history, sustainability, and so on.

Some examine the topic via the lens of "Eco-Translatology." The study of the translation of ceramic culture-related language from the viewpoint of "Translation Studies" offers a new approach to Ecological Communication in order to comprehend better the linguistic, symbolic, and cultural meanings of ceramic culture. Translation, as a form of communication, also contributes to the transmission and development of ceramic culture by enriching the distinctiveness of regional ceramic cultures and

facilitating cultural exchange and development, which is critical for the international dissemination and understanding of ceramic art (Hu et al., 2017).

Furthermore, others use the basis of Communication Ecology and Knowledge to examine the tensions and conflicts between cultural and social systems in cross-cultural communication (Dai, 2021). Some studies apply Communication Ecology theory to the group level, giving a more complete ecological viewpoint for future researchers (Kurilla, 2022). Currently, the application of Communication Ecology has expanded to help understand how the evolution of pottery sculpture technology can contribute to the harmonious coexistence of humans, industry, and cities in the new cultural ecology of the twenty-first century, as illustrated in a study that provides insights into how ceramic art interacts with the environment and culture in a given geographical area (Zhou et al., 2023).

This study provides insights into how ceramic art interacts with the environment and culture in a given geographical area. In contrast, Communication Ecology theory is more widely applied in various fields. How to rationally apply Niklas Luhmann's Ecological Communication theoretical framework to the inheritance and development of ceramic art in Zhongdukou, Jingdezhen is the core value of this thesis research.

7.3 Domestic and International Research on Interdisciplinary Research Methods

The term "interdisciplinary research" refers to a method of doing research that incorporates cooperation and cross-fertilization across several disciplinary domains. This sort of study goes beyond the bounds of conventional fields, combining knowledge and techniques from many disciplines to solve complicated issues or obtain a better understanding of complex phenomena. Scholars studying ceramic art may decide to use an interdisciplinary approach that incorporates information from other fields in order to understand the ecological transmission of ceramic art better. This integrated approach may reveal more about the multifaceted effect of ceramic work on society and culture. To get a thorough knowledge of the multifaceted character of ceramic work and its influence on society and culture, interdisciplinary

study may include disciplines such as art history, ecology, communication, cultural studies, and so on. This integrated approach contributes to a more complete view and deeper understanding.

Some researchers used multidisciplinary anthropological methodologies to investigate the manufacturing activities and living situations of Jingdezhen ceramic workers in the 1990s. The research uses fieldwork to describe the social changes of ceramic communities in a number of contexts, including human landscapes, natural surroundings, production structures, group experiences, and values. This comprehensive approach stresses the more profound formation of cultural notions and delves into the nuances of art-society interactions, offering insights into the process of comprehending the collision and intermixing of traditional and contemporary cultures. Anthropology can help us understand the survival of handicrafts in the face of modernity and transition, as well as the transmission and evolution of culture, art, and traditions (Fang, 2000).

Some academics underline the relevance of environmental communication research by taking a more comprehensive, action-oriented approach. By doing so, they want to raise public awareness and participation in environmental concerns, improve knowledge of the link between ceramic art and the environment, and encourage sustainable living. Furthermore, the research focuses on the long-term viability of particular ceramic art pieces. Exploring the metamorphosis and growth of artworks sheds light on the future path of ceramic art. By merging sustainability with ceramic art, it investigates how art projects may be sustainable on social, cultural, and environmental levels, giving vital insights into the long-term viability of art and artifacts, as well as the interaction between ceramic materials and objects. Another study sheds light on Created and art-based research methodologies in ceramic art, prompting academics to delve further into the artistic character and cultural context of ceramic works (Christensen-Scheel et al., 2022).

Not only that, "Inheritance and Innovation of Pottery Sculpture Technique in Shiwan, China: A Grounded Study from Cultural Ecology." (Zhou et al., 2023) Similarly applies an interdisciplinary approach to the inheritance and innovation of pottery sculpture techniques, using Shiwan pottery as an example, combining cultural ecology and ceramic art to make a contribution to the new cultural ecology of the 21st century in which human beings, industry and the city Contributing to Harmonious Coexistence.

Each of these studies highlights the value of interdisciplinary research methods in the study of ceramic art and provides insights into the ecological impacts of policy, economic, social and environmental influences on ceramic art by combining approaches from a variety of fields, including environmental communication, cultural ecology, sustainability and art studies. The introduction of the theory of Ecological Communication, in particular, provides researchers with a new theoretical framework for understanding the dissemination, innovation and sustainability of ceramic art in society and the environment.

7.4 National and International research on **Practice for modernization**

Chinese path to modernization (Pan, 2023) is a political term proposed by Xi Jinping, General Secretary of the Communist Party of China (CPC) Central Committee. It can be traced back to 2015, when it was proposed in the July 1 Speech for the centenary of the founding of the Party in 2021, and was mentioned again in the Resolution on the Significant Achievements and Historical Experiences of the Party's Centennial Struggle of the Sixth Plenary Session of the 19th CPC Central Committee in the same year, and elaborated on in the Political Report of the Twentieth CPC Central Committee Congress in 2022 (BJNEWS, 2022).

In a speech entitled "Correctly Understanding and Vigorously Promoting Chinese path to modernization" delivered at the Party School of the Central Committee of the Communist Party of China (CPC) on 7th February 2023, Xi Jinping pointed out that Chinese path to modernization is the only correct path for nation-

building and national rejuvenation, and that it is most important to adhere to the leadership of the Communist Party of China (CPC), and that Chinese path to modernization is "deeply rooted in the excellent traditional Chinese culture, embodies the advanced nature of scientific socialism, draws on and absorbs all It is a new form of human civilization that represents the development direction of the progress of human civilization and shows a new picture different from the Western modernization model. Chinese path to modernization is a political term coined by Xi Jinping, General Secretary of the Central Committee of the Communist Party of China (CPC). It breaks the myth that modernization = westernization (CPCNEWS, 2023)"

General Secretary Xi Jinping stressed that "Chinese path to modernization gives Chinese civilization its modern strength, and Chinese civilization gives Chinese path to modernization its deep heritage". Ceramics is a great Chinese invention and an important carrier of Chinese civilization. The Chinese ceramic culture represented by the millennium ceramic capital Jingdezhen is profound and profound, which is an important component and vivid embodiment of the long and brilliant Chinese civilization. The unique qualities of Chinese civilization are fully manifested in the universal civilization characteristics of Chinese culture, which "study the relationship between heaven and mankind, understand the way to cultivate one's moral character, discern between righteousness and profitability, and seek to make the world a fair place", and profoundly reflect the contemporary values of Chinese culture, which "preach benevolence, emphasize people's fundamentals, abide by honesty and integrity, advocate justice, and advocate peace and harmony and seek to achieve a commonwealth of nations". The value of the times.

We need to know and refine the spirit of Jingdezhen ceramic culture, understand and promote the inner quality of Chinese ceramic civilization, with a higher historical position, a longer observation horizon, a more profound rational search, a broader pattern of thought, a more open cultural temperament, committed to the Chinese ceramic civilization and the Chinese modernization of the integration of the mutual

reinforcement of the Chinese ceramic civilization and the concerted efforts to continue Chinese ceramic civilization to promote the construction of the modern civilization of the Chinese nation, to create a new form of Chinese modernization with modern strengths. To create a new form of Chinese ceramic civilization to manifest a new form of human civilization, to provide a profound historical inspiration of ceramic culture for the advancement of Chinese path to modernization, and to add a strong spiritual force of ceramic civilization.

From May 20th to 22th, 2019, General Secretary Xi Jinping once again inspected Jiangxi after three years, and made an important instruction to "build a good Jingdezhen national ceramic culture inheritance and innovation pilot zone, and create a new platform for foreign cultural exchanges". August 26th, 2019 he National Development and Reform Commission and the Ministry of Culture and Tourism jointly issued the "Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Zone", which is an important part of the Chinese civilization. Jingdezhen national ceramic culture inheritance and innovation pilot area implementation plan" notice.

Ceramics is an important business card of Chinese civilization, is an outstanding representative of China's outstanding traditional culture. Jingdezhen is famous for being a thousand-year-old ceramic capital and the main starting point of the Maritime Silk Road, which is an important bridge to promote the exchange and mutual understanding of the world's civilizations and continuous progress. Jingdezhen ceramic is an important cultural symbol of the world to know China, China to the world and an important carrier of the inheritance of Chinese outstanding culture. The construction of a national ceramic culture inheritance and innovation pilot area within the whole area of Jingdezhen City is of great significance for the protection of the inheritance and use of Jingdezhen's excellent ceramic culture, the positive role of culture in industrial transformation and upgrading, and the coordination of regional high-quality development.

Since the approval, around the "two places and one center" strategic positioning, namely, the national ceramic culture protection inheritance and innovation base, the world-famous ceramic culture tourism destination, international ceramic culture exchange and cooperation trading center, Jingdezhen city hard to promote the construction of Jingdezhen national ceramic culture inheritance and innovation experimental zone. June, 2020 the ministry of culture and tourism Agreed to set up "Jingdezhen ceramic culture and ecological protection experimental area", Jingdezhen is the only ceramic culture and ecological protection of the experimental area approved.

Jingdezhen ceramic culture ecological protection experimental area is Jingdezhen traditional ceramic firing class intangible cultural heritage as the focus, to ceramic culture depends on the survival of the natural ecological environment and humanistic environment as the basis, approved by the Ministry of Culture and Tourism of the State to set up a specific area, in order to protect the Jingdezhen ceramic cultural ecology of the systematic and integrity of the cultural ecological protection of the experimental area established for the basic purpose of the cultural ecological protection. The main task is to protect the cultural heritage, intangible cultural heritage on which the space, inheritance of the millennium Jingdezhen unique traditional handmade ceramic technology.

At the same time, the ministry of culture and tourism requirements of Jiangxi province department of culture and tourism to strengthen guidance, will Jingdezhen ceramic culture ecological protection experimental area construction and Jingdezhen national ceramic culture inheritance and innovation experimental area construction synergistic implementation, in accordance with the "national cultural ecological protection zone management approach" and the "ministry of culture and tourism on the implementation of the "state-level cultural ecological protection zone management approach" notice "of the relevant requirements, promote the Introduced the Jingdezhen ceramic culture and ecological protection zone management methods,

establish and improve the national cultural and ecological protection zone construction and management institutions, and implement various protection measures.

In this modern policy background, Jingdezhen in the ferry as Jingdezhen ceramic culture and ecological protection experimental area in an important part of the provincial party secretary of Jiangxi province, Yi Lianhong came to Jingdezhen city research on speeding up the construction of major projects, to create a world impact of the international ceramic city of the important instructions.

March 7th, 2020, held in the ferry wharf project planning and design programmed of the thematic debriefing, the meeting pointed out that the wharf project is the only one in the country with ceramic culture and ecological protection was approved experimental area. The meeting pointed out that the implementation of the ferry terminal project is to implement the General Secretary Xi Jinping's visit to Jiangxi, "build a good national ceramic culture heritage and innovation experimental area, to create a new platform for cultural exchanges with foreign countries," the important instructions of the action initiatives, but also for the Jingdezhen "to create a city of dialogue with the world ", highlighting the important position of the "International ceramic City", as well as assume the municipal government to give the City Investment Group's new mission, so that the city is more scientific, more beautiful, more livable and livable, etc. play an active role.

He said the city west of the mouth of the ferry terminal project in the Changjiang River, the main node of the 100-mile scenic belt, is the history of ceramic culture, "one belt, one road" starting point, is to comprehensively enhance the transformation of the West City urban image, improve the city's functionality of the key projects. It not only carries the public for the Changjiang River prosperous scene of historical memory, but also the people of ceramic City on the development of the city's beautiful trust.

Project construction focus is reflected in six words: First, "layout". The design layout of the project to create an unprecedented, open sense of space, a sense of public, to be supplemented by the necessary industry. To show the "small city, big space, big spirit". Second, "history". To "conventional city is not equal to the modern city, modern city is not equal to the international ceramic city, modern city is not equal to the millennium town, modern city is not equal to the Changjiang River, modern city is not equal to the core of the iconic building" concept, with respect for history and the future, as a bridge between the old and new towns, will be a bridge between the project to create a project that can reflect the historical monuments. Cause a can reflect the historical monuments, interpretation of the history of ancient charm, release the public mind, feelings on the project; three is "vitality". The project reproduces the beautiful style of the old "City West Exit Dock", reflecting people's concept of the city, the quality of life, the city's taste for the enhancement and aspiration, so that Jingdezhen in the new platform for diplomatic and cultural exchanges renewed vitality, increasing the strength of the city's foreign relations, frequency.

In summary, through an in-depth analysis of the impact of current government policies on the ceramic art of Jingdezhen Zhongdukou, as well as a discussion of strategies to address the modernization of the ceramic art of Jingdezhen, we can see the government's active promotion of cultural heritage and innovation. The key instructions of General Secretary Xi Jinping and the relevant implementation programmed provide a clear direction for the ecological protection and inheritance of ceramic culture in Jingdezhen. The advancement of the Zhongdukou project has also incorporated historical, cultural and energetic elements into the design, injecting new impetus into Jingdezhen's development towards an international ceramic capital, promoting cultural exchanges and upgrading the city's image. This series of initiatives marks an important step for Jingdezhen at the intersection of culture and

modernization, laying a solid foundation for the prosperity and innovation of its ceramic art.

8. Concept, Theory and Conceptual Framework

1. Concept

Ceramic arts in Zhongdukou of Jingdezhen: focuses on the development history and unique characteristics of Jingdezhen Zhongdukou ceramic art, as well as its place in ancient trade.

Ecological Communication: A theoretical framework of ecological communication that emphasizes the interactions between social systems and the environment, especially how communication messages affect and are affected in a given environment, is used to analyze the mechanisms of ecological communication in the ceramic art of Jingdezhen Zhongdukou.

Practice for modernization: Discusses the challenges and opportunities faced by Jingdezhen ceramic art in modernization practices, including urban regeneration, the impact of economic development on traditional industries, and the government's protection and revitalization measures. It also highlights how to find a modern development path for ceramic art in the Zhongdukou dock area to meet the needs of contemporary society in the context of Chinese path to modernization policies. The overall concept covers a comprehensive study of ceramic art in terms of dissemination, environmental and social interaction, and modern development.

2. Theory

Niklas Luhmann's ecological communication theory emphasizes the interaction between social systems and the environment and views society as a self-sustaining ecosystem. Society is viewed as a complex system that is self-sustaining and self-regulating. This system includes a variety of interrelated elements such as individuals, organizations and institutions. There is a close relationship between the social system and its external environment. The environment includes not only the natural environment but also other social systems. This relationship is interactive and adaptive. Information plays a key role in social systems, and Luhmann believes that social systems regulate their relationship with the environment through the dissemination of information in order to maintain the stability of the system. The social system adapts to the changing environment through self-sustainability and self-regulation. Information dissemination is a key mechanism in this process, and the system adjusts its structure and function through the processing and feedback of information. Social systems are considered to be complex and diverse, containing a variety of interrelated subsystems. These subsystems are interconnected in the dissemination of information to form a relatively stable and dynamic whole.

This thesis will formulate the following theoretical analyses of its concepts in relation to the theme:

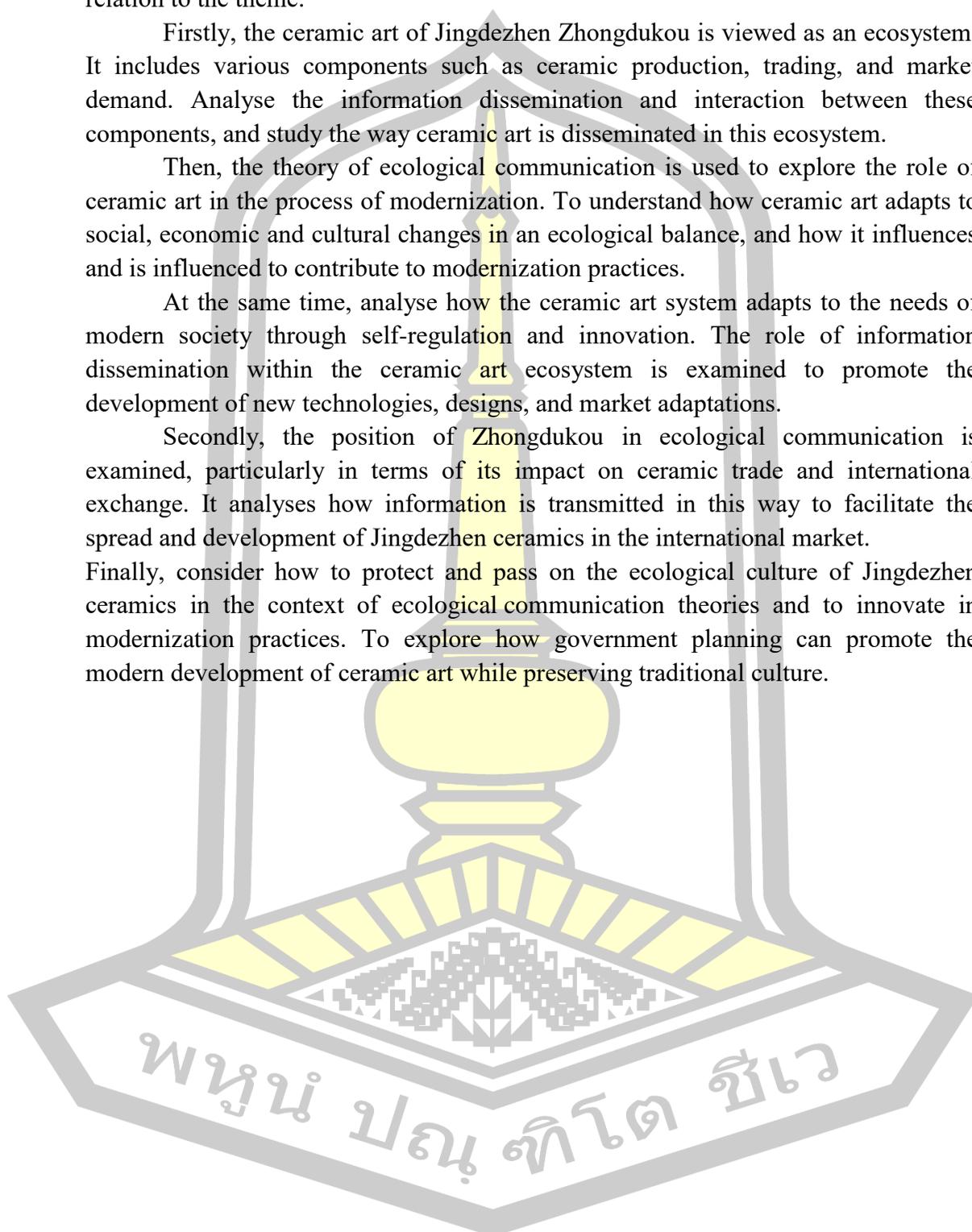
Firstly, the ceramic art of Jingdezhen Zhongdukou is viewed as an ecosystem. It includes various components such as ceramic production, trading, and market demand. Analyse the information dissemination and interaction between these components, and study the way ceramic art is disseminated in this ecosystem.

Then, the theory of ecological communication is used to explore the role of ceramic art in the process of modernization. To understand how ceramic art adapts to social, economic and cultural changes in an ecological balance, and how it influences and is influenced to contribute to modernization practices.

At the same time, analyse how the ceramic art system adapts to the needs of modern society through self-regulation and innovation. The role of information dissemination within the ceramic art ecosystem is examined to promote the development of new technologies, designs, and market adaptations.

Secondly, the position of Zhongdukou in ecological communication is examined, particularly in terms of its impact on ceramic trade and international exchange. It analyses how information is transmitted in this way to facilitate the spread and development of Jingdezhen ceramics in the international market.

Finally, consider how to protect and pass on the ecological culture of Jingdezhen ceramics in the context of ecological communication theories and to innovate in modernization practices. To explore how government planning can promote the modern development of ceramic art while preserving traditional culture.



2. Conceptual framework

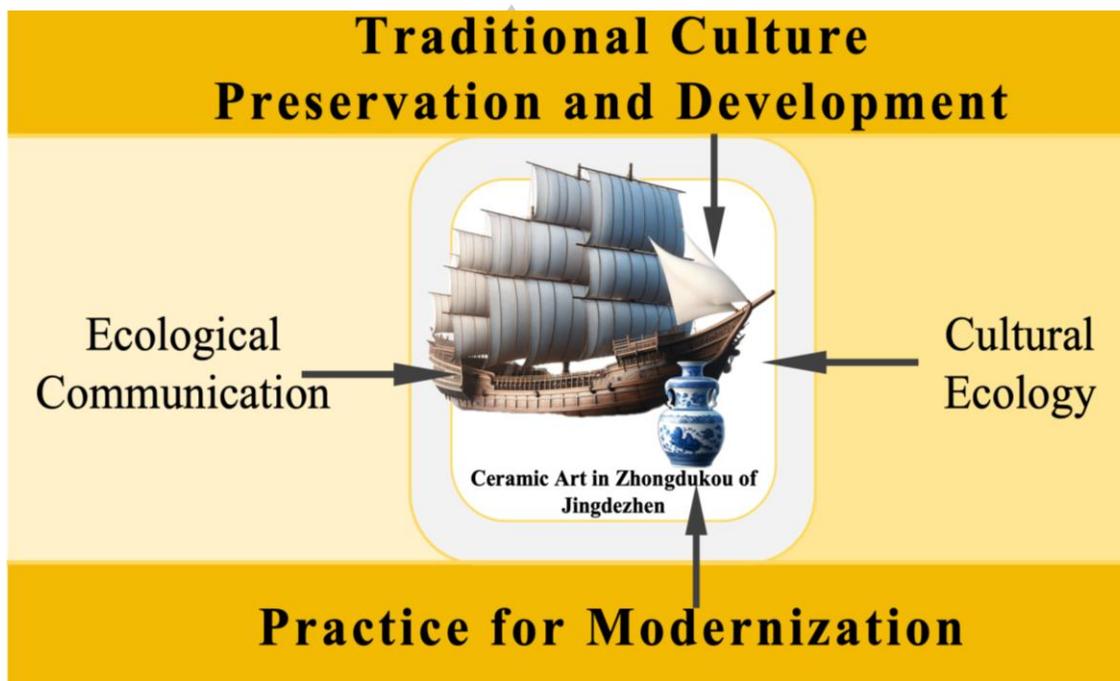


Figure 3 Conceptual framework diagram of this thesis.
Source: Created by Junyi Cao, 2023.

1. Research Plan

Item	Specific Content	First Stage		Second Stage		Third Stage		Fourth Stage	
		2022.10-12	2023.01-02	2023.03-05	2023.05-08	2023.09-12	2024.01-03	2024.04-05	2024.05-07
Literature Review and Theoretical Framework Construction	Deeply study relevant literature to understand the history of the ceramic art in Jingdezhen's Zhongdukou.	█	█						
	Analyze Niklas Luhmann's ecological communication theory and construct the theoretical framework for the research.	█							
Field Investigation and Data Collection	Conduct field interviews to collect opinions from residents, ceramic art practitioners, and government representatives in the Zhongdukou area of Jingdezhen.		█						
	Collect data on the types and quantity distribution of historical and current shops in the Zhongdukou area of Jingdezhen, as well as policy documents, social feedback, and market demand data in the context of modernization practices.			█					
Data Analysis and Theory Integration	Analyze the data obtained from the literature review and field investigation.				█				
	Integrate Niklas Luhmann's ecological communication theory with the data from the field investigation to construct the theoretical framework.				█	█			
Thesis Writing and Conclusion	Write the research thesis to present the research findings.					█	█		
	Summarize the main findings of the research and propose possible directions for future research.							█	█

Figure 4. Research plan timetable of this thesis.
Source: Created by Junyi Cao, 2023.

2. Chapter Structure

Chapter I Historical Evolution of Ceramic Art in Zhongdukou, Jingdezhen. Written from the history of ceramic arts in Jingdezhen, the historical development of ceramic arts in Zhongdukou, and the development of its society.

Chapter II The Ecological Communication Mechanisms of Ceramic Art in Zhongdukou of Jingdezhen

Writing from Niklas Luhmann's theory of ecological communication, the interaction between the ecological system and the social system of Zhongdukou ceramic arts, and the way in which the social system communicates ecologically in Zhongdukou ceramic arts.

Chapter III The Practice of Ceramic Arts in Zhongdukou of Jingdezhen within the Context of Modernization.

Written in terms of the context and planning for the redevelopment of Zhongdukou, the combination of traditional culture and modernization practices, and the limitations of Jingdezhen and Zhongdukou practices under modernization policies.

Chapter IV Ecological Communication and Modernization Practice Strategic Pattern Based on Ceramic Arts in Zhongdukou of Jingdezhen

It is written in terms of an ecological communication practice strategy for the development of ceramic art in Zhongdukou in the context of modernization, an analysis of the development of ceramic art in Zhongdukou under the practice of the strategy and the effect of the communication, and an analysis of the contribution of the strategy to the preservation of Zhongdukou's culture and environmental sustainability.

Chapter V Discussion and Suggestion

3. Benefit of Research

The thesis study the ceramic art of Zhongdukou has far-reaching significance in promoting cultural inheritance and development, deepening the application of modern ecological communication, facilitating urban renewal, understanding the evolution of society and culture, enhancing the image of the country as well as promoting the preservation of eco-culture.

Theoretical significance

Application of ecological communication theory: Introducing Niklas Luhmann's ecological communication theory into the study of Zhongdukou Pass in Jingdezhen will help to expand the scope of application of the theory in the field of artistic communication and provide a new direction for the development of the discipline.

In-depth understanding of social culture: The ceramic art of Zhongdukou is not only a part of Jingdezhen culture, but also an important component of social culture. By studying the ceramic art of Zhongdukou, we can have a deeper understanding of the role and responsibility of society in cultural inheritance and change.

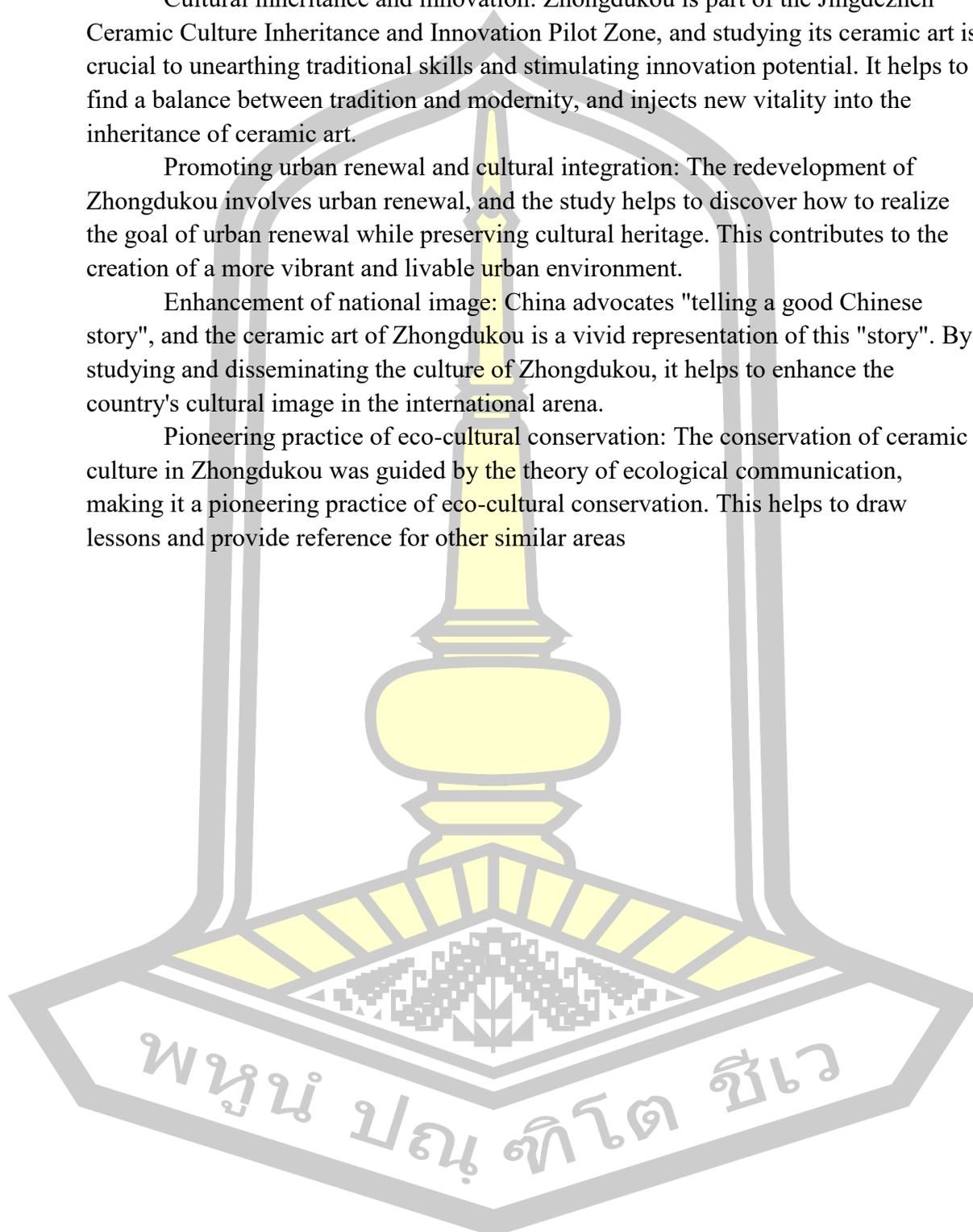
Practical significance

Cultural inheritance and innovation: Zhongdukou is part of the Jingdezhen Ceramic Culture Inheritance and Innovation Pilot Zone, and studying its ceramic art is crucial to unearthing traditional skills and stimulating innovation potential. It helps to find a balance between tradition and modernity, and injects new vitality into the inheritance of ceramic art.

Promoting urban renewal and cultural integration: The redevelopment of Zhongdukou involves urban renewal, and the study helps to discover how to realize the goal of urban renewal while preserving cultural heritage. This contributes to the creation of a more vibrant and livable urban environment.

Enhancement of national image: China advocates "telling a good Chinese story", and the ceramic art of Zhongdukou is a vivid representation of this "story". By studying and disseminating the culture of Zhongdukou, it helps to enhance the country's cultural image in the international arena.

Pioneering practice of eco-cultural conservation: The conservation of ceramic culture in Zhongdukou was guided by the theory of ecological communication, making it a pioneering practice of eco-cultural conservation. This helps to draw lessons and provide reference for other similar areas



The Historical Evolution of Zhongdukou Ceramic Art in Jingdezhen

This chapter is divided into five parts, exploring the historical development and evolution of ceramic art in Zhongdukou, Jingdezhen. Firstly, the first part introduces the geographical location of Jingdezhen and its abundant natural resources, emphasizing the importance of the convenient water transport provided by the Changjiang River to ceramic production. Since the Eastern Han Dynasty, Jingdezhen has been renowned for its exceptional ceramic craftsmanship, significantly aided by the convenient water transport of the Changjiang River, which facilitated ceramic production and trade. During the Song Dynasty and beyond, Jingdezhen gradually developed into a national and even global center for ceramic production and export. Especially after the Yuan Dynasty, Jingdezhen ceramics, with technological innovations in blue and white ceramic and underglaze red ceramic, became the epitome of global ceramic art.

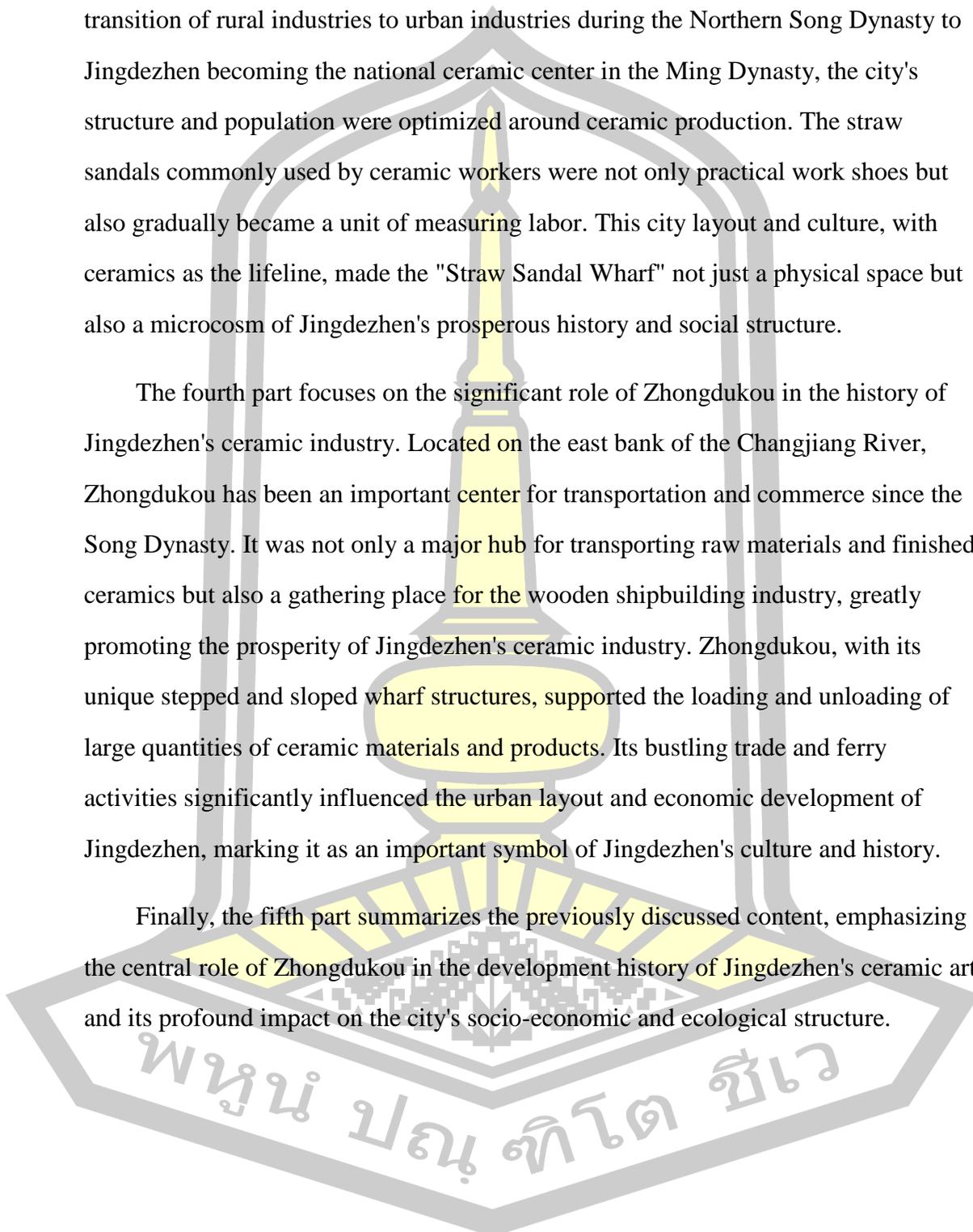
The second part details the critical support of the hydraulic resources of the Changjiang River system to the ceramic industry in Jingdezhen and how hydraulic-driven equipment significantly reduced labor costs. Additionally, the waterway transport of ceramics through the Changjiang River and its tributaries effectively reduced damage during transport and expanded the market. With the development of the "Silk Road", Jingdezhen ceramics not only circulated domestically but also were exported to other regions of Asia and Europe and Africa via sea and land trade routes. This facilitated cultural and technological exchanges, making Jingdezhen a global center of ceramic trade and transforming the "Silk Road" into the "Ceramic Road". This series of internal production advantages and external trade opportunities collectively propelled the long-term prosperity of Jingdezhen's ceramic industry.

The third part introduces the scene of the "Straw Sandal Wharf," including Zhongdukou Wharf, as a symbol of the prosperity and development of Jingdezhen's

ceramic industry, following the context of the ceramic trade background. From the transition of rural industries to urban industries during the Northern Song Dynasty to Jingdezhen becoming the national ceramic center in the Ming Dynasty, the city's structure and population were optimized around ceramic production. The straw sandals commonly used by ceramic workers were not only practical work shoes but also gradually became a unit of measuring labor. This city layout and culture, with ceramics as the lifeline, made the "Straw Sandal Wharf" not just a physical space but also a microcosm of Jingdezhen's prosperous history and social structure.

The fourth part focuses on the significant role of Zhongdukou in the history of Jingdezhen's ceramic industry. Located on the east bank of the Changjiang River, Zhongdukou has been an important center for transportation and commerce since the Song Dynasty. It was not only a major hub for transporting raw materials and finished ceramics but also a gathering place for the wooden shipbuilding industry, greatly promoting the prosperity of Jingdezhen's ceramic industry. Zhongdukou, with its unique stepped and sloped wharf structures, supported the loading and unloading of large quantities of ceramic materials and products. Its bustling trade and ferry activities significantly influenced the urban layout and economic development of Jingdezhen, marking it as an important symbol of Jingdezhen's culture and history.

Finally, the fifth part summarizes the previously discussed content, emphasizing the central role of Zhongdukou in the development history of Jingdezhen's ceramic art and its profound impact on the city's socio-economic and ecological structure.



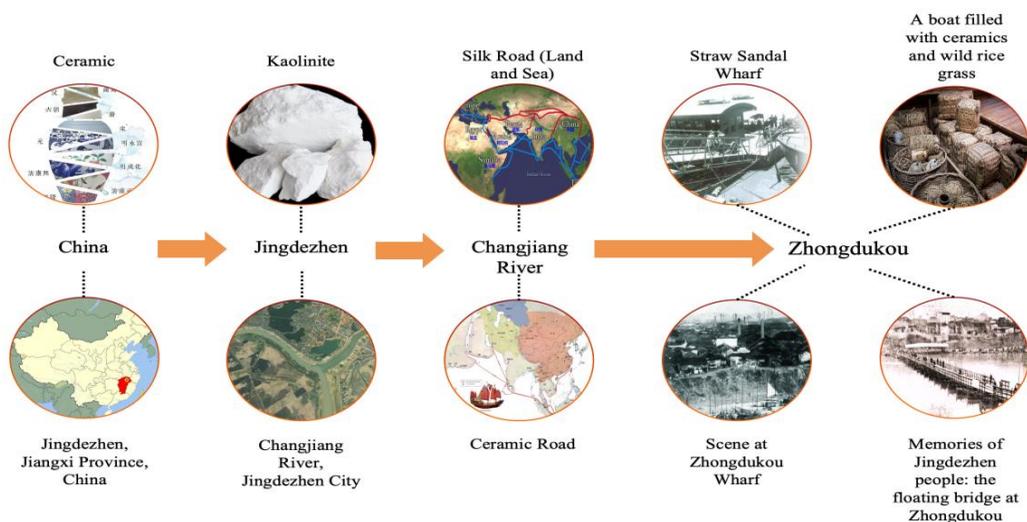


Figure 5 The Historical Development of Zhongdukou in Jingdezhen.

Source: Picture created by Junyi Cao, 2023.

Part I The Rise of Jingdezhen Ceramics

1. 1 The ecological environment and geographical location of Jingdezhen

Jingdezhen City in Jiangxi Province, famously known as the "Millennium ceramic Capital", is one of the earliest industrial cities in the world¹⁹. Its ceramic is renowned for its exquisite craftsmanship and unparalleled artistic value. However, in the heart of this city lies a place called Zhongdukou. This area is not only a witness to Jingdezhen's history but also was once a crucial hub for global ceramic trade. The prosperity of Zhongdukou is closely tied to the development history of Jingdezhen ceramics, making it a key to understanding the cultural and economic evolution of this city.

Jingdezhen City is situated at 29°10' N latitude and 117°15' E longitude, characterized by a humid subtropical climate. The area experiences abundant rainfall, ample sunshine, a long frost-free period, and distinct seasons. This climate is highly favorable for the growth of natural vegetation, waterway transportation, hydropower utilization, and ceramic production.

The water system within Jingdezhen is evenly distributed and highly developed.

The main stream, Chang River, runs from north to south through the central part of

¹⁹ Dr. Joseph Needham once said, "Jingdezhen is the earliest industrial city in the world. Before the Industrial Revolution in the West, Jingdezhen ceramic had already become a global industry."

the region, with over 50 tributaries converging into it, creating a highly convenient water transportation network accessible to all villages. Upstream, kaolin, wood for firing kilns, and charcoal can be transported downstream directly to Jingdezhen. From there, ceramic-carrying boats can sail down the Chang River, pass through Poyang Lake, enter the Yangtze River, and reach various destinations. The Dong River basin is the main production area for various kaolin mines. Its upstream region, Yaoli, is characterized by steep mountains, dense forests, numerous springs and streams, and significant water flow differences, with water resources extensively used for kaolin production.

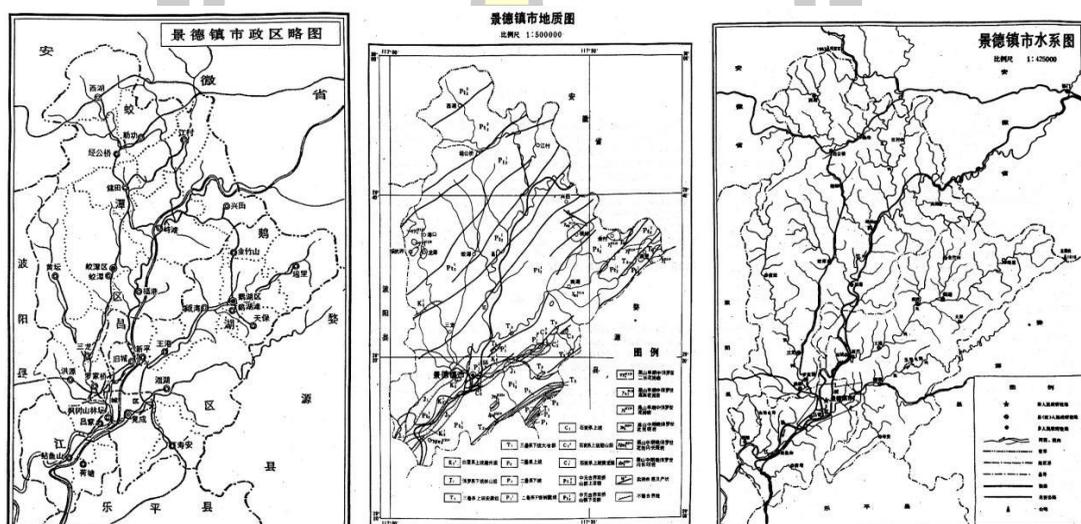


Figure 6 Jingdezhen city administrative district, geological, and hydrographic map.
Source: Zhongguo ci du. Jingdezhen Shi. Ci ye zhi. Shi zhi 2 juan. (pp.142).

1.2 The unique environmental conditions of Jingdezhen produce distinctive ceramic raw materials

In the world, there are 153 types of non-metallic minerals, and only one, kaolin²⁰, is named after a village, which is located in Jingdezhen. Before the Yuan Dynasty, Jingdezhen used high-quality ceramic stone from the upper layers to make ceramics. However, due to the depletion of these upper-layer ceramic stones, a raw material

²⁰ Kaolin, with the theoretical chemical formula $Al_2[(OH)_4/Si_2O_5]$, is a non-metallic mineral composed primarily of clay minerals from the kaolinite group. Known for its fine, white appearance, it is also called china clay. The name originates from Gaoling Village in Jingdezhen, Jiangxi Province.

crisis emerged in the Southern Song Dynasty. It wasn't until the Yuan Dynasty that the discovery and use of kaolin in Jingdezhen saved the declining ceramic industry, leading to the prosperity of ceramics during that period. By blending a small amount of kaolin into ceramic stone, larger and more complex shapes could be fired. This discovery and innovation had epoch-making significance in the history of Chinese and global ceramics, laying a solid foundation for Jingdezhen to become the national center for ceramic production during the Ming and Qing Dynasties. The use of kaolin was a significant contribution by Jingdezhen to ceramic technology worldwide.

Since ancient times, Jingdezhen has been known as the "land of bamboo and wood," and its county name, Fuliang, derives from the phrase "floating wood as beams." The region's favorable climate and medium to low hills and ridges are highly suitable for vegetation growth. There are 350 species from 95 families of woody plants in the area, with Masson's pine being a dominant species. Pine wood²¹, sawn into kiln fuel, burns with a long flame and high temperature, making it an ideal fuel for ceramic kilns. The high quality and high output of Jingdezhen ceramic are closely linked to this pine wood fuel. Especially before the Ming Dynasty, sourcing materials locally helped save transportation costs and enhanced competitiveness against other kilns.

1.3 The historical development of Jingdezhen ceramics

Historical records document that ceramics production began in Xinpin²², during the Han Dynasty. Archaeological finds support this, indicating that around 1,700 years ago in the late Eastern Han Dynasty, people here built kilns near mountains, houses near water, and used wood for firing, producing pottery. From the Chen dynasty of the Southern and Northern Dynasties period until the end of the Sui

²¹ One of the unique features of Jingdezhen's wood-fired ceramics is the use of authentic pine wood for firing. This wood has few impurities, significantly aiding in the coloration of the glaze. Additionally, it contains abundant combustible resins, which make the flames in the kiln oily, providing a nourishing effect on the ceramics.

²² Xinpin Town was the earliest known name for Jingdezhen.

Dynasty (557-618 AD), they began firing ceramics at higher temperatures, transitioning from pottery-making to ceramic-making.

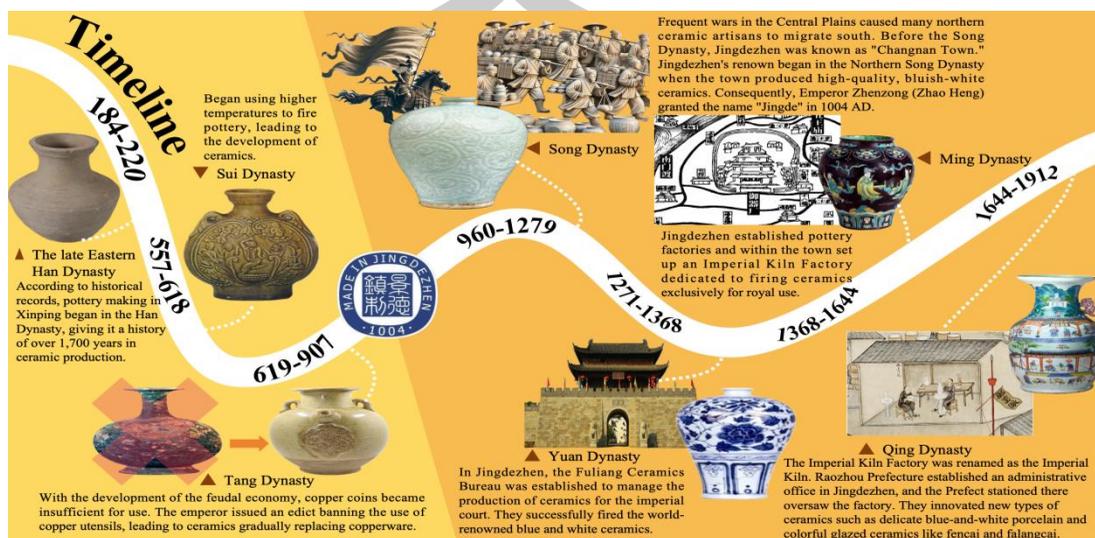


Figure 7 Timeline of the development history of ancient Jingdezhen ceramics.
Source: Picture created by Junyi Cao, 2023.

During the Tang Dynasty, as feudal economy developed and there was insufficient copper coinage, the emperor decreed a nationwide ban on copper utensils. Ceramic gradually replaced copper utensils, leading to the rapid development of the ceramic industry. From the second to the fourth year of the Wude era (619-621 AD), kilns such as the "Huo Yao" and "Tao Yao" in Jingdezhen produced ceramic with smooth texture and jade-like luster. These ceramics were transported to Guanzhong and presented to the imperial court, renowned as "imitation jade ware."

During the Song Dynasty, frequent warfare in the Central Plains led many ceramic artisans from the north to migrate southward, contributing to Jingdezhen's consolidation as a center of renowned kilns from various regions. Innovations such as blue-and-white ceramic (shadow blue ceramic) were pioneered, characterized by exquisite craftsmanship, particularly fine artifacts with rich luster and exceptional beauty. They were acclaimed worldwide for being "white as jade, bright as a mirror,

thin as paper, and with a sound like striking a qing (musical stone),²³ earning Jingdezhen ceramics global admiration.

During the Yuan Dynasty, Jingdezhen successfully fired the world-renowned blue and white ceramic and underglaze red ceramic, advancing ceramic decoration into a new era with underglaze color techniques, establishing distinctive Chinese ceramic characteristics. In the 15th year of the Yuan Dynasty (1278 AD), Jingdezhen established the Fuliang Ceramic Bureau²⁴, an official agency for imperial ceramics. The national ceramic production gradually concentrated in Jingdezhen, laying the foundation for Jingdezhen as the national center for ceramic production.

By the Ming Dynasty, craftsmen from all corners had gathered in Jingdezhen, producing ceramics that were renowned worldwide. In the second year of the Hongwu era (1369 AD), Jingdezhen established its first pottery factory. In the fourth year of the Jianwen era (1402 AD), an imperial kiln factory was established in the town, producing ceramics exclusively for imperial use on a grand scale²⁵. (Wang, 2004) During the Xuande era (1421-1485), there were 58 official kilns and over 300 private kilns in operation, solidifying Jingdezhen as the national center for ceramic production, famously known as the gathering place for "kilns and ware from all over the world."

In the 11th year of the Qing Shunzhi era (1654), the imperial kiln factory in Jingdezhen was renamed from "Yuqichang" to "Yuyaochang", which operated until the 17th year. During the Kangxi, Yongzheng, and Qianlong reigns of the Qing Dynasty (1662-1795), officials such as supervisors and managers were appointed to

²³ It's often used to praise the high quality and exquisite characteristics of fine crafts like ceramics.

²⁴ The Fuliang Ceramic Bureau was the only national bureau set up by the Yuan Dynasty in Jingdezhen to serve the imperial court. Fuliang County, established during the Tang Dynasty, was one of the most important tea distribution centers in the Jiangnan region. The Tang poet Bai Juyi mentioned it in his poem "Song of the Pipa Player," stating "merchants value profit, lightly parting, the previous month at Fuliang buying tea." After the Song Dynasty, Fuliang County, subordinate to Jingdezhen, generated enormous revenue from ceramic taxes. After the Yuan Dynasty, a royal kiln factory was established here specifically for producing ceramics for the royal family and government officials, earning Fuliang County Office the reputation of being the "Number One County Office in Jiangnan." Despite holding a rank two levels higher than other county officials, the county magistrate was primarily responsible for maintaining social order and providing the necessary supplies for the kiln factories.

²⁵ Specializing in the production of ceramics exclusively for royal use.

oversee ceramic production of ceramics. Later, Raozhou²⁶ Prefecture established a branch office called "Raozhou Tongzhi Yamen" in Jingdezhen, where officials oversaw the affairs of the factory. The Fuliang Patrol Inspectorate also relocated from Taoshu to Jingdezhen's factory office on Lekou Street, overseeing kiln operations. Jingdezhen pioneered new techniques such as blue-and-white Linglong ceramic, colored enamel ceramics like Fencai and Falangcai, and renowned kilns such as Zang Kiln, Lang Kiln, Nian Kiln, and Tang Kiln emerged, pushing ceramic craftsmanship to its peak nationwide. Jingdezhen ceramics gained renown both domestically and internationally, marking a flourishing period for ancient Jingdezhen ceramic industry. The "Jingdezhen Pottery Record"(Lan et al., 2004) noted, "The water and soil of Jingdezhen are suitable for making ceramics." This favorable natural environment, recognized and scientifically utilized by ancient people, became a crucial foundation for the high starting point, rapid rise, and steady development of Jingdezhen's ceramic industry.

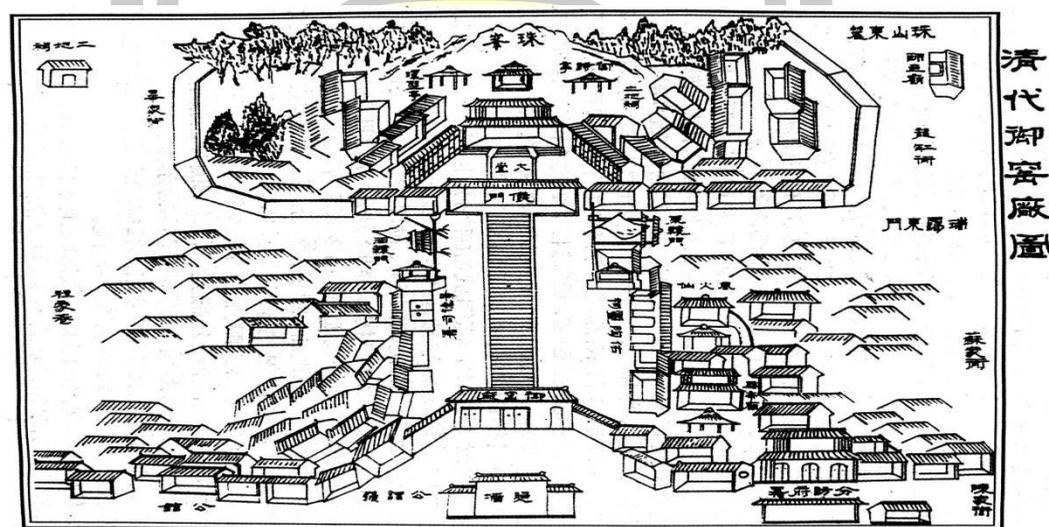


Figure 8 Illustration of the Yuyaochang in Jingdezhen during the Qing Dynasty.

Source: Picture by Zhongguo ci du. Jingdezhen Shi. Ci ye zhi. Shi zhi 2 juan.

²⁶ During the Ming and Qing dynasties, Raozhou Prefecture was an administrative division. In the second year of the Hongwu era (1369), it was renamed from Poyang Prefecture to Raozhou Prefecture, with its administrative center in Poyang County. In the first year of the Republic of China (1912), Raozhou Prefecture was abolished.

After the Opium War, for nearly a century, Jingdezhen's ceramic industry struggled under the constraints of a semi-feudal and semi-colonial society.

Following liberation, the people of Jingdezhen revitalized the city's ceramic industry. Through socialist transformation and construction, the ceramic industry continued to grow and expand. It not only inherited traditional techniques such as blue and white ceramic, Linglong ceramic, colored enamels, monochrome glazes, and sculptures with a long history, but also innovatively developed industrial ceramics, architectural ceramics, sanitary ceramics, tourist ceramics, and special new ceramics. This formed a complete ceramic industrial system including geological exploration, raw material processing, ceramic manufacturing, ceramic machinery, ceramic chemicals, auxiliary materials, as well as design, research, education, and other aspects.

In a city, having such a comprehensive range of ceramic production and associated industrial categories, such detailed specialization, and such complete supporting facilities is not only unprecedented domestically but also rare worldwide. It's worth mentioning that before the Song Dynasty, Jingdezhen was known as "Changnan Town" in China, and its origins can be traced back to the Northern Song Dynasty, when the city produced fine, blue-and-white ceramic. Therefore, Emperor Zhenzong of Song (Zhao Heng) granted the era name "Jingde" in the year 1004 AD, marking a rare instance of a city in China being named after an emperor's era.

The illustrious history and cultural heritage of ceramics endow Jingdezhen with a unique cityscape. The coexistence of ceramic historical culture and modern ceramic industry creates a rich ceramic cultural atmosphere. In February 1982, the State Council designated Jingdezhen as a National Historical and Cultural City. In February 1985, Jingdezhen became a Class A open city for foreign trade in China. In 1990, approved by the Jiangxi Provincial People's Government, the "China Ceramic Capital - Jingdezhen International Ceramic Festival"²⁷ was established, held annually from October 11th to 14th. Jingdezhen, known as the "Ceramic Capital of China," continues to enhance its reputation both domestically and internationally.

Changjiang River: The historical river of Jingdezhen ceramics industry

During the era of manor economy²⁸, ceramic production was closely tied to agriculture. Evidence from ancient kiln sites that have been thoroughly explored indicates that before the Song Dynasty, the kilns in Jingdezhen were mostly distributed along the upper reaches of the Chang River and its tributaries. These kilns were scattered across the surrounding hills, spanning several miles to over a hundred

²⁷ Also known as the "Jingdezhen International Ceramic Expo," it is an official event organized by Jingdezhen, People's Republic of China, periodically held to showcase Jingdezhen ceramic products and promote Jingdezhen ceramic culture through commercial activities.

²⁸ Referring to an economic system primarily based on tenancy and serfdom, which emerged in China after the privatization of land during the Spring and Autumn and Warring States periods. During this time, farmers, burdened by harsh living conditions, were forced to sell their land, which was then acquired and consolidated by wealthy individuals, leading to the emergence of large landlords.

miles from the town. Notably, numerous civilian kilns were concentrated in the regions of Fudong and Funan, which were known for producing "kaolin" clay.

During the Song Dynasty, ceramic artisans from the north migrated south, leading to significant advancements in the production of Jingdezhen ceramics. The population gradually increased, and the civilian kilns in the outskirts began to gather along the middle reaches of the Chang River and the lower reaches of the Nan River, forming the early shape of a strip-shaped town along the eastern bank of the river. Miao Zongzhou's Ming Dynasty work, "Wuran Pavilion," described it thus: "During the Song Dynasty, Jingdezhen became a distribution center for ceramic production and sales."

Because of this, Jingdezhen became one of the earliest hubs in China for overseas trade and cultural exchange, and also one of the birthplaces of early capitalism in the country. From the "Silk Road" to the "Ceramic Road," Jingdezhen ceramics facilitated economic and cultural exchanges between China and various countries around the world. Consequently, Jingdezhen became one of the four famous towns of ancient China²⁹(Wu, 1994).

Jingdezhen, Jiangxi (Ceramics): Located in Jingdezhen City, Jiangxi Province, it is world-renowned for its ceramic manufacturing and is often referred to as the "ceramic Capital." Jingdezhen has a long history of ceramic production, with exquisite craftsmanship, and its products are exported worldwide, making it an important representative of Chinese ceramic culture.

Zhuxian Town, Henan (Woodblock New Year Paintings): Located in Xiangfu District, Kaifeng City, Henan Province, Zhuxian Town was a famous commercial hub during the Northern Song Dynasty, renowned for its woodblock New Year paintings. The New Year painting art of Zhuxian Town holds an important place in traditional Chinese culture, reflecting rich folk customs and artistic value.

Hankou Town, Hubei (Commercial Center): Located in the Hankou District of Wuhan City, Hubei Province. Ancient Hankou, situated at the confluence of the Yangtze River and the Han River, benefited from its advantageous geographical location, becoming a key transportation and commercial hub. Hankou was renowned for its thriving trade and dock economy, making it one of China's important inland ports.

Foshan Town, Guangdong (Handicrafts): Renowned for its handicrafts and commerce, particularly in the ceramics, casting, and textile industries. During the Ming and Qing Dynasties, Foshan Town was a significant commercial and handicraft center in the south, earning the titles of the "Hometown of Guangdong Silk" and the "Ceramic Capital."

²⁹ The four famous towns of ancient China, renowned for their commerce, handicrafts, and culture, are Jingdezhen, Hankou, Foshan, and Zhuxian.

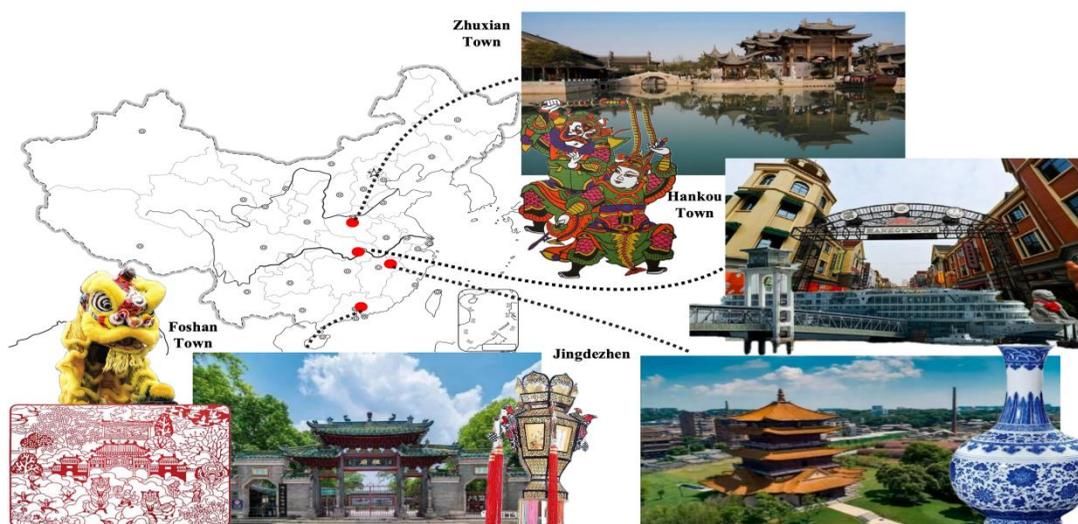


Figure 9 Map of the four famous towns of the Ming and Qing dynasties.

Source: Source: Picture created by Junyi Cao, 2023.

These four famous towns not only represent the prosperity of ancient Chinese handicrafts and commerce but also reflect the economic and cultural characteristics of different regions.

PartII From the "Silk Road" to the "Ceramic Road"

The Ceramic industry water power of the Changjiang water system in Jingdezhen

The Changjiang River is the main river of Jingdezhen and the artery of the city. It originates from Qimen County in Anhui Province and connects to Poyang in Jiangxi Province, with a total length of 182 kilometres, and 96.9 kilometres in the urban area. The river passes through the city, and the larger tributaries in the urban area are the East River, the West River, the South River, and the Xiaobeigang River (North River). Except for the Xiao Beigang River, the rest of the rivers are close to the city.

Changjiang River downstream of the river flows gently, the basin of more ancient metamorphic rock areas, rock quality is firm, erosion is lighter, the riverbed is more stable, the river sand content is very little, the phenomenon of siltation is not obvious, so the quality of water, the amount of water can be suitable for the production of ceramics. In addition to the above larger tributaries, there are more than fifty small tributaries, forming a crisscrossing river network.

With the Changjiang River as the mainstream of the size of the river, to the Jingdezhen ceramic industry has brought a lot of convenience. The river ensures the ceramic industry water, to ensure that the capitalist amalgamation. In addition, the Changjiang River system also plays a role as a power of the special pearl. ceramic first need to crush ceramic stone, in ancient times, ceramic ore all rely on artificial crushing, consume a lot of manpower. Local people make full use of the natural water

fall power, in some tributaries on the installation of the water wheel car and water pestle, used to crush ceramic stone, ceramic production, glaze fruit. This water wheel car, the most large mounted to ensure that sixteen, the smallest mounted pestle four. During the Ming and Qing dynasties, Fuliang Yaoli, Sanbao Peng, Hutian, Lantian, Dongliu, Shouxiwu and other places along the river are equipped with water pestles, becoming a landscape on the Changjiang River. "Follow the hole pot, the kiln southwest, and the Changjiang River within dozens of miles, both sides of the water to ensure that more than a hundred places, are spring ceramic is not for the industry"

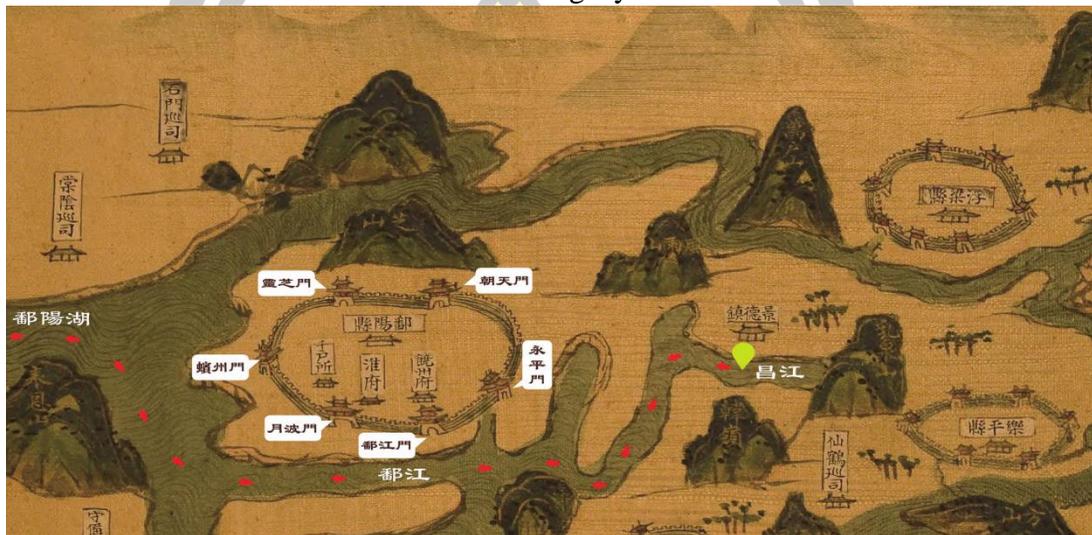
Whenever the spring and summer water, the wheel rotates, the water pestle and mortar tumbles, miles and miles, the sound rumbles, it is "heavy water pestle clamping the river open, not rain Yin Chuan miles of thunder", which at the time, can be called a major spectacle. This way of crushing raw materials for the production of ceramic, save people, save trouble, save money. Hydraulic convenience has become one of the reasons for the prosperity of Jingdezhen ceramic industry, "crushed billet, glaze rather labour-intensive. Because of the mountain streams and water, mountain indeed water spring soil, people already know the use. Where raw materials are produced, all borrow water to help labour, so the production is easier and less costly".

The Changjiang River system is intertwined with a network of small and large rivers, creating the conditions for the "soil and water suitable for pottery" in Jingdezhen since ancient times. Changjiang River, also known as the Changjiang River, from north to south through the whole territory of Jingdezhen, is a river flowing through the two provinces of Anhui and Jiangxi. The Changjiang River originates from the depth of Dahongling in Qimen County, Anhui Province, flows southward through Jingdezhen, and is injected into Poyang Lake through Ayuyushan Mountain and Poyang County, with a total length of two hundred and fifty-three kilometres. Because the Changjiang River flows out from the Gate of Heaven and merges into the Poyang River, it is named Changjiang River. The Changjiang River can be passed by rafts and wooden boats all year round, which provides the convenience of water transport for the domestic and export of Jingdezhen ceramic products, the supply of ceramic raw materials and fuels (pine and crouchwood), the traffic of merchants and businessmen, as well as the transportation of agricultural and sideline products and daily necessities of the people of Jingdezhen. Since the Eastern Jin Dynasty to the early middle of the 20th century, Jingdezhen's traffic is mainly dependent on the Changjiang River waterway system.

Ceramic transportation in Jingdezhen

In the past, Jingdezhen ceramic export, all rely on the Changjiang River water transport through the river to the sea. If the land transport, ceramic is easy to break. Jingdezhen Ming Dynasty began to transport ceramic by water, the early Ming dynasty imperial kiln factory official kiln ceramic "are from the water up to Beijing". This is the transport of imperial ceramic. As for the folk kiln ceramic, because of the wooden boat capacity, safety, saving freight, so it is more by water. Jingdezhen ceramic water transport mainly has two ways: one way from Poyang Lake into the

Ganjiang River to Ganzhou to Guangdong; all the way from the lake to Jiujiang to the Yangtze River upstream and downstream cities. In the survey of ceramic industry in Jingdezhen, Jiangxi Province, when summarising the favourable conditions of ceramic industry in Jingdezhen, it is particularly mentioned that "transit traffic", "the town lives on the south bank of Changjiang River, going up to Qimen, down through the Poyang River and the people of Peng as far as Xingzi, beside the Leiping. The transfer of raw materials is convenient, and the export of ceramic from the river and the lake to the sea is also beneficial to the legacy of the line."



. Figure 10 Map of Ming Dynasty Imperial ceramic Water Transportation Routes to Beijing (partial)

Source: Image from Tianyi Ge Collection of Ming Dynasty Fangzhi Selections Continued 44, Shanghai Bookstore, 1990, p. 35.

The Changjiang River system provided convenient water transport, which transported raw materials, fuel and food to Jingdezhen in a steady stream, and shipped ceramic products to all parts of the country. "Billet room picked white glaze to go, box factory will be loaded with yellow soil; up and down the disputes in the ferry port, the firewood boat only close to the hew boat open". In those days, the transport on the Changjiang River was busy, and the pier at the centre of the ferry was bustling with activity. The main transport routes in Jingdezhen through the Changjiang River system were:

Upstream of the Changjiang River The upper reaches of the Changjiang River from Qimen to Jingdezhen are 135 kilometres long. It is mainly used to ship Qimen ceramic clay, tea and fuel wood from the northern township of Fuliang.

Donghe is a tributary of the Changjiang River, about 60 kilometres long. Along the river are Yaoli, Jieshou, Goose Xie and other townships, is an important source of ceramic raw materials glazed fruit, pine firewood.

Nanhe River is a tributary of the Changjiang River, about 45 kilometres long. Wooden boats and rafts can be passed all year round. Along the river there are Chengcun, Xianghu and other townships, rich in ceramic clay.

Lower reaches of Changjiang River The lower reaches of Changjiang River are 90 kilometres long from Jingdezhen to Poyang. The lower reaches of Changjiang River is the main channel for exporting ceramic and Qimen tea from Jingdezhen, and it is also the circuit waterway for transporting ceramic, fuel and grain back to Jingdezhen from Hukou, Xingzi, Duchang, Yugan, Anren, Guixi, Wannian and Leping counties. Poyang Harbour is located in the downstream of Changjiang River, which is an important transshipment harbour for Jingdezhen and Jiangxi dry tributaries and Yangtze River ports. Specifically, it can be divided into four routes: one way from Poyang to the northwest of Poyang Lake, through Duchang, Xingzi, and Hukou into Yangtze River; one way from Poyang to the southwest of Poyang Lake to Nanchang into Ganjiang River; one way from Poyang to Xinjiang River, which can be directly to Yugen, Anren, Guixi, Hekou, Shangrao, and Yushan; and one way from Poyang to Lean River, which can be directly to the raw materials for ceramic making, such as Wannian Shijiezhen, Leping, Lokou, Wuyuan and other places of origin.

Jingdezhen city was initially due to the firing of ceramic and built kilns along the river, because the kiln into the city. Therefore, the Changjiang River is very busy transport, urban areas along the river with three continents and four wharves. Jingdezhen ceramic is loaded in these piers out of the ship, and the manufacture of ceramic production materials and Jingdezhen people's living materials are also unloaded in these piers. Pier in addition to transport into the ceramic clay, glaze fruit, kiln firewood and other production and living materials, there is an important material is also indispensable, which is packaging ceramic with the straw. Jingdezhen ceramic need to be packaged by the straw, in order to cross the ocean, travelling across the ocean. Therefore, the town is also the transport of the boat poles endless flow. Every day, countless small and medium-sized ships travelling, many fine ceramic, by the Changjiang River, arranged like ants on the barge, transferred to the Yangtze River out to sea, ware line nine areas, the reputation of the world.

In the 51st year of the Kangxi period (1712 AD), the French missionary Yin Hongxu wrote a letter to Father O'ri after an inspection tour of Jingdezhen, which also recorded the water transport situation of the Changjiang River at that time: "[The Changjiang River's] wide water surface forms a good harbour of more than a mile long. The current here has slowed down considerably, and it can sometimes be seen that there are two or three rows of small boats, head to tail, side by side in this wide expanse of water." The prosperity and development of Jingdezhen is also closely linked to the Changjiang River, where countless small boats travelled.



Figure 11 Road map of Jingdezhen Changjiang water transport within China.
Source: Image from Jingdezhen Unified Media Centre

2.1 The birth of Jingdezhen overseas trade market - The "Silk Road"

The Silk Road, an ancient trade and cultural exchange route that originated during the Han Dynasty in China, has had a profound impact in shaping the economic and cultural landscapes of East and West. Initially, the Silk Road was opened primarily to facilitate the silk trade between China and the West, but over time the route evolved into a network of multiple land and sea routes connecting Asia, Europe and Africa. Within this network, not only commodities flowed, but culture, religion, art, science and technology were also spread along the route, making the Silk Road one of the most important avenues of cultural exchange in the history of mankind.



Figure 12 Main routes of the Silk Road picture.
Source: Picture by Wikimedia.

<https://commons.wikimedia.org/w/index.php?curid=132527200>

Jingdezhen, since the Song Dynasty, has been famous for its high quality ceramic. By the Ming and Qing dynasties, Jingdezhen's ceramic production had formed a complete industrial system, and its products were renowned for their exquisite craftsmanship and rich decorative styles, making them one of the most important export commodities of ancient China. Especially in the middle of the Ming Dynasty, with the lifting of China's sea ban and the increase in foreign trade, Jingdezhen ceramic began to be exported to Southeast Asia, the Middle East and even as far as the corners of Europe through the emerging Maritime Silk Road.



Figure 13 Jingdezhen Ceramic Water Transport International Route.
Source: Image from Jingdezhen Rongmedia Centre

The expansion of the Silk Road and the export of ceramic from Jingdezhen were closely linked, which not only drove the economic development of Jingdezhen and the whole of southern China, but also prompted Jingdezhen to become the centre of the global ceramic trade. By the 17th century, as European demand for Oriental ceramic surged, Jingdezhen's production scale expanded further, creating specialised kilns and ceramic markets for foreign trade. This economic activity driven by the Silk Road not only strengthened the economic ties between China and foreign countries, but also profoundly influenced global artistic direction and aesthetic trends.

The wide spread of Jingdezhen ceramic not only facilitated the trade of goods, but more importantly, the exchange of culture and technology. Such exchanges were manifested at several levels: firstly, Chinese ceramic production technology was introduced into the Middle East and Europe, greatly influencing local ceramic crafts, such as glaze technology and ceramic firing technology. Secondly, Chinese ceramic was often used as a gift for exchanges, through which Chinese culture and art were promoted.

At the same time, with the popularity of Jingdezhen ceramic overseas, European design elements and production techniques have also begun to feed the design of Chinese ceramic, making Jingdezhen ceramic style more diversified, more in line with the needs of the global market. This fusion of Chinese and Western art not only enhances the overall level of ceramic art, but also makes Jingdezhen ceramic more unique in the international market.

All in all, the rise and development of ceramic in Jingdezhen is closely linked to the history of the Silk Road, which not only witnesses the high level of ancient Chinese ceramic technology, but also reflects the exchange and integration between the East and the West at the economic and cultural levels. Through the Silk Road, Jingdezhen not only occupies an important position in the history of ceramic art in China and even in the world, but also promotes Chinese culture globally and deepens mutual understanding and respect among different cultures.

2.2 Jingdezhen's unique "Ceramic Road"

Long frequent use of maritime trade routes because of the large amount of ceramic shipments and is entitled to the sea "ceramic road". From the "Silk Road" to "ceramic road", Jingdezhen ceramic in the number and amount of the country's first, become the world's great charm of a commodity. At the same time, on the East and West culture and art to produce a great impact. At present, many of the world's museums (theatres) are treasured Jingdezhen ceramic, and in many countries have been unearthed Jingdezhen blue and white ceramic and blue and white ceramic ceramics. In many undersea shipwrecks is salvaged a large number of complete Jingdezhen ancient ceramic, Jingdezhen ceramic culture throughout the world.

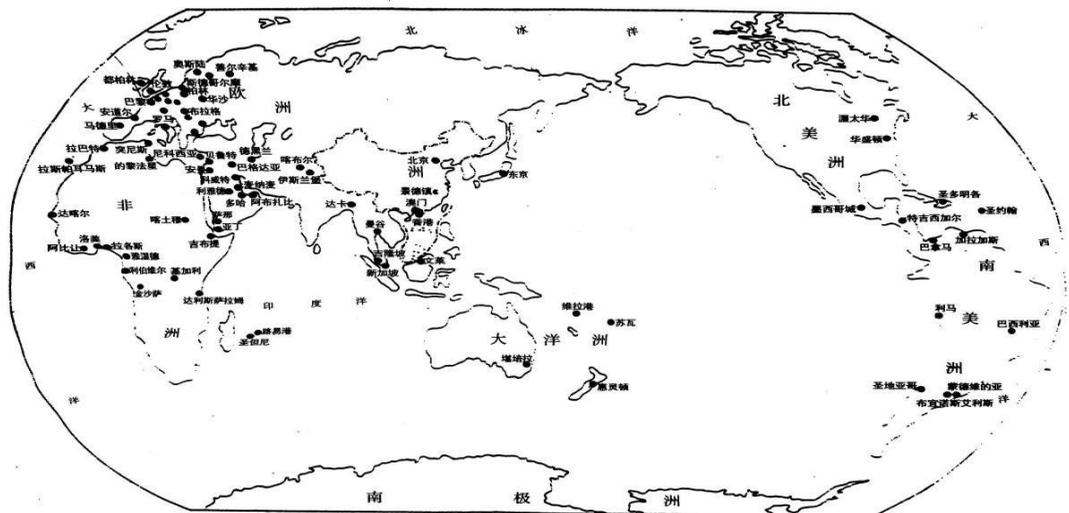


Figure 14 . Schematic representation of world distribution of Jingdezhen ceramic
Source: Image from Zhongguo ci du. Jingdezhen Shi. Ci ye zhi. Shi zhi 2 juan.

Jingdezhen since the Northern Song Dynasty ceramic industry for more than a thousand years of uninterrupted development, during which overseas trade continues to promote the development of ceramic industry in Jingdezhen. Especially after the middle and late Ming Dynasty to the middle of the Qing Dynasty, in the large-scale overseas ceramic trade under the impetus of the rapid development of ceramic industry in Jingdezhen, gradually get rid of the natural economy of feudal society

under the small handicraft production workshop, the birth of the capitalist nature of the handmade workshop, ceramic production varieties, quality and scale reached its peak, contributed to the final establishment of the status of the capital of Jingdezhen ceramic.

During the Tang Dynasty, the world's ocean transport technology was still immature, and the foreign trade of the Tang Dynasty was mainly by land, supplemented by offshore trade. After the Song Dynasty, the technology of ocean transport gradually matured, and ocean trade, which had the incomparable advantage of land transport and trade, gradually developed. After the founding of the Song Dynasty, due to the obstruction of land routes, attaching great importance to overseas trade, regarded this as an important measure to increase the state's financial revenue. For this reason, the court had sent the chamberlain to overseas to recruit the tribute market trade. Song Dynasty foreign merchants from more than 50 countries. There were many Song merchants who went to the sea to trade, and their destinations were more than 20 countries. In the second year of Yuanyou (1087), Emperor Zhezong of the Song Dynasty officially approved the setting up of Hublot Department in Guangzhou, Quanzhou, Mingzhou and Hangzhou, which was specially responsible for the management of the overseas trade affairs in the Northern Song Dynasty, Fanchang" was set up in Guangzhou for foreign merchants to live, and "Fan Market" and "Fan School" were also set up in the city. After the Jingkang period, the territory of the Southern Song Dynasty was shrinking, and the source of tax was decreasing sharply, so foreign trade became more important, and the development of overseas trade became an important state policy of the Song Dynasty.

Since only China and Korea really mastered the technology of ceramic production in the Song Dynasty, ceramic became a commodity in demand in various countries at that time. Many ceramic kilns in the mainland do not hesitate to "land travelling thousands of miles" and boat to the sea to sell ceramic. Song Zhu Yu "pingzhou can talk" said: "sea ship big hundreds of people, small more than a hundred

people, to giant merchants for the outline of the head. ships deep and wide each dozens of large, merchants occupy storage goods, people get a few feet Xu, under the storage, lying on it at night. Goods more ceramic, the size of the set, there is no little space". The Northern Song Dynasty, Quanzhou, head of the Li Chong sea through Ningbo to Japan to trade, contained "ceramic 200 beds, ceramic plate 100 beds". Arab traveller Aitius in the Southern Song Dynasty Shaoxing twenty-four years (1154) wrote: "China is a large area, the population is very large works of art to painting and ceramic is the most exquisite". With the overseas ceramic trade and the development of the domestic commodity economy, the Song Dynasty ceramic industry entered a period of great development. To win the tire glaze Jingdezhen blue and white ceramic became an important variety of Song dynasty export ceramic, won the favour of overseas and as trade ceramic marketing Asian and African countries, became the best-selling products in the international market. According to the southern song dynasty ZhaoYanWei written "YunLuManZhi", ZhaoRuShi written "all the tomatoes" records, there are thirty-five countries and regions to buy Chinese ceramic. Asia's eastern, southern and western regions commonly found in the Song and Yuan dynasties of Chinese blue and white ceramic. Korea, Japan, the Philippines, Malaysia, Indonesia, Singapore, the Indochinese peninsula and eastern and northern Africa, the number of ceramic excavated are many. British antique ceramic expert Edith found Ireland also has a number of Song dynasty shadow celadon.

Yuan dynasty ended the Song, Jin, Western Xia confrontation of the split situation, the establishment of a large empire as far as West Asia and Europe. Yuan court of commerce and labour, a large number of reuse of the long tradition of far business West Asia "Semyon", government and private maritime trade are more developed, ceramic export scale than the Song Dynasty to expand. At the time of the great traveller Wang Dayuan in his "island Yi Zhiliao" recorded, China's ceramic exported to more than 50 countries and regions of the world. Developed maritime trade and the vast overseas market, stimulate the rapid development of ceramic

production, the Yuan dynasty Jingdezhen ceramic industry is brilliant in such a background. Yuan dynasty overseas trade on the development of ceramic industry in Jingdezhen the most landmark event is the birth and development of blue and white ceramic. Persians belong to the status after the Mongols, "colour people", in the Yuan Dynasty China enjoys a special status. A large number of Persian merchants gathered in the Yuan Dynasty, and some of them even served as officials in the imperial court. Persia as early as the 12th century was popular with white cobalt blue transparent glaze pottery, and the Yuan dynasty close relations with the Persians want to get the Persian white glaze blue pottery like Chinese ceramic.

Song, Yuan and Ming in foreign trade, ceramic became Europe, Asia and Africa market and silk alongside, and get the highest reputation of Chinese goods. Since the Yuan Dynasty Marco Polo, early Ming Dynasty Zheng He seven to the West and the late Ming Dynasty Italian Matteo Ricci to China, China in the eyes of distant Europeans to become a "paradise on earth", there are expensive and exquisite silk and ceramic. Ming time, in Europe and other places Jingdezhen ceramic once reached the gold-like expensive, so that the Ming Dynasty European traders along the new route to China and its coastal waters. In the early Qing Dynasty, Jingdezhen ceramic as the core of China's ceramic exports to the highest peak in history, is more than silk, and tea together to become the most exported Chinese products, and Jingdezhen ceramic is still one of the most beautiful and most popular, so that three hundred years of the grand overseas ceramic trade in the language of China and ceramic in Europe for the same term.

At the beginning of the Ming Dynasty, Zheng He made seven voyages to the West Ocean, carrying Chinese ceramic, silk, medicinal herbs and other valuable goods to the coastal trading cities in the South and Indian Oceans, and carrying out large-scale maritime trade activities for 28 years. Zheng He's voyages to the West Ocean were in the nature of tribute trade, but its influence was extremely wide, laying a good foundation for the economic prosperity and development of the Southeast

Asian region afterwards. Zheng He's seven voyages to the West Ocean, blue and white ceramic is still a precious commodity, private kilns are basically banned from firing blue and white, Zheng He brought a large number of Jingdezhen blue and white ceramic (most of the official kilns) as a reward for the local upper classes of the gifts and exchange of commodities, popularity, and further enhance the reputation of blue and white ceramic. Yingya Shengli" mentioned that the Javanese "most like Chinese blue and white ceramic"; "Crews Shengli" mentioned that the ceramic trade in more than 20 countries and regions; "Western tomato country" also mentioned that the people of Cham, Java, Ceylon and other places of the Chinese blue and white ceramic favourite.

Late Ming Dynasty to the early Qing Dynasty, the power of European capitalism grows, countries, especially the European maritime technology has developed greatly. Although before the Longqing Chinese court banned the sea many times, but the high overseas ceramic, silk, tea and other trade profits, strong domestic and foreign seafarers and Japan, European countries to encourage the trade policy so that the sea ceramic road is increasingly prosperous, especially after the Longqing open sea ban, those who "regard the waves as a road, leaning on the mast for the Leihu" of Fujian, Guangdong and Zhejiang merchants and foreign merchants for the overseas ceramic, silk, tea trade, accompanied by the development of the domestic commodity economy, the domestic and court demand for ceramic increased dramatically, the late Ming Dynasty to the pre-Qing Dynasty became the ancient Chinese maritime trade after Zheng He went to the West China Sea after the more prosperous period.

Qing Shunzhi to the twenty-second year of Kangxi (1683 AD), the Qing court for the blockade of Taiwan as the base of Zheng Chenggong anti-Qing dynasty armed, prohibited maritime trade. Kangxi XXII Qing court recovered Taiwan, reopened the ports of commerce, Jingdezhen export ceramics production quickly recovered, ushered in more than after the Ming its higher wave of overseas trade. After the qing kang yong, accumulated more experience overseas ceramic merchants in order to save

intermediate links, and jingdezhen direct contact more closely, breaking the late ming jingdezhen ceramic export by min yue zhe sea merchant monopoly situation, embodied in the literature about jingdezhen at this time direct mention of the word name of tong yang and so on. Jingdezhen ceramic kiln song" Jing ceramic "on the imperial times into the Tongyang, Fusang if the wooden voyage away". Kangxi "Fuiliang County Records" clearly pointed out that the Jing ceramic "Shi and foreign countries".

Jingdezhen ceramic trade for the Chinese coastal merchants to bring wealth, but also the European emerging bourgeoisie brought a huge accumulation of capital. Before the early Qing Dynasty, Jingdezhen overseas trading price is often higher than the Jingdezhen local premium of more than ten times. Maritime ceramics road, countless Song and Yuan, especially the Ming and Qing dynasty Jingdezhen ceramic and other Chinese ceramic with the "Gothenburg" and other shipwrecks into the sea. 1984 October, South Korea salvaged the Xinan seabed of the Chinese ship, to get more than 20,000 pieces of Longquan ceramic in the Yuan dynasty and Jingdezhen ceramic based on Chinese ceramics. 1985, Hatcher in the South China Sea again! Salvage in 1751 in Hong Kong's south-western waters hit the reef and sank loaded with Chinese ceramic Dutch shipwreck "Geldermalsen", salvaged 160,000 pieces of Qianlong ceramic in the Qing dynasty. 1999 by the Hatcher team led by Australia's underwater salvage company in the South China Sea near the Belvedere Reef Sea found a huge shipwrecked "Taixing", more than one million pieces of ceramic were found in the water. According to the "Nanyang Shang Daily" reported on 10 June 1994, from the Malacca waters, "Diana" shipwrecked ceramic salvaged a large number of Jingdezhen production of blue and white landscape pavilion oval dish. South China sea waters sank for the qianlong seventeen years (1752) of the dutch east india company "gord maarsen", also known as "nanjing", a total of more than 140,000 pieces of ceramic and other chinese ceramic Jingdezhen. Sunk in the Philippines in 1600 "San Diego", 1613 buried in the waters of St Helena Island in western Africa,

"White Lion", many of which are "Clarke ceramic". In the last 10 years, China's underwater archaeology has also carried out large-scale activities. 1999 in the Xisha Islands has unearthed 14 underwater cultural relics, out of the water of the Ming and Qing dynasties, some of the Jingdezhen ceramic.



Figure 15

. Location of some of the shipwrecks in the water transport of Jingdezhen ceramics for foreign trade in ancient times.

Source:Image from Jingdezhen Media Centre.

PartIII The Prosperity of the "Straw Sandal Wharf"

3. 1 The origins of the development of Jingdezhen's porcelain industry

As early as in the Northern Song Dynasty, the ceramic industry has begun by the countryside industry to the urban industrial transformation, kilns and population gradually migrate to the town, the town neighbourhood has begun to take shape, become a side of the industry ceramic metropolis. In the early Ming dynasty, Jingdezhen outside the decline of the major kilns, only Longquan glazed ceramic in the early Ming dynasty is still a large number of firing, but has not been able to compete with Jingdezhen ceramic. Song Yingxing in the "heavenly craftsmen" said: "the merger of several counties, not lower than Jiangxi Raozhou production If the Chinese four descendants, famous hunters, all Rao County, Fuiliang Jingdezhen's production." To jiajing years, jingdezhen population "hosts and guests without worrying about more than 100,000".

Ming Wanli period, Jingdezhen "pestle and mortar sound Yin ground, fire explosion, night people can not sleep. Play call it four times thunder and lightning town". In the Wanli late, has no less than tens of thousands of daily workers, become "the world's kilns gathered". Most of the town range and the pattern of the neighbourhood has been and modern difference. It marks Jingdezhen has been a countryside ceramics industry by a complete transition to a professional operation of ceramic handicraft city; There is a major ceramic-producing area rose to the centre of the national ceramic industry. At this time, Jingdezhen has become China and the world's longest history, the style of the most specialized Chinese ceramic metropolis.

Jingdezhen territory in ancient times in the mountains, the central part of a peak, the Qin period, the name of Lima Mountain, the Tang Dynasty called Mount Pearl. The origin and development of the city is to bead mountain as the centre, to the ceramic industry production landmark, from north to south, from high and low (from east to west) expansion, the development of the stage and speed of the development of the ceramic industry in sync with the same reason. According to "Jingdezhen City Gazetteer" records: the Tang Dynasty at the foot of the bead mountain Peng Jia Lane, Cheng family on the lane, welcome Xiang Lane, the old Luohan Belly has been formed alley, Tong Guanjiemen to the Royal Factory for the small street. Song Dynasty is the formation of a large number of Jingdezhen streets and alleys of the period, now the Liansha North Road to the west, east of the Royal Kiln Factory, a large number of alleys are almost all formed in the Song Dynasty. Yuan dynasty city construction development is slow, until the early Ming dynasty. The middle of the Ming Dynasty to the Qing Dynasty, the city scale rapidly to the south, the formation and Tao Yang thirteen miles long street (front street) parallel to the twelve miles long street (back street). At the same time, the neighbourhood extended to the west along the river, and gave rise to many lower lanes and alleys. To modern times, has formed four mountains, eight dock, nine and a half streets, eighteen lanes, 108 lanes, the city area of ten square kilometres. The origin of most of these lanes and ceramic industry

related, directly named ceramic street, dragon cylinder, kiln lane, Huangjiazhou, etc., to the Ming and Qing dynasties, eighteen provinces from foreigners to this industry ceramic, business hall named after the name of the place is also a lot of, according to the survey, the front street of the 43 lanes to the name of the hall accounted for 25.



Figure 16 . Qing Dynasty blue and white ceramic panel depicting the Imperial Kiln Factory with alleyways and houses.

Source: Image from the Capital Museum of China.

The town is built in the kiln industry on the pile of a city, the town's houses are kiln brick wall pavement, the town's river section of the riverbed is the sagger slag cake paved, the town's layout of the streets and lanes is to facilitate the production of ceramic industry activities and carefully set up. The town's main street in front of the street and the street parallel to the river, north-south through. After the street on both sides of the high ground, no water hazards, building to kiln, billet workshop, ceramic line, red shop to the river bank pier, is through the upper lane, over the lower lane, directly to the pier of the single-line transport. Ming and Qing ceramic industry in its

heyday, the town's two to three hundred thousand ceramic industry population in the busy, large-scale transport activities were more than fifty up and down the lane through the lane transport line decomposition and digestion, so that the busy and crowded production activities have become extremely orderly.

3.2 A mark of the prosperity of Jingdezhen's ceramic industry - "Straw Sandal Wharf"

Wharf³⁰, reflecting the Jingdezhen year all rely on water transport traffic conditions. During the Ming and Qing dynasties, the town ceramic business world, come to the town of ceramic business people in an endless stream, the daily throughput of the water transport wharf is considerable. The "straw shoe dock" is accompanied by the glorious history of jingdezhen over a loud name, in a long period of time is regarded as jingdezhen alias. Outsiders, laymen do not understand its meaning, as dirty, chaotic, however, it is the tools and production organization system that support Jingdezhen towards prosperity and prosperity. Jingdezhen five parties mixed, living customs are different, but the ceramic industry production but the development, the formation of many adapt to the conditions of the custom, "straw shoes" is one example. Straw shoes, the use of straw weaving, easy to take, inexpensive, suitable for walking on slopes and mud, the most important thing is to wear and wash convenient, ceramic workers to do things without worrying about dirty shoes, is the ceramic workers' labour supplies, generally issued by the boss, which has a special meaning in the ceramic industry in Jingdezhen customs.

³⁰ A jetty, also known as a ferry head, is a long embankment extending from the bank into the water, or it may simply be a row of steps extending from the bank into the water; it is mostly a man-made civil engineering building, or it may be a natural formation. Wherever there is a major traffic route on either side of a river, a jetty is bound to be formed.



Figure 17 china workers' straw shoes.

Source: Photograph from WeChat ceramic Magazine.

<https://mp.weixin.qq.com/s/U0aNl30h4YpNjsU30PvygQ>

In addition to the red shop industry, ceramic merchants, kiln households and round ware bosses, painting billet masters and a very small number of types of work, identity, all other industries, types of people are wearing grass shoes work all year round. Kiln factory all kinds of work wear grass shoes, the river bank pier shoulder man wear grass shoes, Lilong street carry billet, pick ceramic wear grass shoes, billet workshop workers wear grass shoes, the entire barefoot grass shoes full of eyes save, silent, can not help but be breathtaking for the spectacle.

In the day-to-day production of the craft industry, the "straw shoe" is gradually being used as a unit of measurement to refer to labour allocation and production. As with the comprehensive unit of measure "piece" in the craft industry, once the number of pieces of a product is determined, the dimensions, hours, duties, and value of the product are all reflected at the same time. Large pieces of billet making, 3 to 4 people's labour configuration is called a pair of "straw shoes". The number of workers for each pair of "straw shoes" in the powder-making billet industry varies according to different varieties: for the production of white wares, a pair of "straw shoes" is equipped with three workers; for the production of blue and white wares, it is

equipped with about five workers. The Gutan billet industry has 6 workers for each pair of "straw shoes". For the talcum ware industry, which uses a larger amount of labour, one pair of "straw shoes" is 3 to 4 people, two pairs of "straw shoes" are 6 to 7 people, and three pairs of "straw shoes" are 9 to 10 people. In the pale ware industry, the labour organization for a pair of "straw shoes" usually consists of four to five workers, and for two pairs of "straw shoes", seven or eight.

"Straw shoes" in Jingdezhen ceramics in the historical development of credit, "straw shoes dock" is called Jingdezhen prosperity of a historical testimony, is a tribute to the wisdom of ceramic workers, is a reflection of the spirit of Jingdezhen.

PartIV Zhongdukou in the Landscape of Jingdezhen's Ceramic Industry

4.5 The landscape of Jingdezhen's ceramic industry

Jingdezhen as a unique ceramic handicraft city, ceramic industry on the formation of its urban pattern plays a considerable influence. Along the river to build kilns, along the kiln into the city became the ceramic industry city form characteristics. According to scholars, jingdezhen ancient city form has three obvious features: first, along the river wharf and the street in front of the city has become an important zone. This is due to the ceramic raw materials, fuel, the supply of agricultural by-products, as well as the output of ceramic, merchants rely mainly on the waterway wharf and ferry. Second, the imperial kiln factory became the centre of the city. From the Qing dynasty "floe liang county record" in the map it is obvious to see Jingdezhen city pattern is to the imperial kiln factory as the centre of the development. Jiaqing Jingdezhen full map, for example, the imperial kiln factory west of the county public hall, inspector general's office, east of the Raozhou branch of the House, You Tao ancestral temple, Raozhou Guild Hall, Tianhou Palace, Su Hu Guild Hall, Nanchang Guild Hall, Huizhou Guild Hall, five kings temple, the master of the division of the temple are surrounded by the imperial kiln, like the stars arching the moon. Five miles around the Imperial Ware Factory, it is located in the Pearl Hill is

the centre of the neighbourhood. Thirdly, the absolute dominance of the ceramic industry in Jingdezhen influenced the function and layout of the city. "Kilns and billet workshops were mixed with residential areas and shops, making the layout of the city not strict. As a result of the division of labour in the ceramic industry, a number of professional gathering streets and streets with the same family and fellow townspeople have appeared".

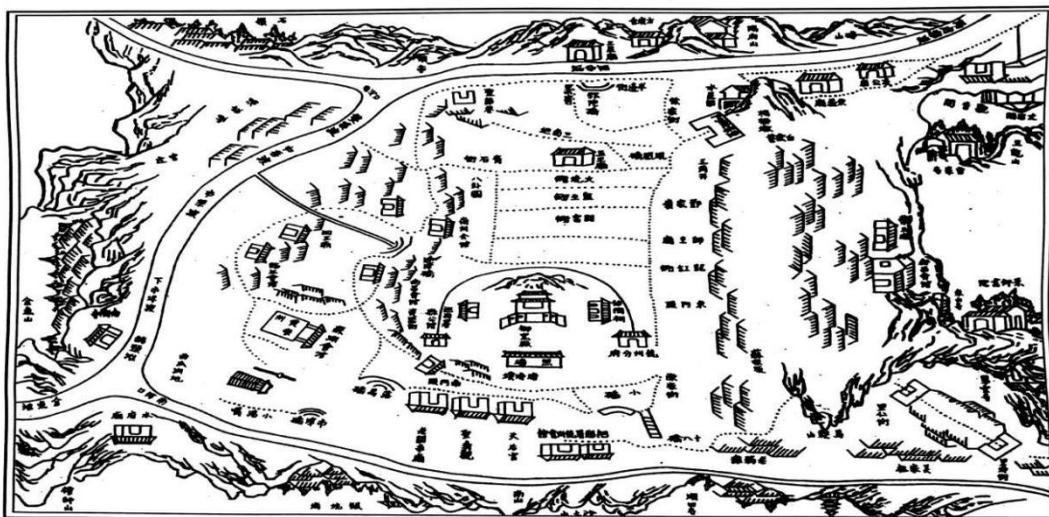


Figure 18 *The ferry port and the imperial kiln factory on the Qing Jiaqing map of Jingdezhen.*

Source: Image from "Fuliang County Records" Qing Daoguang XII.

Jingdezhen is located at the junction of Anhui and Jiangxi, the unique resources and water transport advantages have created a thriving ceramic industry and commercial prosperity. Wharf is the main hub of foreign trade in Jingdezhen, witnessed the development of Jingdezhen, reflecting the period of the Qing Dynasty, "thousands of kiln fire, ten thousand craftsmen ceramic, business market, poopdeck cover the river," the prosperity of the scene, engraved the rise and fall of the ceramic industry. The function of the wharf is different, there are acceptance of passing trade ships, there are used for transporting raw materials, there are passenger boats carrying people. Miao Zongzhou "Woodland Pavilion" poem in the cloud: "Tao She heavy leaning bank open, boat sails day by day to cover the river." Qing. Zheng Tinggui,

"Tao Yang Bamboo Branch Lyrics" in the cloud: "Nine ceramic merchants on the town to come, the teeth of the line of colour according to the single open, to know the treasure through the ocean, the country make Annan answer tribute back." Visible when the water transport busy scene.

In the Qing Dynasty Jiaqing Lanpu "Jingdezhen Tao Records - Jingdezhen map" marked the ferry, there are Yangfutan ferry (now Yangfutan village thousand years old camphor tree southeast of the east and Guanyin Pavilion north), Li City ferry (Qing Daoguang years Jingdezhen map called Li Shi ferry, and the Sanlv Temple pier), Shuangxi Ferry (today's section of the People's Park), in the Xiu Ferry (now in the mouth of the section of the Ferry), the City Port Ferry (today's section of the Zhushan Bridge), the lower City Port Ferry (today's eighteen Ferry, Daijialiang section), etc.

There are 8 main wharves in Jingdezhen harbour area and 4 main wharves in Fuliang County. Among them, Sanlu Miao, Li Shi Ferry, Zhong Ferry of Jingdezhen Harbour and Donggang Wharf of Fuliang County are made of stone, which are step-type wharves, while the other harbour wharves use natural sloping bank as berthing point, which are slope-type sloping bank wharves, and the main channel for cargo handling and ferrying passengers up and down is the skipping board. Each dock division of labour is obvious, there are many kinds of kiln firewood, hew firewood, rice boat, grey manure and other loading and unloading docks. 50-70 years, Jingdezhen port terminal facilities continue to expand and update the port area built warehouses, barges and dock berths, the new dock 5, equipped with lifting, loading and unloading equipment. 70 years, the late 70's, the east bank of the Changjiang River to build a berm, the dismantling of most of the dock, the port materials transferred to the TaiBaiYuan, in the ferry port in the two places The port materials were transferred to Taibaiyuan, Zhongdukou and two piers for loading and unloading.

According to "Jingdezhen City Gazetteer", then, in addition to the ferry for the incoming and outgoing ships docking pier, but also specialised in the famous four loading and unloading of goods wharf: Xujia dock, Caojia dock, Hunan dock and Lujia dock. Each pier was built for the club, and no one else could occupy it at will. Porters had to register with the gang and load and unload goods at the specified wharves.

Zheng Tinggui's "Tao Yang Zh Zhi Zhi" says: "The dock is divided into piles of firewood, and the fellows collect the chips and count them." After the note: "kiln more than three days for the degree, firewood hew two gangs each pick firewood dock." Chip is made of wood and bamboo used to count with a small plate, dock workers with the settlement of handling wages. When a kiln is fired in three days, a lot of kiln firewood is naturally consumed, which can be seen in the busyness of the vessels transporting kiln firewood. It is said that Hsu's wharf and Cao's wharf are the wharf of Ji'an people, and Hunan's wharf and Liu's wharf are the wharf of Nanchang people. Xujia dock is the year by the east and north of Fuliang townships and foreign transported ceramic kiln firewood and other materials in this unloading and then transported into the billet workshop and kiln factory place, the old site in the present day, China North Road, near the half of the street.

Nowadays, next to the pontoon bridge of Zhongduokou is the most famous and busy ferry port among more than ten ferries on the Changjiang River in the past, Zhongduokou. Goods coming in and going out of the western and northern townships of Fuliang were usually loaded and unloaded here.



Figure 19 China Arts and Crafts Master Zhang Songmao's "Changjiang Sail" ceramic plate painting, painting the whole Changjiang River in Jingdezhen in the 1980s

Source: Picture by WeChat

<https://mp.weixin.qq.com/s/NMBqLeZFWrBMLKSb0JmJTW> [2021]

4.6 The Zhongdukou in Jingdezhen

Zhongdukou is located on the east bank of the Changjiang River, Zhangshu Lane mouth of the river bank, west of the Changjiang River, the ancient for the river crossing and market. Because there are Li Shi Ferry on the top and eighteen ferries on the bottom, this ferry is in the middle, so it is called Zhongdukou. It was built in the Song Dynasty and has slowly formed a market, and at the same time, it was also a dock for firewood and hewing boats, which was a key place for transport at that time. The pier is 150 metres long, with 15 berths, a minimum water depth of 0.5 metres at the front and a maximum berthing capacity of 100 tonnes. At that time, there were nearly one hundred boats running in the Changjiang River, and the Zhongdukou was mainly dominated by the Crow's Tail boats and Donggang boats, which were wooden boats with small carrying capacity, and were mainly used to hold up the haggard, and when encountering headwinds or crossing the beaches, the boatmen needed to wade into the water to push the boat or row with oars and sculls. Because of the large demand for boats at that time, there were many people engaged in the boat building

industry in Jingdezhen, while the merchants engaged in the boat parts industry were mainly concentrated in the area around Zhongdukou.



Figure 20 Crossing the beach (Chinese Landscape Paintings)

Source: Picture by Water A. Staehelin, *The Book of ceramic*, London-Lund Humphries, 1966. (pp.69).

According to the Qing dynasty Qianlong forty-eight years, "floating Liang County Records" records: "in the ferry across the West River, more than billet houses box factory, and for kiln firewood, hewing firewood dock, the competition for the ferry people day and night." And there is a poem: "Kiln place passenger line urges to be tight, successive three days a back to open." "Billet room picked white glaze to go, box factory³¹ loaded yellow earth to, up and down strife in the ferry, firewood boat only gathered hew boat open." The Republic of 13 years (1924), the big kiln family Yu Wangqing out of the silver Yang more than 3,000 yuan, spent more than two years to build a rocky slope type pier. 1957 when the planning of the harbour pier, the pier is designated for kiln firewood assessment level.

³¹ Box: that is, sagger, used to contain ceramic billets into the kiln firing refractory containers, made of loess, old earth, white earth, field earth and other refractory raw materials. Ancient ceramic firing with wood as raw materials, ceramic billets placed in the sagger into the kiln in a row of stacks of stacks placed baking. Sagger can prevent the ceramic billet directly by the smoke and fire, but also can make full use of the kiln space, improve production efficiency.



Figure 21 Old photo of the scenery on both sides of the Changjiang River in Jingdezhen

Source: Photograph by Jingdezhen Municipal Archives

Before 1935, Jingdezhen old town Changjiang River main channel without a bridge, both sides of the people, goods in and out are bound to be completed by boat through the pier. Pontoon bridge was built in the early years of the Republic of China, in the ferry near the mouth of the Changjiang River by a number of ferries connected to become, on the wooden planks of the footbridge. After the founding of New China, it was rebuilt as a wooden vehicular bridge with a width of 6 metres, connected by 24 wooden boats side by side. At that time, the pontoon bridge could carry up to 10 tonnes of load and 20 tonnes of displacement; the total length was about 165 m. In 1958, the bridge was widened and the load capacity was increased; in 1978, in order to adapt to the needs of modern traffic and normal use in the dry season, the wooden bridge boats were replaced by cement bridge boats and the wooden planks were replaced by steel planks; the bridge was taken out of service in 1996, and it was rebuilt and put back into service in 2005.



Figure 22. Old photo of the original Zhongdukou pontoon bridge
Source: Photograph by Jingdezhen Municipal Archives

With the completion and opening of the Ceramic Bridge and Zhushan Bridge; the pontoon bridge is only for pedestrians and small vehicles. The pontoon bridge facilitates the residents on both sides of the east and west coasts to live, travel and leisure; it has also become a humanistic landscape that Jingdezhen can not give up. It accompanies the historical city several generations of people growing up together memory bridge; for love of water, love boat Changjiang people have an inseparable sentiment. On the other hand, it also carries a great safety hazard; pedestrians fall into the water, flooding broke the chain have happened.



Figure 23. Jingdezhen Zhongdukou and Pontoon Bridge today.
Source: Photograph by Junyi Cao, 2023.

Summary

Zhongdukou played a crucial role in the history of Jingdezhen's ceramic art development, and its existence was not just a logistics node, but the heart of the development of Jingdezhen's ceramic industry, with far-reaching impacts on the city's socio-economic and ecological structure.

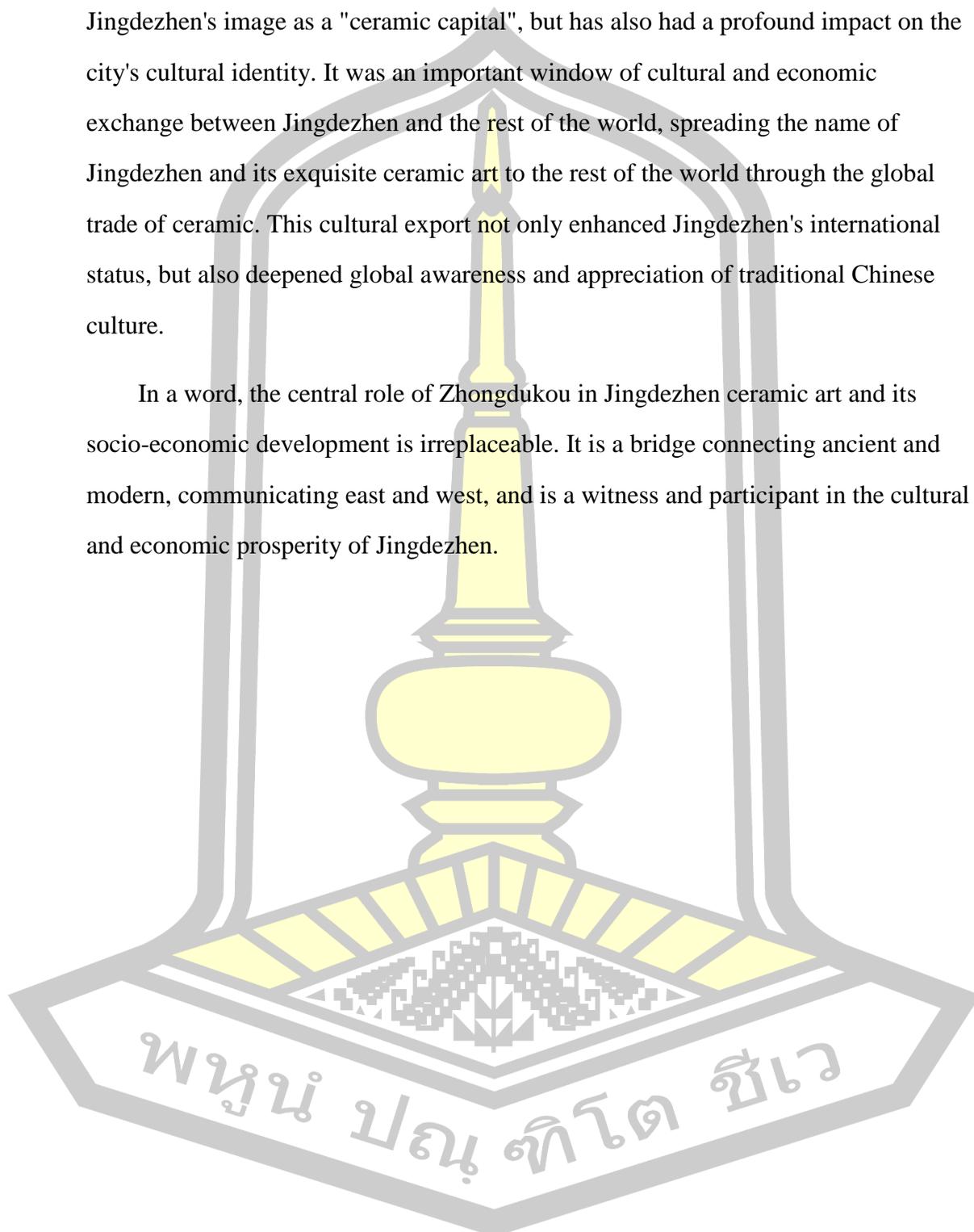
Firstly, as a major crossing on the Changjiang River, Zhongdukou has historically been an important distribution centre for the import of raw materials and the export of finished ceramic from Jingdezhen. This position made Zhongdukou the centre of Jingdezhen's economic activities, which not only promoted the production and trade of ceramic, but also the development of related industries, such as wooden shipbuilding and transportation. The rise of these industries brought Jingdezhen a large number of employment opportunities and promoted the city's socio-economic development.

In terms of ecological structure, the active use of the Zhongdukou had a significant impact on the geography and urban layout of Jingdezhen. As a major transport route, the banks of the Changjiang River naturally became a key area for industrial and commercial development. With the continuous expansion of ceramic production, the area around the Zhongdukou gradually formed industrial zones focusing on ceramic production, and the establishment and expansion of these zones further promoted the expansion of the city to the riverbanks and surrounding areas.

In addition, the busyness of the Zhongdukou has brought with it impacts on the water quality and riparian environment of the Changjiang River. With the waterborne transport of large quantities of raw materials and products, the river has seen an increase in shipping activities, putting pressure on water quality and riparian ecosystems. However, the residents and artisans of Jingdezhen have optimised the use of resources and processes to minimize negative impacts on the environment through the establishment of effective transport and production management systems.

The existence and development of the Zhongdukou has not only shaped Jingdezhen's image as a "ceramic capital", but has also had a profound impact on the city's cultural identity. It was an important window of cultural and economic exchange between Jingdezhen and the rest of the world, spreading the name of Jingdezhen and its exquisite ceramic art to the rest of the world through the global trade of ceramic. This cultural export not only enhanced Jingdezhen's international status, but also deepened global awareness and appreciation of traditional Chinese culture.

In a word, the central role of Zhongdukou in Jingdezhen ceramic art and its socio-economic development is irreplaceable. It is a bridge connecting ancient and modern, communicating east and west, and is a witness and participant in the cultural and economic prosperity of Jingdezhen.



CHAPTER II

The Ceramic Art of Zhongdukou in Jingdezhen: Ecological Communication Mechanisms

Jingdezhen, the historic porcelain capital of China, is not only renowned for its exquisite ceramic art, but also as a meeting point between traditional Chinese craftsmanship and modern innovation. In this city, the Zhongdukou area is particularly unique, which used to be not only the core of ceramic production, but also a focus area for cultural and economic activities. This chapter will delve into the ecological transmission mechanism of ceramic art in Zhongdukou, revealing the complex interaction between Zhongdukou ceramic art and its socio-ecological environment through the systematic theory of Niklas Luhmann. The chapter is divided into three parts, and based on combing through Luhmann's systems theory Lun progressively explores what are the mechanisms of dissemination of ceramic art in Zhongdukou, Jingdezhen.

Part I focuses on ecological communication theory, including the basic concepts of Niklas Luhmann's ecological communication, its differences from ecological communication in culture and the arts, and the application of culture and the arts to Luhmann's theory of ecological communication.

In the second part, each vignette is used to analyse one by one the various social systems associated with the ecological diffusion of ceramic art, including economic, political, scientific and technological, and educational systems. Each system influences the development of Zhongdukou ceramic art through specific binary coding, and also receives feedback from Zhongdukou ceramic art, forming a dynamic and interactive ecological network. The role of Jingdezhen Zhongdukou ceramic art in ecological communication is also discussed in depth, especially how it can respond to social and environmental issues and stimulate the public's environmental awareness and cultural identity through the form of cultural and artistic conservation and communication.

Finally, in conjunction with Luhmann's complexity theory, a sustainable model of how to promote culture and environmental protection through ecological communication mechanisms in the Jingdezhen Zhongdukou region is discussed, emphasising the social function and cultural value of ceramic art in modern society. By delving deeper into these elements, we are able to not only understand the unique development path of ceramic art in Jingdezhen Zhongdukou, but also gain insight into how it has realized cultural regional inheritance and innovation through ceramic art and ecological dissemination in modern society. This complex systemic interaction provides us with a new perspective for understanding and evaluating the mechanism of ecological communication of culture and art, providing theoretical support and practical guidelines for future strategies of cultural conservation and sustainable development.

Part I Ecological Communication Theory

The concept of "Ecological Communication" originated in the body of theory of sociologist Niklas Luhmann as a term he used when exploring the interaction between society and the environment. According to Luhmann, ecological communication is not just about communicating about environmental issues, but more deeply about how information about the external ecological environment is processed and reflected within the social system. In his view, social systems structure their perceptions of and responses to environmental issues through communication, but this communication is determined through the logic and structure within the social system, and therefore tends to deviate from ecological reality.

In Niklas Luhmann's book, *Ecological Communication*, he explores in detail how information is constructed and communicated in social systems and how this information influences society's response to environmental problems. In particular, Luhmann emphasises that the response of social systems to the environment is usually selective, with only those messages that are acceptable to the logic of the system being processed and responded to. This book suggests that the challenge of ecological communication is how to enable environmental issues to be effectively articulated and processed within society's communication systems.

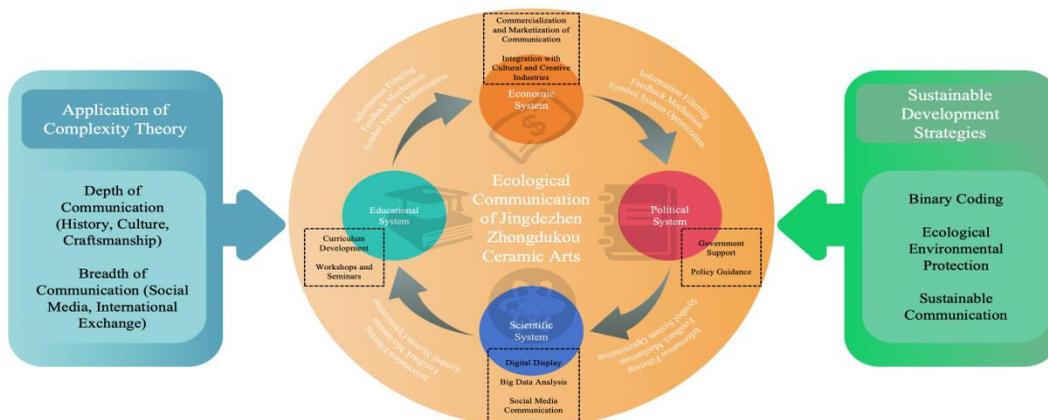
In the field of culture and the arts, however, ecological communication has different meanings and ways of realization. Works of art, such as paintings, sculptures, music, films, etc., are often used to express and reflect the creators' concerns and views on ecological and environmental issues. In this context, art is not only an aesthetic object, but also becomes a powerful ecological communication tool that can stimulate public awareness and discussion of environmental issues. Art communicates with the audience on a deep ecological level through emotional and perceptual dimensions, which are often more direct and influential.

Although Niklas Luhmann's Ecological Communication and Ecological Communication in Culture and the Arts both focus on the transmission and impact of environmental messages, there are significant differences in their approaches and foci. Luhmann's theory focuses on the structure and function of social systems and explores how environmental issues are understood and responded to through communication mechanisms. Eco-communication in culture and the arts, on the other hand, focuses more on the awakening of emotions and consciousness, touching hearts and minds through the form of art, and triggering in-depth thinking and dialogue about the environment.

Overall, Luhmann's eco-communication emphasizes systems theory and the limits of communication, whereas eco-communication in culture and the arts utilizes the emotional power of the arts in an attempt to break down the boundaries of traditional communication and create a direct and powerful awareness of environmental protection. Both approaches, while taking different paths, attempt to increase social awareness of and response to the issue of environmental persistence.

This study, on the other hand, tends to apply Luhmann's system theory to the ecological communication of ceramic art in Jingdezhen Zhongdukou and establish a systematic communication mechanism. Adopting the information filtering and feedback mechanism, that is, by analyzing the audience's needs, selecting the ceramic art information that can arouse the most interest and resonance for dissemination; establishing an audience feedback system, continuously adjusting and optimizing the dissemination content and method through feedback to ensure that the dissemination effect is maximized. At the same time, drawing on Luhmann's emphasis on the symbol system, optimize the symbol communication system of ceramic art, that is, refine and promote the representative symbols of ceramic art, so as to make them become the symbols of cultural dissemination; the use of modern multi-media technology, enriching the dissemination of ceramic art symbols, including pictures,

videos, virtual reality and other forms. Then use Luhmann's ecological communication theory to enhance the interaction between ceramic art and other systems in society, involving four main systems: the economic system (combining with tourism and cultural and Created industries to promote the commercialization of ceramic art and market-oriented communication.) , political system (promote the protection and inheritance of ceramic art through government support and policy guidance.) The scientific and technological system (using digital display, big data analysis and social media to make the dissemination of ceramic art more efficient, precise and widespread.) 、 Education system. (Integrate ceramic art into the education system and disseminate ceramic culture through curricula, seminars, etc.). Combining with Luhmann's complexity theory, enriching the content of the ecological communication of ceramic art involves two aspects, namely, in-depth communication and wide communication: digging deeply into the history, culture, craftsmanship and other connotations behind the ceramic art of the Jingdezhen Zhongdukou region to provide high-quality communication content; expanding the communication channels, and enlarging the scope and influence of the communication of ceramic art of the Jingdezhenzhongdukou by means of social media, and international exchanges. Finally, combined with binary coding, it explores the strategy of ecological environmental protection and sustainable development of the ceramic art of Jingdezhen Zhongdukou in communication. In this way, a systematic, symbolic, interactive and sustainable ceramic art communication system can be constructed, thus improving the effectiveness and social influence of communication. This combination will not only help the protection and inheritance of the ceramic art of Jingdezhen Zhongdukou, but also promote the innovation and development of Zhongdukou in the modern society.



. Figure 24 Conceptual map of Luhmann's systems theory applied to the ecological diffusion of ceramic art in Jingdezhen Zhongdukou.

Source: Created by Junyi Cao, 2023.

1. The concept of Niklas Luhmann's ecological communication

The concept of ecological communication evolved from the systems theory that Luhmann began to develop in the 1980s. He explored the concept in his book *Oekologische Kommunikation: Kann die Moderne Gesellschaft sich auf Oekologische Gefährdungen einstellen?* first published in 1986; and in 1989 he published an English-language translation of *Ecological Communication: the question posed by the German title - Can modern society adapt to ecological threats?* -- clearly indicates Luhmann's own orientation towards the future of communication, ecology and modern society. (Wahyuni, 2019)

Niklas Luhmann's theory of Ecological Communication is a distinctive part of his wide-ranging body of work, reflecting the most recent developments in his thinking and addressing specific social themes and issues within his theoretical framework. The theory not only focuses on the structure and functioning within social systems, but also explores how these systems interact with their ecological environment.

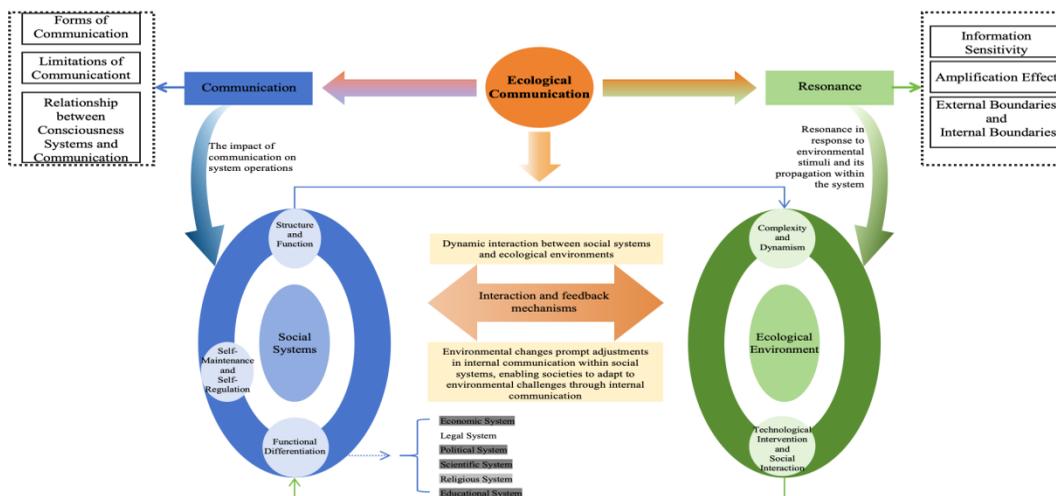


Figure 25 Conceptual map of Niklas Luhmann's theory of ecological communication.
 Source: Created by Junyi Cao, 2023.

Luhmann points out that ecological issues are gaining attention for their impact as an entirely new social topic, but society's ability to recognize and act on these issues is still limited. However, as ecological issues have come to the fore, sociology has been forced to revisit its theoretical framework in order to better understand the relationship between society and the environment. He emphasized that society's emphasis on ecological awareness should focus on the systemic and complex nature of environmental problems. Sociology should take as its theoretical starting point the differences between systems and environments. This shift involves a conceptual shift from the unity of society as a whole to the difference between system and environment, and from individual entities to self-referential operations. Sociology needs to focus more on communication and self-regulation processes within social systems, rather than only on individual behaviour, in order to better address the ecological challenges facing society today and to provide in-depth understanding and solutions for sustainable social development.

In his approach to ecological issues, Luhmann argues that it is important not to merely "address the causes within society", but to reframe the problem from a systems perspective, focusing on the impact of ecological change. Since ecological problems are complex systemic issues, there is a need for a more comprehensive understanding of the dynamics and interactions of ecosystems and the impact of these dynamics on society and the environment. Politics and law often use the "duty-bearer principle" to determine responsibility, which often leads to the attribution of problems to a particular person, but which can also preclude exoneration to a certain extent. However, determining who is responsible should not rely solely on causation, but also on identifying the causes of one's own damage. According to Luhmann, the "tragedy of the decision-maker" lies in the fact that the measures taken may have a negative impact on the social system, exacerbating the severity of the problem, and in the

complexity of the responsibility. The appearance of "decision-maker implicitness" could help to maintain the efficiency and stability of political, legal and economic systems, and it was therefore necessary to analyse decision-making from a systemic perspective.

The environment is more complex than the system. In order to stabilize development, systems must simplify the complexity of the environment. To better understand ecological issues, evolutionary theory needs to be integrated with systems theory. Self-sustaining systems have the ability to be self-sustaining, constantly replicating, and self-regulating in order to respond to environmental changes and maintain their existence. The key to ecological problems is technological intervention and social exchange.

Luhmann introduced the concept of "empathy", which refers to the special relationship between a system and its environment, where the system is able to respond to and interact with environmental stimuli. Social systems transmit information and communication through language and symbols, but due to language limitations, only a portion of the information is selectively received and transmitted. It is not enough for social systems to raise environmental awareness through warnings and appeals, but the very operation of the system can trigger an "explosive effect" that changes society, not only in its relationship with the environment. Social systems include the economy, law, science, politics, religion, education and so on.

Systems organize their operations through the distinction between self-referencing and other-referencing; the environment is a precondition for the operation of the system, but has no clear boundaries and changes with the system's own operations. Self-observation is the observation by the system of its own behaviour and state, and other-observation is the observation of that system's behaviour and state by other systems. The system understands its own and other systems' operations through second-order observation, i.e., observing the observed behaviour of other systems. Second-order observation emphasizes structural constraints on observation and operation. The limitations on the ability to observe, describe and translate insight into operations can only be analyzed and compared when that insight is applied to itself.

Communication in society includes various forms of language, symbols, and behaviours used to convey information, ideas and values. Social communication is limited by language, culture, social structure, etc., and is only able to receive and transmit specific types of information through communication, but is unable to receive or process all information. Society is seen as a functioning closed system whose only way of observation is through communication, and society can only observe and understand its environment through effective communication. There is a huge disconnect between consciousness and communication; social communication is affected by the limitations of consciousness, and conscious systems are limited by the selectivity of social communication. These limitations have important implications for understanding how societies deal with ecological crises. The communication limitations of society relate to language, information processing, and self-

referentiality, which affect how society perceives and responds to the environment, and pose a challenge to understanding the communication and resolution of ecological problems. Consciousness systems are viewed as environments of social systems rather than as parts of social systems. This means that even if individual consciousness systems are aware of ecological issues, they need to influence society through social communication.

Primitive societies tended to interpret natural problems as sacred or supernatural and to regulate their relationship with nature through myths and rituals in order to maintain the survival and equilibrium of the society. This approach was based on religious beliefs and sacred traditions rather than on scientific and technological understanding. The change in modern society's approach to ecological issues shifted from mysticism and religion to a more scientifically and technologically orientated body of knowledge in the form of a differentiation of individual functional systems. The growth in complexity and efficiency of modern societies has come from the continuous differentiation of functional systems, each of which has its own specific functions and goals, such as the political system, the economic system, the educational system, the cultural system, and so on. Each functional system is relatively independent, has its own internal logic and rules, and operates within a specific functional domain. Functional system differentiation brings about the problem of social integration. Insufficiently coordinated interactions between different functional systems may lead to conflict, friction and instability. Societies need to consider how to protect the environment and sustainable development while functional systems are differentiated.

Interaction between systems is one of the key features of the functioning of modern societies, which require cooperation and coordination to promote social stability and development. Functional differentiation implies that the various functional systems of modern societies are interdependent and interact with each other. For example, the economic and political systems are closely linked but operate differently through different communication media. The political system needs the economic system for resource support, and the economic system needs the political system for legal and policy guarantees. This interdependence keeps the parts of society closely linked, and changes in one system may affect the others. Communication and cooperation between different functional systems are needed to address common challenges and problems. For example, the political system may need to co-operate with the scientific system to formulate environmental protection policies, and the economic system needs to co-operate with the legal system to ensure business compliance. Such exchanges and cooperation promote social development and stability. Various functional systems need to share resources, including human resources, material resources and information resources. For example, the education system needs human resources to cultivate talents, the economic system needs material resources to produce goods and services, and the scientific system needs information resources to conduct research. Good resource allocation promotes the

healthy development of society. When conflicts or divergent interests arise between different functional systems, coordination and mediation are needed. The political system usually plays a mediating role to ensure balance and stability among systems. For example, the government may need to intervene in the economic sphere to formulate policies to promote employment and economic growth while protecting the environment and social justice. The interactions between different functional systems have impacts that may be positive or negative. For example, the growth of the economic system may lead to increased environmental problems, which need to be addressed by both the political and scientific systems. Therefore, close attention needs to be paid to the interactions between systems and coordination and cooperation needs to be sought in order to address the challenges facing society.

The internal independence of systems under functional differentiation allows each system to deal independently with matters within its domain and to adapt to the changing external environment through self-sustainability and self-renewal. This independence provides the basis for the complexity and diversity of modern societies, but also poses management and coordination challenges. Functional differentiation brings complexity in decision-making, as no single system can solve all problems. Political systems, economic systems, scientific systems, etc., have their own specific decision-making procedures and criteria, and these decisions may have different impacts in other systems. Functional differentiation can create new challenges and possibilities for decision-making. Addressing these challenges requires an integrated consideration of the interactions and impacts of the various functional systems and an integrated approach to decision-making to deal with complex realities.

Functional differentiation has affected the way society sees and describes itself. Society is no longer seen as a unified whole, but as a complex structure composed of multiple interdependent functional systems. This description reflects the complexity and diversity of modern society. Each system tends to interpret societal problems as problems in its own functional area and tries to solve them in its own way. However, the self-description of functional systems suffers from the dilemma that they often fail to fully understand the complexity of society. Since each system can only focus on its own functional area, they may ignore the influence of other systems, resulting in an inadequate overall understanding of social problems. Social self-observation and description often involves the emergence of values. As society develops, people's views on certain problems and issues may change and new values may emerge. For example, with increasing attention to ecological issues, people may place more emphasis on the values of environmental protection and sustainable development. Social self-observation and description also include reflection and criticism of the current state of society. People's awareness of social problems prompts them to reflect on the current state of affairs and to make suggestions for improvement. Such reflection and criticism can be expressed in various forms, including academic research, media reports, and social movements. Functional differentiation brings about the complexity of social structure, which is also reflected

in social self-observation and description. There is an awareness of the complexity of social problems and that solving them requires efforts across functional systems. This awareness helps to promote deeper social thinking and action on issues.

In summary, Luhmann's theory of Ecological Communication occupies an important place in his theory of social systems. This theory incorporates several intellectual traditions such as systems theory, cybernetics, phenomenology and self-production into a complex but insightful analytical framework. This framework not only explains how social systems maintain their own continuity and independence, but also explores how these systems respond to and deal with changes and pressures in the environment. Luhmann's theory emphasises that social systems respond to the complexity of the external environment through their own structures and operations. This approach involves the concept of "resonance", which is how social systems respond internally to changes in the environment. In addition, Luhmann points out that the operation of social systems is entirely dependent on communicative activity, which means that any response to the environment is achieved through the process of communication within society, rather than through direct dialogue with the environment.

Each functional system within society is sensitive to specific types of information, and when an issue in the environment triggers a resonance in one functional system, the issue is amplified within the system and may trigger wider concern and action. This amplification effect means that even small environmental changes can have a significant impact on society. Society's resonance with environmental dangers must therefore be dealt with through the various functional systems and cannot be completely replaced by other systems. The external and internal boundaries of society affect the degree of empathy, respectively. External boundaries isolate the self-sustainability of society from the complexity of the environment, limiting the reception of and response to external information. At internal boundaries, there is interdependence between functional systems, where resonance can lead to significant influences between systems.

Society is faced with a lack of empathy, i.e. a lack of responsiveness to environmental dangers. The non-substitutability of functional systems means that disturbances in the environment can only be dealt with by specific functional systems. However, due to the limitations of functional systems, societies can only respond to environmental dangers in specific situations, which can lead to societies being unable to respond effectively to ecological problems and increase the risk of environmental damage. Conversely, society may also face the problem of too much resonance, i.e., more resonance within the system than the system can handle. Insufficient resonance may lead to a society's inability to cope with environmental hazards, increasing its vulnerability and instability. Too much resonance may lead to tensions and incoherence within the internal system and even trigger the collapse of society.

Such uncertainty and complexity have important implications for social stability and sustainable development. The responsiveness of a society is a complex

and dynamic process that requires consideration of the interaction between functional systems and the balance between flexibility and stability. Societies must continuously adapt and improve their responsiveness to changing environmental conditions and ensure overall stability and sustainability.

Although society cannot re-establish wholeness within the system, it still needs to observe itself. All of society's communications can be observed and described. Even if a certain communication does not belong directly to a subsystemic category, it may be the subject of communication in the next moment. Thus, all forms of order and differentiation in society can be observed and described. Self-observation involves not only the operation itself, but also the observation and description of the operation. Self-observation in society must be distinguished from other observations within society. Subsystems of society can observe and describe other subsystems, but self-observation in society occurs under the condition that the observation is not remote from its object but coexists with it.

Self-observation is the observation and description that a social system makes of itself. In self-observation, the internal workings and differences within the system are observed and recorded by the system itself. This observation is based on the differences and complexities within the system, and by observing these differences, society is able to better understand how it operates. Other-observation is the observation of other subsystems by different subsystems of society. The main difference between self-observation and other-observation is the relationship between the observer and the observed. In self-observation, the observer and the observed are one and the same system, so the observation does not move away from the object, but co-exists with it. Whereas in other-observation, the observer and the observed are different subsystems, and the observation may move away from the object, using its own differences and coding to observe the object. Self-observation allows society to better understand how it operates and its internal differences, contributing to stability and adaptation within the system. Other-observation, on the other hand, contributes to the interaction and adaptation between the system and the environment, allowing the system to better understand and respond to changes in the external environment.

In Luhmann's theory, the social system is viewed as a complex network of interactions containing a variety of interacting subsystems, such as economic, legal, political, and scientific. Each subsystem processes information and events through specific codes and procedures that define how the system operates and how it interacts with its environment. The central feature of social systems is their self-referential production capacity, i.e., the system continuously generates and reproduces its constituent elements through its own communication activities. This self-referential modus operandi is a key concept in Luhmann's theory, which helps systems to respond to external complexity while remaining organisationally closed. The important role of the political system in addressing ecological issues, especially its function as a medium and transmission system and its role in channelling public attention and translating it into policy action.

However, ecology represents in Luhmann's theory everything external to the social system, including the natural environment and influences generated by other systems. Social systems respond to environmental change in a manageable way by reducing the complexity of the environment through their structure. In particular, Luhmann emphasises how environmental issues 'resonate' within society and how this resonance is dealt with through the different functional systems of society. For example, environmental change could trigger new legislation in the legal system, policy adjustments in the political system and investment reorganization in the economic system.

The lack of theoretical support for new social movements is mainly plagued by the inability of observation to encompass and reconstruct what it opposes. These movements face the challenge of realising their goals and claims. The claims of new social movements are often limited to simple, specific goals and demands, making it difficult to acquire and apply sufficient knowledge to address complex social problems.

Luhmann's theory explores society's response to environmental problems and points to the limits of criticism and self-reflexivity. In modern society, reflection faces the dilemma that there is no longer a priori knowledge to guide it, society has difficulty in identifying itself, and reason is no longer governed by a unified rationale. Reflection is now no longer about unity but about difference. This means that reflection is no longer guided by the value of correctness, but by the constant creation of difference through self-description and observation. Social rationality derives from reference to the ultimate difference between the system and the environment, i.e., ecological difference. Ecological difference is the basis of social rationality because it guides how the system processes information and enables society to better respond to environmental problems. Society needs to reintroduce ecological difference and utilize it as the primary difference. This means that society should take more account of environmental factors and incorporate them into decisions and actions to better adapt to and protect the environment. The importance of ecological differences is in guiding how society processes information. Societies need to consider ecological differences as an important reference for information processing in order to ensure that their behaviour is consistent with environmental requirements, thereby promoting a more harmonious relationship between society and the environment.

1. Social system

1.1 Economic system

Economy is a general term for all transactional activities carried out through monetary payments. Transactions involving money, whether directly or indirectly, are considered part of economic activity as long as they involve money. The modern economy cannot use money to purchase salvation, political office, government assessments, etc. These restrictions are the result of the systematic differentiation of the economy from other social functions such as religion and politics. The economy becomes an independent, self-regulating system that is no longer dependent on other social systems (such as religion or politics) to achieve its goals. The economic system is interconnected with other socio-functional systems (such as politics and religion) but has its own independent logic and modus operandi. The limits of the economy are designed to ensure its distinction and independence from other social systems.

The economic system internalises environmental issues and regulates environmental impacts through prices and profit calculations. Changes in prices affect production and consumption behaviour, which in turn affects the use of environmental resources. However, the internal logic of the economic system limits its attention to environmental issues, as it is primarily concerned with its own survival and development.

There are complex interactions between the economic system and the social environment. Economic activities have an impact on the environment, e.g. resource consumption, pollution emissions, etc., while changes in the environment also affect the functioning of the economic system, e.g. natural disasters, climate change, etc. Environmental factors have direct and indirect effects on economic activities. Problems such as scarcity of resources and environmental pollution affect production costs, market supply and demand, and corporate profits, thereby affecting economic development and stability. The impact of economic activities on the environment is

mainly reflected in resource consumption, energy use and pollution emissions.

Economic development is often accompanied by extensive exploitation and use of natural resources, which can lead to the destruction of ecosystems and a decline in environmental quality. Ecosystems provide various services to the economy, such as providing clean water, maintaining soil fertility and regulating the climate. These ecosystem services are essential for economic development and social stability. In the face of environmental problems, society has responded to and regulated the impact of economic activities on the environment by means of policies, laws and technological innovations. For example, it formulates environmental protection regulations, promotes clean technologies, and implements resource-saving policies. In order to achieve sustainable economic development, the relationship between economic growth and environmental protection must be balanced. Economic development must take into account the sustainable use of environmental resources and avoid over-exploitation and pollution.

1.2 Scientific system

Scientific systems approach problems through the distinction between theory and method. Theory externalizes the intrinsic results of scientific work, applying them to a world that everyone can experience. Methods, on the other hand, are applied to coding, ensuring that results can be distributed according to "true" and "false" values. Scientific testing procedures, such as decision theory, game theory and statistics, provide only temporary certainty, but this is a reflection of the distinction between theory and method. The development of science has shown that it has an almost unlimited capacity for solutions, demonstrating an infinite field of possibilities for society. Science produces a transparent world that reflects itself wherever it is focussed and translates transparency into access to the new. Science's openness and ability to learn allow it to adapt to change and play an important role in society.

Science not only provides knowledge about the natural world and human behaviour, but also realizes that this knowledge can be translated into technology.

Technology is practical knowledge that has been identified and can be realised. Science is not just a theoretical pursuit; it is also a tool for solving practical problems. Science is aware of technologies and options. Science is more than the accumulation of knowledge; it is aware that this knowledge can be translated into practice and provide guidance for social choices.

Science faces multiple challenges in addressing ecological issues, including structural complexity, limitations and ecosystem complexity. While science can provide important information and methods for solving ecological problems, science itself needs to be aware of its limitations and work in partnership with other functional systems to address complex ecological challenges.

1.3 Political system

The political system has a self-sustaining closed-loop structure, the centralization of political power being at the heart of its operation. Political power can be exercised only when specific conditions are met, usually by the persons holding political office. Thus, one of the characteristics of the political system is its close connection to state institutions and the national system of governance. The political system faces a number of constraints in dealing with ecological issues, for example, the operation of the political system is influenced by short-term changes in political direction, which contrasts with the need for long-term ecological policies. In addition, the behaviour of the political system tends to be more stable than favourable changes, making it difficult to challenge and unravel agreements again once the policy has been implemented.

Once policies are in place, they often become difficult to change, even if their preconditions have been questioned and their consequences recognised. This can lead to policies remaining in place in inappropriate circumstances, as reassessment and unravelling agreements can be politically difficult and risky. As a result, the political system tends to act with a conservative streak and is reluctant to easily change existing policies or legislation. The political system may lack a deep understanding of

ecological issues, thus preventing policymakers from fully understanding and addressing ecological challenges.

The resonance capacity of the political system depends on public opinion, which plays an important role in the political system, as politicians usually adjust their policies and actions to the attitudes and needs of the public. Sometimes politicians and political parties may ignore long-term social issues because of short-term political goals, which may result in limiting the resonance capacity of the political system. This capacity for empathy determines how the political system responds to public demands and, to some extent, shapes political direction and policymaking.

Although ecological issues are becoming increasingly important, introducing them into the political system remains a challenge. This is because the political system tends to treat it as an issue in political campaigns rather than as a prioritized political goal. Politicians may avoid committing too much to ecological topics for fear that it will affect voter support and may lead to economic problems such as unemployment. Politicians are often more inclined to address issues of immediate concern to voters and may be less sensitive to long-term ecological issues. Achieving more effective ecological policies requires the political system to pay more attention to long-term environmental and social impacts.

1.4 Education system

The education system is considered one of the hopes for the future, as ecological concerns are prioritized by today's young people, and this interest may be a key factor in driving change in social awareness and action. The education system has the potential to guide social awareness and attitudes and can change societal behaviours and decision-making by fostering environmental awareness and responsibility among students. Younger generations are the shapers of future societies, and their education and values have a significant impact on future development. Therefore, the potential of the education system lies in shaping a more environmentally friendly and

sustainable future society by fostering environmental awareness and action among students.

However, the education system is seen as a functional system within society that does not operate independently but interacts with other systems. This means that it is affected by external factors such as fluctuations in public opinion and is not completely autonomous. The education system does not just exist for its own purposes; it also interacts with other functional systems. As such, its role is influenced by other systems and it cannot ensure consistency with the activities of other systems.

While education can subtly influence students' knowledge of and attitudes towards the environment, it is at the same time subject to a number of constraints stemming from societal choices, procedural requirements and its own functioning. Promoting the positive role of the education system on environmental issues therefore requires addressing these structural issues and focusing on developing students' environmental awareness and critical thinking skills in educational practices.

Despite its limitations and problems, the education system may be one of the best opportunities to promote the expansion of ecological communication. The education system can direct students' attention to environmental issues and, to some extent, influence their attitudes and values.

2. Ecological environment

2.1 Ecological communication in social systems

Ecological communication in social systems refers to how social systems interact with their environment through the communication process and how this interaction affects social structures and behaviour. The concept highlights how social structures and behaviours are continually influenced by factors in their environment and produce change in the process. In Niklas Luhmann's perspective, social systems interact differentially with their environments through self-referential operations that are regulated through the structure and functioning of society rather than relying solely on direct external influences.

Within this framework, eco-communication is not just concerned with the delivery of information, but with how information is constructed, understood and responded to within the system. This approach to communication takes into account the direct and indirect effects of environmental change on social structures and how societies respond to these changes through their internal communication and decision-

making processes. The key to ecological communication is to understand the adaptive capacity of social systems and how they maintain or adjust their structure and function by internally processing information from the external environment.

For example, the theoretical shift based on the differentiation between society and its environment, mentioned by Luhmann, emphasises the shift from a focus on the unity of society as a whole to a focus on the differentiation between the social system and its environment. This shift is reflected in the restructuring of sociological theoretical frameworks, which requires sociologists to focus not only on the internal structure of society, but also to take into account the impact of the external environment on society, in order to build a more integrated theoretical framework for explaining the relationship between society and its environment. This theoretical reorientation is crucial to understanding and responding to the ecological challenges facing society.

2.2 Modern approaches to ecological issues

The ways in which modern societies deal with ecological issues usually involve multiple levels, including scientific research, policy formulation, technological innovation, enforcement of laws and regulations, and public education and participation. The core objective of these approaches is to promote sustainable development and reduce the negative impacts of human activities on the natural environment. The following are some of the main strategies:

1) Policy formulation and regulation enforcement: Governments play a key role in dealing with ecological issues by formulating environmental regulations, policies and standards to regulate the behaviour of enterprises and individuals. Examples include limiting greenhouse gas emissions, promoting the use of renewable energy, and enforcing standards for water resource and air quality management.

2) Scientific research and data monitoring: Scientific research provides the basis for understanding and addressing ecological issues. By monitoring environmental changes (e.g., climate change, loss of biodiversity, etc.) and studying the causes and consequences of these changes, scientists are able to provide policymakers with the necessary data support and advice.

3) Technological innovation and application: Technological progress plays a crucial role in solving ecological problems. For example, clean energy technologies

(e.g., wind and solar energy), pollution control technologies, and water resource management technologies all help to reduce environmental pollution and improve resource use efficiency.

4) Public education and participation: Raising public awareness of ecological problems and educating the public to adopt sustainable lifestyles are key to solving ecological problems. Public education can enhance individuals' and communities' sense of responsibility for ecological conservation and encourage them to participate in environmental protection activities.

5) International cooperation: Many ecological problems, such as climate change and marine pollution, are global in nature and require the joint efforts of the international community. Through international treaties and agreements, countries can work together to address these transboundary environmental problems.

6) Market mechanisms: Introduce market mechanisms such as a carbon trading market to encourage enterprises and individuals to reduce pollution and improve resource efficiency through economic incentives. For example, promoting the reduction of greenhouse gas emissions through a carbon tax or carbon trading system.

The above approaches usually require interdisciplinary knowledge and multi-stakeholder co-operation in order to address the root causes of ecological problems and achieve sustainable socio-economic development.

2.4 Coding for ecological communication (binary coding)

Binary codes begin as distinct, highly abstract patterns. They are distinguished by the way in which different functional systems are established in society. These codes are usually two-valued, e.g. true vs. false, legal vs. illegal, possessed vs. not possessed, etc. Binary codes structure the communication of different functional systems in a social system. Different functional systems use specific binary codes in their communication, e.g. science uses the binary code of logic, the legal system uses the binary code of lawfulness and unlawfulness, the economic system uses the binary code of possession and non-possession, and the political system uses the binary code of power. These codes enable functional systems to operate and communicate within a specific logical framework.

Functional systems use binary or two-valued coding to structure their communications. Binary coding is a coding system that describes things or phenomena using two relative or opposing values, which are usually in opposition to each other. In society, different functional systems use binary coding to distinguish and manage information. Binary coding is pervasive in society and is used by almost all functional systems to distinguish things or phenomena. This type of coding is characterised by simplicity, clarity and ease of understanding and is applicable to a wide range of different social domains. Binary coding provides a simple and effective way for social systems to process complex information and guide behaviour. By dividing things into two opposing values, social systems can more easily understand and respond to different situations.

1) Randomness of information: Binary coding causes all phenomena to become random, because each phenomenon is treated as one of two opposing possibilities within the coded domain. This means that everything is given relativity and nothing is absolutely necessary or absolutely impossible.

2) Social dependency: The use of binary codes is the result of social dependency, as it categorises everything into two opposing possibilities in each case. This dependency means that society must choose and apply specific codes in order to coordinate its operations effectively.

3) Resolving contradictions in self-referential relations: binary coding resolves contradictions in self-referential relations by substituting differences. By dividing reality into two opposing values, the system can oscillate through this discrepancy and develop rules to regulate its operation without having to directly address the contradictions in the self-referential relationship.

4) Relationship between codes and guidelines: Binary codes are different from guidelines for correct operation. They are used more as guidelines for correct and useful operations than as criteria for selecting standards. Therefore, they are not fixed, but are chosen and applied by society in specific contexts.

Binary codes are an important tool for efficient and successful differentiation of functional systems in social systems; they provide a stable and predictable framework for the operation of functional systems and contribute to stability and order in society. Binary codes are primarily used to distinguish things or phenomena and assign them different values. Codes, on the other hand, are standards used to guide correct and useful operations, and there is a dynamic relationship between codes and guidelines. Thus, binary codes guide further information processing and are largely influenced by their initial distinctions. Codes, on the other hand, are used to regulate operations so that they conform to specific criteria. In functional systems, codes and guidelines work together to ensure that the internal operation of the system meets specific requirements and responds appropriately to external information. The choice of codes is the dominant force in the operation of the system and it determines the behaviour and decision making of the system. Everything within the system is

influenced by the codes because they must follow the distinctions between opposites as defined by the codes.

Binary codes guide all further information processing, as they determine how information is handled within the system. This means that any new information will be categorized and processed according to the requirements of the codes. Everything within the system is affected by the codes as they must follow the distinction between opposites as defined by the codes. Binary codes are a highly effective and successful way of differentiating functional systems because they guide system operations and provide a unified framework for information processing within the system. Interdependence exists between functional systems because each functional system must assume that other functions must be completed elsewhere. Through binary coding, each functional system is able to clearly understand its tasks and responsibilities and work in coordination with other systems.

2.5 Rethinking communication in the face of ecological problems in social systems

The role of communication and reflection is particularly critical when confronted with ecological problems in social systems. This includes how to communicate the urgency of environmental problems, how to mobilize public participation and how to assess the effectiveness of existing policies and practices. The following points are key elements of communication and reflection on the role of social systems in dealing with ecological issues:

- 1) Critical reflection: Social systems must reflect critically on current environmental policies and practices, considering whether they are truly addressing the underlying problems or merely responding to superficial phenomena.
- 2) Reflection on communication strategies: Consider whether the way in which environmental information is communicated is effective in achieving its purpose of educating and mobilising the public. This includes reflecting on the language used, the channels of communication and their fit with the cultural and social context of the recipients. Effective communication strategies should be able to promote understanding and action, rather than merely convey information.
- 3) Mobilization of Public Participation: reflecting on how social systems can more effectively mobilize the public to participate in environmental activities. This

involves public education, awareness raising and opportunities for participation through various platforms (e.g. social media, public lectures, etc.). Enhancing the public's sense of environmental responsibility and action is the key to solving ecological problems.

4) The importance of interdisciplinary cooperation: In the dissemination and reflection of ecological issues, multidisciplinary knowledge and perspectives are needed. For example, joint discussions among experts in environmental science, sociology, economics, political science and other fields can lead to more comprehensive solution strategies.

5) Rethinking technology and ethics: When using science and technology to address environmental issues, there is also a need for moral and ethical reflection. Technological advances should go hand in hand with environmental justice and equity, considering their impact on different communities, including marginalized groups.

6) Ongoing monitoring and evaluation: Solutions to ecological problems require ongoing monitoring and evaluation of their effectiveness. Reflections should include mechanisms for real-time feedback on the effects of these solutions once they are implemented, as well as strategies for adjusting and optimizing them where necessary.

Only in this way can social systems understand and respond to ecological issues in greater depth and promote more precise and effective implementation of sustainable development strategies. Such continuous self-examination and adjustment is essential to meet the ever-changing environmental challenges.

2.6 Ecological communication in cultural and artistic contexts

Eco-communication in the arts and culture covers how environmental and ecological issues are communicated and reflected upon through cultural and artistic forms, and explores how these modes of communication influence social awareness and behaviour. Artistic and cultural works, such as film, music, painting and theatre,

can present complex ecological issues in a visual and emotional way, making them easier for the public to understand and relate to. This approach not only raises public awareness of the environment, but also serves as a powerful motivator for action and social change by stimulating emotions and empathy.

Through their aesthetic and emotional power, works of art reach out to people, challenging their preconceptions and values and prompting them to think about the possibilities of sustainable living. In addition, arts and cultural events can provide a platform to reflect on existing ecological policies and lifestyles, stimulating critical thinking. Such critical thinking challenges and complements traditional ecological responses and living habits, and it promotes wider social and cultural discussions that have an impact on environmental policies and practices.

At the global level, arts and cultural exchange activities, such as international art exhibitions and film festivals, allow people from different cultural backgrounds to communicate and learn about environmental issues, promoting global understanding and cooperation on ecological issues. At the local and community level, arts and cultural activities can also mobilize community members to participate in environmental protection activities and enhance community awareness of and responsibility for ecological issues. Through these community activities, the arts serve as a kind of bridge between individuals, communities and global environmental issues.

In addition, the art world's exploration of new materials and technologies continues to drive innovation and change in ecological communication methods, such as the use of recyclable materials to create artefacts or the development of digital art forms to reduce the consumption of physical resources. These innovations not only demonstrate the diversity of art in form and content, but also reflect the art world's practical contribution to environmental protection.

In conclusion, the role of culture and art in ecological communication cannot be underestimated. Through diverse modes of expression and profound emotional impact, it promotes the public's in-depth understanding of and practical action on ecological issues, and contributes a unique force to global environmental protection and sustainable development.

2.7 Ecological communication of culture and art within Luhmann's systems theory framework

Through the application of Luhmann's systems theory, communication not only focuses on the wide distribution of information, but also emphasizes in-depth exploration of content and response to audience feedback, ensuring that information is delivered in a targeted manner and adjusted and optimized in response to feedback. This type of communication is embodied in practice as a dynamic and interactive process, whereby the content and methods of communication are optimized through a continuous information filtering and feedback mechanism, so that they are more effective in arousing the interest and resonance of the audience.

With regard to the symbolic dissemination of culture and the arts, particular emphasis has been placed on enhancing the cultural impact of the arts through the refinement and promotion of artistic symbols with cultural significance. These symbols become a bridge connecting audiences from different cultural backgrounds, and through modern multimedia technologies such as pictures, videos and virtual reality, and other rich forms of expression, the dissemination of art is made more vivid and intuitive. In addition, the ecological dissemination of culture and art emphasises interactions with other systems in society, such as the economic system, the political system, the scientific and technological system, and the educational system, which help ceramic art to gain support and application in different social fields, thus expanding its social impact and cultural value.

By combining Luhmann's complexity theory, the ecological communication of culture and art explores how to protect and pass on culture and art while promoting their innovation and development in modern society. This communication strategy not only pays attention to the depth excavation and breadth expansion of art content, but also takes into account the strategy of ecological environmental protection and sustainable development, and seeks to build a systematic, symbolic, interactive and sustainable art communication system. Such an ecological communication approach not only enhances the communication effect of art, but also strengthens its social function and influence as cultural heritage.

Part II The Interaction Between the Ceramic Art of Zhongdukou in Jingdezhen and Ecological Communication

Based on the influence of Niklas Luhmann's systems theory, the analysis of "ceramic art" as a social system and "Jingdezhen Zhongdukou" as its ecological environment focuses on the dynamic interactions and complex interdependencies between the two. In Luhmann's theory, social systems are self-sustaining through the operation of self-reference while interacting with the complexity of the environment. Here the interaction between the social system (ceramic art) and its environment (Jingdezhen Zhongdukou) is not just a simple causal relationship, but a deeper, dynamic interaction.

Firstly, ceramic art is viewed as a unique social system that encompasses not only the physical process of making ceramics, but also the cultural, historical and economic activities associated with it. This system constantly generates and maintains its uniqueness while reflecting how it responds and adapts to changes in its ecological environment. Each piece of ceramic art can be seen as a response of the system to environmental change, and also as a symbolic system that conveys specific cultural and historical messages.

As the ecological environment of this social system, "Jingdezhen Zhongdukou" provides the necessary resources (e.g., raw materials, skills inheritance, market demand, etc.) and conditions (e.g., cultural identity, technical support, policies and regulations, etc.) that influence the production and development of ceramic art. The geographical location, historical background, and socio-economic conditions of Nakadokou are all shaping the specific performance and development trajectory of ceramic art.

In this perspective, the relationship between ceramic art and Jingdezhen Zhongduo can be understood as a dynamic interaction between a complex system and its environment, where the system does not merely passively adapt to its environment, but constantly redefines itself in its interaction with the environment, while also influencing changes in the environment. This two-way, dynamic interaction is a central concept in Luhmann's theory, emphasizing the complexity of the non-linear, non-causal link between system and environment.

This analysis provides a deeper understanding of how ceramic art maintains and develops its cultural and artistic values in interaction with its ecological environment, and also how the Jingdezhen Zhongdukou promotes regional cultural and economic prosperity through this interaction. This system-environment perspective provides a more comprehensive and in-depth framework for exploring and understanding the dissemination and development of culture and art in a particular socio-ecological environment.

2.1 The ceramic art of Zhongdukou in Jingdezhen based on social systems

Luhmann's Ecological Communication Theory provides a unique perspective for understanding and addressing the environmental challenges of modern society, a theory that not only reveals the complex interactions between social systems and the environment, but also demonstrates how societies adapt and respond to these challenges through internal communication structures. When applied to the

modernization of ceramic art practice, this theoretical framework allows for a deeper exploration of how this art form reflects and responds to changes in its social and environmental conditions.

Ceramic art is not only the continuation of a traditional craft, but also carries a reflection and response to the cultural, economic and ecological changes in the region of Jingdezhen Zhongdukou. Through the application of ecological communication theory, ceramic art is viewed as a "social system".

In this system ceramic art is more than just a material production process; it is a social system that encompasses artists, techniques, traditions, education, markets and consumers. Each of these components works together to define and shape the meaning and practice of ceramic art through ongoing communication and interaction.

Economic system

In the social system of ceramic art, economic factors play a central role. Economic activities such as market demand, price mechanisms, investment and funding have a direct impact on the direction and scale of artistic creation. As the demands of global and local markets change, ceramic artists and craftspeople respond to environmental trends through innovative designs that appeal to consumers, such as incorporating modern aesthetics or using environmentally friendly materials. For example, ceramic works from Zhongdukou in Jingdezhen may enjoy high demand in both domestic and international markets due to their uniqueness and artistic value, prompting artists and craftsmen to create more innovative and high-quality works to satisfy the market.

At the same time, the direction and content of the artistic creation will be adjusted in response to consumer feedback, such as incorporating more diverse cultural elements into the design or responding to international market trends.

Scientific system

Scientific advances, particularly in materials science and manufacturing techniques, have greatly influenced the processes and possibilities of ceramic art. New manufacturing techniques and advances in materials science have made it possible to achieve more complex designs and higher production efficiencies in ceramic art, and these technological changes have been rapidly assimilated by the art system in order to create works that meet contemporary aesthetic and practical needs. The application of new technologies has made possible complex designs and efficient production, thus improving the quality and artistic expression of the products.

Political system

The political environment and policies have a profound impact on the support and regulation of the arts sector in general and crafts in particular. Cultural support policies introduced by governments or local organizations provide funding and resources to support the transmission and innovation of traditional skills. Changes in these policies will have a direct impact on the way in which art is created and presented. For example, cultural protection policies at the local and national levels may provide financial support and tax incentives to encourage the development of ceramic arts, while ensuring that the transmission of skills is not subject to market economic fluctuations

religious system

In Jingdezhen Zhongdukou, ceramic works often reflect certain traditional cultural and spiritual values, which may be indirectly influenced by religious or spiritual ideas. While religion may have less direct influence in modern ceramic art, in some cultures ceramic objects are closely associated with religious rituals and symbols, which may influence the symbolism and function of ceramic design.

Education system

The education system plays a key role in nurturing a new generation of artists and artisans. Art schools, workshops and master-apprentice systems not only teach skills but also transmit cultural values and aesthetic concepts. The quality and direction of education has a direct impact on the creativity and diversity of artistic endeavours.

The Arts Academy and workshops are constantly updating their teaching content and techniques to include new artistic concepts and production techniques to ensure that students' skills and creativity are able to meet the changes in the marketplace.

2.2 The ceramic art of Zhongdukou in Jingdezhen based on the ecological environment

From an ecological perspective, the region's natural resources and environmental policies have a direct impact on the practice of ceramic art development. As a geographic and cultural environment for ceramic art, Jingdezhen Zhongdukou provides raw materials, cultural inspirations and market access points for ceramic art. As one of the birthplaces of Chinese ceramics, it is not only strategically located, but also has a rich cultural and historical heritage of ceramic art. This includes natural resources (providing high quality clay and other raw materials for pottery making). Cultural heritage (deep ceramic cultural traditions and techniques that provide inspiration for artists). Social identity (ceramic art as an important part of the local economy and cultural identity). Market and exhibition space (support and display platforms for local and international markets).

By exploring the interaction between ceramic art and functional social systems, we can reveal how the art form is affected by wider socio-economic conditions and changing cultural values, and how it in turn influences these systems.

By applying ecological communication theory, we analyse how the ceramic art social system interacts with and feeds back to the ecological environment that is Jingdezhen Zhongdukou, through its internal communication structures (e.g., business <economics>, science, cultural policy <politics>, beliefs <religion>, education).

Resonance: In Luhmann's theory, "resonance" describes how a system responds to changes in its environment and reflects these changes in its internal structure. In the case of Jingdezhen Zhongdukou, this cultural resonance is reflected in how the ceramic art system absorbs and reflects Jingdezhen's cultural identity and market dynamics.

Ecological communication of Zhongdukou in Jingdezhen

The theoretical basis for the ecological communication of the Jingdezhen Zhongdukou, as the core area of Jingdezhen ceramic art, can be understood and analyzed on several levels, especially through complexity theory and ecological communication theory to explore its role in culture, socio-economics and ecology.

Complexity theory emphasizes that the interactions of parts of a system generate new patterns of behaviour that cannot be predicted when the parts are considered independently of each other. In the case of the Transient Medium Ferry, it is not only a physical transport hub, but also a concentration of cultural and economic activities and a meeting point for a variety of social, economic and cultural activities.

The activity of the Jingdezhen Zhongdukou has made it a centre for the circulation of ceramic raw materials and finished products, and for cultural exchange. This interaction is not only limited to the exchange of goods at the physical level, but also includes the exchange of cultural meanings and the transmission of social practices, reflecting the system dynamics and openness in complexity theory.

The Jingdezhen Zhongdukou has promoted the symbiotic development of the ceramics industry and other industries (such as shipbuilding and transport), and this

complementarity of economic activities has deepened the cultural identity of Jingdezhen as a "porcelain capital", while promoting the diversification of the regional economy.

Also, because Jingdezhen Zhongdukou serves as a core area for ceramic production and trade, its activities have direct and indirect impacts on the environment. These impacts in turn affect the production and sale of ceramic art through social feedback mechanisms. For example, the impact on the water quality of the Changjiang River prompted the local community and government to take measures to minimise the negative impacts, and this heightened environmental awareness was also reflected in the choice of themes and materials used in the ceramic art.

The Zhongdukou made it possible for Jingdezhen's ceramic art to spread around the world, and this cultural export not only enhanced Jingdezhen's international status, but also deepened global awareness and appreciation of Chinese ceramic art. This embodies the viewpoint of ecological communication theory on how to spread ecological awareness and cultural values through cultural systems.

Ecological risks of the Zhongdukou in Jingdezhen

The management of the water resources of the Changjiang River, a major transport route and industrial development area, has become a major challenge. Particularly in the Central Ferry area, the river may face over-utilization and pollution due to historical dock activities and urban expansion in recent years. Appropriate water resource management strategies are necessary to ensure safe water quality and ecological sustainability of the river.



Figure 26 The Flooding Situation at Zhongdukou in Jingdezhen During the Rainy Season (Flood Disasters)

Source: Photography by Junyi Cao, 2023.

The rapid development of Zhongdukou has brought pressure on urban expansion and land use. With the increase in population and industrial activities, it has become a major challenge to find a balance between preserving the natural ecology and catering for urban development. Urban expansion is often accompanied by a reduction in green space and wetlands, which not only affects the ecological quality of the city, but may also exacerbate the urban heat island effect and flood risk.



Figure 27 The notice on the floating bridge: "Due to the unstable water levels of the Changjiang River, the floating bridge is not passable."

Source: Photography by Junyi Cao, 2023.

Zhongdukou was once not only an important economic and logistics centre, but also an important cultural and historical site in Jingdezhen. How to balance the needs of modernization and development with the preservation of historical and cultural relics is another important issue facing Zhongdukou. The conservation of historical buildings and cultural relics needs to be coordinated with the urban development plan in order to preserve these cultural assets of irreplaceable value.

As pontoons and other transport facilities age, ensuring the safety of residents becomes an important issue. The maintenance and renewal of pontoons and other ageing transport facilities needs to be integrated with disaster prevention and mitigation strategies to ensure the safety of life and property of residents in the community, especially against the backdrop of increasingly frequent flooding and extreme weather events.



Figure 28. Ecological problems at the Jingdezhen Zhongdukou.

Source: Created by Junyi Cao, 2023.

Binary code classification of Zhongdukou in Jingdezhen

In the cultural conservation and ceramic art development strategy for Jingdezhen Zhongdukou, binary coding can be used as a theoretical tool to help understand and balance the complex relationships between different social systems. These systems include economics, science, politics, religion and education, each of which has an

impact on the cultural and artistic landscape of Jingdezhen Zhongdukou through its specific binary code.

The binary coding classification of these five systems is based on the key roles and functions of each system in the process of cultural protection and development of Jingdezhen Zhongdukou, and the binary coding of each of these systems reflects the core features of the binary coding concept: opposition, choice, and decision-making orientation, which are mainly based on the internal functional needs of each system, the pressure of the external environment, and the comprehensive consideration of the long-term sustainable development of Jingdezhen Zhongdukou. and the comprehensive consideration of the long-term sustainable development of Jingdezhen Zhongdukou. This categorization reflects the fundamental tension and conflict that exists between the preservation of cultural heritage and the promotion of economic or technological progress.

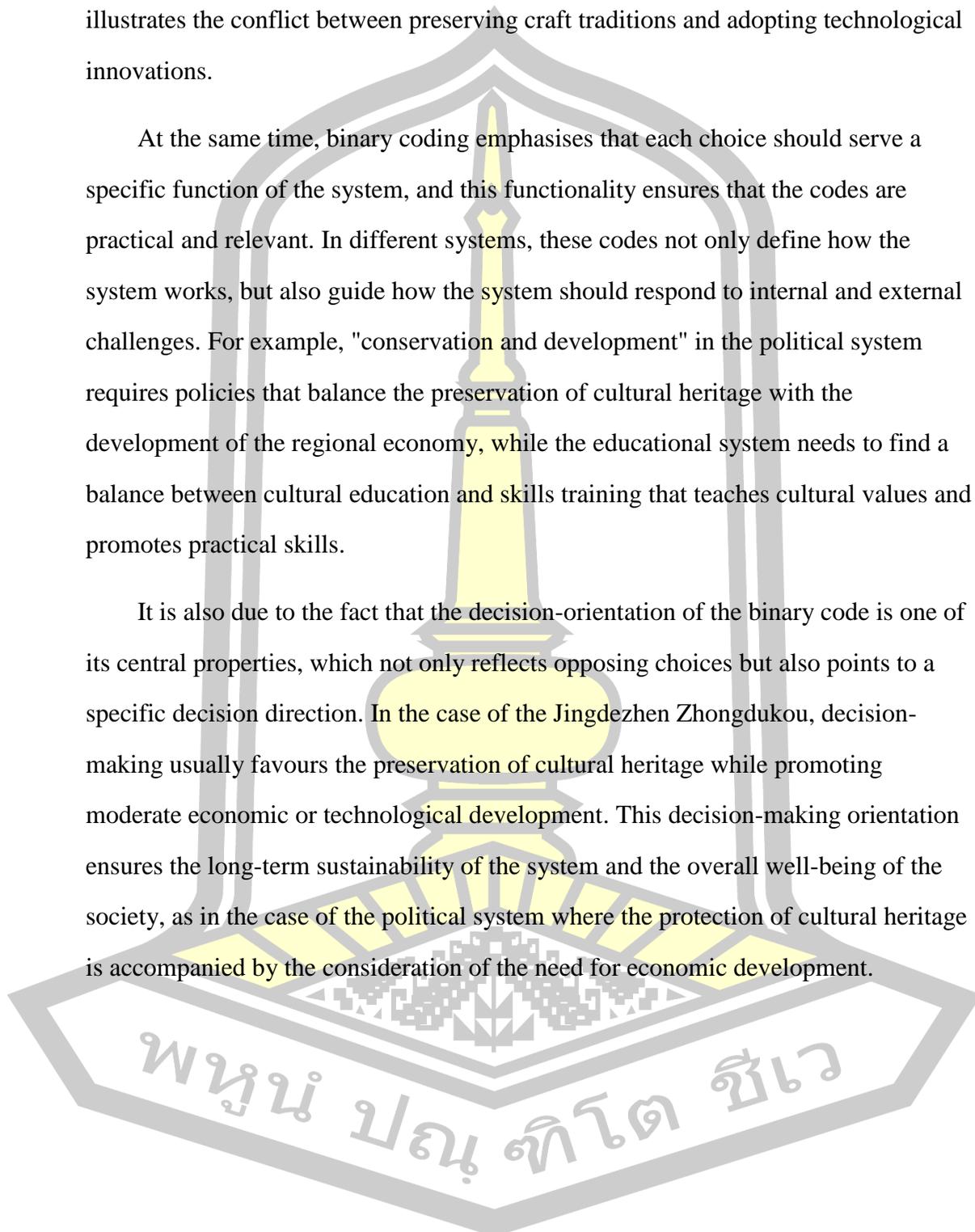
Binary coding is used as a conceptual tool in the social sciences to reveal and analyse how different social systems organize and process information through clear oppositions. The basis for the formation of oppositions in the various systems of the Zhongdukou can be extracted from the core properties of binary coding, in particular opposability, functionality and decision-orientation.

The nature of binary coding is based on opposites. This dichotomy not only simplifies the decision-making process, but also makes it more obvious and straightforward. In the case of the Jingdezhen Zhongdukou, these oppositions reflect the natural tension between cultural preservation and the need for economic development. For example, in the economic system, the dichotomy of "sustainable use versus commercial pressure" reflects the tension between long-term cultural interests and short-term economic gains; in the scientific system, the dichotomy of "traditional versus modern technology" demonstrates the conflict between the preservation of craft traditions and the adoption of technological innovations. In

scientific systems, the dichotomy between "traditional and modern technologies" illustrates the conflict between preserving craft traditions and adopting technological innovations.

At the same time, binary coding emphasises that each choice should serve a specific function of the system, and this functionality ensures that the codes are practical and relevant. In different systems, these codes not only define how the system works, but also guide how the system should respond to internal and external challenges. For example, "conservation and development" in the political system requires policies that balance the preservation of cultural heritage with the development of the regional economy, while the educational system needs to find a balance between cultural education and skills training that teaches cultural values and promotes practical skills.

It is also due to the fact that the decision-orientation of the binary code is one of its central properties, which not only reflects opposing choices but also points to a specific decision direction. In the case of the Jingdezhen Zhongdukou, decision-making usually favours the preservation of cultural heritage while promoting moderate economic or technological development. This decision-making orientation ensures the long-term sustainability of the system and the overall well-being of the society, as in the case of the political system where the protection of cultural heritage is accompanied by the consideration of the need for economic development.



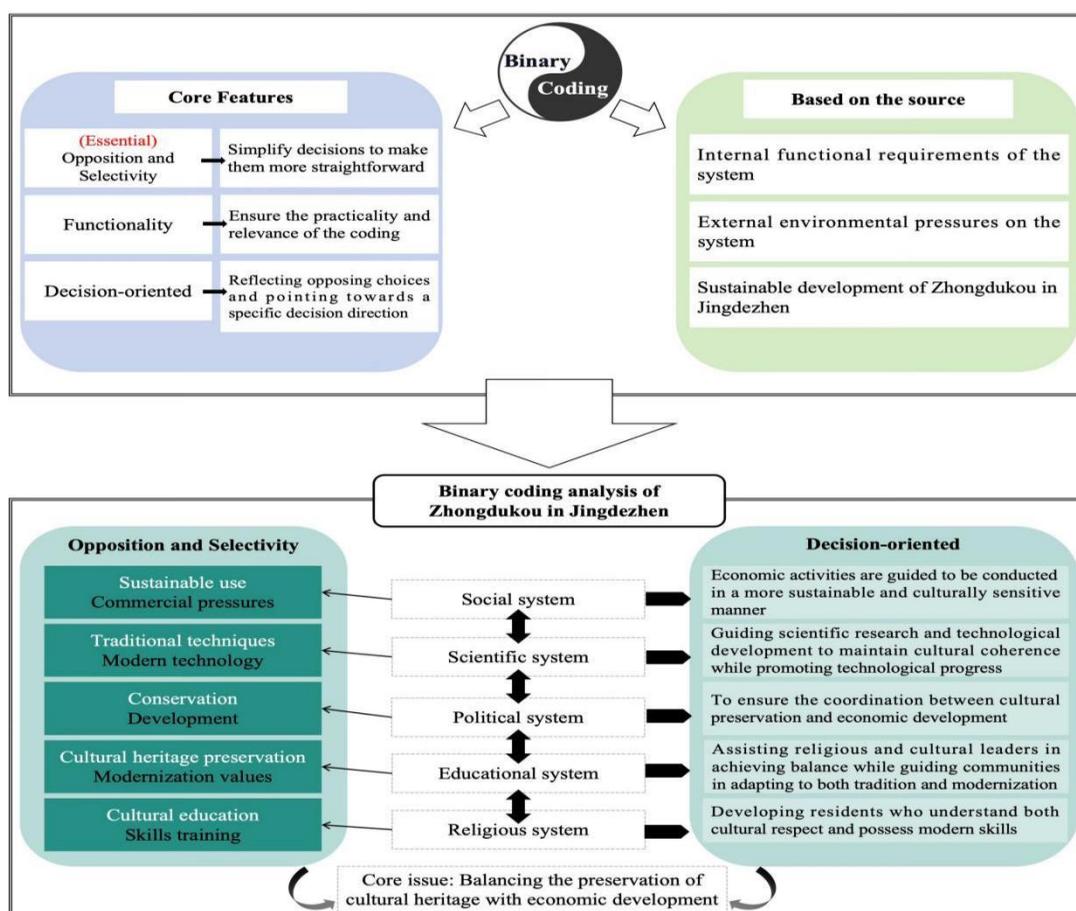


Figure 29 Binary code analysis of Zhongdukou in Jingdezhen.

Source: Created by Junyi Cao, 2023.

In summary, in this way, binary coding not only provides us with a powerful tool for analyzing and solving complex social problems, but also helps us to understand how different social systems form and implement key strategies and actions through their inherent oppositional and decision-making orientations. The study for Jingdezhen Zhongdukou will categorize five systems (economic, technological, political, religious and educational) in binary coding as follows:

1) In the economic system, the binary code is set to "sustainable use and commercial pressure". This is due to the natural tension between economic growth and the preservation of cultural heritage. Economic activities, especially those that depend on the cultural resources of a particular region, are often faced with the problem of how to maximize economic benefits while preserving cultural heritage. On

the one hand, commercial activities contribute to the prosperity of a community by bringing necessary economic impetus and employment opportunities to the area; on the other hand, excessive commercial development may undermine the authenticity and long-term value of these cultural resources. That is, it reflects the dichotomy between the need for economic growth and the sustainable use of cultural resources. Decision makers make choices between the two, directing economic activity in a more sustainable and culturally sensitive manner to ensure a balance between economic interests and cultural heritage.

Jingdezhen Zhongdukou is an important cultural heritage area where there is a natural dichotomy and complementarity between economic activities and cultural preservation. The economic system needs to balance development and conservation to avoid over-exploitation and commercialization of cultural resources, while ensuring that cultural heritage brings long-term economic benefits to the local community.

Sustainable utilization emphasizes the rational development of the ceramic cultural resources of Jingdezhen Zhongdukou, ensuring that these resources can bring long-term economic benefits to the local community without depletion. In contrast, commercial pressures can drive over-exploitation, such as uncontrolled tourism development and commercialized production, which often neglects cultural and environmental sustainability. Therefore, how to manage such pressures and ensure that economic activities do not eat away at cultural values is the challenge facing Jingdezhen Zhongdukou.

2) In the science and technology system, the binary code is set as "traditional and modern technology". This is due to the need to balance the respect for tradition with the pursuit of innovation. In such a culturally significant field as the ceramic industry, over-reliance on modern technology may lead to the loss of the uniqueness of some traditional crafts, which are not only the technical expression but also an important carrier of cultural heritage. On the contrary, neglecting the development of

modern technology may lead to the backwardness of the industry and the decline of market competitiveness. That is, the dichotomy between the conservatism of traditional technology and the innovativeness of modern technology is depicted.

The interplay between traditional techniques and modern technology in ceramic production. Traditional technology maintains the purity and historical continuity of the craft, while modern technology drives productivity and innovation. This dichotomy reflects the need for technological systems to balance heritage and innovation.

While traditional techniques play a role in ceramic art in maintaining purity of craftsmanship and historical continuity, modern techniques provide new production methods and materials, which can add variety and innovation to the artefacts. However, over-reliance on modern technology may result in the loss of some of the uniqueness of traditional craftsmanship. Therefore, how to incorporate modern technology while maintaining traditional craftsmanship is an issue that needs to be addressed in the scientific system.

3) In the political system, the binary code is set to "conservation versus development". In the contradiction between the preservation of cultural heritage and the promotion of economic development that must be addressed in policy formulation, on the one hand, the preservation of cultural heritage usually requires the sacrifice of certain economic interests, as excessive commercialization may undermine the purity of the culture and the integrity of the historical site. On the other hand, development activities are often seen as necessary in order to promote economic development and improve the living standards of the inhabitants. That is, the dichotomy between cultural heritage preservation and the need for regional economic development is highlighted. Policy formulation needs to find a reasonable balance between these two aspects to ensure that cultural preservation and economic development are harmonized.

Policymaking needs to find a reasonable balance between cultural preservation and regional development. The direction of political decision-making often determines the level of protection of cultural heritage and its relationship with economic activities (e.g. tourism and commercial investment).

From a policy perspective, the preservation of the traditional ceramic craftsmanship of Jingdezhen Zhongdukou is not only about preserving the technology itself, but also about maintaining the continuity of the cultural identity of Jingdezhen as a region. At the same time, development activities, such as increasing tourist attraction or building new commercial facilities, while bringing economic benefits, may cause erosion of the cultural landscape. Therefore, how to design policies that simultaneously promote economic development and cultural heritage preservation is an important issue in political decision-making.

4) In religious systems, the binary code is set to "cultural heritage and modern values". As a result of the pressures of cultural change brought about by globalization and modernization, religious and cultural traditions often emphasize the preservation of the ways and wisdom of the past, while modern values promote change and adaptation to new social environments. The conflict between the two lies in how to respect and preserve history and traditions while embracing new ideas and practices, enabling communities not only to preserve their cultural heritage but also to remain vibrant and relevant in the modern world. That is, it reflects the conflict between traditional cultural heritage and the values of modern society. Religious and cultural institutions need to make a choice between preserving traditions and adapting to modern values, helping communities to strike a balance between tradition and modern adaptation.

The role of religion or belief systems in preserving the traditions and cultural identity of communities. Under the impact of globalization and modernization, traditional beliefs and cultural heritage may come into conflict with the values of

modern societies, and this conflict reflects the dynamic balance between maintaining tradition and adapting religious systems to modernization.

It is important to emphasize that the religion involved here refers to faith. Cultural heritage is particularly important in the Zhongdukou area of Kingston, not only as a means of maintaining community cohesion, but also as a way of sustaining the cultural identity of the area. Modern values may challenge traditional beliefs and drive social and cultural change. In this context, how to maintain cultural coherence and adaptability is an important element to be balanced in the religious system.

5) In the education system, the binary code is "cultural education and skills training". This is due to the need to preserve and transmit the intangible values of culture on the one hand, and to ensure that students have sufficient skills to enter the labour market on the other. With limited resources, balancing these two needs is a major challenge in the education system. For example, an excessive focus on skills training may lead to the neglect of cultural education and vice versa. Therefore, careful consideration needs to be given to how to integrate these two aspects when formulating education policies and curricula, without sacrificing the depth of cultural education or neglecting the market demand for skills. That is, it reflects the dichotomy between education for cultural heritage and practical skills training. Educational strategies must emphasize both cultural depth and practicality of skills to produce a population that knows how to respect culture and is equipped with modern skills.

The education system has a dual role between passing on cultural knowledge and improving practical skills. Cultural education emphasizes understanding and respect for ceramic art and cultural heritage, while skills training focuses on enhancing the vocational ability and economic independence of residents, which together underpin the sustainable development and cultural self-sufficiency of the community.

Cultural education emphasizes an in-depth understanding of ceramic art and the cultural heritage of the Jingdezhen Zhongdukou, while skills training focuses on

improving the production skills and economic capacity of the local population. Both need to be promoted simultaneously to ensure cultural heritage and economic self-sufficiency.

These systematic coded classifications reveal the core points of opposition and co-operation that need to be considered in cultural preservation and development strategies, and provide a theoretical and practical framework for the development of comprehensive preservation strategies. By understanding and applying these dichotomous codes, policy makers and communities can more effectively address the complex relationship between culture and economic development.

In all of these systems, the use of binary coding emphasizes the binary nature of decision-making, i.e. choosing between two opposing alternatives, which is essential for forming strategies and implementing programmes. In this way, the systems at Jingdezhen Zhongdukou can deal more effectively with internal complexities and external challenges, and can better understand and explore effective strategies for cultural preservation, thus achieving the goal of preserving and respecting the ceramic art and cultural heritage of Jingdezhen Zhongdukou in the process of modernization.

Summary

Within the framework of Niklas Luhmann's systems theory, the ecological mechanism of Jingdezhen Zhongdukou ceramic art demonstrates the complex interaction between it and the social and ecological environment. This interaction is not just a simple reaction between culture and art and environmental protection, but also a dynamic and systematic exchange that reveals the non-linear, non-causal and complex connection between society and the environment.

As a rich ecological environment, the Jingdezhen Zhongdukou area provides the necessary resources and conditions for ceramic art, including raw materials, skills inheritance, and market demand. These resources not only support the physical production of ceramic art, but also profoundly influence the direction of the creation

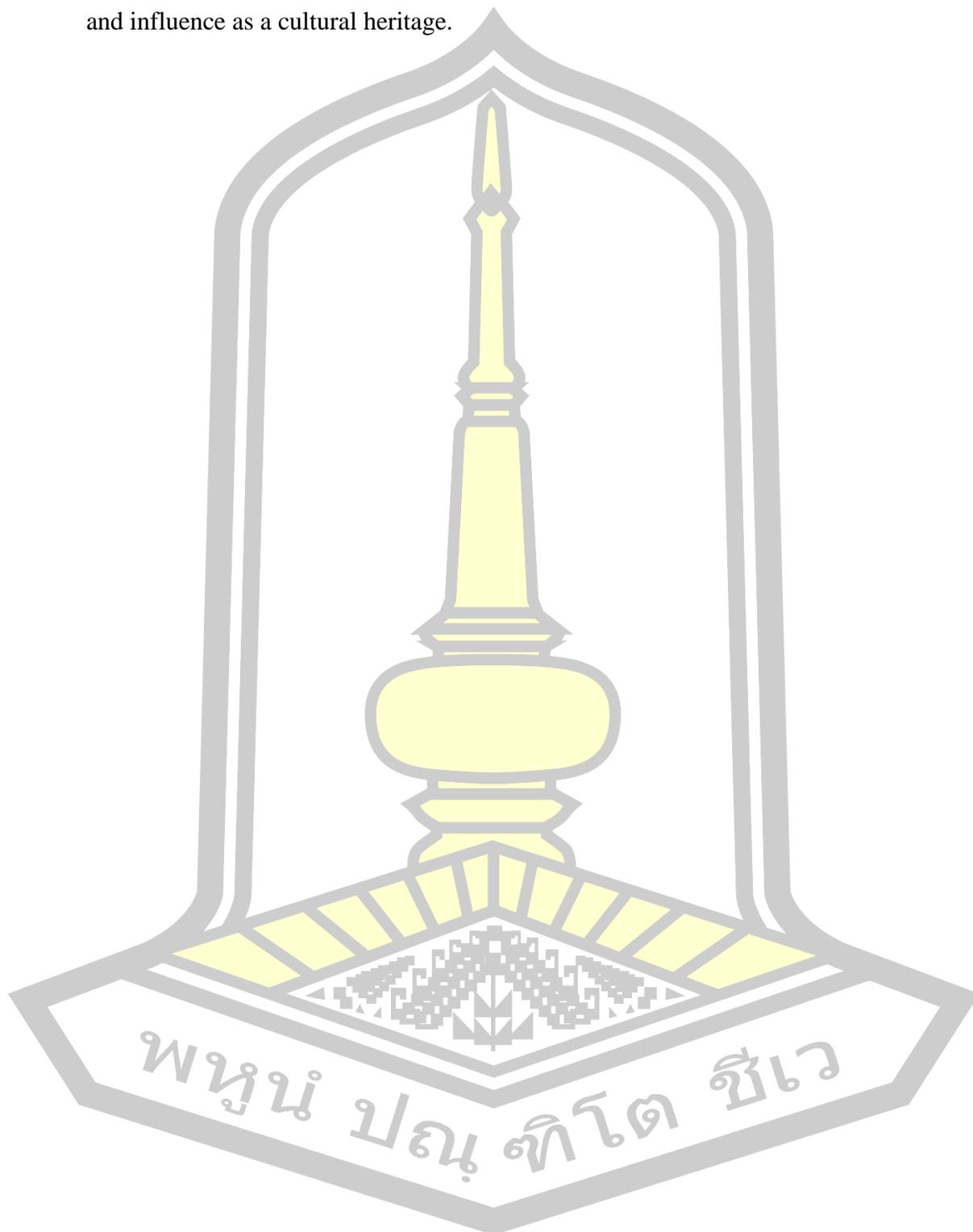
and dissemination of culture and art, which in turn shapes its unique cultural and artistic value. In this process, ceramic art is not only a product of the ecological environment, but also become an important force to promote and influence environmental change.

Ceramic art continues to redefine itself in its interaction with the Zhongdukou ecosystem, and through this two-way interaction, it not only contributes to the cultural enrichment and economic prosperity of the region, but also reflects the complementary nature of cultural and economic activities. For example, the production and sale of ceramic artwork both showcases the region's cultural identity and promotes tourism and cultural goods markets, thereby deepening Jingdezhen's cultural identity and contributing to economic diversification.

Through Luhmann's theory, ceramic art is viewed as an independent social system, and how it interacts with and feeds back into the ecological environment that is the Jingdezhen Zhongdukou through its internal communication structure is explored. This includes interactions with the economic system, the political system, the scientific and technological system, and the educational system, each of which influences and shapes the development of ceramic art through its own specific binary coding. This inter-systemic interaction has helped ceramic art to adapt to social and environmental changes, and has enabled the art to be innovative and widely disseminated in modern society.

Luhmann's ecological communication theory focuses on the way information is constructed, understood and responded to within a system, emphasizing the impact of environmental changes on social structures and how societies respond to these changes through internal communication and decision-making processes. The ceramic art of Zhongdukou in Jingdezhen demonstrates a sustainable model of culture and environmental protection through its eco-communication mechanism, which not only

enhances the communication effect of the art, but also strengthens its social function and influence as a cultural heritage.



CHAPTER III

The Ceramic Art of Zhongdukou in Jingdezhen: Modernization Practices

With the process of globalization continues to advance, modernization has become an important direction for the development of countries around the world. And Jingdezhen Zhongdukou ceramic art, also in the practice of modernization to explore and seek a new path of development, this chapter focuses on Jingdezhen Zhongdukou ceramics in the context of modernization practice.

In the first part, from the perspective of Chinese-style modernization, we will analyze the differences between global modernization and Chinese-style modernization, and focus on the construction of ecological culture and cultural practices in the context of Chinese-style modernization. This part will explore how to promote cultural inheritance and innovation and realize sustainable development through ecological culture construction.

The second part, focusing on the characteristic Jingdezhen ceramic art in the context of modernization practice, discusses the upgrading of the ceramic industry and the development of cultural tourism, the innovation and research of ceramic art, the inheritance and protection of ceramic production techniques, cultural inheritance and religious beliefs, the cultivation of human resources and cultural education, as well as the restoration of the ecological environment and the systematic protection of cultural heritage, in terms of the multi-dimensional aspects of economy, science and technology, culture, education and ecology. This section aims to reveal the opportunities and challenges facing Jingdezhen ceramic art in the process of modernization through comprehensive analysis.

In the third part, the modern memory of Zhongdukou based on the theory of ecological communication is explored in depth. Through field interviews, relevant materials are collected and sorted out, from which representative cases of modern memories are extracted, and the significance and value of these memories are analyzed in the modernization practice of contemporary ceramic art in Zhongdukou, Jingdezhen. Through the excavation and analysis of these memories, it reveals how to

realize the innovation and development of ceramic art in the context of modernization while maintaining the traditional cultural connotation.

In the fourth part, the dilemma faced by the ceramic art of Zhongdukou in Jingdezhen in the context of modernization practices will be analyzed in detail, assessing the main problems currently faced by Zhongdukou.

Part I Chinese-style Modernization Practices

1. Differences between global modernization and Chinese-style modernization

As a bright pearl in the long history of human modernization, Chinese modernization is gradually formed and matured in its own practical development and in the practice of surpassing the western modernization development theories, and it has certain universality and particularity. Its universality is reflected in the following:

1) Chinese-style modernization is a conceptual cluster that is developing dynamically and becoming more and more perfect. From the beginning of Deng Xiaoping's concept of "Chinese-style modernization" in the 20th century to the scheduled realization of building a moderately prosperous society in the centenary of the founding of the Party, Chinese-style modernization has changed from the "Trinity" to the "Trinity" in the past in terms of "horizontality". This is a vivid portrayal of the broadening of the horizontal dimension of the conceptual cluster of Chinese-style modernization; the development process of Chinese-style modernization has changed from the past "three-in-one" to the present "five-in-one" plus the modernization of the governance system and governance capacity, which meets the people's needs for a better life; the development process of Chinese-style modernization has changed from the past "two-step" to the present "two-step". The development process of Chinese-style modernization has changed from the establishment of the "two-step" development strategy in the past to the advancement towards the centennial goal of a strong socialist modernized country, which is the greatest rejuvenation dream of the Chinese nation since modern times, and this is a vivid portrayal of the vertical depth of the conceptual cluster of Chinese-style modernization; the development goal of Chinese-style modernization has changed from the "three-in-one" modernization to the "three-in-one" modernization. The development goal of Chinese modernization has changed from the development core

of the "Trinity" in the past to the modernization development core that takes quality, efficiency, fairness, greenness and sustainability into account, covering the diversified demands of the people for modernization under the new historical conditions, which is the dialectical process of the conceptual cluster of Chinese modernization moving from one-dimensional to multi-dimensional and three-dimensional. The report of the 19th CPC National Congress clearly pointed out that "the main contradiction in our society has been transformed into the contradiction between the people's growing needs for a better life and unbalanced and insufficient development." (The 19th Party Congress Report Study Counseling Hundred Questions [M]. Beijing:Party Building Books Publishing House,2017:9.) On the one hand, this is a rethinking and secondary understanding of the main contradiction of society in the process of modernization and development, and a profound understanding that unbalanced and inadequate development is the main aspect of the main contradiction of China's modernization process, whose significance has become the basic basis for us to formulate our strategies, routes and guidelines in the joint pivot of social development; on the other hand, the change of the main contradiction in society in turn enriches the rich connotation of the concept of modernization and makes it a dynamic concept. Today's modernization is no longer the "old four things" of industry, agriculture, national defense, and science and technology, but rather, as "the people's needs for a better life have become more and more extensive, not only do they put forward higher demands for material and cultural life, but also have growing demands for democracy, the rule of law, fairness, justice, security, and the environment. " (Xi Jinping. Successfully building a moderately prosperous society in all aspects to seize great victory of socialism with Chinese characteristics in the new era-Report at the 19th National Congress of the Communist Party of China [N]. People's Daily,2017-10-28(01).13) changes, higher requirements for modernized economy, rural agriculture, education and teaching, and national defense and military forces, etc., which marks China's modernization towards the whole field and all-round strides. It can be seen that the profound understanding of the main social contradictions has enriched the dynamic connotation of Chinese-style modernization, and similarly the enrichment of the conceptual clusters of Chinese-style modernization is also aimed at solving the main social contradictions existing in

the development of the society, which is a dynamic process of development and improvement day by day.

2) Chinese-style modernization has a strong cultural heritage. As a new expression and concept in the conceptual cluster of modernization in the world, Chinese-style modernization is distinguished by the advanced socialist culture with Chinese characteristics, which, in the process of creating a new form of human civilization, integrates the universal truth of Marxism with the actual situation in China, and forms the logic of development, implementation strategy, guiding ideology and leadership force with Chinese characteristics, which is different from that of the western capitalist society with "capital being the most important". This is fundamentally different from the logic of modernization and development in Western capitalist societies, which is based on the principle that "capital is the most important". General Secretary Xi Jinping once quoted from "Gu Wei Tang - The Book of Governance": "It is not necessary to be the same in performance, but to be appropriate; it is not necessary to be the same in governance, but to be beneficial to the people" to emphasize that China's modernization is a multiculturalism that is compatible and inclusive of all strengths and that its cultural essence is the dialectical process of cultural self-knowledge, self-reflection, and self-transcendence, and that its cultural tense is based on the intersection of traditional and modernized culture, and on the principle of "the intersection of traditional and modernized culture". Its cultural trend is to take the advanced culture as the leader to drive the traditional culture and promote the synergistic development of diversified cultures, to follow the general law of modernized cultural development and conform to the specific conditions of our country, to adhere to the world vision and keep abreast of the times to continuously absorb the achievements of human civilization, and to be the concentrated embodiment of modernity culture combining the Chinese characteristics, Chinese elements and Chinese styles with the times. It is a concentrated manifestation of modern culture with Chinese characteristics, Chinese elements, Chinese style and the times.

3) Chinese-style modernization is quantifiable and can truly improve and satisfy the diversified needs of the people in their lives and work. In the development process of Chinese-style modernization, the main contradiction in society has undergone two

profound transformations, and the theoretical basis for these changes is to change the economic base and superstructure that are not adapted to the development of the productive forces in accordance with the classical Marxist concept of materialistic history. In this process, the lives of the people have made the leap from "a moderately well-off family to generally well-off to comprehensively well-off," especially in the centennial year of the founding of the Party, when we have accomplished the two major tasks of eradicating poverty and building a moderately well-off society in all respects. In particular, on the occasion of the centennial of the founding of the Party, we have accomplished the two historic tasks of eradicating poverty and building a moderately affluent society. The development of the social indicator system for Chinese-style modernization has gradually moved from the macro to the micro, and from the whole to all sectors and regions, with increasingly detailed social indicators ranging from the "hard indicators" of economic development in the early years of the founding of the People's Republic of China to the integrated development of the five major sectors of the economy, politics, culture, society and ecology in the 14th Five-Year Plan period. The "soft indicators" for the integrated development of the five major sectors of economy, politics, culture, society and ecology during the Fourteenth Five-Year Plan period show that the modernization that China seeks is a comprehensive modernization indicator system that is in line with economic and social development, avoids the waste of natural resources, meets people's needs for a better life, and builds a harmonious society, and that it can be quantified through calculation.

As a matter of fact, the Central Government has also pointed out that Chinese-style modernization is a "brand-new form of human civilization", and that it is different from the Western modernization model because it is rooted in the excellent traditional Chinese culture; however, it must be made clear that Chinese-style modernization is not synonymous with sticking to the old rut and being arrogant at night, but on the contrary, it will borrow and absorb "all the fruits of the excellent human civilization" so as to represent the direction of the development of human civilization and progress. On the contrary, it draws on and absorbs "all the outstanding achievements of human civilization" so that it can represent the development direction of the progress of human civilization.

2. Ecological culture construction and cultural practices in the context of Chinese-Style modernization

2.1 Ecological culture construction

To promote the construction of ecological civilization in the new era, it is necessary to play a leading role in ecological culture, in order to be able to take a more sober attitude and a more resolute pace out of a Chinese modernization road rich in ecological meaning and full of deep atmosphere.

Ecological culture, in a narrow sense, is the social ideology, human spirit and socio-economic system guided by ecological values, such as environmental philosophy, environmental ethics, ecological Marxism, etc. In a broader sense, it is a new way of life and value orientation, that is, a culture of harmonious coexistence between human beings and nature. In a broader sense, it is a new way of life and value orientation of human beings, that is, the culture of harmonious coexistence between human beings and nature. In the middle of the twentieth century, the event of "eight public hazards" shocked the world, and the global ecological crisis has become the center of attention of the society. The serious ecological problems exposed the dilemma of human culture, and a wave of environmental protection movement began to emerge worldwide, followed by the rise of ecological culture, which marked the arrival of a new era of human beings - the era of ecological civilization.

Ecological culture is the cultural pattern of ecological civilization, which can be divided into ecological spiritual culture, ecological material culture, ecological behavioral culture and ecological institutional culture at the structural level. In the new journey of building a socialist modernization country, the Chinese modernization road needs to be carried out in a more comprehensive manner. Based on this, it is of great value to analyze the intrinsic connection between ecological culture and the Chinese modernization road. Through the analysis, it is concluded that: ecological spiritual culture is the permanent driving force for the Chinese modernization road; ecological material culture is the gas pedal for the realization of the Chinese modernization road; ecological behavioral culture accumulates the main force for the realization of the Chinese modernization road; and ecological institutional culture provides scientific guarantee for the adherence to the Chinese modernization road. To promote the construction of ecological civilization in the new era, the leading role of

ecological culture must be brought into full play, so that we can walk out of a Chinese-style modernization road rich in ecological connotation and full of deep atmosphere with a more sober attitude and a more resolute pace.

From the viewpoint of the essential attributes of ecological culture, it is the spiritual impetus and intellectual support that drives social development and permeates all areas of social life. "While building a high degree of material civilization, we should also strive to build a high degree of socialist spiritual civilization. This is a matter of strategic policy in building socialism." After a long period of development, the construction of socialist material and spiritual civilization has yielded remarkable results, with significant improvements in the material living conditions of the people and an increasingly positive social and moral climate. At the same time, since the new era, with the overall change in the main contradiction of society, the people's ever-increasing needs for a better life have put forward deeper demands for modernization and development. Among these, the people's demands are particularly prominent in their demand for the building of an ecological civilization.

To promote the construction of ecological civilization, it is necessary to realize the organic integration of ecological elements in the process of creating an advanced socialist culture and spiritual culture, and it is necessary to vigorously excavate the ideas of ecological civilization embedded in the excellent traditional Chinese culture and "promote the formation of a socialist cultural pattern of 'ecological culture and ecological values' that is more in line with the needs of the people for a better life". The socialist cultural pattern of 'eco-culture and eco-values' is more in line with the people's needs for a better life." The great five thousand years, in the long practice of survival, the Chinese people constantly thinking about the relationship between man and nature, formed a unique ecological wisdom, has bred a profound ecological cultural thinking, which is embodied in the ethical system, continued in the historical tradition. Confucius said, "A benevolent person loves others", urging people to be kind and loving to all things in the world; Shihua said, "All mountains, rivers, grasses and trees have become Buddhas", advocating the equality of all living beings; Taoism said, "Man is the law of the earth, the law of the earth is the law of the sky, the law of the sky is the law of the road, and the law of the road is the law of nature". Taoism

preaches that "man follows earth, earth follows heaven, heaven follows Tao, and Tao follows nature".

Emphasize the need to comply with the laws of nature. In the specific practical process of building an ecological civilization, these traditional ecological cultural philosophies should be creatively transformed and innovatively developed, so that they can have a form of expression that is more adapted to the characteristics of the times, in order to build a more meaningful and valuable cultural system, thus providing a long-lasting spiritual impetus for walking the road of modernization of the Chinese style.

Ecological material culture is the material fruit of human activities affecting the ecosystem and is the material manifestation of ecological culture. The essential feature of the road to Chinese-style modernization is to achieve material abundance and common prosperity for all people. When measuring the issue of common wealth, we should not only clarify its main dimension, i.e. "common wealth is the common wealth of all the people", but also its content dimension, which is to satisfy the people's higher-level demand for a better living environment. Adhering to the development of ecological material culture in the process of promoting the construction of ecological civilization can highlight the unique advantages of the Chinese-style modernization road, and thus lay a deep foundation for the successive promotion of the Chinese-style modernization road.

The abundance or otherwise of material goods depends on whether the mode of production at that stage is advanced or not, and the mode of production of an era is the specific expression of the material culture of that era. Eco-material culture eliminates the negative consequences of the "anti-ecological type" of industrial material culture, abandons its materialistic features, and gives modernization a new ecological connotation based on respecting and adapting to nature. Since the 18th National Congress of the CPC, the CPC has repeatedly emphasized that "protecting the ecological environment is to protect the productive forces, and improving the ecological environment is to develop the productive forces," and that "we want both the green mountains and the silver mountains. We want both green mountains and silver mountains. We would rather have green mountains than silver mountains, and

green mountains are silver mountains". Since the new era, the Party Central Committee with Comrade Xi Jinping as the core has deeply realized the important role of protecting the ecological environment for the development of productive forces, so it is necessary to carry out the basic state policy of conserving resources and protecting the environment, and strive to take the road of modernization in which human beings and nature coexist harmoniously. Natural forces are the natural basis of productive forces to build an ecological civilization. First of all, from the perspective of pure natural forces, promoting the development of productive forces means taking resource conservation as the fundamental policy and promoting the comprehensive upgrading of the way resources are utilized. While industrial civilization is bent on the pursuit of economy and profit, ecological civilization combines the principle of growth with the principle of recycling, develops a circular economy to maximize the use of resources, and develops new energy to innovate the mode of production, embedding a moderate ecological indicator for technological progress and production development. Secondly, from the perspective of the natural force of social labor, the construction of ecological civilization needs to pay more attention to the connotative use of natural force, and the people's ecological concepts must be correctly guided in the specific process of building ecological civilization. Improving the ecological moral concepts of the general public can start from the little things around them, such as gradually influencing their living habits through garbage classification, green travel, low-carbon life and so on, so as to achieve the purpose of regulating green life and protecting the environment.

Eco-behavioral culture is the sum of human behaviors and practices that affect the ecology, including eco-operation, eco-trade and eco-consumption. Adhering to the Chinese-style modernization road, we should base on the ecological culture, from highlighting several elements of ecological civilization to comprehensively promoting the integrated construction of eco-industry, eco-consumption, eco-village and so on. "Everyone is the protector, builder and beneficiary of the ecological environment". In the process of the integrated construction of ecological civilization, it is necessary to further explore and give full play to the great advantages contained in the unique feature of the huge size of China's population, and to transform it into a more

effective impetus for development, so as to provide extensive subjective power for the advancement of the construction of ecological civilization, and to take the road of Chinese-style modernization. The road to China's modernization will provide a wide range of main forces.

Relying on ecological culture to promote the integrated construction of an ecological civilization, through the comprehensive use of all kinds of public media, actively carrying out all kinds of activities and other carriers, focusing on the popularization and internalization of ecological culture and ecological values, and truly transforming a "good ecological environment" into a "common wealth of the people". "First of all, maximize ecological governance. First of all, maximize the ecological governance with the times, explore a multi-body synergistic ecological governance, so as to expand the channels and methods of public participation. At the same time, it is necessary to adhere to the government-led, integrated planning, synergistic promotion, to build a top-down and bottom-up, left-right linkage of the organizational system, and to give full play to the significant advantages of the synergistic participation of all types of subjects in ecological governance. Secondly, we should focus on improving the overall framework of the ecological welfare system, accelerating the green transformation of all kinds of industries, especially high-pollution and high-energy-consumption industries, and providing more high-quality ecological products. By increasing the publicity of ecological products and creating ecotourism sites with regional characteristics, we can attract and stimulate people's willingness to consume ecological products, so that more people can actually feel that "green mountains are beautiful, and blue skies are also happiness". As a result, through the process of practicing eco-behavioral culture, the public's enthusiasm for environmental protection is stimulated, and their awareness of participation increases. In the end, these influences will be transformed into the people's "conscious awareness of practicing ecological environmental protection and participating in the construction of ecological civilization", and they will become the backbone of promoting the construction of ecological civilization in coordination with the road of Chinese-style modernization.

2.2 Cultural practice

Culture is the forerunner of changing times and social change, as well as the precursor of mankind's modernization. The modernization process of mankind is often the first breakthrough in the field of culture, and China's journey from tradition to modern society is also the process of revitalizing Chinese civilization and recreating its glory. Socialism with Chinese characteristics is a great cause of comprehensive development and progress, and there can be no socialist modernization without the prosperous development of socialist culture. Chinese-style modernization is not only a process of material accumulation, but also a process of spiritual and cultural enrichment, which needs to play an important role in casting the soul and shaping the shape of culture, and to promote the comprehensive development of human beings and the overall progress of society. It can be seen that cultural self-confidence and self-reliance is the key to Chinese-style modernization. As China embarks on a new journey to build a modern socialist country in an all-round way and strive for the second hundred-year goal, promoting cultural self-confidence and self-improvement, and forging a new glory of socialist culture, we need to take up a new cultural mission, and continue to push forward cultural prosperity, build a strong cultural country, and build a modern civilization of the Chinese nation from this new starting point, so as to provide a strong spiritual impetus for the advancement and expansion of the Chinese style of modernization.

Excellent traditional Chinese culture has given Chinese-style modernization distinctive Chinese characteristics and cultural heritage, and the continuation of excellent traditional Chinese culture in Chinese-style modernization enables us to use the wisdom and strength of modern people and seek answers and inspiration from the history of the Chinese nation when facing the common modernization problems of mankind. In the process of Created transformation and innovative development, the excellent traditional Chinese culture will provide deeper ideological resources and spiritual impetus for the promotion of Chinese-style modernization, and make greater contributions to the progress of human civilization.

The modern civilization of the Chinese nation is endogenous to the process of Chinese-style modernization, which not only embodies the development goals and value pursuits of Chinese-style modernization, but also provides rich civilizational nourishment for Chinese-style modernization, and is the concentrated expression of Chinese-style modernization at the civilizational level. The construction of modern civilization of the Chinese nation is neither the elimination of ancient civilization nor the simple superposition of elements of excellent traditional culture, but is based on the practice of the great rejuvenation of the Chinese nation, organically uniting the continuation of historical civilization, the absorption of foreign civilization, and the construction of modern civilization, which demonstrates the value pursuits of Chinese modernization, and injects enduring kinetic energy into the Chinese modernization.

However, the cultural practice of modernization in China involves a number of aspects. Cultural heritage preservation and transmission is an important part of this. The Chinese Government and local governments at all levels are committed to protecting and restoring historical and cultural sites, ancient buildings and traditional handicrafts through laws and regulations, policies and financial support. Moreover, it organizes various cultural heritage demonstration activities, exhibitions and training courses for inheritors of intangible cultural heritage to promote the transmission and innovation of traditional culture. Through these efforts, traditional culture has been able to take on new life in modern society.

The development of cultural industries is also an important aspect of modern cultural practices. China has vigorously promoted the development of cultural and Created industries, such as film, television, music, publishing, games and animation, in order to enhance the influence of cultural industries through marketization and internationalization. In particular, the integration of culture and science and technology and the development of digital cultural industries, such as the application of virtual reality, augmented reality and artificial intelligence technologies in cultural industries, have injected new vitality and development momentum into cultural industries.

Cultural exchanges and dissemination to the outside world are also important elements of China's modern cultural practices. China has strengthened international

cultural exchanges and cooperation, promoting Chinese culture through Confucius Institutes, cultural centers and visits by art groups. At the same time, it has disseminated Chinese stories to the world through channels such as movies, television, books and new media, enhancing China's international cultural soft power. Such cross-cultural exchanges not only promote the spread of Chinese culture globally, but also enhance the world's understanding and recognition of Chinese culture.

The upgrading of cultural consumption is also an important manifestation of modernized cultural practices. Through policy guidance and market mechanisms, China promotes cultural consumption and raises public demand for and consumption levels of cultural products and services. In particular, in the area of cultural tourism, the development of cultural tourism, the creation of high-quality cultural tourism routes, and the promotion of the in-depth integration of culture and tourism have enriched people's cultural experience and enhanced the quality and level of cultural consumption.

The construction of urban culture also occupies an important place in China's modern cultural practices. In urban planning and construction, emphasis is placed on the integration of cultural elements and the construction of cultural facilities such as cultural and Created parks, cultural squares, museums and libraries. At the same time, the construction of urban public cultural service systems is promoted to enrich the cultural life of citizens and enhance the cultural taste of cities. These measures will not only improve the cultural environment of cities, but also enhance the cultural literacy of citizens and promote the overall development of cities.

Part II The Unique Ceramic Art of Jingdezhen in the Context of Modernization Practices

Keywords such as "traditional culture", "civilization achievements" and "human civilization" are easily associated with Jingdezhen ceramics, which is, after all, the best material carrier of traditional Chinese culture. After all, it is the best material carrier of traditional Chinese culture, condensing the wisdom of generations of craftsmen, and through trade, gifts and other ways to achieve the Chinese civilization and other civilizations between the communication and exchange. And today's

Jingdezhen, still with porcelain as a medium to gather customers from all directions, ware into the world to go.

With the goal of developing China's cultural industry, enhancing China's cultural soft power, and promoting China's culture to the world, China Culture Industry Association is committed to promoting the integration and development of culture and tourism industry. Jingdezhen, as a cultural tourism city centered on ceramic art, is a model city for the deep integration of culture and industry.



Figure 30 The Slogan of "Chinese Modernization Construction" on the Roads of Zhongdukou in Jingdezhen

Source: Photography by Junyi Cao, 2024.

The ceramic art of Jingdezhen has shown its unique style in the context of modernization practice. With the promotion of the project of "Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Area", the ceramic art has shown its unique charm and deep cultural value in the modernization practice. Modernization not only brings the innovation of technology and materials, but also promotes more frequent interaction between Jingdezhen ceramic art and international art world, thus enriching its artistic expression and technical methods. In the protection of regional culture, Jingdezhen not only focuses on the inheritance and innovation of ceramic technology, but also committed to protecting and revitalizing its rich ceramic cultural heritage. Through the establishment of platforms such as the Ceramic Culture Inheritance and Innovation Pilot Zone, Jingdezhen has strengthened the systematic

protection and modern application of traditional skills, ensuring that this intangible cultural heritage can continue to flourish in modern society, while also promoting the development of the local economy and cultural tourism. This in-depth integration of culture and technology has enabled Jingdezhen's ceramic art to not only retain traces of its history, but also demonstrate the vitality of modern innovation.

2.1 Economy: Industrial upgrading and the development of cultural tourism

Jingdezhen, as the "millennium porcelain capital", its economic development has always been closely related to the ceramic industry. With the changes in the global market and the adjustment of domestic economic structure, Jingdezhen is facing the necessity and urgency of industrial upgrading. Especially in the context of the "Belt and Road" initiative, Jingdezhen ceramics is not only a commodity for trade, but also a messenger with the mission of spreading culture.

The Jingdezhen Municipal Government has proposed ceramic industry innovation as the core of promoting economic development in the Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Zone Implementation Program, which was formulated in 2019. The government strongly supports ceramic technology research and development and intelligent manufacturing, and promotes the transformation of the ceramic industry from traditional handicrafts toward high technology and automation. This includes not only the improvement of ceramic manufacturing technology, but also the innovation of the whole industry chain such as design, packaging and marketing.

As a key development area of the ceramic industry, Taoke Park Industrial Park actively introduces new materials and new technologies, and seeks to enhance the added value of traditional ceramics through technological innovation. At the same time, Jingdezhen through the integration of resources, build ceramic industry investment and financing management platform to support the development of ceramic enterprises.

Jingdezhen is not only the production of ceramics, but also the dissemination of ceramic culture. As an emerging economic growth point, cultural tourism has been incorporated into the strategic development of Jingdezhen. Jingdezhen strives to attract domestic and foreign tourists by creating a "world-famous ceramic culture tourism destination".

Taoxicuan Cultural and Created Park is one of the centers of this strategy. Relying on the rich ceramic cultural resources of Jingdezhen, the area integrates various functions such as Created design, art exhibitions as well as interactive experience, becoming an important window to display ceramic culture. Visitors can not only learn about the production process of ceramics, but also personally experience the production and deeply feel the charm of ceramic culture.

As a cultural heritage site with a long history, the Zhongdukou area occupies a special position in Jingdezhen's ceramic industry and cultural tourism. The government plans to protect and develop this area, aiming to preserve its historical features while developing modest cultural tourism projects to enhance its cultural appeal to the outside world.

2.2 Technology: innovation and research in ceramic art

Technological innovation is the key to the sustainable development of Jingdezhen ceramic industry. In today's increasingly competitive global market, relying on traditional manufacturing technology has been difficult to meet market demand. Jingdezhen in this context, and actively explore new technologies, new techniques and new materials for ceramic manufacturing.

Jingdezhen is actively exploring and developing high-tech ceramics on the basis of traditional ceramic technology. These high-tech ceramic materials have superior physical, chemical and biological properties, and are widely used in aviation, aerospace, biomedical, electronic information and other high-end fields. For example, the research team in Jingdezhen has developed special ceramic materials that can withstand extreme temperatures and pressures, and these materials not only enhance the application range of the products, but also open up new market space for ceramic products.

The introduction of intelligent manufacturing technology has automated and computerized the ceramic production process in Jingdezhen, significantly improving production efficiency and product quality. This includes the use of robotic automation systems for key production processes such as ceramic molding, glazing and firing. In addition, the application of big data and IoT technologies enables real-time monitoring of the production process and precise control of production conditions to ensure consistent and high quality products.

Against the backdrop of increased global environmental awareness, Jingdezhen is also committed to developing environmentally friendly ceramic technologies. This includes the development of low-energy ceramic production technologies, the use of renewable materials and circular economy models. For example, biomass energy is used to replace traditional fossil fuels in the ceramic firing process, reducing CO₂ emissions. At the same time, optimization of formulations and processes reduces waste generation during the production process and maximizes the use of materials.

Jingdezhen uses digital technology to establish network platforms for the integration of ceramic design, production and sales, promoting information sharing and resource integration. These platforms not only provide space for designers, producers and consumers to communicate, but also improve the efficiency and responsiveness of the entire industrial chain by integrating supply chain management systems, optimizing inventory management and logistics and distribution.

2.3 Politics: government support and policy environment

The construction and development of Jingdezhen National Pilot Area for Ceramic Culture Inheritance and Innovation is not only a cultural and economic project, but also a political project, because it is directly related to the cultural soft power of the country and the regional development strategy. In this process, the role of the government and the policy environment play a decisive influence.

During his visit to Jiangxi in 2019, General Secretary Xi Jinping emphasized the importance of building the Jingdezhen National Pilot Area for Ceramic Culture Inheritance and Innovation and pointed out the need to create a new platform for foreign cultural exchanges. This instruction provides a clear political direction and strategic positioning for Jingdezhen's development. High-level policy support ensures that the project will receive sufficient resources and policy inclination, while also signaling the national importance of this project.

Under the guidance of the National Development and Reform Commission and the Ministry of Culture and Tourism, Jingdezhen has developed a series of specific implementation programs. These programs cover everything from cultural heritage protection and ceramic industry upgrading to international exchange and cooperation. The policies have been formulated to take into account the full range of needs from technological innovation and industrial support to cultural heritage and market

development, providing a comprehensive policy guarantee for the development of the pilot zone.

The construction of the Pilot Zone is not only a local government initiative, but is also strongly supported by the central government. Under the framework of the "One Belt, One Road" initiative, Jingdezhen's ceramic culture has been able to connect with the international market, enhancing international cooperation and cultural exchanges. The pilot zone has actively participated in national cultural brand activities such as "Sense China" and "China Today", which have promoted international cultural exchanges and cooperation, and brought Jingdezhen's ceramic culture to the world.

The Jingdezhen municipal government has continuously optimized the policy environment to stimulate innovation and development of the ceramic industry by reducing taxes and fees, providing financial subsidies and technical support, and other measures. In addition, the government attracts talents and enterprises by formulating preferential policies, laying a solid foundation for the long-term development of the pilot zone.

2.4 Religion: cultural heritage and religious beliefs

The ceramic culture of Jingdezhen is inextricably linked to religious beliefs. Especially in traditional ceramic production, some customs and beliefs deeply influenced by religion still play an important role in modern society. Religious activities such as worship of the kiln god and kiln firing ceremony not only reflect the craftsmen's respect for their skills and prayers for success, but also reflect the deep integration of traditional culture and religious beliefs.

Kiln firing is an extremely technical and risky process in Jingdezhen, and ceramic artisans throughout history have performed rituals to worship the kiln god to ensure a smooth firing process. The Kiln God is considered to be the guardian of the kiln and ceramic production. Before an important firing, the craftsmen would set up an altar at the kiln and hold a ceremony to pray to the kiln god for the success of the firing and to avoid accidents such as "kiln explosion". In modern Jingdezhen, this kind of ceremony is still kept by some potters and kilns who insist on tradition.

The integration of ceramic culture and religion in Jingdezhen is not only reflected in the ritual activities during the production process, but also in the ceramic

products themselves. For example, ceramics made of Buddha statues, incense burners and other religious items, in both functional and artistic value show the combination of religious culture and ceramic technology. These religious artifacts are not only symbols of faith, but also the embodiment of Jingdezhen's superb ceramic craftsmanship.

When mentioning the ceramic culture of Jingdezhen, it is also important to mention the Jingdezhen Zhongdukou area. Zhongdukou is not only an important center of ceramics production and trade, but its geographical location and historical background also make it a gathering place for cultural and religious activities. Here, ceramics were not only a place for the production of daily necessities, but also a bridge for cultural and religious exchanges. For example, the Nakadori area was an important node of the Maritime Silk Road, and the ceramics it produced were exported to the rest of the world via the Silk Road, bringing with them Chinese cultural and religious influences.

In modern Jingdezhen, although the forms of religious activities may have changed, the cultural and spiritual connotations behind them are still cherished and passed on. Traditional religious ceremonies such as worshipping the kiln god are not only a way of honoring traditional skills, but also a way of passing on history and culture. Through these religious and cultural activities, a new generation of potters and citizens will be able to understand and appreciate the unique value of Jingdezhen ceramic culture more deeply.

Therefore, religion plays an important role in Jingdezhen ceramic culture, not only influencing all aspects of ceramic production, but also profoundly reflecting the deep values of Chinese culture. This fusion of culture and religion makes Jingdezhen ceramics not only material products, but also works of art that carry rich cultural and religious emotions.

2.5 Education: talent development and cultural education

The construction and development of the Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Area relies heavily on the support of the education system and the cultivation of talents. Education not only plays a central role in the transmission of technology and skills, but is also an important base for cultural dissemination and innovation.

As the only undergraduate institution in the world that specializes in ceramics, Jingdezhen Ceramic University plays a crucial role in promoting ceramic technological innovation and cultural heritage. The university not only provides specialized education in ceramic art and design, but also covers related disciplines such as ceramic engineering technology and materials science and engineering, and is committed to cultivating complex talents with innovative abilities and practical skills.

Not only that, but Jingdezhen's educational institutions offer a wide range of specialized courses designed to give students an in-depth understanding of every aspect of ceramic production on both a theoretical and practical level. These programs include not only traditional ceramic crafts, but also modern ceramic design and production techniques. In addition to classroom instruction, hands-on teaching occupies an extremely important place in the educational process, as students have the opportunity to be directly involved in the ceramic production process, from which they learn key skills such as the selection of materials, molding techniques, glaze preparation, and firing processes.

Jingdezhen not only emphasizes the cultivation of ceramic skills, but also the inheritance and innovation of ceramic culture. Through the provision of courses on ceramic history and art appreciation, students are able to cultivate a deep understanding and recognition of ceramic culture. In addition, schools and educational institutions also encourage students to innovate on the basis of traditional skills and explore the possibility of combining ceramic art with modern technology and environmentally friendly materials.

Educational institutions in Jingdezhen have actively established cooperative relationships with international schools and research institutes to strengthen international exchanges and cooperation through student exchanges, joint research projects and international seminars. These activities not only enhance the international perspective of students and teachers, but also promote the international dissemination of Jingdezhen's ceramic culture.

Jingdezhen also focuses on cooperation with local governments and enterprises, integrating local educational resources and promoting student employment and local economic development through the establishment of an education model that integrates industry and education. For example, it cooperates with ceramic enterprises

to open internship bases to provide students with a seamless transition from school to the workplace.

All in all, education has played the role of bridge and catalyst in the construction of Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Area. Through high-quality educational resources, Jingdezhen has not only succeeded in cultivating generations of ceramic talents, but also ensured the continuous inheritance and innovative development of ceramic culture. This depth and breadth of education has enabled Jingdezhen to maintain its leading position in the global ceramic art and culture.

2.6 Sustainable development of the ecological environment and systematic protection of cultural heritage

The development of Jingdezhen not only relies on its rich ceramic culture and historical heritage, but is also deeply influenced by its ecological environment. Therefore, the protection of the ecological environment and cultural heritage areas is an important part of Jingdezhen's sustainable development strategy.

Jingdezhen is located in an area rich in natural resources and beautiful natural landscapes, which are not only valuable assets of the city, but also provide the necessary natural conditions for ceramic production. Therefore, protecting the ecological environment is a prerequisite for ensuring the sustainable development of the ceramics industry. The government and the community have actively implemented soil and water conservation and forest protection projects to minimize the impact of industrial activities on the environment. In addition, the use of environmentally friendly technologies and materials has been promoted to reduce the burden on the environment in ceramic production, for example, through the use of low-polluting fuels and efficient waste treatment systems.

Jingdezhen is not only known for its modern ceramic industry, but its rich historical heritage areas are also an important part of its cultural identity. These historical heritage areas, such as the ancient kiln sites and the Imperial Kiln Factory, bear witness to Jingdezhen's ceramic history. In order to preserve this valuable cultural heritage, the Government has put in place a series of conservation measures, including restricting development activities, restoring old buildings, and opening them to the public as places for education and cultural experience.

Raising public awareness of the importance of ecological protection and cultural heritage is key to achieving sustainable development. Jingdezhen enhances residents' sense of responsibility for environmental protection and cultural heritage conservation through educational programs, public events and media campaigns. Schools and cultural institutions also conduct various educational programs and study tours to encourage the younger generation to participate in conservation activities.

Jingdezhen's ecological and cultural heritage protection efforts are also supported by businesses, non-governmental organizations and international partners. By working with these organizations and sharing resources and knowledge, Jingdezhen is able to take more effective conservation measures. For example, international conservation organizations provide technical and financial support to help Jingdezhen implement conservation projects of a higher standard.

Zhongdukou serves as one of the historical and cultural core areas of Jingdezhen. However, the current cultural preservation of the area is not satisfactory, which is closely related to its frequent flooding and puts the natural environment and its ecosystem under great pressure. The area around Zhongdukou used to have a concentration of important ceramic craft sites, but nowadays it has become a recreational area for the residents in the neighborhood, with few activities and conservation measures related to ceramic art. This situation may lead to the interruption of cultural heritage, and the core value and historical significance of ceramic culture may then fade away.

Part III Retracing Modern Memories of Zhongdukou in Jingdezhen

3.1 Modern memories of Zhongdukou based on ecological communication theory (Field interviews)

This research design aims to obtain first-hand information through semi-structured field interviews to explore how Zhongdukou can achieve sustainable economic and social development while preserving ceramic culture in the process of modernization. The focus of this interview is to understand the modern memory of Zhongdukou, i.e., to explore local residents' perceptions and experiences of past and present changes in Zhongdukou from their personal perspectives.

Basis for designing interview questions

In the study of ecological communication theory according to Niklas Luhmann, it can be explored that binary coding can simplify a complex issue into two opposing or complementary categories through clear comparison and categorization, making the issue more structured and hierarchical. This approach not only facilitates analysis and comparison, but also effectively systematizes a large amount of interview data, presenting trends and patterns in the data and helping to draw clear conclusions. By binary coding the content of the interviews, the questions can be made more focused, more specific and clearer, and the interviewees can understand the questions and give specific answers more easily, thus increasing the effectiveness of the interviews. In addition, binary coding provides a basis for quantitative analysis and a clear categorization framework for qualitative analysis, and this combination enables a more comprehensive interpretation of the interview data and enhances the scientific and explanatory power of the findings.

Meanwhile, the scientific and universal nature of the binary coding method has been widely used in the research of social sciences and humanities, verified and supported by a large number of academic studies. Through this method, the influence of subjective factors on data analysis can be reduced and the objectivity and reliability of data analysis can be improved, thus ensuring the rigor and scientificity of the research. Combined with the ecological communication theory as the research framework, the binary coding method can analyze the cultural and economic interactions of the Zhongdukoukou in a more systematic way, and this theoretical support enhances the academic authority of the coding method. In practical application, the binary coding method has been effectively verified, proving its advantages in processing and analyzing complex interview data, which not only improves the operability of the data, but also enhances the persuasiveness of the research results.

In summary, the use of binary coding in field interview design has obvious rationality and authority. It not only provides a scientific method for the systematic processing and analysis of complex data, but also enhances the objectivity and reliability of the research results. In practical application, the binary coding method

has been effectively verified, proving its important role in social science research. The application of this method not only makes the interviews more structured and organized, but also makes the research results more convincing and scientific through clear classification and comparison.

Selection of interview subjects for field interviews

1) Age Diversity: Interviewees of different ages were selected to ensure a comprehensive understanding of the history, current status, and future development of the Zhongdukou from the perspectives of older, middle-aged, and young adults. This diversity helps to provide a long time period of observation and different generational perspectives.

2) Occupational background: Occupational background determines the focus and depth of understanding of the interviewees about Zhongdukou. Grassroots workers such as laborers, construction workers and farmers are concerned about changes in their daily lives and work environments, while professionals such as professors, managers of tourism companies and directors of cultural heritage preservation provide professional insights and systematic planning suggestions.

3) Knowledge of Zhongdukou: Interviewees with a deep understanding of the history and current situation of Zhongdukou were selected to ensure the depth and accuracy of the information obtained. Elderly residents were able to provide valuable historical information, while professionals had an in-depth understanding of the cultural, economic and social values of Zhongdukou through their professional background.

4) Diverse Perspectives and Contributions: Ensuring a diversity of interviewees contributes to a comprehensive understanding of Zhongdukou's problems and potential from multiple perspectives. The perspectives provided by residents tend to be personal and lived-in, reflecting the impacts of Zhongdukou on daily life. The perspectives provided by academics and professionals, on the other hand, are more macro and strategic, enabling systematic, long-term planning recommendations.

Table 5

Table 5 Basic Information of Interviewees

No.	Gender	Age	Name	Occupation	Selection Criteria
1	Male	74	Master Liu	Worker (Retired)	Provides historical perspective, understands past development and changes of Zhongdukou
2	Male	70	Master Wu	Construction Worker (Retired)	Understands the history and construction of Zhongdukou
3	Male	65	Master Xu	Farmer	Provides insights into changes in cultural heritage sites
4	Male	78	Master Wang	Highway Company Employee (Retired)	Describes the history and transportation changes in Zhongdukou
5	Male	67	Master Wu	Porcelain Factory Worker (Retired)	Emphasizes ceramic culture and human resources
6	Female	45	Professor Zhang	University Teacher	Provides academic and educational perspective
7	Male	38	Mr. Wang	Jingdezhen Tourism Company Owner	Provides suggestions on tourism development and commercial operations
8	Female	50	Director Li	Director of Jingdezhen Cultural Heritage Protection Bureau	Provides perspective on cultural heritage protection
9	Female	60	Ms. Zhao	Community Resident (Ceramics Enthusiast)	Provides community perspective

Source: Created by Junyi. Cao, 2024.

Design of the outline for interview questions

The design of the interview outline was based on ecological communication theory and combined with binary coding of the field interview questions, which were divided into the following four core concepts:

1) Ecological Communication: Niklas Luhmann's Ecological Communication Theory provides a framework for understanding and addressing the complex interactions between social systems (e.g., regions, cities, organizations) and their environments. The theory suggests that social systems adapt and respond to changes in the external environment through internal communication structures. In the case of Nakadokou, we explore how cultural communication (including the transmission of memories, identities and values) can be used to adapt to changes in the socio-economic environment.

2) Binary Coding: Luhmann's theory of binary coding refers to the simplified way in which social systems process information and make decisions, where the system organizes its operations by setting up opposing choices (e.g., "yes" or "no", "traditional" or "modern") to organize its operations. In the Zhongdukou interview outline, binary coding helped to highlight the main contradictions and choices that exist in the social system, such as cultural preservation versus commercial development, and the integration of traditional skills with modern technology.

3) System-environment interactions: According to ecological communication theory, systems (such as the Central Ferry area) are constantly interacting with their environments, and this interaction occurs through the exchange of information and negotiation of meaning. Interview questions were designed around how systems respond to or shape changes in their environment through their cultural, economic, and social practices.

4) Cultural Resonance: Within Luhmann's framework, cultural resonance describes the ways in which systems respond to changes in their environments and reflect those changes in their internal structures. The interview questions attempted to capture how people in the Central Ferry area perceive and evaluate past and present changes and how these changes are reflected in their daily lives and cultural practices.

Through these theoretical underpinnings, the interview questions aimed to reveal how the people involved in Zhongdukou choose and adapt between maintaining the

cultural identity of the area and adapting to the pressures of economic development. This will not only help to understand the cultural and social dynamics of Zhongdukou, but also help to assess how Jingdezhen ceramic culture has continued to develop under the influence of globalization and modernization.

Presentation of data after interview practice

The interview data was organized through detailed note taking and audio transcription to extract key themes and direct quotes from interviewees. The data presentation reflects not only the cultural and social dynamics of the Zhongdukou area, but also the attitudes and reactions of the local population to changes in Zhongdukou.

Table 6

Table 6 Information and Keywords Mentioned by Interviewees in Field Interviews (Binary Coding Classification)

Binary Encoding	Interviewee	Changes and Personal Experiences	Conflicts Between Culture and Commerce	Views on the Future	Impact on Local Life	Inheritance of Ceramic Culture	Keywords
Past vs. Present	Mr. Liu	Lack of ceramic cultural atmosphere in Zhongdukou, historically served as a pontoon bridge and transport route.		The pontoon bridge is a memorial for Jingdezhen, difficult to develop into a commercial or cultural center in the future.	Now serves only as a public activity area, lacking historical function and commercial role.	Jingdezhen should focus on cultural tourism, ceramic industry has limited future.	Pontoon bridge, commercial development, memorial, cultural tourism
	Mr. Wu	Zhongdukou and Sanlü		Developing Zhongdukou is	The area used to have markets	Lacks ceramic cultural traces,	Sanlü Temple dock, pushing

		Temple docks were closely linked, used for pushing firewood for kilns.		the hope of the residents, wishing for better development of Jingdezhen.	and commercial activities, now residents hope for redevelopment.	difficult to restore past prosperity.	carts, firewood, market
	Mr. Xu	Historical sites in Zhongdukou have been demolished, Sanlü Temple is being restored.		Hopes to restore Zhongdukou's original appearance, connecting it with nearby tourist spots to boost development.	Currently mainly a leisure area for residents, lacking historical cultural atmosphere.	Government should invest in restoring Zhongdukou, promoting cultural tourism.	Restoration of historical sites, tourism route, government investment, cultural tourism development
	Mr. Wang	Zhongdukou was a bustling commercial area, with many ceramic factories and transport companies.		Improving Zhongdukou requires government funding but faces realistic challenges.	Pontoon bridge improved residents' mobility, but commercial and cultural functions have weakened.	Difficult to restore past prosperity, but potential as a cultural tourism spot.	Commercial area, pontoon bridge renovation, government funding, cultural tourism spot
	Mr. Wu	Zhongdukou was a commercial area		Needs government support and	Residents hope Zhongdukou can restore	Important part of ceramic culture,	Commercial area, old street, govern

		with many docks and markets.		funding to restore and develop.	ceramic cultural atmosphere, improving quality of life.	should be protected and inherited.	ment support, ceramic trade functions
	Prof. Zhang	Lacks ceramic cultural atmosphere, but potential as a ceramic culture publicity and education base.		Through proper planning and use of resources, can enhance cultural atmosphere and educational platform.	Through exhibitions and interactive activities, improve cultural recognition among residents and visitors.	Enhance cultural publicity and education functions of Zhongdukou, strengthening ceramic culture inheritance.	Education base, exhibition center, traditional crafts, interactive experience
	Mr. Wang	Zhongdukou has deep cultural heritage and tourism development potential.		Suggests restoring historical scenes of the dock, setting up ceramic crafts display and sales points.	Through cultural activities and markets, attract tourists and promote local economic development.	Willing to cooperate with government and community to promote tourism development and cultural inheritance in Zhongdukou.	Tourism development, planning, commercial operation, cultural activities
	Mr. Li	Zhongdukou is an important		Through lectures and guided tours,	Protect historical sites of Zhongdukou,	Utilize historical cultural value of	Historical site, protection, guided

		historical site and channel, needs scientific protection and reasonable development.		enhance public understanding and appreciation of Zhongdukou's cultural value.	enhancing cultural heritage and tourism value in Jingdezhen.	Zhongdukou, promoting cultural tourism and economic development.	tours, cultural inheritance
	Zhao	Reminisces playing in Zhongdukou as a child, laments current changes.		Organize ceramic craft training classes and community cultural festivals, showcasing and selling residents' works.	Improve residents' cultural literacy, strengthen community cohesion and sense of belonging.	Strengthen ceramic culture inheritance and promotion through community participation and activities.	Community activities, public participation, cultural atmosphere, craft training
Culture Protection vs. Economic Interests	Mr. Liu		No future for Zhongdukou, unable to expand ceramic factories, bleak prospects for ceramic commerce.				Pontoon bridge, commercial development, memorial, cultural tourism
	Mr. Wu		Zhongdukou dock				Sanlü Temple dock,

			mostly demolished, area sold various goods.			pushing carts, firewood, market
	Mr. Xu		Zhongdukou and Sanlü Temple docks connected, suitable for restoration.			Restoration of historical sites, tourism route, government investment, cultural tourism development
	Mr. Wang		Pontoon bridge underwent several renovations, many ceramic workshops around.			Commercial area, pontoon bridge renovation, government funding, cultural tourism spot
	Mr. Wu		Surrounding old streets and markets were demolished, ceramic trade functions disappeared.			Commercial area, old street, government support, ceramic trade functions

		ared.				
	Prof. Zhang	Suggests establishing a ceramic culture exhibition center, showcasing traditional crafts and providing interactive experiences.				Education base, exhibition center, traditional crafts, interactive experience
	Mr. Wang	Needs systematic tourism planning and commercial operation mode, developing cultural tourism projects.				Tourism development, planning, commercial operation, cultural activities
	Mr. Li	Should repair and maintain historical buildings, set up cultural heritage				Historical site, protection, guided tours, cultural inheritance

			protecti on signs and promoti onal boards.			
	Ms. Zhao		Through commu nity activitie s and public particip ation, increase cultural atmosph ere in Zhongd ukou.			Commu nity activitie s, public participa tion, cultural atmosph ere, craft training
Conserv ative vs. Develop ment	Mr. Liu			The pontoon bridge is a memoria l for Jingdez hen, difficult to develop into a commerc ial or cultural center in the future.	Jingdez hen should focus on cultural tourism, ceramic industry has limited future.	Pontoon bridge, commer cial develop ment, memori al, cultural tourism
	Mr. Wu			Developi ng Zhongdu kou is the hope of the residents , wishing for better	Lacks ceramic cultural traces, difficult to restore past prosperi	Sanlü Temple dock, pushing carts, firewoo d, market

				development of Jingdezhen.		ty.	
	Mr. Xu			Hopes to restore Zhongdukou's original appearance, connecting it with nearby tourist spots to boost development.		Government should invest in restoring Zhongdukou, promoting cultural tourism.	Restoration of historical sites, tourism route, government investment, cultural tourism development
	Mr. Wang			Improving Zhongdukou requires government funding but faces realistic challenges.		Difficult to restore past prosperity, but potential as a cultural tourism spot.	Commercial area, pontoon bridge renovation, government funding, cultural tourism spot
	Mr. Wu			Needs government support and funding to restore and develop.		Important part of ceramic culture, should be protected and inherited.	Commercial area, old street, government support, ceramic trade functions
	Prof. Zhang			Through proper planning		Enhance cultural publicit	Educational base, exhibiti

				and use of resources, can enhance cultural atmosphere and educational platform.		y and education functions of Zhongdukou, strengthening ceramic culture inheritance.	on center, traditional crafts, interactive experience
	Mr. Wang			Suggests restoring historical scenes of the dock, setting up ceramic crafts display and sales points.		Willing to cooperate with government and community to promote tourism development and cultural inheritance in Zhongdukou.	Tourism development, planning, commercial operation, cultural activities
	Mr. Li			Through lectures and guided tours, enhance public understanding and appreciation of Zhongdukou's cultural		Utilize historical cultural value of Zhongdukou, promoting cultural tourism and economic develop	Historical site, protection, guided tours, cultural inheritance

				value.		ment.	
	Ms. Zhao			Organize ceramic craft training classes and community cultural festivals, showcasing and selling residents' works.		Strengthen ceramic culture inheritance and promotion through community participation and activities.	Community activities, public participation, cultural atmosphere, craft training
Traditional Life vs. Modern Impact	Mr. Liu				Now serves only as a public activity area, lacking historical function and commercial role.		Pontoon bridge, commercial development, memorial, cultural tourism
	Mr. Wu				The area used to have markets and commercial activities, now residents hope for redevelopment.		Sanlü Temple dock, pushing carts, firewood, market
	Mr. Xu				Currently mainly a leisure area for residents, lacking		Restoration of historical sites, tourism route,

				historical cultural atmosphere.		government investment, cultural tourism development
	Mr. Wang			Pontoon bridge improved residents' mobility, but commercial and cultural functions have weakened.		Commercial area, pontoon bridge renovation, government funding, cultural tourism spot
	Mr. Wu			Residents hope Zhongdukou can restore ceramic cultural atmosphere, improving quality of life.		Commercial area, old street, government support, ceramic trade functions
	Prof. Zhang			Through exhibitions and interactive activities, improve cultural recognition among residents and visitors.		Education base, exhibition center, traditional crafts, interactive experience
	Mr.			Through		Tourism

	Wang				cultural activities and markets, attract tourists and promote local economic development.		development, planning, commercial operation, cultural activities
	Mr. Li				Protect historical sites of Zhongdukou, enhancing cultural heritage and tourism value in Jingdezhen.		Historical site, protection, guided tours, cultural inheritance
	Ms. Zhao				Improve residents' cultural literacy, strengthen community cohesion and sense of belonging.		Community activities, public participation, cultural atmosphere, craft training
Inheritance vs. Innovation	Mr. Liu				Jingdezhen should focus on cultural tourism, ceramic industry has		Pontoon bridge, commercial development, memorial, cultural

						limited future.	tourism
	Mr. Wu					Lacks ceramic cultural traces, difficult to restore past prosperity.	Sanlü Temple dock, pushing carts, firewood, market
	Mr. Xu					Government should invest in restoring Zhongdukou, promoting cultural tourism.	Restoration of historical sites, tourism route, government investment, cultural tourism development
	Mr. Wang					Difficult to restore past prosperity, but potential as a cultural tourism spot.	Commercial area, pontoon bridge renovation, government funding, cultural tourism spot
	Mr. Wu					Important part of ceramic culture, should be protecte	Commercial area, old street, government support, ceramic

						d and inherited.	trade functions
	Prof. Zhang					Enhance cultural publicity and education functions of Zhongdukou, strengthening ceramic culture inheritance.	Education base, exhibition center, traditional crafts, interactive experience
	Mr. Wang					Willing to cooperate with government and community to promote tourism development and cultural inheritance in Zhongdukou.	Tourism development, planning, commercial operation, cultural activities
	Mr. Li					Utilize historical cultural value of Zhongdukou, promoting	Historical site, protection, guided tours, cultural inheritance

						cultural tourism and economic development.	
	Ms. Zhao					Strengthen ceramic culture inheritance and promotion through community participation and activities.	Community activities, public participation, cultural atmosphere, craft training

Source: Created by Junyi Cao, 2024.

Pontoon bridge is a high-frequency word that appeared in the descriptions of many interviewees. Master Liu and several other interviewees mentioned the pontoon bridge as one of the important historical sites in Zhongdukou, not only as a means of transportation, but also as a collective memory of the people of Jingdezhen. However, interviewees felt that despite its important historical value, the pontoon bridge was hardly a major driver of commercial or cultural development in Zhongdukou.

Commercial development and government investment was another central theme. A number of interviewees, including Master Wu and Master Xu, mentioned that the current prospects for commercial development in Zhongdukou are bleak, mainly due to the lack of space for the expansion of the ceramics factory as well as the experience of failed commercial development in the past. In order to effectively rehabilitate and develop Zhongdukou, they emphasized the need for strong government support and financial investment. Government investment was seen as a key factor in achieving the revitalization of Zhongdukou.

Cultural preservation and tourism development were the solutions generally agreed upon by the interviewees. Professor Zhang suggested enhancing the cultural atmosphere of Zhongdukou by setting up a ceramic culture exhibition center and an educational base, and attracting tourists through interactive experiences. This combination of culture and tourism not only protects and inherits the history and culture of Zhongdukou, but also drives the development of the local economy. Director Li, on the other hand, emphasized the cultural value of Zhongdukou through scientific protection and reasonable development.

Community activities and residents' participation were also key concerns of the interviewees. Ms. Zhao suggested that residents should be involved in cultural preservation and inheritance by organizing community ceramic craft training courses and cultural festivals. This would not only enhance residents' cultural literacy, but also strengthen community cohesion and sense of belonging. Many interviewees believed that active community participation is crucial to cultural heritage and innovation in Zhongdukou.

The inheritance of ceramic culture was a recurring theme for several interviewees. The interviewees generally agreed that Zhongdukou, as an important part of Jingdezhen's ceramic culture, should be passed on and carried forward through education and display. By setting up a ceramic culture exhibition center and organizing cultural activities and interactive experiences, more people can understand and inherit this valuable cultural heritage.



Figure 31 The author conducted field interviews around Zhongdukou in Jingdezhen
Source: Photography by Junyi Cao, 2024.

Analysis of interview data and binary coding

1) Past and Present

Interviewees generally mentioned that Zhongduokou was a bustling commercial area and an important transportation hub in the past, especially Master Liu and Master Wang. They recalled that Zhongduokou used to be home to many ceramic factories and wharves, and was the center of economic and cultural activities in Jingdezhen. However, over time, the function and status of Zhongduokou has changed. Nowadays, Zhongduokou mainly serves as a recreational place for residents and lacks the historical ceramic cultural atmosphere, and many historical buildings and markets have disappeared.

Keywords: pontoon, business district, old street, prosperity, change

2) Cultural Preservation and Economic Benefits

Between cultural preservation and economic interests, interviewees expressed conflicting views. According to Master Liu and Master Wu, Zhongdukou is currently unable to restore its former prosperity through the expansion of ceramic factories or commercial development, mainly due to the lack of space for expansion and the failed experience of past commercial development. Nonetheless, most interviewees emphasized the importance of cultural preservation and believed that Zhongdukou's history and culture should be restored and preserved through cultural tourism, which would both preserve cultural heritage and promote economic development.

Keywords: cultural preservation, economic development, ceramic factory, commercial development, cultural tourism

3) Conservatism and Development

Interviewees' opinions also differed on their views on the future development of Zhongdukou. Professor Zhang and Manager Wang suggested that through rational planning and development, Zhongdukou should be turned into a place combining cultural display and tourism, with the establishment of a ceramic culture display center, the restoration of historical scenes, and the organization of cultural activities. The key to success lies in government support and financial investment. However,

interviewees generally agreed that the history and culture of Zhongduokou can only be effectively restored and preserved if sufficient resources are available.

Keywords: development planning, cultural display, government support, financial investment, rational development

4) Traditional life and the impact of modernization

Interviewees mentioned that the changes to the Zhongdukou have had an impact on the daily lives of local residents. Many interviewees, including Master Wu and Ms. Chiu, mentioned that in the past, the Zhongdukou was an important place for residents to live, but now it is mainly used as a place for leisure. Nonetheless, interviewees hoped that the quality of life would be enhanced by restoring the historical and cultural ambience, and believed that this would help to enhance community cohesion and a sense of belonging.

Keywords: life changes, leisure places, historical and cultural atmosphere, community cohesion

5) Inheritance and Innovation

Inheritance and innovation of ceramic culture was another important theme of concern to the interviewees. Professor Zhang suggested displaying and passing on ceramic culture through the establishment of educational bases and exhibition centers, attracting tourists and educating the younger generation through interactive experiences. Ms. Zhao also suggested involving residents in cultural preservation and inheritance through community activities and cultural festivals. These suggestions show that the inheritance and innovation of ceramic culture can be effectively realized through cultural education and community participation.

Keywords: ceramic culture, education base, exhibition center, interactive experience, community activities, cultural festival

Modern memories of Zhongdukou in the content of field interviews

Zhongduokou plays an important role in the history of Jingdezhen, it is not only an important channel connecting the two sides of the Changjiang River, but also an important landmark in the memory of the old generation of Jingdezhen people.

Although the pontoon bridge of the ferry port has been remodeled many times in history, it has always been an important hub for the passage of people on both sides of the Changjiang River and for the development of trade and commerce.



Figure 32 The Floating Bridge Still Connects Both Sides of the Changjiang River Today

Source: Photography by Junyi Cao, 2024.

In the past, the Zhongdukou served as an important transportation route, and although it did not have a significant ceramic cultural atmosphere of its own, its existence greatly facilitated Jingdezhen's commercial activities. The pontoon bridge not only facilitated passage on both sides of the Changjiang River, but also connected important commercial districts such as the Sanlymiao Wharf, making Jingdezhen's commercial and trade exchanges more convenient. The traffic on the pontoon bridge and the market by the pier are the bustling scene in the memory of the old generation of Jingdezhen people.

พหุมนุ ปรณุ ทิโต ชีเว



Figure 33 The Ancient Street of Sanlümiao Under Restoration
Source: Photography by Junyi Cao, 2024.

During the glory days of Jingdezhen's ceramic industry, Zhongdukou witnessed many prosperous commercial activities. The street was lined with a wide range of stores and ceramics workshops, and the ten major porcelain factories transported their ceramics through Zhongduokou, sending fine porcelain from here to all parts of the country. The pontoon bridge was full of vehicles and pedestrians transporting ceramics, and the whole Zhongdukou was full of vitality. However, as times changed, the role of Zhongdukou changed. As modernization progressed, the monuments around the crossing were gradually replaced by modern buildings and facilities, many historical sites were demolished or renovated, and the original commercial prosperity no longer existed. Although the pontoon bridge still exists, it serves more as a monumental symbol than an actual trade route.



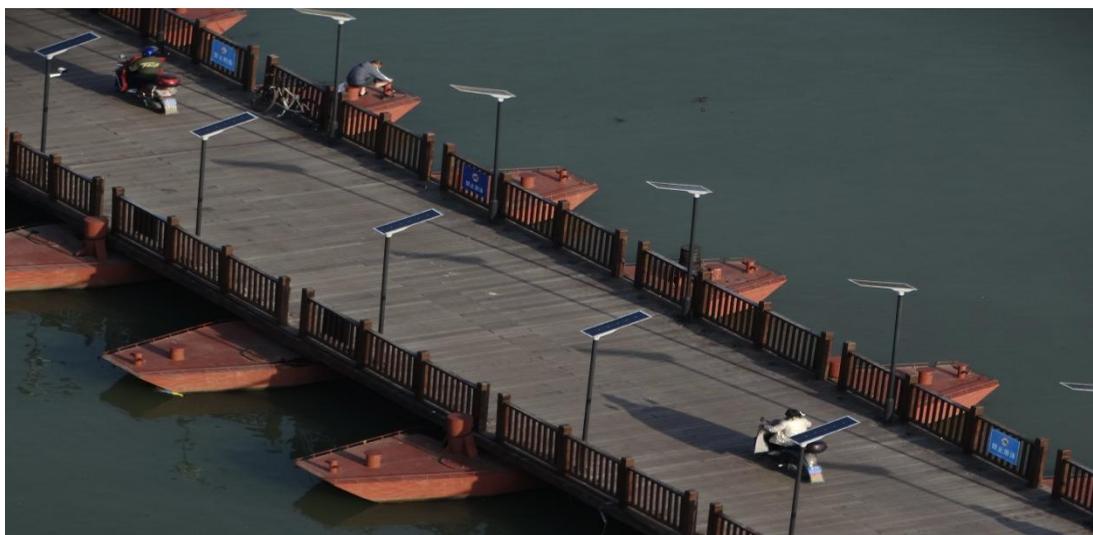


Figure 34 The Current State of the Floating Bridge at Zhongdukou in Jingdezhen
Source: Photography by Junyi Cao, 2024.

As far as I can remember, Zhongdukou used to be a bustling commercial center, with stores selling rice, oil, firewood and other necessities on both sides of the street, as well as many ceramics-related workshops and stores. The traffic on the pontoon bridge and the market at the pier are still vivid in my mind. However, although the pontoon bridge is still there, the ceramic workshops and commercial activities around it are no longer there. The modern Zhongdukou has lost its former prosperity and is used more as a place for residents' activities than as a center for commerce and cultural exchange. Today, Jingdezhen locals are concerned about the current state of Zhongdukou, citing the lack of systematic tourism planning and business operation models as the main obstacles to its development.

What is needed for the development of Jingdezhen is the efforts and perseverance of generation after generation. Whether it is Zhongdukou or other places, as long as the existing resources can be fully utilized, through scientific planning and reasonable development, the future of Jingdezhen is still full of hope. Through rational planning and development, protecting and inheriting the historical and cultural heritage of Zhongdukou, Zhongdukou can move towards new development under the practice of China's modernization, and become an important window for the display and dissemination of Jingdezhen's ceramic culture and art.

In other words, the memory of the Zhongdukou is both a part of Jingdezhen's history and a witness to the city's constant changes. In the process of preserving and developing Zhongdukou, it is important to respect its historical value while focusing on the balance of modern needs.

Part IV The Struggles and Predicaments of Zhongdukou's Ceramic Art in Jingdezhen in the Context of Modernization Practices

Jingdezhen Zhongdukou used to be an important node of ancient commerce and cultural landmark, but in the practice of modernization, its ceramic art atmosphere and commercial function have gradually degraded, facing complex and multiple dilemmas. Compared to the neighboring imperial kiln factories that have been revitalized by government support and construction and the Sanlymiao that is being restored and rebuilt, the current situation of Zhongdukou appears to be even more embarrassing and awkward.

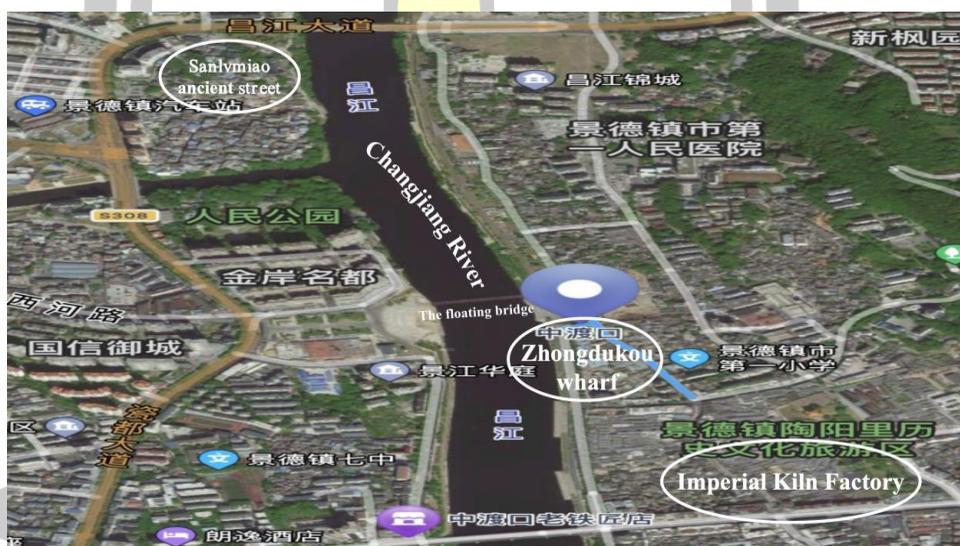


Figure 35 The distribution areas of Jingdezhen Imperial Kiln Factory, Zhongdukou and Sanlymiao

Source: Created by Junyi Cao, 2024.

As the infrastructure of the Zhongdukou is frequently subjected to natural disasters, especially floods, the stability and safety of its transportation corridors are seriously affected. The pontoon bridge, as an important facility connecting the two sides of the Changjiang River at Zhongdukou, is often destroyed during flood seasons, resulting in disruption of transportation. This not only directly affects the accessibility of residents and tourists, but also makes the development of Zhongdukou in terms of culture and tourism face great challenges. Due to the lack of sufficient financial support and scientific and effective flood prevention measures, the rehabilitation and maintenance of the pontoon bridge appears to be overwhelming, further aggravating the development difficulties of Zhongdukou.

In the ferry port around the commercial business is also seriously out of touch with the ceramic art, most of the commercial activities to leisure snack stores and some lack of actual cultural value of the landscape. Although this low-end and homogenized business model attracts some tourists to a certain extent, it fails to enhance the overall cultural taste and economic benefits of Zhongdukou. Compared with the Royal Kiln Factory and Sanlu Temple Pier, Zhongdukou lacks in-depth experience and interaction related to ceramic art, making it difficult to form an organic cultural tourism line and weakening its competitiveness in the cultural tourism market.

Furthermore, the Government's support for the Zhongdukou is obviously inadequate. Although the Imperial Kiln Factory and the Sanlu Temple Pier have achieved remarkable cultural revitalization results under the active support of the government, Zhongdukou has not enjoyed the same policy inclination and financial investment. This has led to the increasing marginalization of Zhongdukou in the development of cultural tourism and its inability to effectively integrate into the overall cultural development strategy of Jingdezhen. The lack of strong policy guidance and financial support makes the cultural heritage protection and commercial development of Zhongdukou face difficulties.

Moreover, the historical and cultural atmosphere of Zhongdukou is gradually fading, and the original rich memory of ceramic culture has been replaced by modern business and useless landscapes, and the cultural inheritance is in danger of being broken. The lack of effective means of cultural display and dissemination makes it difficult for Zhongdukou to attract tourists interested in ceramic culture. The loss of cultural flavor not only weakens the cultural attractiveness of Zhongdukou, but also affects the local residents' sense of identity and pride in history and culture.

Based on the above background, the multiple sources of Zhongdukou's distressing predicament can be clearly seen when assessing its practices. The vulnerability of the infrastructure, the low-end business model, the lack of government support, and the absence of a cultural atmosphere constitute the main problems that need to be addressed in the current development of Zhongdukou.

Summary

In summary, the many dilemmas of the Jingdezhen Zhongdukou in the context of modernization practices are clearly evident. Frequent natural disasters, especially floods, have seriously affected the infrastructure of the Zhongdukou and the stability of its transportation channels. The commercial business around Zhongdukou is seriously disconnected from ceramic art, and the low-end and homogenized business model has weakened its cultural taste and economic benefits. However, the government's support for Zhongdukou is obviously insufficient, making its position in the development of cultural tourism increasingly marginalized and difficult to effectively integrate into the overall cultural development strategy of Jingdezhen. As a result, the historical and cultural atmosphere of Zhongdukou has gradually faded, and the original rich ceramic cultural memories have been replaced by leisure places, and the cultural heritage is in danger of being broken.

At present, it seems that the solution to the predicament of Zhongdukou involves a number of aspects, including a series of measures such as strengthening the infrastructure construction and upgrading the flood prevention capacity; optimizing the business model and deeply integrating ceramic art and culture; increasing government support and providing policies and financial inclination; and reshaping the historical and cultural atmosphere of Zhongdukou through effective means of cultural display and dissemination, so as to ensure the inheritance and promotion of its cultural heritage.

Therefore, it is particularly important to use the social system and ecological environment of ecological communication to explore a strategy for the sustainable development of Zhongdukou's ceramic art in the context of modernization practices.

CHAPTER IV

Analysis of Development Strategies for the Dissemination of Jingdezhen Zhongdukou Ceramic Art Ecological Communication in the Context of Modernization

In the context of globalization and modernization, ecological communication has become a crucial topic. The risk prediction of ecological communication in Jingdezhen Zhongdukou, as the birthplace of ceramic culture with a long history, is particularly important. In the first part, self-reference and other-reference in ecological communication are analyzed. By reviewing and revisiting its own historical and cultural memories, it reconstructs the core position of Zhongdukou in Jingdezhen ceramic culture. Draw on other successful cases and experiences to find the best path suitable for the development of Zhongdukou. The second and third parts, through scientific methods and systematic analysis, can foresee potential problems and challenges in advance, providing a solid foundation for future sustainable development. Finally, the fourth part, through systematic problem reflection, can find the root causes and solutions of existing problems and provide guidance for future development. The purpose of this chapter is to analyze the development strategy of ecological communication of ceramic art in Jingdezhen Zhongdukou from the perspectives of risk prediction and problem reflection in order to achieve its sustainable development in the context of modernization.

Part I Modern Ecological Development Positioning of Jingdezhen Zhongdukou Ceramic Art (Self-Observation)

According to the self-observation theory, a system organizes its own operation through self-reference (observing its own behavior and state) and other-reference (observing the behavior and state of other systems). This self-observation can help Jingdezhen Zhongdukou ceramic art find its ecological development position in the context of modernization.

Self-Referencing

As the birthplace of foreign trade of Jingdezhen ceramic art, Zhongdukou is one of the important historical landmarks, which should have a profound ceramic cultural tradition. Through self-reference, Zhongdukou can constantly review and revisit its own historical and cultural memories and maintain the continuity of cultural inheritance. Self-reference enables Zhongdukou to deeply understand its unique position and role in the development of Jingdezhen ceramic art. However, this process

involves rediscovering and reevaluating historical and cultural heritage, and exploring the combination of cultural inheritance and modernization development by examining past glories and achievements.

1) Require Zhongdukou to re-examine its historical role and cultural value. In the past, Zhongdukou, as a transportation hub and commercial center, witnessed the prosperity of Jingdezhen's ceramic industry. The market scenes on the pontoon bridge are all the bustling scenes remembered by the older generation of Jingdezhen people. These historical memories are not only part of the cultural heritage, but also an important resource for Zhongdukou to rebuild its image in the process of modernization. By deeply excavating and displaying these historical memories, Zhongdukou can enhance its cultural attraction and rebuild its core position in ceramic culture.

2) It involves a comprehensive assessment of the current situation of Jingdezhen Zhongdukou. Zhongdukou needs to systematically analyze its current infrastructure, business model and cultural atmosphere, and clarify its position and development needs in the modernization process. For example, the frequent destruction of pontoon bridges and the problem of traffic disruption directly affect the accessibility of residents and tourists, restricting the development of culture and tourism. Through detailed assessment and data analysis, Zhongdukou can analyze in detail the specific problems constraining its development and formulate targeted solutions. This assessment of the current situation should cover not only the condition of the physical infrastructure, but also the preservation and utilization of cultural resources, the types and benefits of commercial activities, and the perceptions and expectations of community residents and tourists of Zhongdukou.

3) Discover the unique advantages and potential of Zhongdukou itself in the overall development of Jingdezhen. Although Zhongdukou is currently facing many challenges, its unique geographical location, rich historical and cultural resources and former commercial prosperity are all important foundations for its future development. It enables Zhongdukou to recognize its advantages more clearly, make full use of its existing resources, and promote its revival and development through scientific planning and rational development. For example, Zhongdukou can make use

of its historical memory and cultural resources to develop special cultural tourism and attract more tourists to come and hit the spot, so as to enhance its economic benefits and dissemination.

4) Involves reflection and improvement of its own development process.

Through continuous self-observation, Zhongdukou can monitor its own development changes, assess the effectiveness of various development measures, and make adjustments and improvements according to the actual situation. This kind of dynamic self-reference enables CCDC to maintain flexibility and adaptability in the process of modernization, and continuously optimize its own development strategies to achieve sustainable and benign development.

Other-Referencing

Although self-observation theory emphasizes self-reference, in practice, the development of a system cannot be separated from other-reference, i.e., it can improve itself by observing and learning from the operation and success of other systems. Zhongdukou can enrich its own vision and strategy through other references and find a more suitable development path for itself.

1) The Zhongdukou can be compared and modeled on other success stories in Jingdezhen, such as the Imperial Kiln Factory and the Sanlvniao wharf. Many similar areas in Jingdezhen have achieved remarkable results through a series of cultural revitalization and commercial development measures with government support. The Imperial Kiln Factory, as a representative of the Royal Porcelain Kilns, has succeeded in attracting a large number of tourists and cultural enthusiasts through in-depth excavation of its historical and cultural resources and the combination of modern exhibition techniques and tourism services. In the process of restoration and reconstruction, the Sanlvniao wharf focuses on the protection of historical relics and cultural atmosphere, while introducing modern facilities and services, which will greatly enhance the overall tourism experience of culture and art atmosphere. Jingdezhen Zhongdukou needs to learn from it how to effectively utilize government resources and strive for policy support and financial investment to promote its own development.

2) The development models and successful experiences of other cultural heritage sites at home and abroad can be observed and analyzed. For example, the Terracotta Warriors and Horses in Xi'an, the Mogao Grottoes in Dunhuang, as well as the Venice Canal and the Louvre in Paris in foreign countries, these world-renowned cultural heritage sites have something to learn from in the process of conservation and development. Zhongdukou can find a suitable development path for itself by learning from the cultural conservation measures, visitor management strategies, and commercial development models in these cases. In particular, useful insights can be gained on how to balance the relationship between cultural heritage protection and modern commercial development, as well as how to enhance visitor experience and increase economic returns.

3) The need to understand and grasp external market demand and tourism trends. The modern tourism market has a growing demand for cultural experiences and interactivity, and Zhongdukou needs to adjust and optimize its own cultural displays and service content by observing other successful tourist attractions and discovering tourists' preferences and expectations. For example, it should increase the number of interactive experience programs related to ceramic art, such as ceramic production experience, ceramic culture lectures, ceramic art exhibitions, etc., so as to enhance tourists' sense of participation and experience, and to improve the overall attractiveness.

4) The most important and indispensable point is the need to understand the advanced experience and technology of other regions in environmental protection and infrastructure construction. Facing the problems of natural disasters and infrastructure vulnerability, Zhongdukou should learn and introduce the successful practices of other regions in flood prevention, disaster prevention, and infrastructure maintenance to improve its own risk-resistant capacity and infrastructure level. For example, it can learn from Japan's technology and experience in flood and earthquake prevention, and formulate scientific and effective flood prevention measures and emergency plans to ensure the safety and stability of pontoon bridges and other infrastructure.

5) The most desirable and currently easier to realize point. Zhongdukou enhances cooperation and communication with other cultural heritage sites to form a regional

linkage effect. Through cooperation with other cultural attractions in Jingdezhen and the surrounding areas, jointly organize cultural activities, tourism routes and exhibition projects to form an overall cultural tourism brand and enhance the popularity and influence of Zhongdukou. For example, the "Jingdezhen Ceramic Art and Culture Tourism Route" can be jointly launched with the Imperial Kiln Factory and Sanlymiao wharf, attracting more tourists to visit and experience, which can enhance the overall tourism benefits.

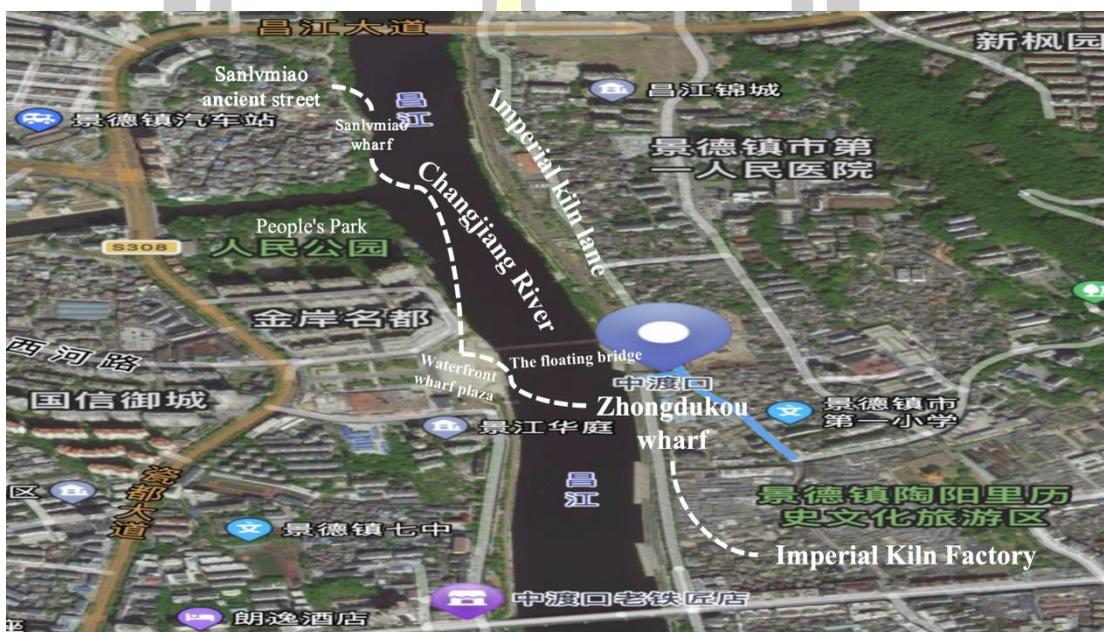


Figure 36 "Jingdezhen Ceramic Art and Culture Tourism Route" Plan for Sanlymiao wharf, Zhongdukou and the Imperial Kiln Factory
Source: Created by Junyi Cao, 2024.

Ecological communication and dynamic adaptation

Self-observation is not just an assessment of the static status quo, but also an ability to adapt dynamically. In the context of modernization, rapid changes in the environment require Zhongdukou to be able to adjust its development strategy in time. Through self-observation, CCDC can continuously monitor its own changes and the dynamics of the external environment and make flexible responses. Ecological communication theory emphasizes the interaction between the system and the environment, which is especially important in the development of Zhongdukou. Through self-observation, Zhongdukou can enhance its interaction with the environment, and by improving its own adaptive capacity, in order to achieve the realization of sustainable development.

The ecology of Jingdezhen Zhongdukou

Jingdezhen Zhongdukou is located in Changjiang District, Jingdezhen City, with a superior geographical position and convenient transportation. The area is endowed with rich natural resources and favorable ecological environment. The terrain of Changjiang District is mainly hilly, with the remnants of Huangshan and Huayu mountains and the transition zone of Poyang Lake Plain adding unique geological and geomorphological features. With an average elevation of 32 meters above sea level, the terrain of Zhongdukou slopes from northeast to southwest, forming a typical Jiangnan red-loam hilly area. This topographic feature not only provides a good foundation for the ecological environment of the area, but also gives it superior conditions for agricultural cultivation.

Hydrologic conditions at Zhongdukou are also ideal. The average annual water level in the area is 2.82 meters, with a historical high of 4.37 meters, and the groundwater level varies considerably depending on the season and drainage conditions. The perennial water level ranges from 2.2 m to 2.8 m. Such hydrological conditions provide sufficient water for agriculture and daily life, while attention needs to be paid to the construction of drainage and flood control projects.

Climate-wise, Jingdezhen Zhongdukou has a subtropical monsoon climate with four distinct seasons, moderate temperatures and abundant precipitation. The temperature ranges from 11 to 22 degrees in spring, 22 to 29 degrees in summer, 12 to 24 degrees in fall, and 5 to 12 degrees in winter. The average annual temperature is 17.3 degrees Celsius, with extreme highs of up to 41.8 degrees Celsius and extreme lows of minus 10.9 degrees Celsius. Spring is characterized by cold and cloudy weather, summer by floods and droughts, fall by low precipitation, and winter by cold and dry conditions. Such warm and humid climatic conditions are ideal for the growth of a wide variety of crops and plants, and the ecological environment is favorable.

In terms of earthquakes, the Jingdezhen area has experienced three earthquakes in its history, but according to the latest seismic zoning map, the Jingdezhen area is a non-seismic defense zone, with a peak ground shaking acceleration of less than 0.05g and a seismic intensity of less than VI degree. The earthquake risk is low, which provides a relatively safe environment for local buildings and infrastructure.

The drainage system in Zhongdukou is also relatively complete, with an adequate municipal water supply network, sewage is treated through dedicated pipelines, and sewage generated by the project can be discharged into the municipal sewage treatment plant for centralized treatment through municipal rainwater and sewage sub-branches. Stormwater pipes are provided on the road and discharge into the municipal pipe network and the river. Relevant licensing procedures need to be completed before construction, and such a drainage system design ensures water resource management and environmental protection in the area.

Table 7

Table 7 Ecological Environment Analysis of Zhongdukou in Jingdezhen

Ecological Environment	Details
Geographical Location	Zhongdukou is located in Changjiang District, Jingdezhen City, along Jiangxi Road, south of People's Park, and east of Cidu Avenue. It has convenient transportation. It has convenient transportation.
Administrative Planning	According to the overall urban planning of Jingdezhen City, Zhongdukou will become a residential, commercial, and office center. The government administrative center is also moving here, making it a new high-end commercial, office, and residential area in the future. administrative center is also moving here, making it a new high-end commercial, office, and residential area in the future.
Current Land Status	<ol style="list-style-type: none"> 1. Surrounding Facilities: The area is equipped with sports centers, hotels, hospitals, schools, and large supermarkets. 2. Land Environment: The plot is adjacent to roads on both sides, with a river on the east side, providing a good commercial and office environment. 3. Traffic Status: Multiple bus lines cover the area, and more lines will be opened in the future. 4. Sewage Treatment: The sewage treatment plant for the area has been built, with a daily treatment capacity of 30,000 cubic meters. Water supply, power supply, and communication facilities are adequate. Water supply, power supply, and communication facilities

are adequate.

5. **Environmental Protection:** There are no pollution sources, and there are good flood control and drainage facilities. The terrain is regular, conducive to development and construction. The terrain is regular, conducive to development and construction.

6. **Land Use:** The land use rights for the construction land have been obtained, and there are no house demolition issues. Temporary water and electricity conditions for construction have been met. Temporary water and electricity conditions for construction have been met.

Geology and
Topography

Jingdezhen is a hilly area, located at the transition zone between the Huangshan, Huaiyu Mountains, and Poyang Lake Plain. The average altitude is 32 meters, sloping from northeast to southwest. The average altitude is 32 meters, sloping from northeast to southwest. The basin topography makes it prone to flooding.

Hydrology

The average annual water level is 2.82 meters, with the highest average annual water level at 3.27 meters (1954) and the lowest at 2.28 meters (1934); the historical highest water level is 4.37 meters (July 28, 1954) and the lowest is 1.89 meters (August 27, 1934). average annual water level is 2.82 meters, with the highest average annual water level at 3.27 meters (1954) and the lowest at 2.28 meters (1934); the historical highest water level is 4.37 meters (July 28, 1954) and the lowest is 1.89 meters (August 27, 1934). The groundwater level fluctuates with seasonal changes, canal water levels, and drainage conditions, typically ranging from ± 0.01 meters to 1.00 meters. The groundwater level fluctuates with seasonal changes, canal water levels, and drainage conditions, typically ranging from ± 0.01 meters to 1.00 meters.

Climate

Subtropical monsoon climate with four distinct seasons. Spring temperatures range from 11 to 22 degrees Celsius, with 543.1 mm of precipitation; summer Spring temperatures range from 11 to 22 degrees Celsius, with 543.1 mm of precipitation; summer temperatures range from 22 to 29 degrees Celsius, with 689.1 mm of precipitation, and the extreme

maximum temperature reaches 41.8 degrees Celsius; autumn temperatures range from 12 to 24 degrees Celsius, with 689.1 mm of precipitation. autumn temperatures range from 12 to 24 degrees Celsius, with 127.7 mm of precipitation; winter temperatures range from 5 to 12 degrees Celsius, with an extreme minimum temperature of -10.9 degrees Celsius. winter temperatures range from 5 to 12 degrees Celsius, with an extreme minimum temperature of -10.9 degrees Celsius, and 394.2 mm of precipitation. Spring has frequent low-temperature and continuous rainy weather, summer has frequent floods and drought. Spring has frequent low-temperature and continuous rainy weather, summer has frequent floods and droughts, autumn has less precipitation, and winter is cold and dry. The annual average temperature is 17.3 degrees Celsius, with a long frost period. Celsius, with a long frost-free period, suitable for the growth of crops and various plants.

Seismic Activity

Three historical earthquakes have occurred: in 1336, 1756 (magnitude 5), and 1820 (magnitude 4.5). According to the 2003 seismic zoning map of Jiangxi Province by the Provincial Construction Department and Seismological Bureau, the basic intensity in this area is 6 degrees, with a peak ground acceleration of less than 0.05g. According to the 2003 seismic zoning map of Jiangxi Province by the Provincial Construction Department and Seismological Bureau, the basic intensity in this area is 6 degrees, with a peak ground acceleration of less than 0.05g and a spectral characteristic period of 0.35s. Jingdezhen is classified as a non-seismic fortified area. According to data from the Jiangxi Seismological Bureau, ten earthquakes of magnitude 2.1 to 3.0 occurred in Jingdezhen from April to September 1972. April to September 1972.

Drainage

The municipal water supply network is sufficient, and sewage is treated through dedicated pipelines. The project's sewage can be collected and directed into the municipal sewage network for centralized treatment. The project's sewage can be collected and directed into the municipal sewage network for centralized treatment. The roads are equipped with rainwater pipes, which are connected to the municipal network and rivers. Relevant permits must be obtained before construction.

Transportation Conditions	External roads are smooth and accessible, with Cidu Avenue running north-south and Jiangxi Road. The area is covered by city bus lines, and more lines will be opened in the future. The area is covered by city bus lines, and more lines will be opened in the future.
---------------------------	--

Source: Created by Junyi Cao, 2024

In fact, Jingdezhen Zhongdukou is now equipped with superior ecological environment, geographical location and good natural conditions, hydrology, climate, earthquake and drainage system with high ecological adaptability and safety. It can provide a solid ecological foundation and guarantee for the development of local agriculture, commerce, residence and many other aspects.

Modernization Construction and Regional Distribution of Jingdezhen Zhongdukou

The Jingdezhen Zhongdukou area is located along the Changjiang River and is a historically and culturally important place. A number of key sites and facilities can be found within this area, including the Sanlvniao Ancient Wharf, the Jingdezhen Old Town Museum, the Floating Bridge, as well as the surrounding hotels, restaurants, educational institutions, stores and government units. Zhongdukou is not only a tourist attraction, but also a typical area of modern development.

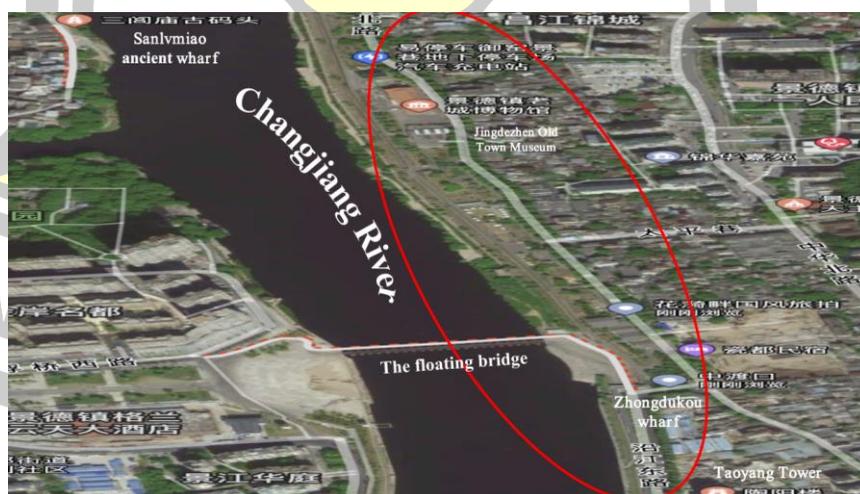


Figure 37 .Regional distribution of Zhongdukou's modernization construction
Source Created by Junyi Cao, 2024.

According to the field research, the distribution of modernization in the area of Jingdezhen Zhongdukou is shown in the table.

Table 8
Table 8 Number of stores around Zhongdukou

Index	Zhongdukou Urban Construction Shops	Count
1	Hotels (including guesthouses)	11
2	Dining	24
3	Education (including studios)	8
4	Shops (including leisure and entertainment venues)	23
5	Government Units	7

Source: Created by Junyi Cao, 2024

There are a total of 11 hotels and hostels in the Zhongdukou area, located around the Jingdezhen Old Town Museum and the Floating Bridge. These hotels and inns provide convenient accommodation options for tourists and also promote local tourism. The presence of the hotels indicates the tourist attractiveness of this area, but the number is relatively limited and may be related to the general development plan and tourist capacity of Zhongdukou.

However the food and beverage industry is prominent in the Zhongdukou area with a total of 24 food and beverage outlets. These food and beverage outlets not only provide local residents with a wealth of eating choices, but also provide tourists with the opportunity to experience the local cuisine of Jingdezhen. The high concentration of food and beverage outlets indicates that the area has a strong business atmosphere and attraction, and that food and beverage culture plays an important role in the modernization of Zhongdukou.

As for educational institutions, there are eight educational institutions in the Central Ferry area, including a number of art studios. These institutions provide places for local and foreign students to study and practice. Although the number of educational institutions is small, they play an important role in nurturing talents in ceramic art. At the same time, these educational institutions contribute to the cultural atmosphere of the region.

Stores and recreational venues are also part of the modernization of Zhongdukou. There are a total of 23 stores and recreational areas in the area, providing residents and visitors with a wide variety of shopping and entertainment options. The presence

of these stores and recreational areas makes Zhongdukou a multi-purpose, modern area that meets the needs of everyday life and provides visitors with a great shopping and recreational experience.

Moreover, there are seven government units in the Zhongdukou area, which provide the necessary administrative and public services to ensure the normal operation and order of the area. The presence of government units also indicates the importance and support of the government for the development of the region.

As the birthplace of Jingdezhen's foreign trade in ceramics, Zhongdukou has a long history and deep cultural heritage. Since ancient times, Jingdezhen has been known as the center of ceramic production and export in China and even in the world, and Zhongdukou is an important part of this historical process. Through Zhongdukou, Jingdezhen's ceramic products have been continuously transported to all over the world, becoming an important bridge for cultural exchange between China and the world.

Despite the importance of Zhongdukou in the history of foreign trade in ceramics, the current ceramic art scene is not as strong as it could be. According to the data, there are only seven programs involving ceramic art, which is a very small percentage of the total.

Based on the above analysis of regional data, it can be found that the modernization of the Zhongdukou area focuses on diversified development, with a full range of facilities such as restaurants, hotels, education, stores and government units, bringing a thriving business atmosphere and a modern living experience to the area. However, this diversified development has weakened the presence of ceramic art to a certain extent. Commercialized development has resulted in a relative scarcity of ceramic art projects in the area, with fewer opportunities for tourists and residents to come into contact with ceramic art in this area, resulting in an overall atmosphere that is not strong enough.

From the point of view of market demand and commercial interests, industries such as catering and entertainment can bring higher profits and quicker returns, thus becoming the focus of investment and development. This business orientation has led

to the slow development of ceramic art-related projects. Investors prefer to develop projects that can quickly attract customers and generate revenue, while ceramic art projects have been neglected due to their long payback period and specialization.

Aspects regarding government support and policies. Although governmental units provide basic administrative services within the Zhongdukou area, support for ceramic arts may not be sufficient. The lack of specialized policies and financial support makes it difficult for ceramic art projects to obtain sufficient space for development. The government should encourage the development of ceramic art programs by formulating special support policies to enhance the cultural atmosphere and artistic value of the region.

At the same time, public participation and cultural identity is very important. Ceramic art needs extensive public participation and cultural identity to form a strong atmosphere. However, the current modernization of Zhongdukou focuses more on commerce and tourism, with insufficient efforts to disseminate and promote ceramic culture. Increasing public awareness and participation in ceramic art can be achieved by organizing ceramic art exhibitions, workshops and experiential activities.

Cultural resonance and self-improvement

Cultural resonance is an important concept in self-observation that describes how a system responds to environmental changes and reflects those changes in its internal structure. Zhongdukou uses self-observation to achieve increased resonance with Jingdezhen's cultural identity and market dynamics. Through rich cultural activities and ceramic art displays, Zhongdukou can enhance its cultural appeal and identity.

Self-observation can help Zhongdukou find a balance between cultural heritage and modern needs. While protecting and inheriting the historical and cultural heritage, Zhongdukou needs to focus on modern needs and promote both cultural and commercial development through scientific planning and rational development. Through continuous self-observation and improvement, Zhongdukou can achieve a new ecological development position in the context of modernization and become an important window for the display and dissemination of Jingdezhen ceramic culture and art.

The following points must be involved in order to achieve self-improvement as analyzed from the practice survey data:

1) Increase ceramic art-related programs. Add ceramic art exhibition halls, ceramic craft experience halls and ceramic culture theme parks to the existing programs to provide tourists and residents with more opportunities to understand and experience ceramic art. Encourage local artists and ceramic craftsmen to open studios and art stores in the Zhongdukou area to increase the commercial atmosphere of ceramic art.

2) Government support policies. The government can encourage and support the development of ceramic art projects by providing financial support, tax incentives and special subsidies and other policies. Formulate a long-term cultural development plan, incorporate ceramic art into the core development objectives of the region, and enhance its status in modernization.

3) Cultural activities and public participation. Regular activities such as ceramic art festivals, cultural exhibitions and craft competitions will be organized to attract more public participation and enhance the influence and recognition of ceramic art. Promote ceramic art education in schools and the community, and cultivate the next generation's interest in and recognition of ceramic culture through courses and workshops.

4) Combination of tourism and culture. Combine ceramic art with tourism resources, develop special tourism routes and theme activities, such as ceramic production experience tours, ceramic culture exploration tours, etc., to enhance the cultural experience of tourists. Through cultural guided tours and interactive displays, tourists can gain an in-depth understanding of the history and craftsmanship of ceramic art during their visit to Zhongdukou.

Zhongdukou is not only a modernized city area, but also should be a place of ceramics full of cultural heritage and artistic charm. Although Jingdezhen Zhongdukou has made partial advancement in modernization, the diversified development has made the area gradually active. However, as the birthplace of Jingdezhen's foreign trade in ceramics, the relative lack of ceramic art atmosphere is a

great concern, and it needs to be helped to find a development path suitable for itself through effective and systematic sustainable development strategies.

Challenges in theory and practice

Social systems are often confronted with contradictions and challenges between theory and practice when making self-observations. Social movements often lack a solid theoretical foundation, making it difficult to effectively integrate theory and practice. Zhongdukou has faced similar problems in its modernization and development process. Although problems and development needs can be identified through self-observation, implementing improvement measures may encounter unforeseen difficulties and negative effects in concrete practice. For example, in order to enhance cultural display and market competitiveness, Zhongdukou may introduce modern business models and tourism development projects, but these measures, if not adequately guided by theory and verified in practice, may lead to further dilution of the cultural atmosphere and commercialization.

Nevertheless, the social system still needs to conduct self-observation to cope with the changing environment and complex social problems. In conducting self-observation, Zhongdukou also needs to take into account its historical and cultural heritage, modernization needs and environmental changes, and find a development path suitable for itself through scientific theoretical guidance and practical verification. Only by finding a balance between theory and practice can sustainable development be realized.

Part II Dialectical Relationship of Sustainable Development (Application of Binary Coding)

1) Economic systems: dichotomy and synergy between commercialization and cultural preservation

Binary Coding: Commercialization vs. Cultural Preservation

Dialectical relationship: Synergistic development of commercialization and cultural preservation can be achieved through the formulation of cultural and economic policies. For example, the government can provide special financial support and tax incentives for these performance activities and antique buildings to ensure that cultural heritage is properly protected while attracting tourists. Through cultural

tourism projects, a portion of the commercial proceeds can be used for cultural preservation, so that the two can be mutually reinforcing and sustainable development can be realized.

2) Science and technology systems: dichotomy and synergy between traditional skills and modern technology

Binary Coding: Traditional Craftsmanship vs. Modern Technology

Dialectic relationship: Synergistic development of the science and technology system is realized by combining traditional skills with modern technology. In the display of ceramic art, it is necessary to retain the unique value of traditional handicrafts, while also introducing advanced display technology to enhance the viewing experience of tourists. Science and technology education and training should emphasize the integration of tradition and modernity, and cultivate comprehensive talents who master both traditional skills and modern technology.

3) The political system: dichotomy and synergy between protection and development policies

Binary coding: Protection Policy vs. Development Policy

Dialectical relationship: Synergy between conservation and development can be achieved through the formulation of comprehensive policies. For example, the Government can establish a linkage mechanism between cultural preservation and economic development to ensure that ceramic cultural heritage and the ecological environment are preserved while tourism route development takes place. In development, environmental impact assessments are prioritized, protective measures are formulated, and requirements for cultural preservation are integrated into development policies.

4) Religious systems: opposition and synergy between cultural heritage and modern values

Binary Coding: Cultural Heritage vs. Modern Values

Dialectic: Synergy between cultural heritage and modern values through inclusive development. In Jingdezhen Zhongdukou, traditional ceramic culture can be

combined with modern art and design concepts through cultural activities and educational programs to create ceramic works that retain the essence of tradition while conforming to modern aesthetics. At the same time, through community activities and public education, public recognition of traditional culture and understanding of modern values can be enhanced.

5) Education system: dichotomy and synergy between cultural education and skills training

Binary Coding: Cultural Education vs. Skills Training

Dialectical relationship: Synergy between cultural education and skills training is achieved through an integrated education model. Educational institutions can design comprehensive curricula that teach the history and values of ceramic culture while also developing students' practical skills. For example, courses on the history of ceramic culture and practical classes on ceramic production techniques are offered to enable students to acquire skills and at the same time gain a deep understanding of the connotations of ceramic culture.

Part III Analysis of Ecological Dissemination Strategies for Sustainable Development (Risk Prediction and Problem Reflection)

Risk prediction for sustainable development

Ecological communication theory is concerned with the interactions between human society and the natural environment and their impacts. Risk prediction plays a crucial role in this theory, as it helps societies to anticipate and avoid possible environmental risks in order to achieve sustainable development.

In the context of globalization and modernization, ecological communication has become a crucial topic. The risk prediction of ecological communication in Jingdezhen Zhongdukou, as the birthplace of ceramic culture with a long history, is particularly important. Through scientific methods and systematic analysis, potential problems and challenges can be foreseen in advance, providing a solid foundation for future sustainable development.

1) Environmental risk (risk of ecological change)

Environmental risk prediction in ecological communication theory focuses on identifying and analyzing environmental changes and their potential impacts. For example, climate change, pollution and natural disasters are important environmental risk factors. These risks not only cause damage to natural ecosystems, but also have far-reaching impacts on the survival and development of human societies.

Jingdezhen Zhongdukou is located in Changjiang District and has a unique geographical and ecological environment. However, with the advancement of modernization and the increase of human activities, the ecological environment faces many challenges. Firstly, the impact of climate change on Zhongdukou cannot be ignored. Climate warming and frequent occurrence of extreme weather events may cause irreversible damage to the local ecosystem. For example, extreme rainfall may lead to flooding, while prolonged droughts may affect the availability of water resources, all of which will have a direct impact on the ceramic industry.

2) Technology risk (risk of technological progress)

The risks associated with technological progress are also one of the main concerns of ecological communication theory. Although technological development can improve productivity and quality of life, the environmental and social risks it brings cannot be ignored. For example, industrial pollution, resource depletion and ecological damage are all possible negative impacts of technological progress. Therefore, predicting and managing technological risks is a key aspect in ecological communication theory.

While technological advances promote modernization, they also bring new risks. While advanced production techniques and equipment have increased productivity, they may also lead to the loss of traditional crafts. Modern technology reduces the need for labor to a certain extent, which may lead to employment problems, especially for those artisans who rely on traditional crafts. In addition, the introduction of modern technology may change the core values of traditional porcelain-making crafts and cause them to lose their original artistic and cultural connotations.

3) Social risks (risks of cultural heritage preservation and socio-economic changes)

Ecological communication theory also emphasizes the prediction of social risks. These risks include social unrest, economic losses, and health problems due to environmental degradation. By anticipating these social risks, preventive and responsive measures can be taken to reduce the negative impacts of environmental change on social stability and development.

As the birthplace of Jingdezhen's ceramic culture, Zhongdukou faces great challenges in preserving its cultural heritage. In the process of modernization and construction, historical buildings and ancient porcelain-making techniques may be damaged. With the development of tourism, the influx of tourists may cause damage to the cultural heritage, especially as some tourists may ignore the rules of conservation, leading to the destruction and loss of cultural relics. In addition, excessive commercialization may cause traditional culture to gradually lose its original purity and historical value.

Changes in the socio-economic structure of the modernization process also pose a number of risks. First, changes in business models may lead to the decline of traditional handicrafts, especially those ceramic-making enterprises that rely on traditional craftsmanship, which may face the pressure of market competition. Second, with urbanization and increasing competition for land resources, some traditional ceramic-making areas may be transformed into commercial or residential areas, leading to the shrinkage and relocation of the ceramic industry. In addition, while the rise of tourism can drive economic development, it may also lead to increased environmental pollution and social problems if it lacks effective management.

4) Policy risk (risk of changes in policies and regulations)

Policy change is also an important risk factor in ecological communication. For example, adjustments in environmental policies and changes in land-use policies can have significant impacts on ecosystems and societies. Anticipating policy risks helps

to formulate responses in advance to ensure the stability of ecological and social systems.

Changes in policies and regulations also have far-reaching impacts on the ecological spread of Nakatsuguchi. Firstly, although the strict implementation of environmental protection policies may help to protect the ecological environment, it may also increase the operating costs of enterprises, especially those smaller ceramic enterprises, which may find it difficult to afford the high environmental protection costs. Secondly, the adjustment of land use policies may lead to the re-planning of traditional porcelain-making areas, affecting the development of the ceramic industry. In addition, changes in cultural heritage protection regulations may also have an impact on the ecological spread of the Zhongdukou, which may lead to the loss of cultural heritage if protection measures are not adequate.

5) Integrated risk management (response strategies)

Integrated risk management is an important concept in ecological communication theory. By systematically predicting and assessing various environmental, technological, social and policy risks, integrated management strategies can be formulated to harmonize the interests and needs of various parties and achieve sustainable development.

In the face of the above risks, CCDC needs to develop scientific risk management and response strategies. Firstly, it needs to establish a perfect ecological environment monitoring system to monitor the dynamics of climate change and the ecological environment in real time and to warn of potential risks in advance. Secondly, it needs to strengthen the protection of cultural heritage and ensure that historical buildings and traditional crafts are not damaged by formulating strict protection measures and regulations. In addition, there is a need to optimize the socio-economic structure, promote the modernization and transformation of traditional handicrafts, and improve production efficiency and market competitiveness through the introduction of advanced technologies and management models. At the same time, the government and relevant departments need to formulate reasonable policies and regulations to ensure that modernization is coordinated with ecological environmental

protection and cultural heritage protection. Finally, publicity and education on risk management need to be strengthened to increase public awareness of risk and participation, and to jointly maintain the ecological environment and cultural heritage of Zhongdukou.

Through scientific risk prediction and management strategies, Zhongdukou is able to effectively respond to various challenges in the modernization process and achieve sustainable development of ecological communication. Only on the basis of fully recognizing and preventing risks can we ensure the inheritance and development of Jingdezhen ceramic culture on a global scale.

Reflection on issues in sustainable development

Problematic reflection is another key part of ecological communication theory. By reflecting on existing problems and shortcomings, it can provide valuable lessons and guidance for future development.

When confronted with the issue of ecological communication, reflection is an important part of developing a strategic approach. By reflecting on the current situation and summarizing the historical experience, the root causes of the problems can be found to provide a reference for the future development. As an important birthplace of ceramic culture, Jingdezhen Zhongdukou faces many ecological communication problems in the process of modernization, and through systematic reflection, it can provide guidance for its future development.

1) Rethinking Ecological Environmental Protection

Reflect on the problems in ecological environmental protection. Despite the fact that Zhongdukou has rich natural resources and a good ecological environment, the ecological environment faces many threats in the process of modernization. For example, the development of industrialization and urbanization may lead to environmental pollution, especially the wastewater and exhaust gas produced during the production of ceramics, which, if not handled properly, can cause serious pollution of local water and air. Over-exploitation may also lead to the destruction of ecosystems, such as soil erosion and the reduction of biodiversity. Therefore, there is a need to reflect on whether current environmental protection measures are effective enough to meet the growing environmental challenges.

2) Rethinking Cultural Heritage Protection

Zhongdukou, the birthplace of ceramic culture, faces great challenges in preserving its cultural heritage. Reflect on the shortcomings in the protection of cultural heritage. For example, some historical buildings and ancient porcelain-making crafts are facing the risk of gradual disappearance due to the lack of effective conservation measures. Excessive commercialization has also caused some traditional cultures to gradually lose their original purity and historical value. There is a need to reflect on how to protect and pass on these precious cultural heritages in the process of modernization so that they can continue to give full play to their cultural and artistic value.

3) Rethinking the socio-economic structure

In the process of modernization, changes in the socio-economic structure have had a profound impact on the ecological spread of Zhongdukou. Reflect on whether the current business model is adapted to the needs of the modern market. For example, traditional handicrafts are often inefficient and uncompetitive in the face of modern industrialized production. The development of urbanization has made land resources more tight, and traditional porcelain-making areas may be transformed into commercial or residential areas, leading to the shrinkage and relocation of the ceramic industry. There is a need to reflect on how to optimize the socio-economic structure, promote the modernization and transformation of traditional handicrafts, and improve their market competitiveness and sustainability.

4) Reflections on technological progress

While technological advances drive modernization, they also bring new challenges. Reflect on the impact of modernization technologies on traditional crafts. For example, while advanced production techniques and equipment have increased productivity, they may also lead to the loss of traditional crafts. To some extent, modern technologies have reduced the demand for labor, which may lead to employment problems, especially for those artisans who rely on traditional crafts. There is a need to reflect on how to preserve and pass on traditional crafts while introducing modern technologies so that they can continue to develop their unique artistic and cultural values in the modernization process.

5) Rethinking Policies and Regulations

Changes in policies and regulations have had a profound impact on the ecological spread of the Zhongdukou. Reflect on whether the existing policies and regulations can effectively protect the ecological environment and cultural heritage. For example, although some environmental policies are strictly enforced, they may be poorly regulated and enforced in practice. Adjustments in land use policies may lead to the rezoning of traditional porcelain-making areas, affecting the development of the ceramic industry. There is a need to reflect on how to formulate and implement more rational and effective policies and regulations to ensure that modernization is coordinated with ecological and environmental protection and the preservation of cultural heritage.

6) Reflections on public participation

Public participation is an important aspect of ecological communication that cannot be ignored. Reflect on whether public awareness and participation in ecological environment and cultural heritage protection are high enough. For example, some members of the public may lack environmental awareness and cultural identity, leading to environmental pollution and destruction of cultural heritage. Whether the ways and means of public participation are sufficiently diverse and convenient is also an issue for reflection. There is a need to encourage and guide the public to actively participate in the protection of the ecological environment and cultural heritage by strengthening publicity and education to enhance public awareness of environmental protection and cultural identity.

7) Reflections on the way forward

In the process of modernization, Zhongdukou needs to find a development direction that suits its needs. There is a need to reflect on whether the current development model meets the requirements of sustainable development. For example, over-reliance on commercial development may lead to the destruction of the

ecological environment and the loss of cultural heritage. There is a need to explore how to protect the ecological environment and cultural heritage while promoting economic development and realizing sustainable development. Reflect on how to utilize its advantageous resources and find a unique path of development. For example, by utilizing the rich ceramic cultural resources, develop special cultural tourism to attract more tourists and enhance economic benefits and dissemination. Through systematic reflection and summarization, provide guidance and reference for future development.

Part IV Sustainable Development Strategy Guidelines Based on Ecological

Communication

The simulation implementation scenarios analyzed for the strategy are specified in relation to five aspects: the economic system, the scientific and technological system, the political system, the religious system, and the educational system, as shown in the table below:

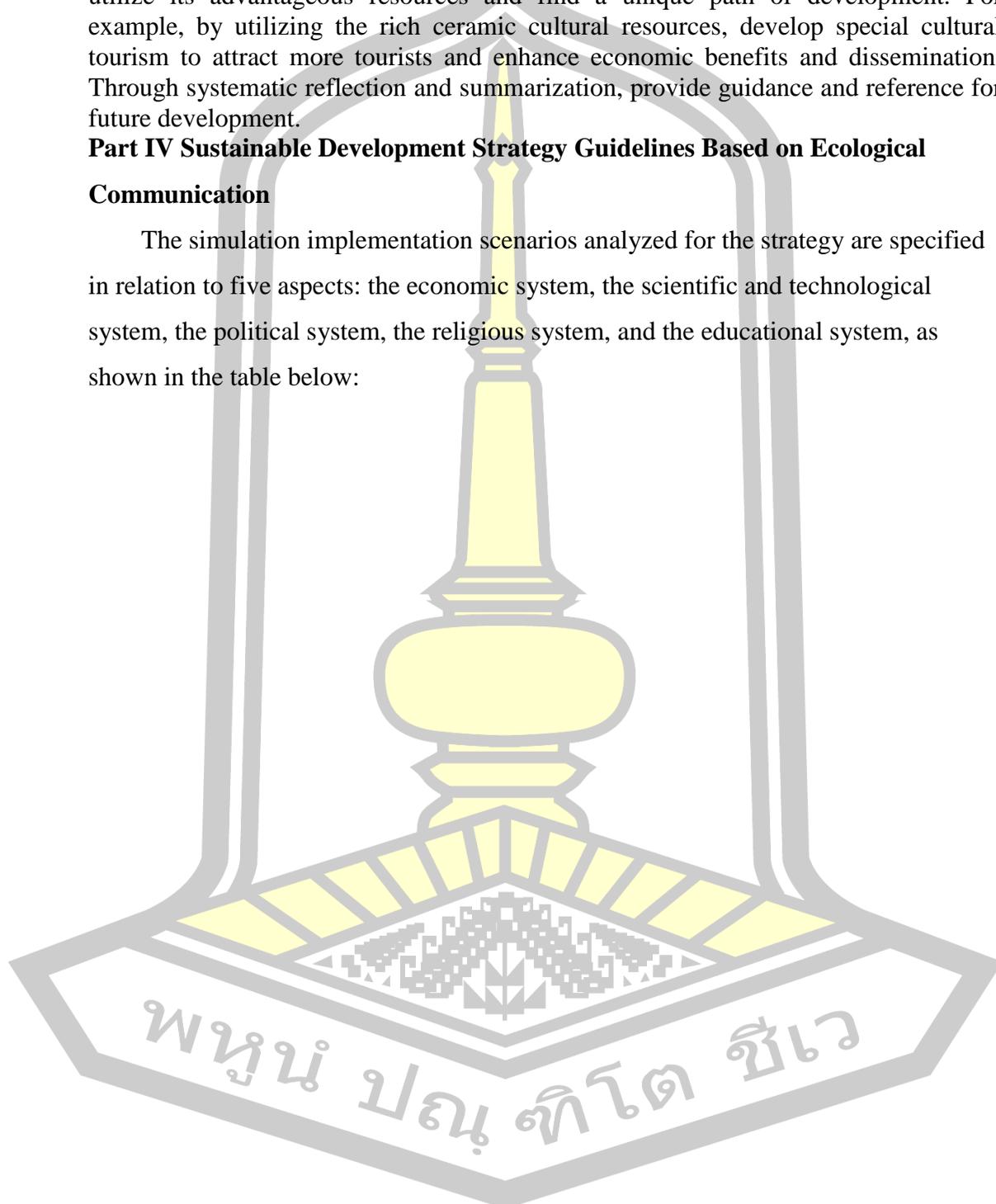


Table 9
Table 9 Simulated Strategy Proposal Analysis

Implementation Plan	Purpose	Specific Measures	Combined Basis
<p>Plan 1: Irregularly restore the prosperous scene of ancient ceramics in Jingdezhen Zhongdukou on the Changjiang River through performance activities</p>	<p>Reproduce the prosperous scene of ceramic trade in Zhongdukou's history through cultural performance activities, enhance cultural experience, and Reproduce the prosperous scene of ceramic trade in Zhongdukou's history through cultural performance activities, enhance cultural experience, and</p>	<p>Regular performances: Hold a large-scale historical and cultural performance every quarter to showcase the prosperous scenes of ancient ceramic trade, shipping, and markets. Regular performances: Hold a large-scale historical and cultural performance every quarter to showcase the prosperous scenes of ancient ceramic trade Scene setup: Arrange ancient-style scenes on both sides of the Changjiang River and around the floating bridge, using traditional boats, goods, and costumes to immerse the audience in a historical atmosphere. Arrange ancient-style scenes on both sides of the Changjiang River and around the</p>	<p>Economic System: Increase economic income by attracting tourists while showcasing the historical culture of Zhongdukou to ensure sustainable development. The economic system. Technology System: Use modern stage technology and multimedia to enhance performance effects while preserving traditional craftsmanship. Political System: The activities require local government support, and relevant policies to ensure the protection of cultural heritage and economic development. The activities require local government support, and relevant policies to ensure the protection of cultural heritage and economic development. Religious System: Integrate traditional belief elements, such as kiln god worship ceremonies, into the</p>

		<p>floating bridge, using traditional boats, goods, and costumes to immerse the audience in a historical atmosphere.</p> <p>Cultural programs: Organize diverse cultural programs such as ceramic making performances, re-enactments of ancient trade, traditional music, and dance to attract more tourists.</p> <p>Organize diverse cultural programs such as ceramic making performances, re-enactments of ancient trade, traditional music, and dance to attract more tourists.</p> <p>Interactive experience: Provide opportunities for tourists to participate in interactive experiences such as simulated ancient trade and traditional ceramic making, increasing the fun and engagement of the activities. Provide opportunities for tourists to participate in</p>	<p>performances to enhance cultural identity.</p> <p>Educational System: Educate tourists about ceramic culture and history through performances and interactive experiences, improving cultural literacy. The system will also be used to improve the cultural literacy of the tourists.</p>
--	--	---	---

		<p>interactive experiences such as simulated ancient trade and traditional ceramic making, increasing the fun and engagement of the activities.</p>	
<p>Plan 2: Restore the original appearance of ancient markets, at least to approximate their historical appearance</p>	<p>By restoring the appearance of ancient markets, enhance the historical and cultural atmosphere of the scenic area, attracting tourists to understand By restoring the appearance of ancient markets, enhance the historical and cultural atmosphere of the scenic area, attracting tourists to understand Jingdezhen's historical culture.</p>	<p>Architectural style: Rebuild or restore market buildings according to the architectural style of ancient markets, using traditional materials and techniques to ensure historical authenticity. Rebuild or restore market buildings according to the architectural style of ancient markets, using traditional materials and techniques to ensure historical authenticity. Market stalls: Set up ancient-style stalls to sell traditional ceramics, handicrafts, and local specialties to attract tourists to purchase and experience. Cultural display: Set up a cultural display area in the market to showcase ancient ceramic making tools, techniques, and</p>	<p>Economic System: Attract tourists and commercial activities through market restoration to promote economic development while protecting and showcasing cultural heritage. The following is a summary of the activities carried out by the organization. Technology System: Use modern restoration technologies and materials to ensure the historical authenticity and safety of building styles and structures. Technology System. Political System: Require policy support and funding from government departments to ensure smooth project implementation and long-term maintenance. Religious System: Set up blessing ceremonies and belief display areas</p>

		<p>historical artifacts, increasing the knowledge and viewing experience of tourists. Set up a cultural display area in the market to showcase ancient ceramic making tools, techniques, and historical artifacts, increasing the knowledge and viewing experience of tourists.</p> <p>Traditional performances: Regularly organize traditional handicraft performances and folk performances to enhance the cultural atmosphere of the market and attract tourists to watch. Regularly organize traditional handicraft performances and folk performances to enhance the cultural atmosphere of the market and attract tourists to watch.</p>	<p>in the market to retain traditional belief customs.</p> <p>Educational System: Set up educational display areas in the market to educate tourists and students about ceramic culture and history, enhancing The market will also be a place where we can learn about ceramic culture and history, enhancing cultural awareness.</p>
<p>Plan 3: Combine the Imperial Kiln Factory, Zhongdukou, and Sanlu Temple into a ceramic art tour route</p>	<p>Integrate important ceramic cultural sites in Jingdezhen to form a tour route with historical and cultural features, increasing the fun and attraction</p> <p>Integrate important ceramic cultural</p>	<p>Route planning: Design a tour route that runs through the Imperial Kiln Factory, Zhongdukou, and Sanlu Temple, providing detailed route maps and guide services.</p>	<p>Economic System: Increase overall economic benefits by integrating attractions, extending tourist stay and spending.</p> <p>Technology System: Use modern guide technologies and</p>

	<p>sites in Jingdezhen to form a tour route with historical and cultural features, increasing the fun and attraction.</p>	<p>services. Linked attractions: Set up cultural and rest stations between each site, offering cultural introductions, interactive experiences, and shopping services to increase tourist enjoyment. Set up cultural and rest stations between each site offering cultural introductions, interactive experiences, and shopping services to increase tourist enjoyment. Guide services: Provide professional guide services including on-site explanations, audio guides, and multimedia displays to help tourists understand the history and culture of each site. Themed activities: Set up themed activities along the tour route such as ceramic making</p>	<p>multimedia displays to enhance the tourist experience and information acquisition. Political System: Require government support and coordination to ensure the linkage and resource sharing between different attractions. Religious System: Integrate religious culture and belief elements into the tour route to add cultural depth and tourist interest. Educational System: Enhance cultural education by increasing tourist knowledge of ceramic culture and history through guide services and interactive The Government of the Republic of Korea has also been working on a number of projects to improve the quality of education.</p>
--	---	--	--

		<p>experiences, ancient trade simulations, and cultural lectures Set up themed activities along the tour route such as ceramic making experiences, ancient trade simulations, and cultural lectures.</p>	
<p>Plan 4: Use LED or projection near the leisure square in Zhongdukou to broadcast promotional videos or animations of the prosperous scenes in Zhongdukou's history</p>	<p>Use modern technology to reproduce the prosperous scenes in Zhongdukou's history, enhance the cultural atmosphere, and attract tourist attention.</p>	<p>LED screen: Install a large LED screen near the leisure square to broadcast promotional videos of Zhongdukou's historical prosperity. Projection technology: Use 3D projection technology to project ancient scene animations on buildings or the ground in the square, creating an immersive viewing experience. Promotional content: Create high-quality promotional videos and animations to showcase Zhongdukou's history and culture, ancient trade, ceramic Create high-quality promotional videos and animations to showcase Zhongdukou's history and culture,</p>	<p>Economic System: Increase economic income by attracting more tourists while promoting Zhongdukou's culture and history. Technology System: Use modern technology to display historical culture, enhancing tourist viewing experience and engagement. Political System: Require government support and funding to ensure smooth project implementation and maintenance. Religious System: Integrate traditional beliefs and customs into promotional content to enhance cultural identity. Educational System: Improve tourist knowledge and interest in Zhongdukou's history and culture through high-quality</p>

		<p>ancient trade, ceramic making, etc., enhancing viewership and educational value.</p> <p>Interactive elements: Set up interactive elements such as QR codes for detailed introductions and participation in quizzes with prizes, increasing</p> <p>Interactive elements: Set up interactive elements such as QR codes for detailed introductions and participation in quizzes with prizes, increasing</p>	<p>promotional videos and interactive elements. The system will be implemented by the Ministry of Education, Culture and Sports.</p>
<p>Plan 5: Collect ceramic artworks or paintings from ceramic artists based on the theme of ancient Zhongdukou scenes for an exhibition at the Imperial Kiln Factory Museum</p>	<p>Showcase the historical culture of Zhongdukou through art exhibitions, attracting more art lovers and tourists, and enhancing cultural influence.</p>	<p>Artwork collection: Collect ceramic artworks and paintings from domestic and international artists based on the theme of ancient Zhongdukou scenes.</p> <p>Exhibition preparation: Plan and prepare a themed exhibition at the Imperial Kiln Factory Museum to showcase the collected artworks, providing Plan and prepare a themed exhibition at the Imperial Kiln</p>	<p>Economic System: Attract tourists and art lovers through art exhibitions, increasing economic income while promoting Zhongdukou's history and culture.</p> <p>Technology System: Use modern exhibition technologies and interactive elements to enhance the exhibition's viewership and engagement.</p> <p>Political System: Require support from government</p>

		<p>Factory Museum to showcase the collected artworks, providing detailed introductions and artist backgrounds.</p> <p>Exhibition promotion: Promote the exhibition widely through online and offline channels to attract tourists and art lovers.</p> <p>Interactive activities: Organize interactive activities during the exhibition such as artist lectures, live creation performances, and audience voting to increase engagement and participation.</p> <p>Organize interactive activities during the exhibition such as artist lectures, live creation performances, and audience voting to increase engagement and participation.</p>	<p>and cultural departments to ensure smooth exhibition preparation and implementation.</p> <p>Religious System: Showcase beliefs and customs related to ceramic culture in the exhibition to enhance cultural identity.</p> <p>Educational System: Improve tourist knowledge and interest in Zhongdukou's history, culture, and art through exhibitions and interactive activities</p>
<p>Plan 6: Increase the promotion of Jingdezhen Zhongdukou using Chinese media platforms</p>	<p>Use multiple platforms to increase the visibility and attraction of Zhongdukou, attracting more tourists and attention.</p>	<p>Media cooperation: Cooperate with popular social media platforms such as Xiaohongshu and Douyin to create and publish promotional content about</p>	<p>Economic System: Attract more tourists through promotion, increasing economic income while enhancing Zhongdukou's international visibility.</p> <p>Technology System:</p>

		<p>Zhongdukou, including short videos, live streams, pictures, and text introductions.</p> <p>Online activities: Plan online promotional activities such as photo contests, travel guide sharing, and quizzes with prizes to encourage user participation and sharing of Zhongdukou's scenery and culture.</p> <p>Media promotion: Invite well-known bloggers, travel experts, and cultural celebrities to visit Zhongdukou, shoot and share their experiences, leveraging their influence for promotion.</p> <p>Leveraging their influence for promotion.</p> <p>Multilingual promotion: Create multilingual promotional</p>	<p>Use modern media technologies and platforms to expand promotion effectiveness and coverage.</p> <p>Political System: Require government support and coordination to ensure smooth implementation and effective realization of promotional activities.</p> <p>Religious System: Showcase beliefs and customs related to ceramic culture in promotional content to enhance cultural identity.</p> <p>Educational System: Increase public knowledge and interest in Zhongdukou's history and culture through multi-platform promotion, enhancing The Government of the Republic of China has been working on this issue for a long time.</p>
--	--	---	--

		content to reach tourists from different countries and regions, enhancing Zhongdukou's international visibility.	
--	--	--	--

Source: Created by Junyi Cao, 2024.

By combining specific measures in five areas: the economic system, the scientific and technological system, the political system, the religious system, and the educational system, the Jingdezhen Zhongdukou can realize the sustainable development of ceramic art in the context of modernization practices. These implementation plans will not only protect and pass on the historical and cultural heritage of Zhongdukou, but also enhance its economic benefits and international influence through modernization, ensuring the inheritance and development of Jingdezhen's ceramic culture on a global scale.

Summary

The purpose of this chapter is to analyze the development strategy of ecological communication of ceramic art in Jingdezhen Zhongdukou from the perspectives of risk prediction and problem reflection in order to achieve its sustainable development in the context of modernization.

According to the self-observation theory, a system organizes its own operation through self-referencing (observing its own behavior and state) and other-referencing (observing the behavior and state of other systems). This self-observation can help Jingdezhen Zhongdukou ceramic art find its ecological development orientation in the context of modernization. As the birthplace of foreign trade of Jingdezhen ceramic art, Zhongdukou is one of the important historical landmarks and should have a profound ceramic culture tradition. Through self-reference, Zhongdukou can constantly review and revisit its own historical and cultural memories and maintain the continuity of cultural inheritance. Self-reference enables Zhongdukou to deeply understand its unique position and role in the development of Jingdezhen ceramic art.

However, this process involves rediscovering and reevaluating historical and cultural heritage, and exploring the combination of cultural inheritance and modernization development by examining past glories and achievements.

Zhongdukou should revisit its historical role and cultural value. In the past, as a transportation hub and commercial center, Zhongdukou witnessed the prosperity of Jingdezhen's ceramic industry. The market scene on the pontoon bridge is a bustling scene remembered by the old generation of Jingdezhen people. These historical memories are not only part of the cultural heritage, but also an important resource for Zhongdukou to rebuild its image in the process of modernization. By deeply excavating and displaying these historical memories, Zhongdukou can enhance its cultural attraction and rebuild its core position in ceramic culture.

Zhongdukou needs to systematically analyze its current infrastructure, business model and cultural climate to clarify its position and development needs in the modernization process. For example, the frequent destruction of pontoon bridges and the problem of transportation disruption directly affect the accessibility of residents and tourists, and constrain the development of culture and tourism. Through detailed assessment and data analysis, Zhongdukou can analyze in detail the specific problems constraining its development and formulate targeted solutions. This assessment of the current situation should cover not only the condition of the physical infrastructure, but also the preservation and utilization of cultural resources, the types and benefits of commercial activities, and the perceptions and expectations of community residents and tourists of Nakatsukuri.

Although self-observation theory emphasizes self-reference, in practice, the development of a system cannot be separated from other-reference, i.e., it can improve itself by observing and learning from the operation and success of other systems. Zhongdukou can enrich its own vision and strategy through the reference of others, and find a more suitable development path for itself. CDFG can compare and learn from other successful cases in Jingdezhen, such as the Imperial Kiln Factory and the Sanlu Temple Pier. Many similar areas in Jingdezhen have achieved remarkable results through a series of cultural revitalization and commercial development measures with government support. The Imperial Kiln Factory, as a representative of

the Royal Porcelain Kilns, has succeeded in attracting a large number of tourists and cultural enthusiasts through in-depth excavation of its historical and cultural resources and the combination of modern exhibition techniques and tourism services. In the process of restoration and reconstruction of Sanlu Temple Pier, attention was paid to the protection of historical relics and cultural atmosphere, while modern facilities and services were introduced, greatly enhancing the overall tourism experience of culture and art atmosphere. Jingdezhen Zhongdukou needs to learn from it how to effectively utilize government resources and strive for policy support and financial investment to promote its own development.

Zhongdukou can also learn from the development patterns and successful experiences of other cultural heritage sites at home and abroad by observing and analyzing them. For example, the Terracotta Warriors and Horses in Xi'an, the Mogao Grottoes in Dunhuang, as well as the Venice Canal and the Louvre in Paris in foreign countries, these world-renowned cultural heritage sites have something to learn from in the process of conservation and development. Zhongdukou can find a suitable development path for itself by learning from the cultural conservation measures, visitor management strategies, and commercial development models in these cases. In particular, useful insights can be gained on how to balance the relationship between cultural heritage protection and modern commercial development, as well as how to enhance visitor experience and increase economic returns.

The modern tourism market has a growing demand for cultural experiences and interactivity, and Zhongdukou needs to adjust and optimize its own cultural displays and service content by observing other successful tourist attractions and discovering tourists' preferences and expectations. For example, it should increase the number of interactive experience programs related to ceramic art, such as ceramic production experience, ceramic culture lectures, ceramic art exhibitions, etc., so as to enhance tourists' sense of participation and experience, and to improve the overall attractiveness.

Most importantly, Zhongdukou needs to learn about the advanced experiences and technologies of other regions in environmental protection and infrastructure construction. Facing the problems of natural disasters and infrastructure vulnerability,

Zhongdukou should learn and introduce the successful practices of other regions in flood prevention, disaster prevention, and infrastructure maintenance, so as to improve its own risk-resistant capacity and infrastructure level. For example, it can learn from Japan's technology and experience in flood and earthquake prevention, and formulate scientific and effective flood prevention measures and emergency plans to ensure the safety and stability of pontoon bridges and other infrastructure.

Through the dynamic adaptation of ecological communication theory, Zhongdukou was able to adjust its development strategy in a timely manner. Self-observation is not only an assessment of the static status quo, but also an ability of dynamic adaptation. In the context of modernization, the rapid changes in the environment require Zhongdukou to be able to continuously monitor its own changes and the dynamics of the external environment and make flexible responses. Ecological communication theory emphasizes the interaction between the system and the environment, which is particularly important in the development of Nakadokou. Through self-observation, Zhongdukou can enhance its interaction with the environment and achieve the realization of sustainable development by improving its adaptive capacity.

According to the field research, the distribution of modern constructions in the Jingdezhen Zhongdukou area is shown in the table, including hotels, restaurants, educational institutions, stores and government units. These facilities have brought a thriving business atmosphere and modern living experience to the area. However, this diversification has somewhat diminished the presence of ceramic art. The commercialization has resulted in a relative scarcity of ceramic art projects in the area, and tourists and residents have less access to ceramic art in this area, resulting in a less than strong overall atmosphere.

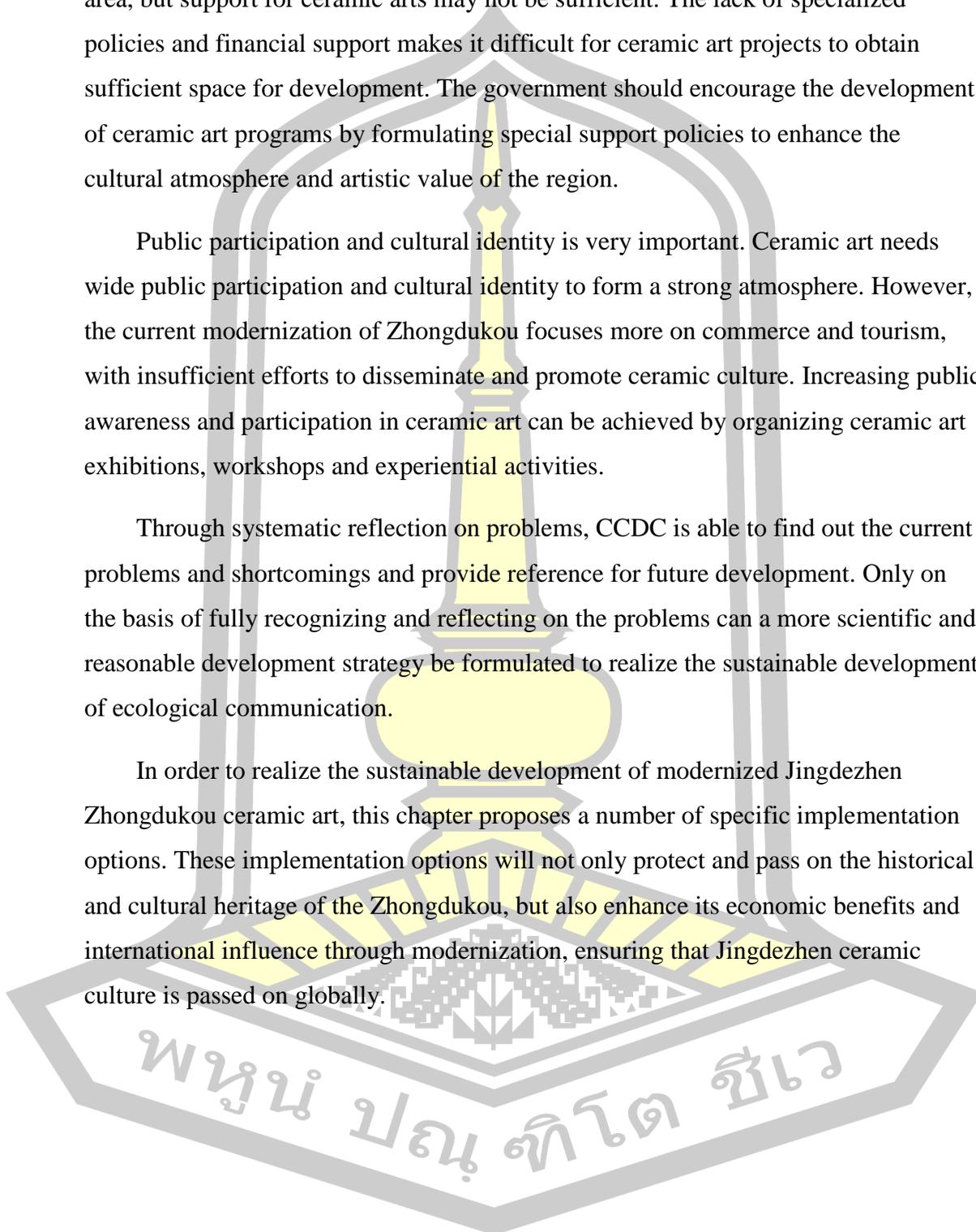
From the point of view of market demand and commercial interests, industries such as catering and entertainment can bring higher profits and quicker returns, thus becoming the focus of investment and development. This business orientation has led to the slow development of ceramic art-related projects. Investors prefer to develop projects that can quickly attract customers and generate revenue, while ceramic art projects have been neglected due to their long payback period and specialization.

The government provides basic administrative services within the Zhongdukou area, but support for ceramic arts may not be sufficient. The lack of specialized policies and financial support makes it difficult for ceramic art projects to obtain sufficient space for development. The government should encourage the development of ceramic art programs by formulating special support policies to enhance the cultural atmosphere and artistic value of the region.

Public participation and cultural identity is very important. Ceramic art needs wide public participation and cultural identity to form a strong atmosphere. However, the current modernization of Zhongdukou focuses more on commerce and tourism, with insufficient efforts to disseminate and promote ceramic culture. Increasing public awareness and participation in ceramic art can be achieved by organizing ceramic art exhibitions, workshops and experiential activities.

Through systematic reflection on problems, CCDC is able to find out the current problems and shortcomings and provide reference for future development. Only on the basis of fully recognizing and reflecting on the problems can a more scientific and reasonable development strategy be formulated to realize the sustainable development of ecological communication.

In order to realize the sustainable development of modernized Jingdezhen Zhongdukou ceramic art, this chapter proposes a number of specific implementation options. These implementation options will not only protect and pass on the historical and cultural heritage of the Zhongdukou, but also enhance its economic benefits and international influence through modernization, ensuring that Jingdezhen ceramic culture is passed on globally.



CHAPTER V

Conclusion Discussion and Suggestions

Conclusion

This thesis employed an interdisciplinary research methodology, applying Niklas Luhmann's ecological communication theory to the study of Jingdezhen Zhongdukou ceramics art. It revealed the complex dynamic interactions between ceramic art and the social-ecological environment, proposing strategies for sustainable development of ceramic art in a modern context. Through multi-level analysis of government policies and community participation, and combining global perspectives with ecological and economic viewpoints, this research offers new theoretical support and practical pathways for the preservation and modernization of ceramic cultural heritage.

The ceramics art of Jingdezhen Zhongdukou has played a crucial role in societal development and has undergone significant changes—from a logistical node to a cultural symbol. Initially, Zhongdukou served as a major ferry point on the Chang River, a hub for the import of raw materials and export of finished porcelain, which became a center of urban economic activities. This facilitated the development of porcelain production and trade, boosting related industries such as wooden shipbuilding and transportation, creating numerous job opportunities, and propelling urban socio-economic development. As ceramic production expanded, an industrial area dominated by ceramic production gradually formed near Zhongdukou, promoting urban expansion toward the riverbanks and surrounding areas. However, frequent shipping activities placed pressure on the Chang River's water quality and riverbank ecosystems. Jingdezhen residents and artisans established effective transportation and production management systems to optimize resource use and minimize environmental impact. Culturally, Zhongdukou became an important window for Jingdezhen's cultural and economic exchanges with the world through global porcelain trade, enhancing Jingdezhen's international stature and deepening global appreciation of Chinese traditional culture. In the modern context, Zhongdukou's role evolved further, facing challenges such as unstable infrastructure, disconnection between commercial models and ceramic art, and insufficient government support. Today, Zhongdukou's core role in the ceramic art and socio-economic development of Jingdezhen remains irreplaceable, serving as a bridge connecting past and present, east and west, and witnessing and participating in Jingdezhen's cultural and economic prosperity.

Under Niklas Luhmann's systems theory framework, the ecological communication mechanism of Jingdezhen Zhongdukou ceramics art demonstrates its complex interactions with the social-ecological environment. This interaction is not merely a simple reaction between cultural art and environmental protection but a dynamic and systemic exchange that reveals the nonlinear, non-causal complex connections between society and environment. The Zhongdukou area, as a rich ecological environment, provides necessary resources and conditions for ceramic art, including raw materials, skill heritage, and market demand. These resources support not only the physical production of ceramic art but also significantly influence the direction of cultural art creation and dissemination, shaping its unique cultural and

artistic value. In this process, ceramic art is not only a product of the ecological environment but also a significant force driving and influencing environmental change.

Ceramic art continuously redefines itself through interactions with the Zhongdukou ecological environment. This bidirectional interaction not only enriches regional culture and fosters economic prosperity but also reflects the complementarity between cultural and economic activities. Luhmann's ecological communication theory focuses on how information is constructed, understood, and responded to within systems, highlighting how environmental changes affect social structures and how society adapts through internal communication and decision-making processes. The ecological communication mechanism of Jingdezhen Zhongdukou ceramics art exhibits a sustainable model of culture and environmental protection, enhancing both the dissemination impact of the art and its social function and influence as cultural heritage. Through effective information dissemination and feedback mechanisms, ceramic art can continue to develop sustainably within a dynamic social-ecological system, maintaining its cultural vitality and economic value.

The ceramics art of Jingdezhen Zhongdukou has experienced significant changes in a modern context, facing challenges such as unstable infrastructure, disconnection between business models and ceramic art, insufficient government support, and a diminishing cultural atmosphere. Natural disasters, especially frequent flooding, severely impact Zhongdukou's infrastructure and the stability of its transportation channels. The surrounding commercial landscape, characterized by low-end and homogenous businesses, diminishes its cultural and economic benefits. Government support for Zhongdukou is notably lacking, increasingly marginalizing its role in cultural tourism development, making it difficult to effectively integrate into Jingdezhen's overall cultural development strategy. This marginalization leads to a gradual dilution of Zhongdukou's historical cultural atmosphere, with its rich ceramic culture being replaced by leisure spaces, and cultural heritage facing the risk of discontinuity.

The analysis of strategies for the sustainable modernization of Zhongdukou ceramics art profoundly impacts its sustainable economic and cultural development. The strategy analysis emphasizes the integration of culture and economy, enhancing Zhongdukou's economic benefits and cultural influence through the development of cultural tourism and creative industries. The application of modern communication methods and ecological communication mechanisms strengthens the sustainability of ceramic art, promoting the protection and innovation of cultural heritage. Government policy support and active community participation construct a multi-level, multi-stakeholder sustainable development system, enabling Zhongdukou ceramics art to not only generate economic returns but also achieve cultural heritage and promotion. Through these strategy analyses, the sustainable development of Zhongdukou ceramics art receives comprehensive advancement.

Discussion

This thesis primarily explores the development and changes of Jingdezhen Zhongdukou ceramics art in historical and modern contexts. The research questions include the following aspects: First, what role has Jingdezhen Zhongdukou played in societal development? Second, how does the ecological communication mechanism of Zhongdukou ceramics art operate? Lastly, what challenges does Zhongdukou face in

the process of modernization, and what are the sustainable development strategies? Through methods such as historical document analysis, field interviews, and policy analysis, this study comprehensively analyzes the transformation of Zhongdukou from a logistical node to a cultural symbol and its evolution and adaptation strategies in a modern context.

The thesis finds that Jingdezhen Zhongdukou indeed played an important role as a historical logistical node and cultural symbol, consistent with earlier research. For example, existing studies have indicated that during the Ming and Qing dynasties, Zhongdukou was the main hub for the import of raw materials and export of finished porcelain in Jingdezhen, becoming a center of urban economic activities. This conclusion is further verified by the current research. Through the analysis of historical documents and field surveys, the study confirms Zhongdukou's key role in promoting porcelain production and trade development, as well as its driving effect on related industries such as wooden shipbuilding and transportation.

However, the study discovers some inconsistencies with existing literature. Some literature suggests that Zhongdukou's status in the process of modernization has gradually marginalized, and its cultural atmosphere has diluted. In contrast, through field interviews and policy analysis, this study finds that Zhongdukou can continue to play an important role in Jingdezhen's cultural and economic exchanges, particularly with the support of government policies and community participation. The study further finds that despite challenges such as unstable infrastructure and the disconnection between business models and ceramic art, Zhongdukou can adopt modern communication methods and development strategies in cultural and creative industries to enhance its economic benefits and cultural influence.

By applying Niklas Luhmann's ecological communication theory, this study provides a new perspective to understand the communication mechanisms of ceramic art. Previous applications of Luhmann's ecological communication theory were mostly within the environmental domain, without significant use in the field of art. This study expands the theoretical application of ecological communication by bridging it to ceramic art, offering a fresh conceptual framework for analyzing the dynamic relationships between art, society, and ecology. Additionally, most existing research on ceramics art tends to focus on anthropology, materials science, and sociology, while research exploring ecological aspects is relatively scarce. This thesis thus fills a critical gap by introducing the concept of ecological communication to the study of ceramics art.

Through the use of Luhmann's theory, the study reveals the complex interactions of Zhongdukou ceramics art in ecological communication. This theoretical framework not only helps explain the communication mechanisms of ceramic art but also provides a more holistic understanding of how cultural heritage can be preserved and innovated in modern society. By integrating ecological communication into the discussion, this research offers new strategies for the protection and sustainable development of Zhongdukou ceramics art in a modern context. Moreover, through the concept of ecological communication, the study introduces more practice-oriented strategies that can support both the modernization and cultural heritage protection of Zhongdukou ceramics art.

The thesis finds that through information dissemination and feedback mechanisms, Zhongdukou ceramics art can sustainably develop within a dynamic social-ecological system, maintaining its cultural vitality and economic value. The application of ecological communication theory not only reveals the nonlinear, non-causal complex connections between ceramic art and environmental protection but also provides important theoretical support for understanding how cultural art adapts and develops in modern society. This theoretical framework can also be extended to other cultural heritage studies, providing theoretical references for the protection and modernization of cultural heritage.

Despite many important findings, this study also has some limitations. For example, the sample size is relatively small, mainly focused on Jingdezhen Zhongdukou, which may affect the generality of the results. Additionally, the research methods mainly rely on historical document analysis and field interviews, lacking support from large-scale statistical data, which may limit the broad applicability of the research conclusions.

These limitations may affect the generality and scalability of the research results. However, these limitations do not affect the validity of this study. Through in-depth historical document analysis and field interviews, this study still provides rich empirical data and theoretical support, revealing the importance and sustainable development strategies of Zhongdukou ceramics art in modern society. Future research can further verify and expand the findings of this study by increasing the sample size and covering more areas. Additionally, combining large-scale statistical data and modern technological methods, such as big data analysis and geographic information systems, can further explore the communication mechanisms and sustainable development strategies of ceramic art. Future research should continue to use interdisciplinary methods, combining insights from sociology, cultural studies, environmental science, and art history to deeply understand the complex interactions between ceramic art and society. Through increasing the sample size and covering more areas, combining large-scale statistical data and modern technological methods, future research can further explore the communication mechanisms and sustainable development strategies of ceramic art.

Suggestion

This thesis finds that unstable infrastructure is a significant factor limiting the development of Zhongdukou. Future research should focus on how to improve Zhongdukou's infrastructure, especially flood protection facilities and transportation networks. This will not only help protect Zhongdukou's historical heritage but also enhance its attractiveness as a tourist destination. As a historically renowned porcelain capital, Jingdezhen's Zhongdukou is an essential part of the city, and the improvement of its infrastructure plays a crucial role in the city's overall development. Future research should combine modern technology, such as big data analysis and geographic information systems, to conduct detailed infrastructure assessments and develop scientifically sound improvement plans. Additionally, the government should increase funding for infrastructure construction and establish long-term maintenance and management plans to ensure Zhongdukou's stability in the face of natural disasters, safeguarding the safety of residents and tourists.

One of the main issues currently facing Zhongdukou is the disconnection between business models and ceramic art. Future research can explore how to better integrate modern business models, such as cultural and creative industries and e-commerce platforms, into the promotion and sales of ceramic art. This will not only enhance the market value of ceramic art but also promote its modern development. Ceramic art, as a traditional craft, requires effective dissemination and promotion through modern business models to preserve its unique cultural value and artistic appeal. Research can use case studies and market surveys to understand other successful cultural and creative industry models, providing references for Zhongdukou. At the same time, establishing combined online and offline sales platforms, utilizing the convenience and wide coverage of e-commerce, can introduce Zhongdukou's ceramic products to a broader market.

Government support is crucial in promoting the sustainable development of Zhongdukou ceramics art. Future research should further analyze and evaluate the effects of different government policies, making optimization recommendations to ensure that policies effectively support the protection, innovation, and development of ceramic art. The government can support the inheritance and innovation of ceramic art through specific policies, such as financial subsidies, tax incentives, and special funds. Research should focus on the actual implementation and effects of these policies, identifying existing issues and deficiencies, and proposing improvement measures. At the same time, strengthening cooperation between the government, businesses, and the community can create a win-win situation, jointly promoting the sustainable development of Zhongdukou ceramics art.

Indicates that developing cultural tourism and creative industries is an effective way to enhance the economic benefits and cultural influence of Zhongdukou. Future research can explore specific implementation plans, such as how to create tourism brands with local characteristics, how to stimulate the potential of local artists and creative talents, and enhance the competitiveness of Zhongdukou's cultural industry. Jingdezhen, as a world-renowned porcelain capital, has a wealth of historical and cultural resources and a unique ceramic art style with great tourism appeal. Research can use market research and tourist demand analysis to develop cultural tourism strategies that meet market needs. At the same time, encouraging and supporting local artists and creative talents to develop cultural and creative products with local characteristics can enhance Zhongdukou's cultural industry competitiveness and promote economic development.

The ecological environment is the foundation for the sustainable development of Zhongdukou. Future research should focus on how to ensure effective environmental protection while developing the economy. Specific measures include promoting green technology, implementing environmental protection policies, and developing sustainable models. The environmental impact of ceramic production, especially the emissions of wastewater, exhaust gases, and solid waste, cannot be overlooked. Research can use environmental monitoring and ecological assessments to understand the environmental status of Zhongdukou, proposing practical environmental protection measures. At the same time, promoting green production technology and clean energy can reduce the negative environmental impact of ceramic production. The government should establish strict environmental policies, monitoring corporate environmental behavior to ensure that Zhongdukou can achieve

sustainable development of the ecological environment while developing the economy.

Zhongdukou has historically been an important window for international cultural exchanges. Future research should explore how to further promote international cultural exchanges, enhancing Zhongdukou's international status and influence. Specific measures include organizing international ceramic art exhibitions and strengthening cooperation with international cultural institutions. Ceramic art, as an important part of Chinese traditional culture, can enhance its international reputation and influence through international cultural exchanges. Research can use comparative analysis of other countries' successful cultural exchange experiences to provide references for Zhongdukou. At the same time, the government and businesses should actively participate in international cultural exchange activities, promoting Zhongdukou's ceramic art and culture, and enhancing Jingdezhen's position in the international cultural and artistic fields.

The community plays a significant role in the protection and inheritance of cultural heritage. Future research should explore how to better stimulate and guide community participation, ensuring that cultural heritage protection relies not only on the government and experts but also receives broad social support. The community, as direct beneficiaries and protectors of cultural heritage, plays a significant role in the protection and inheritance of cultural heritage. Research can use case studies and field research to understand the successful experiences of other regions in community participation in cultural heritage protection, providing references for Zhongdukou. At the same time, the government and businesses should strengthen cooperation with the community, establishing incentive mechanisms for community participation to enhance residents' awareness and protection enthusiasm, ensuring the effective protection and inheritance of cultural heritage.

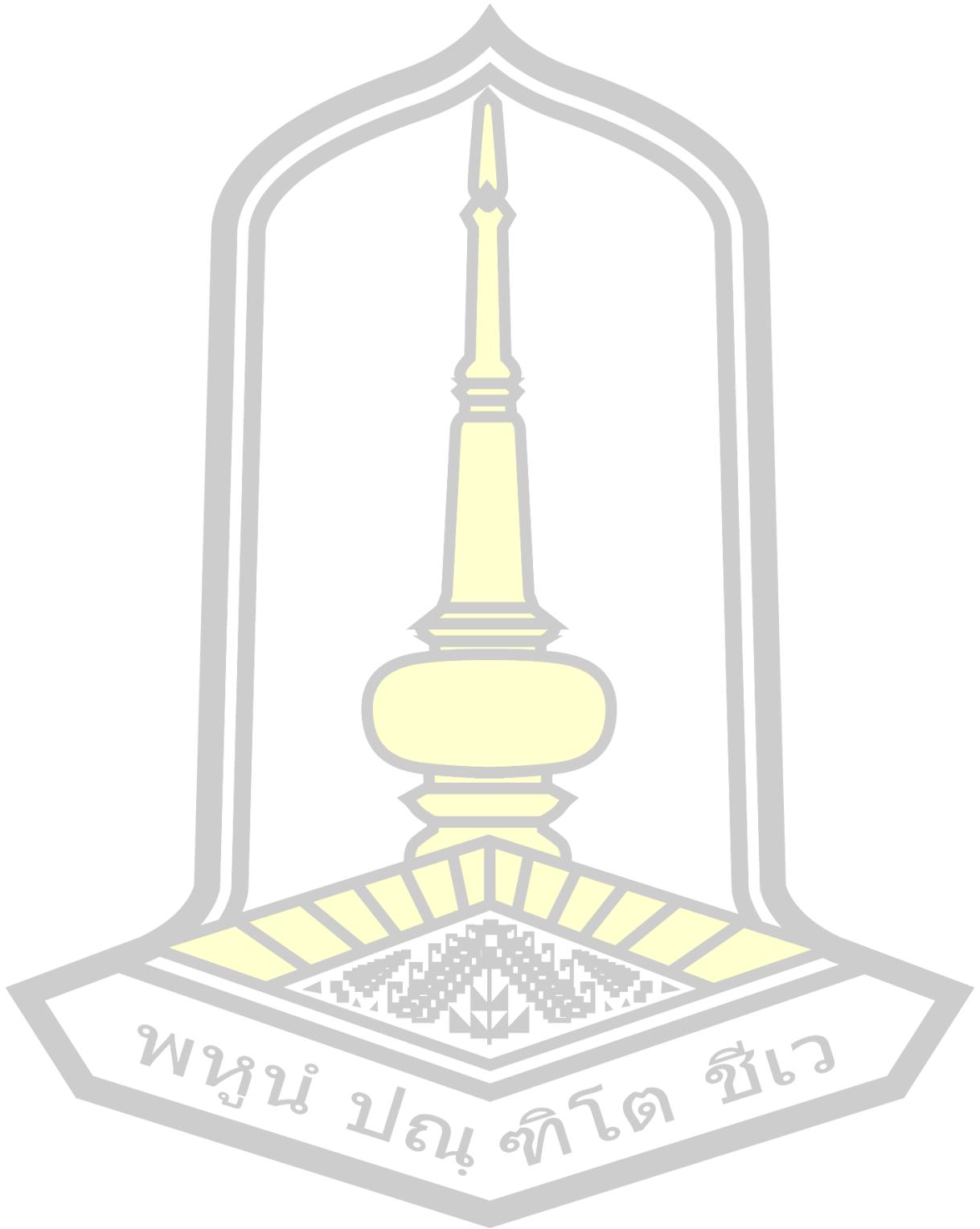
To more comprehensively understand the development of Zhongdukou ceramics art, future research should use diverse methods and data collection approaches. For example, combining large-scale statistical data, field research, and surveys can provide richer and more detailed data to support research conclusions. Diversifying research methods can enhance the comprehensiveness and accuracy of the research, ensuring the scientific validity and reliability of research conclusions. At the same time, the diversity of data collection can provide broader perspectives and information for research, enhancing its depth and breadth. Future research can use modern technological methods, such as big data analysis and geographic information systems, to conduct detailed data analysis and processing, providing scientific bases for the development of Zhongdukou ceramics art.

The thesis finds that the cultural atmosphere of Zhongdukou is gradually diluting. Future research should focus on how to restore and enhance Zhongdukou's cultural atmosphere through policies and community activities, ensuring the preservation and promotion of ceramic culture. Enhancing the cultural atmosphere is important for the protection and inheritance of cultural heritage. Research can use cultural event planning and implementation to enhance Zhongdukou's cultural atmosphere. At the same time, the government and community should work together to establish specific measures for cultural protection and inheritance, ensuring the effective restoration and enhancement of Zhongdukou's cultural atmosphere.

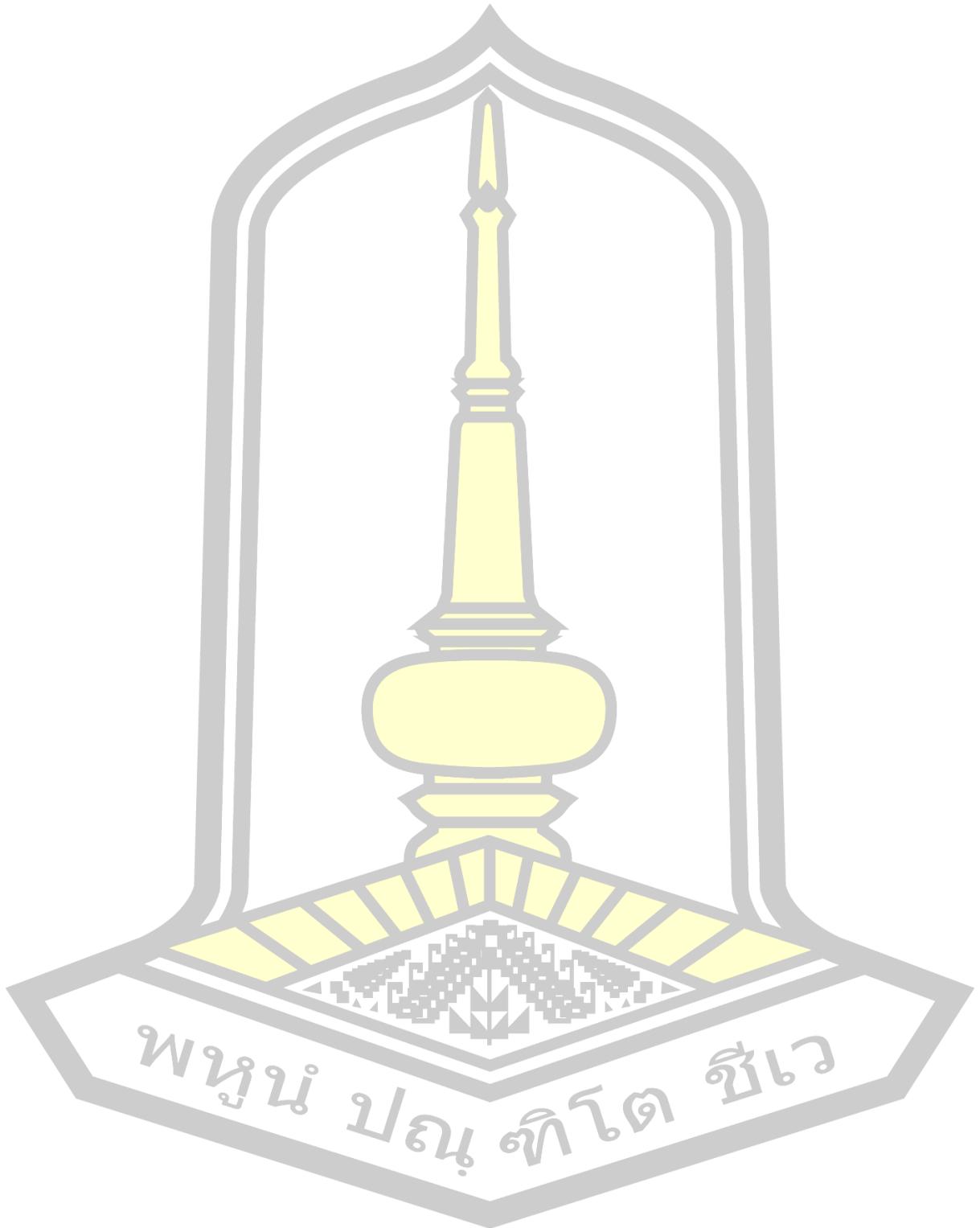
Future research should explore how to construct a multi-level, multi-stakeholder sustainable development system, ensuring that Zhongdukou ceramics art can continue to develop in modern society, maintaining its cultural and economic value. A multi-level, multi-stakeholder sustainable development system can enhance the efficiency and effectiveness of cultural heritage protection. Research can use policy analysis and case studies to understand the construction experience of sustainable development systems in other regions, providing references for Zhongdukou. At the same time, based on local actual ecological conditions, the social system should make concerted efforts to develop specific implementation plans and measures, ensuring the sustainable development of Zhongdukou ceramics art.

Based on the above recommendations and improvements, future research and practice can better promote the protection and development of Jingdezhen Zhongdukou ceramics art, ensuring its cultural vitality and economic competitiveness in the modernization process. Zhongdukou, as an important representative of Chinese ceramic culture, plays a significant role in the inheritance and promotion of traditional Chinese culture. Through scientifically sound research and practice, the modernization and sustainable development of Zhongdukou ceramics art can be achieved, enhancing its domestic and international reputation and influence, and making significant contributions to the cultural prosperity and economic development of Jingdezhen.





REFERENCES



Bechmann, G., & Stehr, N. (2002). The Legacy of Niklas Luhmann. In: Springer.

Boas, F. (1955). *Primitive Art*. Dover Publications. <https://books.google.co.th/books?id=6FskkxE4Jg4C>

Christensen-Scheel, B., Aure, V., & Bergaust, K. (2022). Artistic and Art-Based Research Methods: The Mutual Developments of Theory and Practice in Contemporary Art Research. *Nordic Journal of Art & Research*, 11(1).

Dai, R. (2021). Analysis of Cross-Cultural Communication from the Angle of Ecological Information Construction. Application of Intelligent Systems in Multi-modal Information Analytics: Proceedings of the 2020 International Conference on Multi-model Information Analytics (MMIA2020), Volume 1.

Dai, Y. (2007). *Old Wharf*. Chongqing Publishing House.

Deng, X., & He, Y. (2012). Wharf on the Chuanjiang River. *China Three Gorges*(08), 26-32.

Fang, L. (2000). *Tradition and change: Field investigation of new and old folk kiln industries in Jingdezhen*. Jiangxi People's Publishing Chubanshe. https://books.google.co.th/books?id=6P_xAAAACAAJ

Fang, L. (2002). *Private Commercial Kilns of Jingdezhen*. Beijing: Renmin Meishu Publishing Chubanshe. <https://books.google.co.th/books?id=3xEtAgAACAAJ>

Fang, L., & LI, X. (2013). *Anthropology of Art*. SDX Joint Publishing Company. <https://books.google.co.th/books?id=qPgbmwEACAAJ>

Finlay, R. (2010). *The pilgrim art: cultures of porcelain in world history* (Vol. 11). Univ of California Press.

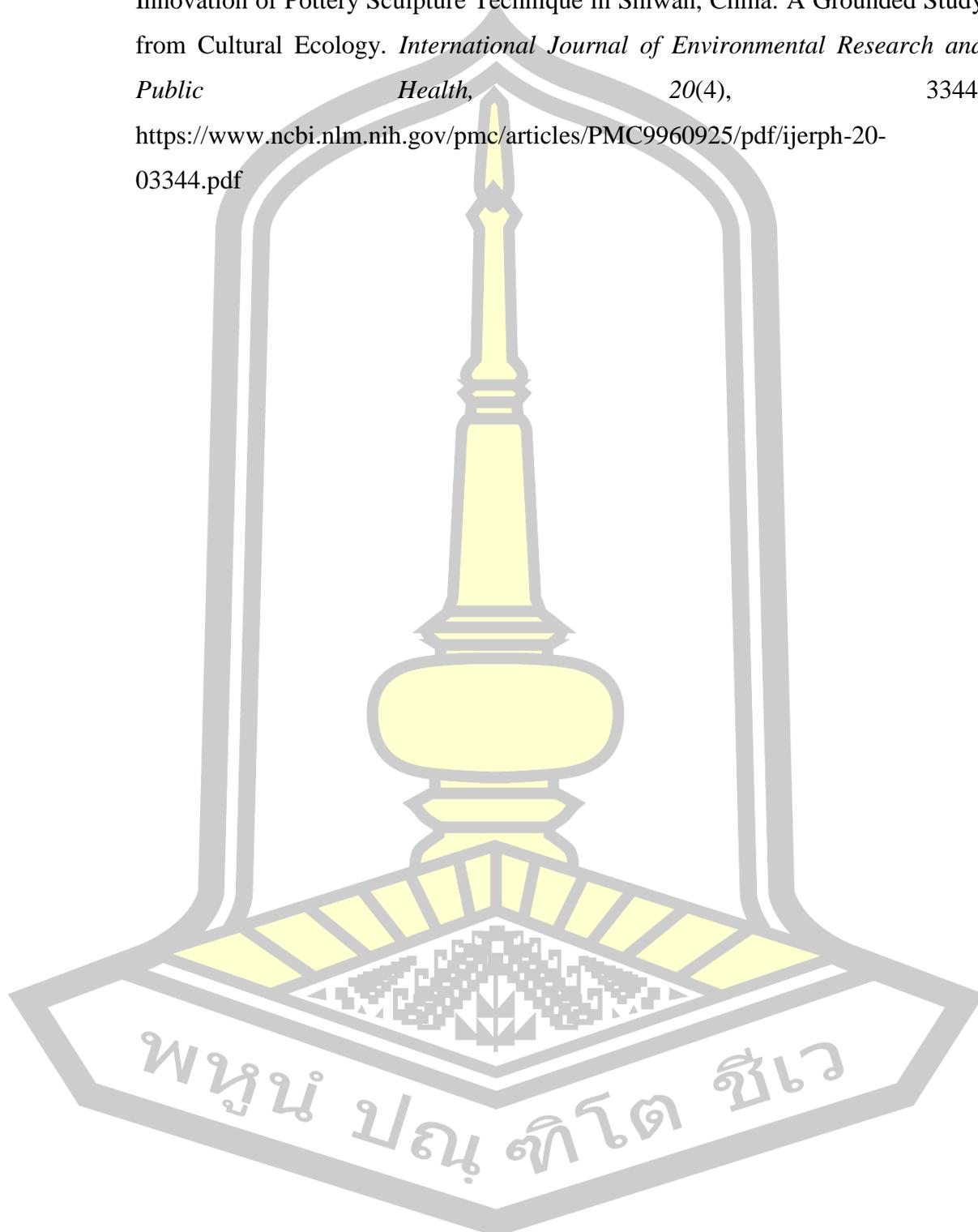
Group, J. R. (2011). *Jingdezhen*. Contemporary China Publishing House.

Guo, J. (2016). *Renaissance of Traditional Handicraft and Cultural Reconstruction-Fieldwork Report of Jingdezhen Lao Yatan Ceramic Art District* [Doctoral Dissertations, Chinese Academy of Arts].

- He, Y., & Jin, K. (2023). Urban Regeneration and Creative Industry-Jingdezhen Ceramic Art Cultural and Creative Industry Center Comparative Analysis. *Academic Journal of Humanities & Social Sciences*, 6(3).
- Hu, N., Wang, H., & Xu, X. (2017). On the translation of ceramic culture-loaded words from the eco-translatology perspective. 2016 7th International Conference on Education, Management, Computer and Medicine (EMCM 2016).
- Kim, M. (2018). *Cross-cultural Interaction and Development in the Context of Globalization —An Example of the Korean Pottery Artists Group Setting up A Studio in Jingdezhen* [Doctoral Dissertations, Chinese Academy of Arts].
- Kurilla, R. (2022). A Communication-Ecological Account of Groups. *Frontiers in Psychology*, 12, 797544. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8868150/pdf/fpsyg-12-797544.pdf>
- Lan, P., Zheng, T., & Lian, M. (2004). *Jingdezhen Ceramic Record Illustration*. Publisher Shandong Pictorial Publishing House. <https://books.google.co.th/books?id=qcY6AAAAMAAJ>
- Layton, R. (1991). *The Anthropology of Art*. Cambridge University Press. <https://books.google.co.th/books?id=34phQgAACAAJ>
- Li, H., & Xiao, Y. (2014). A brief analysis on the composition, recognition and protection of the old wharf cultural landscape in the Sichuan River Basin. Urban and Rural Governance and Planning Reform - Proceedings of the 2014 China Urban Planning Annual Conference, Conference Place: Haikou, Hainan, China.
- Liu, R. (2022). Drifting in China's porcelain capital: self-realization and alternative-seeking of the self-employed craft workers in Jingdezhen. *Asian Anthropology*, 21(4), 263-282.
- Liu, S. (2020). The Wharf Right System in Commercial Activities of Modern Chinese Cities: A Study Based on Nanchang City, Jiangxi Province. *Researches in Chinese Economic History*(05), 70-86.
- Luhmann, N. (1989). *Ecological Communication*. University of Chicago Press. <https://books.google.co.th/books?id=wqgVCBx3I70C>

- Luhmann, N. (2012). *Theory of society, volume 1*. Stanford University Press.
- Luhmann, N., & Barrett, R. (2013). *Theory of Society, Volume 2*. Stanford University Press. <https://books.google.co.th/books?id=Uctuhvm2TBQC>
- Luhmann, N., & Luhmann, N. (1975). Systemtheorie, Evolutionstheorie and Kommunikationstheorie. *Soziologische Aufklärung 2: Aufsätze zur Theorie der Gesellschaft*, 193-203.
- Malinowski, B. (1987). *Theory of Culture*. China Folk Literature Press. <https://books.google.co.th/books?id=nD01QgAACAAJ>
- Mikami, T. (1969). *The path of ceramics: exploring the points of contact between Eastern and Western civilizations* (Vol. 724 of Iwanami Shinsho: Blue edition). Tokyo : Iwanami Shoten. <https://books.google.co.th/books?id=PfhIAAAAMAAJ>
- Miller, J. A. (2022). Demoralizing: integrating JD Peters' communication "chasm" with Niklas Luhmann's (1989) ecological communication to analyze climate change mitigation inaction. *Kybernetes*, 51(5), 1775-1799.
- Moore, J. D. (2009). *Anthropologists' cultural insights*. Commercial Press. <https://books.google.co.th/books?id=XzvxSAAACAAJ>
- Wahyuni, H. I. (2019). Ecological Communication in Information Society: Reflections on Niklas Luhmann's thought in understanding ecological & disaster issues in Indonesia. *Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia*, 4(1), 9-17.
- Xu, Y., & Tian, C. (2022). Summarize the Influence of Jingdezhen Ceramic Art in the Past, Present and Future. *Ceramic Studies*, 37(06), 82-84.
- Yang, L. (2022). Research on Digital Archives Construction of Jingdezhen Ceramic Material Cultural Heritage Based on Blockchain Technology. *International Journal of Engineering and Technology*, 14(3).
- Yihan, K., Phanlukthao, P., & Sirisuk, M. (2022). The Mazu of Meizhou Island: Construction of Secular Self-Identity among Chinese People in the Era of Globalization. *The International Journal of Interdisciplinary Global Studies*, 17(2), 65.

Zhou, L., Zou, X., Huang, Y., Li, Y., Guo, L., & Fu, J. (2023). Inheritance and Innovation of Pottery Sculpture Technique in Shiwan, China: A Grounded Study from Cultural Ecology. *International Journal of Environmental Research and Public Health*, 20(4), 3344. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9960925/pdf/ijerph-20-03344.pdf>



LIST OF CHINESE NAMES, LOCATIONS AND TERMS

Names (Surname, First Name)

Zheng Tinggui	郑廷桂
Wang Congmu	王宗沐
Wang Shixing	王士性
Xi Jinping	习近平

Locations

Jingdezhen	景德镇	Floating Bridge	浮桥
Zhongdukou	中渡口	Ceramic Bridge	瓷都大桥
Guangzhou	广州	Jiangxi Province	江西省
Quanzhou	泉州	Yangtze River	长江
Changjiang River	长江河	Zhejiang Province	浙江省
Raozhou	饶州	Anhui Province	安徽省
Poyang	鄱阳	Chizhou	池州
Dexing	德兴	Huangshan	黄山
Yiyang	弋阳	Qimen	祁门
Wannian	万年	Xiunng	休宁
Henan Province	河南省	Wuyuan	婺源
Zhuxian Town	朱仙镇	Guangdong Province	广东省
Hubei Province	湖北省	Foshan Town	佛山市
Hankou Town	汉口镇	Lishidu	里市渡
Laoyatan	老鸭滩	Shibadu	十八渡

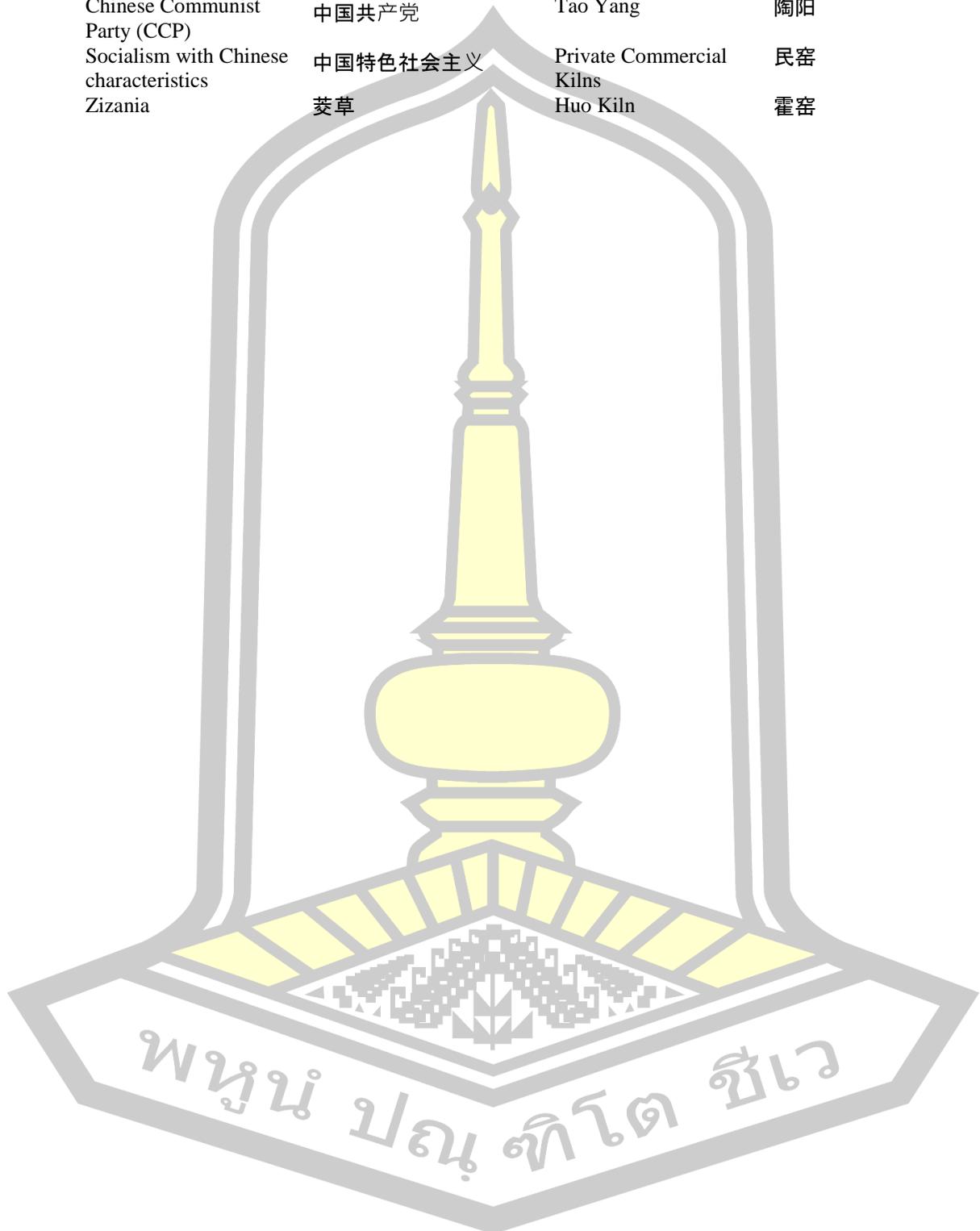
Chinese Dynasties

Han Dynasty	汉代	Ming Dynasty	明代
Western Han	西汉	Qing Dynasty	清代
Eastern Dynasty	东汉	Republic of China	中华民国
Sui Dynasty	隋朝	People's Republic of China	中华人民共和国
Tang Dynasty	唐代	Yuan Dynasty	元代
Song Dynasty	宋代		

Concepts and Terms

Qingbai Ceramic	青白瓷	Youlihong	釉里红
Blue and White Ceramic	青花瓷	Jiangxi Province Records	江西省大志
Jiajing	嘉靖	Guang Zhi Yi	广志绎
Wanli Era	万历	Tao Yang Zhu Zhi Ci	陶阳竹枝词
Jingdezhen National Ceramic Culture Inheritance and Innovation Pilot Zone	景德镇国家陶瓷文化传承创新试验区	Straw Sandal Wharf	草鞋码头

Chinese path to modernization	中国式现代化	Fencai	粉彩
Chinese Communist Party (CCP)	中国共产党	Tao Yang	陶阳
Socialism with Chinese characteristics	中国特色社会主义	Private Commercial Kilns	民窑
Zizania	菱草	Huo Kiln	霍窑



Interview Outline
 "Jingdezhen Zhongdukou Ceramic Art: Ecological Communication and
 Modernization Practices"
 Based on Ecological Communication Theory: Modern Memories of Zhongdukou

Interviewee Name: _____ Age: _____

Occupation: _____ Contact Info (Phone/Address): _____

Part I: The Development and Changes in Zhongdukou - Personal Experience (Binary Coding: Past and Present)

1. How would you describe the changes in Zhongdukou from your youth to now?
2. Among these changes, which do you think have had the greatest impact on Zhongdukou?

Part II: Cultural and Commercial Conflicts (Binary Coding: Cultural Preservation and Economic Interests)

3. Do you think the current commercial development in Zhongdukou has affected the local ceramic culture atmosphere of Jingdezhen?
4. In the process of developing tourism and commerce, how should Zhongdukou maintain its cultural characteristics?

Part III: Views on the Future (Binary Coding: Conservation and Development)

5. How do you think Zhongdukou should develop in the future to both preserve history and meet modern needs?
6. What suggestions or expectations do you have for the government and community development plans in Zhongdukou?

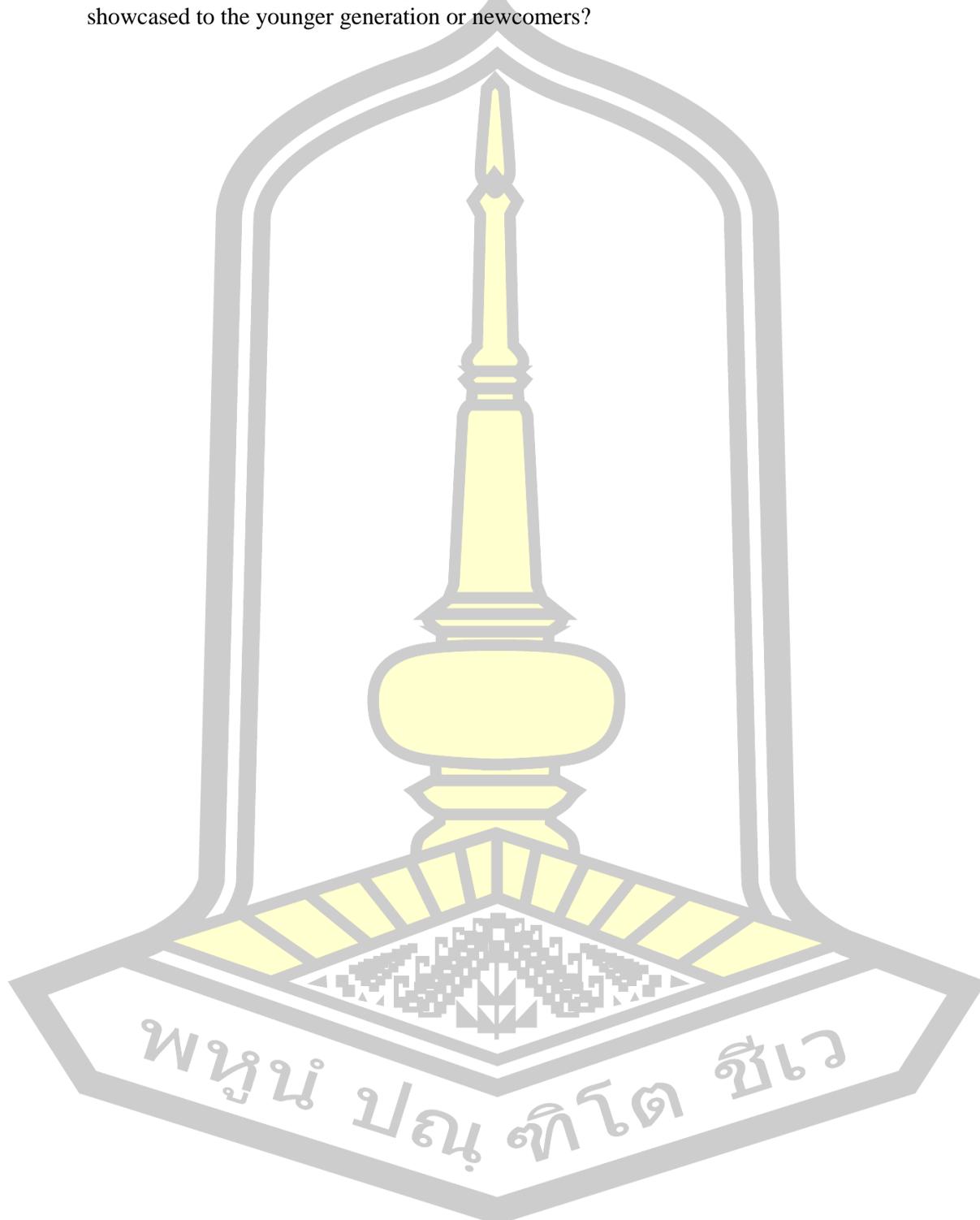
Part IV: The Impact on Regional Life (Binary Coding: Traditional Life and Modernization Impact)

7. What specific impacts have recent changes in Zhongdukou had on your daily life?
8. What is your view on these changes? Have they improved your quality of life?

Part V: The Inheritance of Ceramic Culture (Binary Coding: Inheritance and Innovation)

9. What elements of ceramic culture do you think are still preserved in Zhongdukou?

10. In your view, how should Jingdezhen's ceramic culture be more effectively passed on and showcased to the younger generation or newcomers?



BIOGRAPHY

NAME Ms. Junyi Cao

DATE OF BIRTH July 22, 1995

PLACE OF BIRTH Jingdezhen City, Jiangxi Province, China

ADDRESS International Huacheng, Jingdezhen City, Jiangxi Province, China

POSITION Student

PLACE OF WORK Jiangxi Arts & Ceramics Technology Institute

EDUCATION
2016 Graduated from Hunan University of Science and Engineering with Bachelor Degree, Major Fine Arts
2020 Graduated from Jingdezhen Ceramic University with Master Degree, Major Ceramic Art
2024 Doctor of Philosophy (Fine and Applied Arts Research), Faculty of Fine and Applied Arts, Mahasarakham University

