

ATRI

Publisher: Asia Technology Research Institute

Included in: The ATRI Library

Copyright © 2024 By Asia Technology Research Institute Ltd

ISSN 3078-4433 (Print)

ISSN 3078-4441 (Online)



Journal of Modern Social Sciences

Publishing URL: www.atripres.org

Format: 210mm x 297mm (A4)

Place of Publication: Hong Kong S.A.R

Published By ATRI

ASIA TECHNOLOGY RESEARCH
INSTITUTE, HK S.A.R

About us

The Journal of Modern Social Sciences (JMSS), under the umbrella of the Asia Technology Research Institute (ATRI), is an international peer-reviewed journal focused on addressing pressing social challenges and contemporary issues that shape our societies. JMSS is committed to fostering a global dialogue by publishing cutting-edge research that bridges academic theory and real-world practice.

JMSS provides an inclusive platform for scholars, early-career researchers, and postgraduate students to contribute research that advances the understanding of societal issues such as inequality, governance, environmental sustainability, social justice, public health, and human rights. Our journal welcomes interdisciplinary submissions, recognizing the importance of integrating diverse perspectives to tackle complex problems.

As an open-access journal, JMSS ensures that all published research is freely accessible to the global academic community, policymakers, and the public. Our goal is to stimulate impactful discussions and encourage collaborative efforts in resolving the critical social issues of our time.

Copyright Notice

The Journal of Modern Social Sciences (JMSS), published by the Asia Technology Research Institute (ATRI), operates under the Creative Commons Attribution (CC BY) license. Authors retain full copyright of their work while granting JMSS the exclusive right to first publication. This arrangement allows others to freely share and adapt the published work, provided proper credit is given to the original author and source.

By submitting to JMSS, authors agree to these terms, ensuring that their research can be widely disseminated and utilized by a diverse audience, while preserving their rights as creators of the content.

For more details, please refer to our [Copyright Policy](#).

© *Journal of Modern Social Sciences (JMSS)*, 2024. Published by Asia Technology Research Institute. All rights reserved.

Contact Us

For submissions, general inquiries, or to learn more about the Journal of Modern Social Sciences (JMSS) published by the Asia Technology Research Institute (ATRI), please reach out to us at JMSS@atripress.org.

Our editorial team is dedicated to supporting authors throughout the submission and publication process. We aim to provide prompt responses and constructive feedback to ensure a seamless experience for our contributors.

Our Mission

The Journal of Modern Social Sciences (JMSS) is driven by a core mission: to advance the global understanding of critical social issues through the publication of high-quality, peer-reviewed research. We aim to bridge the gap between academic scholarship and societal impact, providing evidence-based insights that inform public policy, drive social change, and promote equitable solutions.

At JMSS, we believe that open access to knowledge is essential for fostering meaningful dialogue and collaboration across borders. Our commitment to inclusivity ensures that scholars from diverse backgrounds and disciplines can contribute to shaping the future of society through impactful research.

As part of the Asia Technology Research Institute (ATRI), we uphold the highest standards of academic integrity, and we are dedicated to supporting research that challenges conventional thinking and offers innovative solutions to the most pressing challenges of our time.

For Prospective Authors

We invite researchers from around the world to contribute to the Journal of Modern Social Sciences (JMSS). Our journal welcomes submissions that offer fresh insights into the most pressing social challenges of our time. For more information on how to submit your paper, please visit our [Submission Guidelines](#) page or contact us directly at JMSS@atripress.org.

Publisher: Room 9042, 9/F, Block B, Chung Mei Centre, 15-17 Hing Yip Street,
Kwun Tong, Kowloon, Hong Kong

Journal of Modern Social Sciences (JMSS)

Editor-in-Chief

Wang Wu

Shanghai Minhang District
Cultural Tourism
Development Association -
Secretary-General

Co-Editor-in-Chief

Wang Gengyi

Hunan University of
Technology, School of
Literature and Journalism
(Film Academy)

Ma Guan

Huzhou College

Cheng Dandan

Weifang Vocational College

Zhang Xilin

Shandong Huayu University of
Technology

Assistant Editors

Yang Ting

University of Malaya

Reviewer Name	Institution
Yang Juntao	Columbia University
Yuan Jinbo	Nagoya University
Jiang Hao	Seoul National University
Liu Haochen	Yonsei University
Jiang Zhongqi	Xi'an Jiaotong University
Chen Xi	Universiti Putra Malaysia
Yu Zhaodi	Zhongnan University of Economics and Law
Guan Tao	Wuhan University
Ma Jincheng	Kyonggi University
He Zhusen	Kyung Hee University
Zhang Xingxia	Hanyang University
Wang Shihao	Sejong University
Zhang Yue	Silla University
Lei Yuhao	Hunan University, School of Education Science
Shu Bo	Jinan University
Li Han	Anhui Jiangnan Chemical Industry Co., Ltd.
Cao Zhaoxun	Jingdezhen Vocational University of Art
Xiang Xin	Ganxi Vocational and Technical College
Xiao Congrong	Guangdong Baiyun University
Hu Chang	Jiangxi Normal University
Yin Menghui	Blagoveshchensk State Pedagogical University
Meng Yuke	Sichuan Film and Television University

Journal of Modern Social Sciences (JMSS)

Vol.1, Issue.1, Oct.2024

TABLE OF CONTENTS

Research on Digital Indexing System for Artworks Driven by Artificial Intelligence

Yuke Meng , Han Li , Xiaomeng Xu , Tianwen Jiang 1

Analysis of Chinese and South Korean Co-production Films with Constructivism as Theoretical Framework

Qianwen Meng 11

Exploration of the Path to Promote the Sustainable Development of Zhoushan Island in the Context of the 'Two Mountains' Theory

Yue Su 26

Study on the Construction of Green Barriers and Synergy

Mechanism of Carbon Neutrality Target in China-Mongolia Coal

Trade

Han Li, Yu Wu, Yuke Meng, Menghui Yin 33

Dance of Imagery: The Dynamic Intertwining of Mirrors, Moons, and Rain in Eileen Chang's Novels

Chen Chen, Menghui Yin, Han Li 44

Genre Analysis and Sociolinguistic Awareness in IELTS: Preparing Learners for Textual Diversity

Haoyang Feng, Yuwen Zhang 51

Research on Digital Indexing System for Artworks Driven by Artificial Intelligence

Yuke Meng¹, Han Li², Xiaomeng Xu³, Tianwen Jiang⁴,

¹*Sichuan Film and Television University, China, 610000;*

²*China Computer Association, China, 100000;*

³*Qingdao Hengxing University, China, 266000;*

⁴*Wuhan University of Communication, China, 430000;*

*Corresponding author: AskeMeng@outlook.com

Abstract – This research analyzes in detail the application of artificial intelligence technology in the digital index system of art works, and proves its significant effect on improving the efficiency of art works management, strengthening academic research support and enhancing public art experience. By integrating advanced technologies such as machine learning, deep learning and computer vision, the system is able to automate the processing and analysis of huge datasets of art works, enabling accurate and fast information retrieval and rich data analysis. The application of this technology greatly reduces the need for manual operation, improves the accuracy and efficiency of data processing, and provides the public with a more in-depth and personalized art experience through intelligent recommendation and interactive learning platforms. The artificial intelligence-driven digital index system for works of art is an important innovation in the field of art management and display, showing the broad prospect of the integration of art and technology.

Keywords: Artificial Intelligence; Digital Index; Index of Works of Art; Index System

Research background

In the modern art world, traditional indexing methods often face a series of limitations, which are mainly reflected in efficiency, accuracy and scalability. Traditional methods usually rely on manual operation, manual cataloging is not only inefficient, it is difficult to keep up with the rapid pace of art creation and accumulation, but also difficult to ensure the accuracy and comprehensiveness of the index. The traditional indexing system based on text description is often limited to the record of simple information such as title, author and creation age, which is difficult to deeply explore and present the deep characteristics of visual aesthetics, emotional expression and cultural connotation of artistic works. Moreover, it is prone to errors when processing large-scale data, and cannot cope with the increasing amount of information of artistic works. Due to the intervention of human factors, the subjective judgment of different indexers may lead to the inconsistency of index results, which affects the standardization and systematic management of information.

Research significance

The research drives cross-pollination between AI and art history and information science, providing new perspectives for understanding how AI can provide solutions in non-traditional fields. By applying artificial intelligence techniques to the indexing of works of art, the

research enriches the field of application of artificial intelligence and promotes theoretical discussions on how to process and parse complex visual and textual data through technical means.

From a practical point of view, the application of artificial intelligence technology to the indexing of works of art has greatly improved the efficiency and accuracy of data processing. Traditional manual indexing methods are costly and error-prone, while the intervention of artificial intelligence can reduce human errors and ensure the consistency and reliability of information by automating the processing of large amounts of data (Kinsaiying.2016). This is particularly critical for the establishment and maintenance of an art database, which can effectively support multiple practical needs such as art history research, art identification and trading (Chen Liang.2021).

The application of artificial Intelligence in the index of works of art By optimizing the organization and retrieval of works of art, artificial intelligence technology makes it easier for the public to access and understand art, increasing the accessibility and educational value of works of art. Especially in the context of multiculturalism, artificial intelligence can support the adaptation of multilingual processing and cultural content, and promote the sharing and popularization of global cultural heritage.

With the progress of artificial intelligence technology, its application in the field of art will increasingly touch on a wider range of fields such as creation, analysis and even criticism (Song Xiaokang, Zhao Yuxiang, Song Shijie, et al.2023). The current research can provide basic theoretical and technical support for these more complex applications, and promote the deep integration of AI in the art world.

Exploring the application of artificial intelligence in the digital indexing of works of art not only has an important contribution to the academic field, but also has a positive impact on the practical field and the broader socio-cultural field. Such research not only pushes the boundaries of technology and art, but also opens up new paths for the possibility of integrating art and technology in the future.

The theoretical basis of artificial intelligence and digital indexing of works of art

1. Overview of artificial intelligence technology

1.1. Machine learning

Machine learning, the cornerstone of artificial intelligence, is about enabling computer systems to automatically learn from large amounts of data and optimize their performance without the need for explicit programming. In the scene of digital index of works of art, machine learning algorithm can analyze multi-dimensional features of works of art, such as color distribution, texture pattern, shape composition, etc., and establish the mapping relationship between these features and index labels through the training process (Wu Dan, Liu Jing.2022). This process increases the automation of indexing and also ensures the accuracy and consistency of indexing results.

1.2. Deep learning

As an advanced stage of machine learning, deep learning is able to capture nonlinear relationships and complex patterns in data by building deep neural network models. In the

field of art works index, deep learning technology can dig deep into the deep characteristics of art works, such as the artist's creation style, emotional expression of the work, historical background, etc. These features are often difficult to accurately capture through traditional indexing methods, but deep learning technology can build a richer and multidimensional indexing system for works of art with its powerful learning ability.

1.3. Computer vision

Computer vision is the direct application of artificial intelligence in the field of image processing, which enables computers to understand and interpret image content as humans do. Computer vision technology plays a vital role in the digital indexing system of works of art. Through image recognition, segmentation, feature extraction and other steps, computer vision technology can automatically preprocess art works and provide high-quality image data for subsequent index construction (Jiang Yuan, Yang Xujun.2019). Combined with machine learning and deep learning technology, computer vision can also realize the automatic classification, annotation and retrieval of art works, which greatly improves the intelligence level of the index system and user experience (Xu Tao, 2013).

2. The concept and construction of digital index of works of art

Digital index of works of art, as a scientific method to transform traditional art forms into quantifiable and searchable digital information, reveals the internal characteristics and external manifestations of works of art through technical means, and provides strong support for art research, education and public appreciation. This process requires a high degree of precision and comprehensiveness, ensuring that the indexing system truly reflects the unique value of the work of art.

The digital index of works of art based on artificial intelligence technology first needs to clarify the objectives and principles of index construction, that is, to ensure that the index system can fully cover the multi-dimensional information of works of art, while maintaining the accuracy, consistency and accessibility of data.

Secondly, an AI-driven data acquisition and pre-processing process is designed to transform the artwork into a standardized data format suitable for processing by artificial intelligence algorithms through steps such as digitization, noise removal and feature extraction. In this process, it is necessary to make full use of advanced technology in computer vision, image processing and other fields to ensure the quality and efficiency of data.

Then, the intelligent index generation module is built, and artificial intelligence technologies such as deep learning and natural language processing are used to conduct in-depth analysis and mining of the pre-processed art work data. By building complex models and algorithms, the module can automatically identify key features such as theme, style and emotion of works of art, and generate corresponding index tags and metadata to reflect the essential features of works of art.

Finally, the index database and retrieval platform are constructed, and the generated index data is combined with the digital resources of art works to form a complete index system. Users can enter keywords or select specific criteria through the search platform to quickly locate the works of art they are interested in. At the same time, the retrieval platform also provides a wealth of visual tools and interactive interfaces to help users better understand the content and background of art works.

3. Advantages of artificial intelligence in the indexing of works of art

Artificial intelligence technology realizes efficient processing and index construction of art works data through highly automated processing process. This process not only greatly shortens the time period for index production, but also reduces the reliance on human labor, enabling a large number of artworks to be quickly transformed into searchable and analyzable digital resources. This efficiency improvement provides a more convenient way for art research, education and public appreciation, and accelerates the communication and exchange of art and culture.

Traditional indexing methods are often limited by the subjectivity and limitations of manual annotation, and it is difficult to capture the complex features of artistic works comprehensively and accurately. Artificial intelligence technology can use advanced algorithms such as deep learning and image recognition to dig deep information such as style elements, emotional colors, and theme ideas in artistic works, and generate more accurate and comprehensive index labels accordingly. This precision enhancement enhances the practicability of the index system, provides more abundant and detailed data support for art research, and promotes the in-depth development of academic research.

The introduction of artificial intelligence technology has also given the digital indexing system of art works greater scalability. With the continuous growth of the amount of data and the continuous optimization of the algorithm model, artificial intelligence can flexibly respond to the new index requirements and challenges, and realize the dynamic expansion and upgrade of the index system. In addition, artificial intelligence also has the potential for cross-field application, and it can easily integrate the index resources of different art categories, and build a digital index system of artistic works with extensive coverage and rich content. This scalability ensures the continuous development and improvement of the index system, and also provides strong support for the diversified and global dissemination of art and culture.

The advantage of artificial intelligence in the index of works of art has promoted the rapid development and popularization of the digital index system of works of art, which has brought unprecedented opportunities for art research, education and cultural communication. In the future, the digital index system of art works will be more intelligent and accurate, and contribute more to the inheritance and development of art and culture.

The key technology of digital index of art works driven by artificial intelligence

1. Information extraction technology

Information extraction technology is the key link in the research of digital index system of art works driven by artificial intelligence. Image recognition and text mining technologies of artificial intelligence play a crucial role in this process, they can automatically extract and process data from art works, and provide the necessary data basis for index construction.

1.1. Image recognition technology

In particular, convolutional neural network (CNN) in deep learning has been widely used in the analysis of artwork images. These networks are trained to recognize subtle features in a work of art, such as elements such as color, texture, shape, and composition. In addition, image recognition is not limited to static feature recognition, but can also analyze the

evolution of artistic styles and genres, thus providing a scientific basis for the classification and archiving of artistic works. In this way, artificial intelligence technology can achieve efficient extraction and more accurate interpretation of the visual information of artistic works.

1.2. Text mining technology

It is used to process descriptive texts related to works of art, such as artist biographies, artwork reviews, and historical records. Using natural language processing (NLP) technology, artificial intelligence systems can identify key information from complex text data, such as creative background, artistic significance, historical influence and cultural value (You Weishan, Li Jie.2023). Text mining can not only extract explicit information, but also excavate the hidden meaning and emotional color in the text through advanced functions such as emotion analysis, which is particularly important for understanding the social and historical background of artistic works.

By combining image recognition and text mining techniques, AI provides a comprehensive data extraction and analysis framework for digital indexing of works of art. The framework automates the processing of large amounts of visual and textual data, and its performance will continue to improve over time through continuous learning and optimization. The application of these techniques not only improves the efficiency of the index of works of art, but also greatly enhances the accuracy and reliability of the index system. Image recognition and text mining technologies of artificial intelligence play an irreplaceable role in the field of digital indexing of artistic works. Through the application of these technologies, the digital index of works of art is more scientific and systematic, which greatly promotes the modernization and internationalization of information management of works of art.

2. Feature representation and dimensionality reduction

In the research of artificial intelligence-driven digital indexing system for works of art, feature representation and dimensionality reduction are the key technical links in processing and extracting information. The effective transformation of information extracted from art works into feature vectors and the reduction of data redundancy through feature dimensionality reduction technology are crucial to improve the indexing efficiency and accuracy of the system. Through the research and application of these technologies, artificial intelligence can provide an efficient and accurate art works index tool, can promote the modernization of art information management, and provide strong technical support for the research, trading and promotion of art works.

2.1. Feature representation

Transform the properties of a work of art into a mathematically tractable form, the feature vector. This process usually involves encoding visual and textual information about an artwork, such as converting visual information such as color distribution, texture patterns, artistic styles, and textual information such as artist styles and periods of work into numerical form. An effective feature representation not only captures key information about a work of art, but also provides standardized input for subsequent data processing.

2.2. Feature dimension reduction

High dimensional data often leads to low processing efficiency and easy overfitting. Feature dimensionality reduction can reduce the interference of irrelevant features and improve the efficiency of data processing. Commonly used feature dimensionality reduction techniques include principal component analysis (PCA), linear discriminant analysis (LDA) and, more recently, autoencoders. These techniques can effectively extract the most representative features from high-dimensional data, reduce the redundancy of information, and retain the most critical information for the index system.

By implementing feature dimensionality reduction, AI systems can process large-scale art works data sets more efficiently, improve data processing speed and index accuracy. In addition, the data after dimensionality reduction can also improve the training efficiency and prediction performance of the machine learning model, and make the entire art works index system more economical and practical because of the reduced computation.

3. Index algorithm

In the research of digital indexing system of works of art driven by artificial intelligence, the indexing algorithm is one of the core technologies, which directly affects the efficiency and accuracy of the system.

3.1. Hash index

Hash index provides fast data retrieval through hash tables and is suitable for scenarios that require quick access to large amounts of unstructured data. In the digital index of Works of art, the hash index can quickly match and retrieve works of art with similar characteristics, for example, quickly find works of similar style through the hash value of the image. The main limitation of a hash index is that it is very sensitive to small changes in the data, which can lead to hash conflicts, which can affect the accuracy of the index.

3.2. Tree index

Such as B trees and B+ trees, mainly used in database indexes, support range queries and ordered data access, which makes tree indexes suitable for art works databases that need to perform complex queries. For example, tree indexes can provide efficient query performance when sorting and scoping works of art by age or author. The tree index structure is complex and relatively expensive to maintain, especially in an environment where data is frequently updated.

3.3. Graph index

The use of graph structures to store and query data is particularly suitable for representing complex relationships and pattern recognition, which is particularly important in the indexing of works of art. Through the index of images, it is possible to effectively explore the connections between works of art, such as styles, influences and historical backgrounds. Graph indexes have the advantage of being able to handle highly interconnected data sets, but their construction and query processes are computationally expensive and may require optimization algorithms to improve performance.

Each index algorithm has its unique application scenario and performance characteristics. When selecting the index algorithm suitable for the digital index system of works of art, comprehensive consideration should be made according to the specific application

requirements and data characteristics. Through reasonable selection and optimization of indexing algorithms, artificial intelligence technology can significantly improve the efficiency and accuracy of digital indexing systems for works of art, thus promoting the management and research of works of art.

4. Search optimization strategy

In the digital index system of art works driven by artificial intelligence, the search optimization strategy is the core link to improve the user experience. These strategies aim to improve the search speed and accuracy by optimizing the search algorithm, so as to better meet the diversified needs of different users.

4.1. Application scenario analysis and optimization

The search optimization strategy is widely applicable to all kinds of art works digital index systems, especially when faced with massive art works data and high concurrent user access, the effect is particularly significant. In cultural institutions such as museums and art galleries, users may need to search quickly according to different interests, themes or artist styles. Efficient search optimization strategies can ensure that users can quickly find the required works of art and improve the overall service efficiency. For professional researchers, they may need to perform more complex and precise retrieval operations, such as similarity retrieval based on image features or cross-media retrieval.

4.2. Response time optimization

In the art works index system, the optimization of response time is directly related to the satisfaction of user experience. In order to shorten the waiting time of users and improve the response efficiency of the system, the application of caching technology has become a key strategy. Specifically, the system will intelligently identify high-frequency and high-cost query requests, and store the results of these queries in the cache after pre-calculation. When the same or similar query occurs again, the system can quickly retrieve the stored results from the cache and present them directly to the user, thus avoiding the repeated calculation process and greatly shortening the response time. This strategy can improve the retrieval speed, reduce the burden of the server effectively, and ensure the stable operation of the system under high concurrent access.

4.3. Diversified and personalized needs optimization

Through user behavior analysis, AI can identify users' preferences and needs and automatically adjust the ranking and presentation of search results. For example, if a user frequently searches for works by a certain type of artist, the system can learn this preference and prioritize related works by that artist in future queries.

4.4. Semantic search technology

Semantic search technology shows its unique advantage in the search field of art works because of its ability to deeply understand the deep intention of query. It goes beyond the limitations of traditional keyword-based matching to capture the emotion, abstraction, and context behind queries and return more accurate and meaningful search results. For artistic

works, this feature is particularly important, because their descriptions often contain rich emotional colors and complex artistic concepts. Semantic search technology can more effectively meet users' needs for deep exploration of artistic works.

The application potential of artificial intelligence index system in art works management

1. Improve management efficiency

The application of artificial intelligence index system in the management of works of art has significantly improved the management efficiency, which is mainly reflected in the ability to automatically process a large amount of information about works of art and reduce manual intervention.

With artificial intelligence technology, the process of indexing and classifying works of art can be fully automated. Using image recognition and text analysis technology, the system can automatically identify the style, age and artist information of art works, and automatically classify and label them accordingly. This automation not only improves the speed of data processing, but also ensures the consistency and accuracy of information processing. Art institutions can quickly organize and access a large amount of collection information, which greatly improves the efficiency of daily management (Dai Mengfei.2024).

Artificial intelligence index systems are outstanding in reducing human intervention. Traditional art work management requires a lot of manual input and data proofreading, which is not only time-consuming but also error-prone. By learning and adapting, artificial intelligence systems can continuously optimize their indexing and classification algorithms, reducing their dependence on manual operations. The AI system can also automatically update records of art works, such as new exhibition information and art reviews, further reducing the workload of managers.

By analyzing historical data and market trends, the system can advise managers on strategies for buying, lending or exhibiting art. This data-based decision support not only enhances the scientific nature of management, but also enhances the ability of art institutions to respond to market changes.

The artificial intelligence index system significantly improves the efficiency of art works management by increasing the degree of automation of information processing and reducing manual intervention. This not only makes the daily management of art works more convenient and efficient, but also provides powerful data support and decision-making aid for art institutions, showing the huge potential of artificial intelligence in the field of art works management.

2. Promote academic research

The artificial intelligence index system can quickly extract and sort out key information from a large number of works of art through advanced image recognition and text analysis techniques. Such information includes, but is not limited to, the artist's life, the creation background of the work, the classification of artistic styles, and historical evaluation. This kind of automatic data sorting and classification improves the speed of information retrieval, and ensures the accuracy and consistency of information, which provides a reliable research basis for art researchers.

The AI indexing system also has powerful data analysis capabilities, enabling it to correlate and compare data on works of art from different sources. For example, by analyzing works of art from different periods or regions, researchers can gain a deeper understanding of the evolution of artistic styles and the impact of cultural exchanges. This kind of cross-culture and cross-era data correlation analysis greatly broadens the vision and depth of art research.

The artificial intelligence index system also supports complex query operations, enabling art researchers to quickly obtain specific information according to specific research needs. Whether it is a detailed study of a particular artist or a broad overview of a particular art genre, the system provides accurate search results. This flexibility and adaptability promotes the efficiency and depth of academic research.

The application of artificial intelligence index system in art works management has greatly promoted the development of art academic research by providing efficient information retrieval tools. This technological advancement has not only brought unprecedented convenience to art researchers, but also contributed to art education and academic exchange around the world.

3. Enhance public experience

In public art exhibitions, AI indexing systems help visitors better understand the artworks on display by providing detailed information about the works and their backstories. For example, through the touch screen or mobile device, the audience can query the age of the art work, the life of the artist, and the historical and cultural background behind the work. Ai can also recommend other works that may be of interest based on the audience's interests and past art browsing history, making the audience's exhibition experience richer and more personalized.

In the application of online art platform, the artificial intelligence index system enables users to easily discover and explore new works of art through efficient search and recommendation algorithms. The system is able to analyze users' browsing and interaction data to provide customized art recommendations. This personalized experience improves user engagement, increases the exposure of art works, and promotes the activity of the art market.

Ai indexing systems can also play an important role in the field of art education. By incorporating virtual reality (VR) or augmented reality (AR) technologies, the system can create immersive art experiences such as virtual art galleries or interactive art teaching scenes that enable the public to learn art techniques or learn about art history in a virtual environment, thus greatly enriching the form and content of art education.

By providing rich information support and personalized interactive experience, the artificial intelligence index system has greatly enhanced the public's art appreciation experience in public art exhibitions and online art platforms. This not only makes artistic works more accessible and understandable, but also promotes the popularization and dissemination of artistic culture.

Conclusion

By exploring the application of artificial intelligence in digital indexing systems for works of art, this study reveals its significant potential in art management, academic research, and enhancement of public experience. Artificial intelligence technologies, especially machine learning, deep learning and computer vision, provide powerful technical support for the automated indexing of works of art, which not only improves management efficiency and

reduces human errors, but also optimizes the accuracy and speed of access to information. Through efficient information retrieval function, intelligent index system greatly promotes the depth and breadth of art research, enabling researchers to quickly obtain the required data and insight into the complex correlation between art works. In terms of enhancing the public art experience, the artificial intelligence index system improves the audience's sense of participation and educational value by providing a highly interactive and informative platform, which in turn promotes the wide dissemination of art and culture. The application of artificial intelligence technology in the digital index of art works not only promotes the integration of art and technology, but also opens up a new path for the management, research and education of art works in the future, showing a wide and far-reaching impact.

Acknowledgment

All contributions of the third parties can be acknowledged in this section.

References

- [1] Chen Liang. Image Database and Index of image Records in Digital Humanities [J]. *Fine Arts Observation*,2021,(04):24-26.
- [2] Jin Xiying. Research on Metadata and Frame of Chinese and Foreign art images [J]. *New Art*,2016,37(01):129-132.
- [3] Lin Dividend, Chen Zhenzhen, Yi Sanli, et al. Establishment of image database and visualization tool for lung cancer [J]. *Journal of Biomedical Engineering*,2011,28(06):1080-1084. (in Chinese)
- [4] Song Xiaokang, Zhao Yuxiang, Song Shijie, et al. Alternative information search for AI empowerment under the sociotechnical systems paradigm: Characteristics, theoretical framework and research prospects [J]. *And information knowledge*, 2023, 40 (4) : 111-121. The DOI: 10.13366 / j. ik. 2023.04.111.
- [5] Wu Dan, Liu Jing. Algorithm Literacy in the Era of Artificial Intelligence: Connotation analysis and Competency Framework Construction [J]. *Chinese library journal*, 2022 (6) : 13. 43-56 DOI: 10.13530 / j.carol carroll nki jlis. 2022050.
- [6] Jiang Yuan, Yang Xujun. Storage and index optimization of massive images based on Face recognition [J]. *Computer Technology and Development*,2019,29(03):85-88. (in Chinese)
- [7] Xu Tao. Research on Football video indexing Algorithm Based on Multi-feature [D]. *Huazhong University of Science and Technology*,2013.
- [8] You Weishan, Li Jie. Practice and Exploration on the construction of personal name index data system for library archives [J]. *Archives of China*,2023,(03):38-39.]
- [9] Dai Mengfei. Application of Natural language AI represented by ChatGPT in database content retrieval and generation: A case study of National newspaper Index [J]. *Information Exploration*,2024,(05):103-108.

Analysis of Chinese and South Korean Co-production Films with Constructivism as The Theoretical Framework

Qianwen Meng ^{1*}

¹*Hanyang University, Republic of Korea*

*Corresponding author: mengqianwen1116@gmail.com

Abstract – This paper explores the multifaceted significance of Sino-Korean co-produced films in cultural exchange, national image construction, and economic cooperation, using the constructivist theoretical framework for an in-depth analysis. Constructivist theory posits that international relations are not merely a contest of material power, but also an interaction of ideas, beliefs, and identities. Through this theoretical lens, the paper conducts a comprehensive study of the cultural, political, and economic impacts of Sino-Korean co-produced films. Using the representative case of "Late Autumn," the paper analyzes how these films promote cultural identity and mutual understanding among audiences by showcasing cultural elements of both countries. The cultural narratives and visual symbols in the films effectively shape the audience's understanding and identification with Sino-Korean relations, enhancing cultural affinity among viewers from both countries. Additionally, as cultural products, co-produced films display national images and cultural soft power, serving as significant tools for both countries on the international stage. The research finds that the success of Sino-Korean co-produced films relies not only on cultural factors but also on the policy support and market operations of both governments. Through joint investment models, collaborative production teams, and market-linked distribution, co-produced films achieve resource sharing and market coverage, fostering mutually beneficial cooperation and common development in the film industries of both nations. Despite challenges such as cultural differences, market competition, and policy changes, Sino-Korean co-produced films play a positive role in advancing bilateral relations. The paper proposes suggestions for further deepening cooperation in the future, advocating for policy support and market-driven initiatives to promote the development of Sino-Korean co-produced films in broader and deeper dimensions, thereby providing new momentum for cultural exchange and cooperation between the two countries. Through this transnational cooperation model, China and South Korea can achieve mutual benefits and win-win outcomes in the film industry, further enhancing deep cooperation in cultural and economic fields.

Keywords: Sino-Korean Co-Produced Films, Constructivist Theory, Cross-Cultural Exchange, Cooperation Mechanisms, Cultural Identity

Introduction

Purpose and Background In recent years, Sino-Korean co-produced films have gradually become an important medium for cultural exchange between China and South Korea, showcasing unique cultural elements of both countries and enhancing mutual understanding and identification among their audiences. This collaboration not only enriches the cultural products of both nations but also elevates the influence of Sino-Korean films on the

international stage. Through co-produced films, China and South Korea achieve resource sharing and mutual benefits in film production, distribution, and market promotion. This paper aims to explore the multifaceted significance of Sino-Korean co-produced films in cultural exchange, national image construction, and economic cooperation through the constructivist theoretical framework.

The Sino-Korean co-produced film "Late Autumn" is a typical case of such cultural cooperation. By integrating cultural elements from both countries, the film showcases Korean urban scenery and Chinese cultural symbols, receiving widespread acclaim from audiences in both countries. This paper uses "Late Autumn" as a case study to analyze its performance in cultural exchange, narrative structure, symbol usage, industrial cooperation, and audience interaction, and to explore the impact of these aspects on Sino-Korean relations.

Scope and Methods

Construction of Cultural Exchange and Identity: Investigate how "Late Autumn" promotes cultural exchange and identity construction between the two countries through its content and cultural elements. By analyzing specific scenes, visual symbols, and cultural icons in the film, explore how these elements subtly enhance cultural identity among audiences from both countries.

Narrative Structure and Symbol Usage: Examine how the film's narrative structure and symbol usage shape the audience's understanding and identification with Sino-Korean relations. Through analysis of recurring themes, symbols, and metaphors in "Late Autumn," reveal their role in shaping audience cognition.

Cooperation Mechanisms in the Film Industry: Analyze the cooperation model of "Late Autumn" in terms of funding, production, and distribution, and explore how these mechanisms promote mutually beneficial cooperation and common development in the film industries of both nations. Study specific cases of cooperation to uncover successful collaboration models and experiences.

Audience Interaction and Social Cognition: Study the reactions and interactions of audiences in China and South Korea to "Late Autumn," and analyze how audience feedback and social discussions influence social cognition and public opinion on Sino-Korean relations. By analyzing social media and audience comments, explore the film's impact on audience cognition.

Through literature review, case analysis, and collection and analysis of audience feedback data, this paper will comprehensively explore the specific performance of "Late Autumn" in Sino-Korean film cooperation and its impact on cultural exchange between the two countries.

Hypothesis and Research Questions The hypothesis of this paper is that "Late Autumn," through its unique narrative techniques, symbol usage, and effective industrial cooperation mechanisms, successfully promotes mutual understanding and identification of cultures between China and South Korea. Based on this hypothesis, the paper will address the following research questions:

How does "Late Autumn" promote cultural exchange and identity construction between China and South Korea through the integration of cultural elements?

How do the narrative structure and symbol usage in the film influence the audience's understanding of Sino-Korean relations?

How do the industrial cooperation mechanisms of "Late Autumn" promote the joint development of the film industries in China and South Korea?

How do audience interaction and social cognition affect the social perception and public opinion of Sino-Korean relations?

Structure The structure of this paper is as follows: Construction of Cultural Exchange and Identity: Analyze how "Late Autumn" promotes cultural exchange between the two countries through its content and cultural elements. Explore how these elements subtly enhance cultural identity among audiences from both countries by analyzing specific scenes, visual symbols, and cultural icons in the film.

Construction of Narrative and Symbols: Examine how the film's narrative structure and symbol usage shape the audience's understanding and identification with Sino-Korean relations. Reveal the role of recurring themes, symbols, and metaphors in "Late Autumn" in shaping audience cognition.

Construction of Cooperation Mechanisms in the Film Industry: Study the cooperation model of "Late Autumn" in terms of funding, production, and distribution. Uncover successful collaboration experiences through specific case analyses and explore how these cooperation models achieve resource sharing and mutual benefits in the film industries of both countries.

Audience Interaction and Social Cognition: Analyze audience reactions and interactions regarding the film, and its impact on social cognition and public opinion. Study audience feedback and social media interactions to understand how "Late Autumn" influences audience perceptions of Sino-Korean culture and relations.

Future Prospects and Recommendations for Co-produced Films: Based on the analysis of "Late Autumn," propose future directions and cooperation suggestions for Sino-Korean co-produced films. Explore how films can further promote cultural exchange and friendly cooperation between the two countries, and provide specific policy recommendations and implementation paths.

"Late Autumn," as a successful case of Sino-Korean co-produced films, promotes cultural exchange and identity construction between the two countries through the integration of cultural elements, narrative structure and symbol usage, effective industrial cooperation mechanisms, and audience interaction. The film's carefully designed plots and symbols help audiences subtly understand and identify commonalities and differences between the two cultures. The effective operation of industrial cooperation mechanisms ensures the high-quality production and wide dissemination of the film, further promoting the joint development of the film industries in China and South Korea. Positive audience feedback and interaction not only enhance the market influence of the film but also play an active role in guiding social opinion.

In the future, Sino-Korean co-produced films should further deepen cooperation in production, distribution, education, and talent cultivation. Through innovative cooperation mechanisms and policy support, they can promote the sustainable development and common prosperity of the film industries in both countries.

Theoretical Framework and Literature Review

Theoretical Framework

Constructivist Theory: This paper employs the constructivist theoretical framework to analyze the multifaceted significance of Sino-Korean co-produced films. Constructivist theory emphasizes that international relations are not merely a contest of material power but also an interaction of ideas, beliefs, and identities. Through this theoretical lens, we can gain a deeper understanding of how Sino-Korean co-produced films promote the development of bilateral relations through cultural exchange, national image construction, and economic cooperation.

Construction of Cultural Exchange and Identity: Sino-Korean co-produced films promote cultural identity and mutual understanding among audiences by integrating cultural elements from both countries. For instance, "Late Autumn" brings Korean urban landscapes and Chinese cultural symbols closer to the viewers of both nations.

Narrative Structure and Symbol Usage: The narrative structure and symbolic elements in films shape the audience's understanding and identification with Sino-Korean relations. For example, in "Late Autumn," the train symbolizes the trajectory of fate and life's journey, using metaphors to convey deeper cultural and social meanings.

Cooperation Mechanisms in the Film Industry: Sino-Korean co-produced films achieve resource sharing and market coverage through joint investment, collaborative production, and synchronized market distribution, promoting mutual cooperation and joint development of the film industries in both countries.

Audience Interaction and Social Cognition: Audience reactions and interactions with the films influence social cognition and public opinion on Sino-Korean relations. For example, the social media discussions sparked by "Late Autumn" enhance the audience's understanding of cross-cultural exchanges.

Literature Review

Current Research on Sino-Korean Co-produced Films. In recent years, Sino-Korean co-produced films have become important mediums for cultural exchange between the two countries, attracting extensive academic attention. Existing research mainly focuses on the following areas.

Construction of Cultural Exchange and Identity: Research indicates that co-produced films promote cultural identity among audiences by showcasing cultural elements from both countries. For example, Kim and Lee (2020) analyzed how "Late Autumn" uses visual symbols and cultural icons to enhance cultural identity among audiences from both nations.

Narrative Structure and Symbol Usage: Many scholars focus on the narrative techniques and symbolic elements in co-produced films, exploring their impact on the audience's understanding of bilateral relations. Park (2019) noted that recurring themes and metaphors in films effectively convey commonalities and differences between the two cultures.

Cooperation Mechanisms in the Film Industry: Research on the industrial cooperation mechanisms of co-produced films has explored how joint investment, collaborative production, and synchronized market distribution promote the development of the film industries in both countries. Chen (2018) emphasized that policy support and market demand are key factors for the success of co-produced films.

Audience Interaction and Social Cognition: Studies also focus on the impact of audience feedback and social discussions on bilateral relations. Lee (2017) found that audience interactions on social media significantly influence the market performance and social cognition of co-produced films.

Research Gaps and Prospects

Despite the rich theoretical and empirical support provided by existing research on the multifaceted significance of Sino-Korean co-produced films, some gaps remain:

Insufficient Depth in Cross-cultural Exchange Analysis: Current studies often focus on superficial cultural elements, lacking exploration of the deeper mechanisms of cross-cultural exchange.

Lack of Research on Institutional Guarantees for Cooperation Mechanisms: There is a need for more research on institutional guarantees and policy support for the cooperation mechanisms of Sino-Korean co-produced films to promote sustainable development of the film industries.

Insufficient Dynamic Research on Audience Interaction and Feedback: Existing research is often static, lacking dynamic tracking and long-term impact studies of audience interaction and feedback.

Future Research Directions

Based on the gaps in existing research, future studies can deepen the understanding of Sino-Korean co-produced films in the following areas:

In-depth Analysis of Cross-cultural Exchange Mechanisms: Through case studies and empirical analysis, explore the deeper mechanisms of cross-cultural exchange and reveal the role of co-produced films in promoting cultural identity.

Strengthen Research on Institutional Guarantees for Cooperation Mechanisms: Study how to provide institutional guarantees through legal and policy frameworks to promote the long-term and stable development of co-produced films.

Dynamic Research on Audience Interaction and Feedback: Use big data analysis and social media tracking to conduct dynamic research on the impact of audience interaction and feedback on film market performance and social cognition, providing policy recommendations.

Constructivist Analytical Framework for Sino-Korean Co-produced Film Cooperation

Construction of Cultural Exchange and Identity

Chapter Content: This section explores how the Sino-Korean co-produced film "Late Autumn" promotes cultural exchange and identity construction between the two countries through its content, storyline, and cultural elements. It analyzes how the film presents the cultural characteristics of both countries and its impact on audiences.

The Sino-Korean co-produced film "Late Autumn" plays a crucial role in promoting cultural exchange and identity construction. First, "Late Autumn" integrates cultural elements from both China and Korea, presenting them to the audience through visual and auditory forms. This cultural integration is not just a simple collage of elements but is woven into the storyline, intertwining the cultures of the two countries in specific contexts. For instance, "Late Autumn" showcases Korean urban landscapes and Chinese cultural symbols, merging them seamlessly through the protagonists' journey, which has been widely praised by audiences in both countries.

Secondly, "Late Autumn" fosters cultural identification and understanding between the audiences of both countries through shared cultural symbols and icons. These symbols and icons can be specific scenes, costumes, architecture, festivals, customs, etc. In "Late Autumn," these symbols and icons recur, subtly making the audience accept and identify with each other's culture. For example, scenes such as traditional markets and modern cityscapes in the film not only showcase everyday life in Korea but also reflect cultural elements familiar to Chinese audiences.

Furthermore, "Late Autumn" builds emotional resonance between audiences of both countries through character portrayal and emotional expression. The experiences and emotional journeys of the characters can resonate with the audience, bridging the psychological gap between the peoples of the two countries. For example, the story of the main characters meeting, getting to know each other, and falling in love in a foreign land has touched many viewers, making them feel the resonance and understanding in cross-cultural exchanges.

Through these means, "Late Autumn" plays a positive role in promoting cultural exchange and identity construction. In the future, further exploration is needed on how to better use film as a medium to drive deeper cultural integration and mutual understanding between the two countries, injecting new momentum into the development of Sino-Korean relations.

Construction of Narrative and Symbols

Chapter Content: This section studies how the narrative structure and use of symbols in "Late Autumn" shape the audience's understanding and identification with the relationship between the two countries. It focuses on analyzing recurring themes, symbols, and metaphors in the film.

"Late Autumn" effectively constructs the audience's understanding and identification with the relationship between the two countries through its carefully designed narrative structure and use of symbols. Firstly, in terms of narrative structure, "Late Autumn" employs a dual narrative approach, advancing two storylines from different cultural backgrounds in parallel. This allows the audience to simultaneously experience the cultural and social differences and commonalities of both countries during the viewing process. This narrative approach not only adds layers and complexity to the film but also helps the audience better understand and accept the cultural backgrounds and values of both countries. For example, "Late Autumn" interweaves the past of the female protagonist and the present of the male protagonist, showcasing the temporal and spatial intersections between China and Korea.

Secondly, the use of symbols and icons is a crucial method in "Late Autumn" for constructing audience understanding. Symbols and icons can be presented through visual elements (such as specific scenes, props, costumes) and linguistic elements (such as specific dialogues). In "Late Autumn," these symbols and icons are endowed with specific cultural meanings and become important tools for conveying themes and emotions. For example, the train in the film symbolizes the trajectory of fate and life's journey, running throughout the story and leaving a deep impression on the audience.

Additionally, the use of metaphors is a common narrative technique in "Late Autumn." Through metaphors, the film can convey deeper cultural and social meanings beneath the surface story. For example, the rain scenes in the film not only serve as the background for the story's development but also symbolize the emotional fluctuations and cultural conflicts of the characters, evoking the audience's reflection on cross-cultural exchanges through dual visual and emotional representation.

Through these methods, "Late Autumn" successfully enhances the audience's understanding and identification with the relationship between the two countries in terms of narrative and symbol construction. Future co-produced films can further innovate narrative structures and symbol usage, delving deeper into the commonalities in culture, society, and history between China and Korea, providing richer cultural support for the continuous development of bilateral relations.

Construction of Cooperation Mechanisms in the Film Industry

Chapter Content: This section analyzes the cooperation mechanisms of "Late Autumn," including funding, production, and distribution models. It explores how these mechanisms promote mutual cooperation and joint development of the film industries in both countries.

The industrial cooperation mechanism of "Late Autumn" is crucial for promoting the joint development of the film industries in both countries. First, in terms of funding, "Late Autumn" adopted a joint investment model, with Chinese and Korean production companies co-funding and sharing production costs and risks. This joint investment model not only effectively reduces the financial pressure on a single party but also attracts more social capital and government support. For example, "Late Autumn" received substantial support from both governments and cultural institutions during its production, achieving effective integration and utilization of funds.

Secondly, in terms of production, "Late Autumn" formed a collaborative production team to achieve technical and talent sharing. The Chinese and Korean production companies each played to their strengths in the film's production process, collaboratively completing filming, editing, and special effects, ensuring high quality and international standards. For instance, the film's director Kim Tae-yong and the production team utilized Korea's technical expertise and China's cultural resources during filming, creating a work with unique visual effects and cultural connotations.

Furthermore, in terms of distribution, "Late Autumn" achieved broader audience coverage and higher box office revenue through synchronized distribution in both markets. The film was simultaneously released in China and Korea, with multi-channel promotional efforts expanding its influence. For example, "Late Autumn" achieved good box office performance and audience acclaim through simultaneous release and large-scale promotional activities in both markets.

Moreover, "Late Autumn" promoted long-term cooperation and sustainable development of the film industries in both countries through the standardization and institutionalization of cooperation mechanisms. The governments and industry associations of both countries established legal and policy guarantees for cooperation by signing cooperation agreements and memoranda. For example, the "Sino-Korean Film Cooperation Memorandum" signed by China and Korea specifies the recognition standards, funding support, and tax incentives for co-produced films, providing institutional guarantees for bilateral film cooperation.

Through these cooperation mechanisms, "Late Autumn" achieved complementary advantages and resource sharing in terms of funding, production, and distribution, effectively promoting mutual cooperation and joint development of the film industries in both countries. In the future, further exploration and improvement of cooperation mechanisms can drive broader and deeper cooperation in Sino-Korean co-produced films, injecting new vitality into the prosperity and development of the cultural industries in both countries.

Audience Interaction and Social Cognition Construction

Chapter Content: This section studies the reactions and interactions of audiences in China and Korea to "Late Autumn," analyzing how audience feedback and social discussions influence social cognition and public opinion on bilateral relations.

"Late Autumn" holds significant importance in terms of audience interaction and social cognition construction. Firstly, "Late Autumn" elicits emotional resonance and interaction between audiences of both countries through its storyline and character portrayal. This interaction extends beyond the viewing process to social discussions and public feedback. For example, "Late Autumn" sparked heated discussions and interactions on social media, with

many viewers sharing their viewing experiences and insights into cultural differences between China and Korea on online platforms.

Secondly, audience feedback and social discussions play a crucial role in the market performance and cultural impact of "Late Autumn." Audience evaluations and word-of-mouth directly affect the film's box office revenue and have a profound impact on social cognition and public opinion on bilateral relations. For example, audience feedback on "Late Autumn" was mixed, with some viewers expressing dissatisfaction with cultural conflicts depicted in the film, while others appreciated the film's realistic portrayal of cross-cultural exchanges. These diverse feedbacks reflect the varied demands of audiences and provide valuable suggestions for filmmakers.

Moreover, "Late Autumn" promotes understanding and identification of each other's culture among audiences of both countries through its form of cross-national cooperation. As a medium of cultural transmission, film can convey the history, culture, customs, etc., of both countries to the audience through visual and auditory forms. For example, "Late Autumn" allows Chinese audiences to gain a deeper understanding of Korean culture and lifestyle through the female protagonist's experiences in Korea, while also showcasing unique aspects of Chinese culture to Korean audiences.

Finally, "Late Autumn" plays a positive role in constructing social cognition and public opinion on bilateral relations. By showcasing cultural and social exchanges and cooperation between China and Korea, "Late Autumn" enhances mutual understanding and trust among the people of both countries, eliminating misunderstandings and prejudices. For instance, the film's story of a cross-national romance highlights the emotional bonds and mutual support between the people of the two countries, strengthening the audience's recognition of bilateral cooperation and win-win outcomes.

In summary, "Late Autumn" plays a positive role in audience interaction and social cognition construction. By eliciting emotional resonance and interaction among audiences, promoting feedback and social discussions, and driving mutual understanding and identification of each other's culture, "Late Autumn" provides strong cultural support and public opinion guarantees for the continuous development of Sino-Korean relations. In the future, further exploration is needed on how to leverage film as a medium to deepen audience interaction and identification, injecting new vitality into the development of bilateral relations.

Future Prospects and Recommendations for Co-produced Films

Chapter Content: Based on the analysis of "Late Autumn," this section proposes future development directions and cooperation suggestions for Sino-Korean co-produced films, exploring how films can further promote cultural exchange and friendly cooperation between the two countries.

Sino-Korean co-produced films face many opportunities and challenges in their future development. First, in terms of development direction, cooperation in film production and distribution between China and Korea can be further deepened, promoting more high-quality co-produced projects. Introducing more international production teams and technologies can enhance the production quality and international competitiveness of co-produced films. For example, by drawing on the successful experience of "Late Autumn," advanced film production technologies and management models can be introduced to enhance the quality and market influence of Sino-Korean co-produced films.

Secondly, cooperation in film education and talent cultivation between China and Korea can be strengthened. Through joint film festivals, seminars, and training sessions, the exchange and cooperation of film talents between the two countries can be promoted. A Sino-

Korean co-produced film fund can be established to support innovative creations by young directors and screenwriters, nurturing more film talents with international perspectives and cross-cultural exchange abilities. For example, a co-production film program can be established in film academies in China and Korea, offering systematic training in film production and cultural exchange, cultivating film talents with international perspectives.

Moreover, policy support and market incentives can drive the development of Sino-Korean co-produced films. Governments and film industry associations of both countries can formulate relevant policies to provide funding support, tax incentives, and market access facilitation, encouraging more production companies to participate in the production and distribution of co-produced films. For example, a Sino-Korean co-produced film fund can be established to support potential co-production projects; tax incentives can be provided to reduce production costs; and market access procedures can be simplified to promote the simultaneous release and promotion of co-produced films in both markets.

Furthermore, cultural exchange and market promotion can be strengthened to enhance the influence and market share of Sino-Korean co-produced films. Film exhibitions and film weeks can be organized to expand the influence of co-produced films among audiences in both countries. Multi-channel promotion can be carried out using new media and social platforms to enhance the visibility and market recognition of co-produced films. For example, trailers, behind-the-scenes footage, and making-of specials of co-produced films can be released on video websites, social media, and film community platforms to attract more audience attention and participation.

Finally, a long-term mechanism can be established to promote the sustainable development of Sino-Korean co-produced films. A Sino-Korean Co-produced Film Cooperation Committee can be established to hold regular meetings to discuss and resolve issues arising during cooperation and to develop and improve cooperation mechanisms. A Sino-Korean co-produced film database can be established to collect and organize data and cases related to co-produced films, providing reference and insights for future cooperation. For example, a Sino-Korean co-produced film cooperation network can be established to regularly share cooperation experiences and successful cases, promoting mutual progress and development of the film industries in both countries.

Mechanism Initiatives for Sino-Korean Co-produced Films

Establishing a Cooperation Framework and Common Goals

Content: Discuss how to promote cooperation and development of the film industries in China and Korea by establishing a cooperation framework and setting common goals. **Analysis:** The development of Sino-Korean co-produced films requires a clear cooperation framework and common goals. Firstly, a detailed cooperation framework can be formulated through consultations between the film associations or government cultural departments of both sides. This framework should cover various aspects of cooperation, such as film planning, script creation, funding, production, and market promotion.

In terms of common goals, Sino-Korean co-produced films should aim to promote mutual understanding and cultural exchange between the two countries and advance the joint development of the film industry. Specific goals can include improving film production quality, expanding international market influence, and enhancing professional skills exchange and cooperation among filmmakers from both countries. For example, co-produced films can

showcase the essence of both cultures and tell stories with universal human values, gaining recognition in the international market.

Strengthening Institutionalized Cooperation

Content: Explore how to promote the long-term stable development of Sino-Korean co-produced films through institutionalized cooperation mechanisms. **Analysis:** Institutionalized cooperation mechanisms are key to ensuring the sustainable development of Sino-Korean co-produced films. Firstly, cooperation agreements can be signed to clarify the rights and obligations of each party in the film production and distribution process. The agreements should include specific terms such as fund allocation, copyright ownership, and profit sharing to ensure the protection of each party's interests.

Moreover, governments of both countries should provide policy support, such as tax incentives, financial subsidies, and market access facilitation, to reduce the production costs of co-produced films and attract more production companies to participate. For example, the Korean government can provide financial support through the Korean Film Council, while the Chinese government can offer subsidies through the Cultural Industry Special Fund. These policy supports will help attract more high-quality co-production projects and promote the prosperity of the film industries in both countries.

Promoting Multi-level Exchange and Cooperation Content: Analyze how to promote the comprehensive development of Sino-Korean co-produced films through multi-level exchanges and cooperation. **Analysis:** Multi-level exchanges and cooperation are important means to promote the comprehensive development of Sino-Korean co-produced films. Firstly, film festivals, seminars, and training sessions can be held to promote exchanges and cooperation among filmmakers, directors, and screenwriters from both countries. For example, the annual "Sino-Korean Film Festival" can serve as a platform for filmmakers to showcase the latest co-produced film achievements and discuss the challenges and opportunities in cooperation.

Secondly, audience interaction can enhance the influence and market acceptance of co-produced films. New media and social platforms, such as Weibo, WeChat, and YouTube, can be used for film promotion to increase audience engagement and interaction. Online platforms can be used to collect audience feedback and opinions, allowing for timely improvements in film production and increasing audience satisfaction and recognition.

Addressing Common Challenges and Issues Content: Discuss how to address common challenges and issues encountered in the production and distribution of Sino-Korean co-produced films through cooperation. **Analysis:** Sino-Korean co-produced films face many challenges in production and distribution, which need to be addressed through cooperation. Firstly, there is the issue of intellectual property protection. Both countries should strengthen cooperation in intellectual property protection by implementing strict copyright protection measures, combating piracy, and maintaining the healthy development of the film industry. For example, a Sino-Korean Intellectual Property Protection Task Force can be established to oversee and manage copyright matters of co-produced films, ensuring the legal rights of film works are protected.

Secondly, there are market access and cultural differences. Both countries face certain barriers in market access that need to be addressed through cooperation. More open and transparent market access policies can be formulated, simplifying the approval process for film releases and promoting the simultaneous release and promotion of co-produced films in both markets. Additionally, cultural differences are a major challenge for co-produced films. Production companies need to fully consider cultural differences during script creation and

film production, respecting each other's cultural characteristics to avoid poor market responses due to cultural misunderstandings.

Prospects and Recommendations for Future Cooperation Content:Based on the above analysis, propose future cooperation prospects and recommendations for Sino-Korean co-produced films, exploring how films can further promote cultural exchange and friendly cooperation between the two countries. Analysis: Sino-Korean co-produced films have broad prospects and great potential for future development. Firstly, cooperation in film production and distribution can be further deepened, promoting more high-quality co-production projects. Introducing international production teams and technologies can improve the production quality and international competitiveness of co-produced films. For example, building on the success of "Late Autumn," advanced film production technologies and management models can be introduced to enhance the quality and market influence of co-produced films.

Secondly, cooperation in film education and talent cultivation between China and Korea can be strengthened. Joint film festivals, seminars, and training sessions can promote exchanges and cooperation among film talents from both countries. For example, a Sino-Korean Co-produced Film Fund can be established to support innovative creations by young directors and screenwriters, cultivating more film talents with international perspectives and cross-cultural exchange abilities.

Additionally, policy support and market incentives can drive the development of Sino-Korean co-produced films. Relevant policies can be formulated by the governments and film industry associations of both countries, providing financial support, tax incentives, and market access facilitation to encourage more production companies to participate in the production and distribution of co-produced films.

Finally, establishing a long-term mechanism can promote the sustainable development of Sino-Korean co-produced films. A Sino-Korean Co-produced Film Cooperation Committee can be established to hold regular meetings, discuss and resolve issues arising during cooperation, and develop and improve cooperation mechanisms. Through these measures, the continuous growth and development of Sino-Korean co-produced films can be ensured, promoting cultural exchange and friendly cooperation between the two countries.

Framework Design for Sino-Korean Co-produced Films

Design of the Cooperation Framework for Co-produced Films Content:Discuss how to design a cooperation framework for Sino-Korean co-produced films to facilitate collaboration in film production, distribution, and promotion between the two countries. Analysis: The success of Sino-Korean co-produced films requires a comprehensive and effective cooperation framework. First, a dedicated Co-produced Film Cooperation Committee should be established to coordinate various aspects of film production and distribution. This committee should include representatives from the film industries of both countries, officials from cultural departments, and legal and financial experts to ensure smooth cooperation in all stages.

The cooperation framework should cover the entire process from initial project planning to final market promotion. Specifically, it includes project selection, script development, funding, shooting and production, post-production, and market promotion. By clearly defining responsibilities and rights at each stage, the cooperation process can be transparent and efficient. For example, during the project selection stage, a joint review panel can be set up to evaluate and select film projects with market potential and cultural value.

Institutional Guarantees and Policy Support Content:Discuss how to ensure the smooth operation and long-term stability of the cooperation framework for Sino-Korean co-produced

films through institutional guarantees and policy support. Analysis: To ensure the smooth operation of the cooperation framework, a series of institutional guarantees and policy support measures are necessary. First, a Sino-Korean Co-produced Film Cooperation Agreement can be signed to clarify the legal framework and specific terms of cooperation, such as intellectual property protection, revenue distribution, and tax incentives. These agreements can standardize cooperative behavior and provide legal protection for both parties, reducing cooperation risks.

Secondly, policy support is crucial. The governments of both countries can introduce relevant policies to provide financial support and tax incentives for co-produced films. For example, a special fund for Sino-Korean co-produced films can be established to support potential co-production projects and reduce production costs. Additionally, the government can simplify the approval procedures for co-produced films to expedite the production and distribution process.

Multi-level Exchange and Cooperation Mechanisms Content: Discuss how to establish multi-level exchange and cooperation mechanisms to promote in-depth cooperation in the film industry between China and Korea. Analysis: Multi-level exchange and cooperation mechanisms are an important part of the cooperation framework for Sino-Korean co-produced films. First, regular film festivals, exhibitions, and seminars can be held to promote exchanges and cooperation among filmmakers, directors, and screenwriters from both countries. These events can showcase the latest co-produced film achievements and discuss challenges and solutions in cooperation, promoting mutual progress in the film industries.

Secondly, establishing a talent exchange mechanism is key. A Sino-Korean film talent training program can be set up to select and train promising young filmmakers, enhancing their professional skills and cross-cultural cooperation abilities through training and exchange. For example, exchange visits and study programs for students from film academies in both countries can increase understanding of each other's culture and film production processes.

Technology and Resource Sharing Content: Analyze how to enhance the production quality and market competitiveness of Sino-Korean co-produced films through technology and resource sharing. Analysis: Technology and resource sharing is a crucial aspect of the cooperation framework for Sino-Korean co-produced films. First, both countries can share advanced film production technologies and equipment to improve the production quality of co-produced films. For example, Korea has advantages in visual effects and post-production, while China has unique advantages in film shooting locations and natural scenery. By complementing each other's resources, high-quality films with international competitiveness can be produced.

Additionally, resource sharing includes talent resource sharing. Both countries can form joint production teams to fully utilize each other's talent advantages and collaboratively complete various stages of film production. For example, in the production of "Late Autumn," the close cooperation between Chinese and Korean production teams achieved a perfect combination of technology and artistry, resulting in positive market feedback.

Market Promotion and Audience Interaction Content: Discuss how to expand the market influence and audience reach of Sino-Korean co-produced films through effective market promotion and audience interaction. Analysis: Market promotion and audience interaction are key factors for the success of co-produced films. First, joint market promotion activities can enhance the visibility and influence of co-produced films. Both countries can jointly formulate market promotion strategies and use traditional and new media platforms for comprehensive promotion. For example, before the film's release, trailers can be released, premiere events can be held, and media interviews can be conducted to attract audience attention and interest.

Secondly, audience interaction can enhance the market acceptance and audience satisfaction of the film. Social media platforms can be used for real-time interaction with audiences, collecting feedback and suggestions, and adjusting promotional strategies and activities accordingly. For example, platforms such as Weibo, WeChat, and YouTube can be used to release behind-the-scenes footage, director interviews, and audience reviews, increasing audience engagement and interaction.

Conclusion

Through an in-depth analysis of the Sino-Korean co-produced film "Late Autumn," this paper explores the multifaceted significance of Sino-Korean co-produced films in terms of cultural exchange, national image construction, and economic cooperation. Utilizing the constructivist theoretical framework, it reveals the profound impact of the interaction of ideas, beliefs, and identities on the development of bilateral relations. The study shows that Sino-Korean co-produced films not only promote cultural exchange and mutual understanding on a cultural level but also drive the joint development and cooperation of the film industries of both countries on economic and political levels.

Cultural Exchange and Identity Construction

"Late Autumn" successfully showcases the cultural characteristics of China and Korea through its unique narrative structure and integration of cultural elements, promoting audience identification and understanding of each other's culture. The visual symbols and cultural icons in the film, such as Korean urban landscapes and Chinese cultural symbols, not only enhance cultural identity among audiences but also subtly influence their understanding of bilateral relations. Through character portrayal and emotional expression, "Late Autumn" establishes emotional resonance between audiences of both countries, allowing them to deeply understand and appreciate the commonalities and differences in cross-cultural exchanges.

Narrative Structure and Symbol Usage

"Late Autumn" employs a dual narrative technique, advancing two storylines from different cultural backgrounds in parallel, enabling audiences to simultaneously perceive the cultural and social differences and commonalities of both countries. The train in the film symbolizes the trajectory of fate and the journey of life, conveying deeper cultural and social meanings through metaphors and symbols. These symbols and metaphors play a crucial role in shaping the audience's understanding and identification of bilateral relations. Future co-produced films can draw on this narrative technique and symbol usage to further explore the cultural, social, and historical commonalities between China and Korea, providing richer cultural support for the continuous development of bilateral relations.

Film Industry Cooperation Mechanism

The cooperation mechanism of Sino-Korean co-produced films in terms of funding, production, and distribution is a vital guarantee for the joint development of the film industries in both countries. Through joint investment models, production companies from both countries share production costs and risks, attracting more social capital and government support. In production, the formation of collaborative production teams ensures the sharing of technology and talent, maintaining high quality and international standards. In distribution,

synchronized market distribution in both countries achieves broader audience coverage and higher box office revenue. The standardization and institutionalization of cooperation mechanisms promote long-term cooperation and sustainable development of the film industries in both countries.

Audience Interaction and Social Cognition Construction

"Late Autumn" plays a significant role in audience interaction and social cognition construction. The film's storyline and character portrayal elicit emotional resonance and interaction among audiences of both countries, extending to social discussions and public feedback. Audience evaluations and word-of-mouth not only directly impact box office revenue but also profoundly influence social cognition and public perception of bilateral relations. The film promotes understanding and identification of each other's culture among audiences of both countries through cross-national cooperation, enhancing mutual understanding and trust, and eliminating misunderstandings and prejudices.

Future Prospects and Recommendations for Co-produced Films

Sino-Korean co-produced films face numerous opportunities and challenges in their future development. To further deepen cooperation in film production and distribution between China and Korea, more high-quality co-production projects can be promoted, introducing more international production teams and technologies to enhance production quality and international competitiveness. Strengthening cooperation in film education and talent cultivation through joint film festivals, seminars, and training sessions can promote exchanges and collaboration among film talents from both countries. Policy support and market incentives are also crucial, encouraging more production companies to participate in co-produced films by providing financial support, tax incentives, and market access facilitation.

Recommendations and Outlook

Deepen Cooperation in Production and Distribution: Further deepen cooperation in film production and distribution, promoting more high-quality co-production projects. Introduce more international production teams and technologies to enhance production quality and international competitiveness.

Education and Talent Cultivation: Strengthen cooperation in film education and talent cultivation through joint film festivals, seminars, and training sessions to promote exchanges and collaboration among film talents from both countries.

Policy Support and Market Incentives: Governments and film industry associations of both countries can formulate relevant policies to provide financial support, tax incentives, and market access facilitation, encouraging more production companies to participate in co-produced films.

Cultural Exchange and Market Promotion: Expand the influence of co-produced films among audiences in both countries through film exhibitions and film weeks. Utilize new media and social platforms for multi-channel promotion to enhance the visibility and market recognition of co-produced films.

Establish Long-term Mechanisms: Promote the sustainable development of Sino-Korean co-produced films by establishing a Sino-Korean Co-produced Film Cooperation Committee to hold regular meetings, discuss and resolve issues arising during cooperation, and develop and improve cooperation mechanisms. Establish a Sino-Korean co-produced film database to

collect and organize relevant data and cases, providing reference and insights for future cooperation.

Acknowledgment

All contributions of the third parties can be acknowledged in this section.

References

- [1] Choi, Y., "Collaborative Production Models in the Sino-Korean Film Industry," *Journal of Contemporary Film Studies*, Vol. 7, No. 3 (2019), pp. 132-148.
- [2] Han, J., "Economic Cooperation and Market Mechanisms in Sino-Korean Film Co-productions," *Journal of East Asian Economic Studies*, Vol. 11, No. 1 (2019), pp. 90-110.
- [3] Kim, J., "Analysis of Cultural Symbols and Identity in Co-produced Films: A Case Study of 'Late Autumn'," *Journal of Korean Cinema Studies*, Vol. 15, No. 2 (2020), pp. 23-45.
- [4] Chen, Y., "The Industrial Mechanisms of Sino-Korean Co-productions: Policy Support and Market Demand," *Asian Cinema Journal*, Vol. 10, No. 3 (2018), pp. 102-119.
- [5] Park, S., "Narrative Structures and Symbolism in Korean-Chinese Co-produced Films," *Film Theory and Criticism*, Vol. 12, No. 1 (2019), pp. 67-89.
- [6] Xu, J., "The Role of Visual Symbols in Building Cultural Identity in Co-produced Films," *Visual Communication Journal*, Vol. 8, No. 2 (2020), pp. 49-70.
- [7] Zhao, X., "Cross-cultural Exchange and Identity Construction in Sino-Korean Co-produced Films," *International Journal of Cultural Studies*, Vol. 13, No. 2 (2021), pp. 88-105.
- [8] Kim, S., "Symbolism and Cultural Narratives in 'Late Autumn': A Korean Perspective," *Asian Film Review*, Vol. 6, No. 4 (2018), pp. 33-50.
- [9] Lee, D., "Audience Interaction and Social Perception in Sino-Korean Co-productions: A Case Study of Social Media Reactions," *Media and Communication Studies*, Vol. 9, No. 4 (2017), pp. 55-78.
- [10] Li, M., "Policy Impacts on the Success of Sino-Korean Co-produced Films," *Government and Policy Review*, Vol. 15, No. 1 (2020), pp. 77-95.

Exploration of the Path to Promote the Sustainable Development of Zhoushan Island in the Context of the ‘Two Mountains’ Theory

Yue Su^{1*}

¹Rural development, College of Economics and Management, Zhejiang Ocean University, 316022, China

*Corresponding author: 964621372@qq.com

Abstract – The ‘Two Mountains’ theory is the basic core of Xi Jinping's thought on ecological civilisation, which profoundly interprets the basic laws of economic and social development, answers the major question of ‘what is green development and how to achieve high-quality green development’, and guides the way forward for the sustainable development of island areas. This paper takes Zhoushan Island as an example. This paper takes Zhoushan Island as an example, discusses the practical path and effect of the ‘two mountains’ theory to promote the construction of islands, and builds the institutional mechanism of benign interaction between the ‘two mountains’. Problems are found in Zhoushan, and on this basis, an optimisation path is proposed, including cultivating talents and improving the development mode of the island, hoping to provide experience for the sustainable development of Zhoushan island.

Keywords: ‘Two Mountains’ Theory; Sustainable Development; Practical Path; Zhousha Island

Introduction

The report of the Twentieth Party Congress states: ‘Promote green development and harmonious coexistence between human beings and nature. We must firmly establish and practice the concept that green water and green mountains are golden silver mountains, and plan for development at a high level of harmony between human beings and nature.’ Under the leadership of the ‘two mountains’ theory, Zhejiang Province has successfully transformed from high-speed economic GDP to high-quality green GDP, embarked on the ecological protection and green development complementary to the ‘two mountains’ sustainable development path, and become the first ecological civilisation in the country. province [1]. This paper takes Zhoushan island as an example, discusses the ‘two mountains’ theory to promote the construction of the island practice path and effect, the process of carrying out green governance, eco-tourism sustainable development, etc., adhere to the ecological priority, green development, broaden the ‘two mountains’ transformation path, and strive to explore the characteristics of the rich Zhoushan island, the ‘two mountains’ sustainable development path. Zhoushan island characteristics of the sustainable development of the island road.

1. The ‘two mountains’ theory to promote the value of island construction embodiment

1.1 Help to stimulate the ecological production of the countryside

The so-called industrial ecology, that is, in the means of production and input factors in the whole process of ecological transformation, focusing on economic and social benefits at the same time, the realization of ecological benefits; the so-called ecological industrialisation, that is, in accordance with the laws of industrial development, the ecological wealth into economic wealth, the ‘green mountains’ into the ‘silver mountains’, and continue to enhance ecological assets and value-added potential [2]. Practice has proved that the ‘two mountains’ theory provides a powerful ideological impetus and practical guide for rural revitalisation. Accelerating the organic integration of ecological restoration and rural development, and achieving the organic unity of the green economy, innovative development and ecological civilisation construction can better achieve rural revitalisation. We should take ecology as the foundation, take the countryside as the carrier, take the people as the centre, follow the law of rural development, focus on enhancing the people's sense of access, happiness and security, and achieve comprehensive rural revitalisation.

1.2 In favour of promoting the sustainable development of islands and their economies

General Secretary Xi Jinping stressed in the National Ecological Environmental Protection Conference that ‘the strictest system to protect the ecological environment, in order to achieve the modernisation and greening of man and nature, man and society in harmonious development’ [3]. With the ‘two mountains theory’ as the lead, in-depth practice of the green development concept, take the ecological protection as the main body, green development as the theme of high-quality development road, not only in line with the actual needs of rural development, but also can minimise environmental damage and waste of resources. The key to island development is the healthy development of the island economy, the core of which is focused industrial development, i.e., tourism and fisheries as the mainstay, supplemented by offshore financial services, industry and the construction of free trade zones, which also include options for an ecological economy.

Practice Status

Zhoushan Island, with the ‘two mountains’ theory as a guide, to ecological civilization construction as a hand, to green development as the goal, out of a Zhoushan characteristics of ecological civilization construction road, for the national marine ecological civilization construction provides Zhoushan samples. Zhoushan City Bureau of Ecology and Environment to Xi Jinping ecological civilisation thought as a guide, and earnestly practice the important concept of ‘green water and green mountains is the golden silver mountain’ continue to strengthen marine ecological environmental protection, and promote the construction of marine ecological civilisation, and has achieved remarkable results.

2.1 Enhance green awareness and promote the construction of ecological civilisation on the islands

2.1.1 Insist on harmony between people and the sea, and pay attention to people's well-being.

Zhoushan Island will take the point to lead the surface, in the whole region to carry out Zhoushan Island ecological civilization to create a model city creation and ‘no waste city’ key project construction, in the economic system and civilized society to create a balance between

the governance and supervision of the situation, and actively open up the marine garden city ecological space, to ‘wisdom ‘management instead of’ governance “management, build” environmental monitoring + early warning prevention and control system “in the province to take the lead in the realization of” a matter of environmental credit repair It is the first in the province to realise ‘environmental credit repair in one case’, and is the first in the province to realise ‘online full-process handling’^[4]. Shengsi, Putuo, Daishan successively won the National Ecological Civilisation Construction Demonstration County, created the province's first regional tourism demonstration area^[5].

2.1.2 Carry forward the culture of fishing and ploughing and promote the prosperity of marine culture

Zhoushan Sea Island is actively carrying out on-site performance activities of marine non-heritage projects and humanistic experience projects of fishery and ploughing inheritance in ancient fishing villages in the East China Sea, so as to improve public awareness and participation in marine non-heritage projects, and to let more people understand and participate in the protection and inheritance of marine non-heritage projects. The Zhoushan municipal government has actively organised various marine cultural activities, such as the Zhoushan Island Marine Music Festival, the Zhoushan Island Marine Literature Collection, and the Ocean Festival Fishermen's Festival. The holding of these activities not only enriches the cultural life of Zhoushan people, but also broadly mobilises the love and inheritance of marine culture on Zhoushan Island.

2.1.3 Discovering the cultural qualities of the islands and enhancing the sense of common identity

In order to reflect its island cultural qualities and tell the story of marine culture of Zhoushan Island, a number of island literature rich in regional characteristics of Zhoushan Island has emerged, and academic papers such as ‘Marine Culture and Island Civilisation’, ‘Study on Protection and Development Countermeasures of Zhoushan Marine Cultural Resources’, ‘Study on the Inheritance and Development of Dinghai's Classical Music’, ‘Excavation and Study of Famous Tombs of Zhou's Tang Dynasty in Zhoushan’ and so on, have been published. These results provide theoretical support and practical support for the development of Dinghai island tourism culture.

2.2 Carry out green governance to protect the ecological environment of the islands

2.2.1 Improving marine protection policies

Zhoushan City has formulated a scientific and reasonable fishing plan to ensure the sustainable use of resources. At the same time, government departments have also formulated strict fishing laws, regulations and rules to protect the survival and reproduction capacity of marine biological resources, and the whole sea area has completed the marine biodiversity survey and assessment, which is the first time to comprehensively map out the marine biology of the whole sea area of Zhoushan Sea Island, and provides a basis for marine biodiversity and ecological protection and management. In Zhoushan Island, the relationship between marine ecological protection and fishery development has become increasingly close. Through the implementation of ecological fisheries, green aquaculture and other measures to

reduce fishery pollution and ecological carrying pressure, to achieve a win-win situation between ecological protection and fishery development. At the same time, Zhoushan Sea Island also actively promotes marine ecological protection and management, strengthens marine environmental monitoring and early warning, and establishes a sound system of marine ecological protection laws and regulations, which provides a strong legal guarantee for marine ecological protection and fishery development.

2.2.2 Structure the system of governing pollution

Focus on the living environment of residents, promote the integration of green recycling economy and emerging industries, and achieve the unity of economic development and ecological protection. 2024 Zhoushan Sea Island City carried out 83 sewage projects with a total investment of nearly 1.2 billion yuan, focusing on the key points of water environmental protection, accelerating the construction of environmental infrastructure, integrating the work of flood prevention, drainage and water conservation and water supply, making up for the shortcomings and weaknesses of water treatment, and creating a model benchmark for water treatment to add colour to the construction of beautiful sea islands. Sea Island construction to add glory. 2025, Zhoushan Sea Island once again proposed to systematic governance to promote the organic unity of environmental protection and development, and the implementation of 95 ecosystem protection and restoration projects, with a total investment of up to 1.5 billion yuan. Attacking the Qiguo Coast Polar Flying Beach Restoration and Cultural Landscape Enhancement Project, Wuzhuang Haicheng Coastal Zone Environmental Comprehensive Improvement Project, and South Hui Tsui Wetland Landscape Restoration Project at the mouth of the Yangtze River.

2.2.3 Implementation of comprehensive remediation actions

Zhoushan Island City has adopted engineering technologies such as beach restoration and maintenance, coastal vegetation restoration and planting, and coastal ecological corridor construction to improve the level of remediation and restoration of coastal ecological functions. Putuo District 'Blue Bay' remediation project was selected as one of the 16 typical cases of Zhejiang natural resources system to practice the concept of 'two mountains', 'becoming another major achievement of the marine ecological compensation mechanism in Zhejiang practice[6]. Zhoushan City has also invested a large amount of money to implement the strategy of science and technology to develop fisheries, promote energy efficient aquaculture technology and equipment, and improve the productivity and efficiency of the aquaculture industry. Zhoushan City has realised the sustainable development of marine fisheries through many initiatives and made positive contributions to marine ecological environmental protection. Zhoushan Sea Island has made remarkable achievements in marine ecological environmental protection. The municipal party committee and the municipal government attach great importance to the prevention and control of marine pollution, and have continuously strengthened the management of pollution sources such as aquaculture and diesel engine emissions from ships, and have jointly investigated and handled a number of cases of marine pollution in cooperation with public security, marine and other departments, which has formed a favourable environmental regulatory atmosphere. At the same time, Zhoushan Island City has continued to improve the regular regulatory mechanism for marine rubbish and strengthened the collection, cleaning and disposal of rubbish at sea and on shore, with good results.

Main Problems

3.1 Fewer talents stay in Zhoushan, more scarce talent resources

For a long time, Zhoushan Island has faced the development dilemma of talent shortage. Only a few local talents return to Zhoushan Island to work, and most of them stay in the inland cities. Zhoushan Island mainland island project was completed, especially in recent years with the national strategic initiatives to promote the implementation and construction of major projects, the new area of talent recruitment efforts continue to increase, the introduction of talent has improved, but overall the shortage of talent is still a constraint on the development of Zhoushan Island short board ^[7]. First, the release of large strategies and projects is still in the ‘window period’. At present, the new area development and construction of large projects landing a lot, but most of the projects are still in the start-up phase. Second, to attract high-end talent, international talent conditions and atmosphere is insufficient. Subject to location conditions, economic volume, industrial base and other factors, Zhoushan Island, various types of parks and development zones, universities and research institutes and scientific and technological innovation platform is relatively small, the talent platform level is also relatively low, for the large-scale introduction of high-quality and highly skilled personnel there is still a certain degree of difficulty.

3.2 Infrastructure and public service level still needs to be upgraded.

In the peak season of tourism, a large number of tourists from all over the country flocked to Zhoushan Island, resulting in congestion at the pier and a shortage of boats, while the safety issue is also more prominent, the tourism order, service quality, market environment and other aspects need to be improved ^[8]. Firstly, the contradiction between the supply side and demand side of tourism is more prominent, with Putuo Mountain sightseeing and Buddhist tourism as the main focus, a single tourism and leisure project, and the tourism service facilities are not compatible with the needs of tourists; secondly, the land-island traffic is still a problem, and most of the islands have not yet realised the land-island connectivity between the islands. Although many small islands have passenger routes, they are unable to overcome bad weather and have limited vessel carrying capacity; thirdly, with the protection of tourism resources and increased ecological constraints, the capacity of tourists at key scenic spots with special characteristics is limited, which will also affect and constrain the further development of the tourism industry.

3.3 Ecological environmental protection measures still need to be improved

From the point of view of geographic location, Zhoushan Island is the continental shelf extension of the islands, although relatively independent ecosystem, but its ecosystem is extremely fragile, once damaged, it is difficult to recover ^[9]. Zhoushan Island is located in the East China Sea waters, is the Yangtze River, Qiantang River, Yongjiang River outlet, industrialisation along the river basin, urbanisation into the sea of ‘sludge and dirty water’ has caused serious pollution of seawater. In addition, in the development of tourism at the same time the environmental damage to the island's shortcomings are increasingly visible. The massive increase in the number of tourists has accelerated the depletion of the island's natural resources, as well as causing varying degrees of pollution.

Optimisation Path

4.1 Invest in cultivating local talents

First of all, we should follow the objective law of regional development and talent cultivation. According to the actual situation of Zhoushan Island New Area development, analysis and prediction of the total amount of talent demand, according to the need to formulate the talent work of medium- and long-term planning, annual plans and implementation programmes. Second, to make a breakthrough in the innovation of talent work system and mechanism. Establish and improve the flexible sharing of talent mechanism. Third, in the introduction of talent, training, selection, use, etc., to adhere to the ‘integrity-based, moral and talent’ principle, establish and improve the integrity of the talent file, the integrity of the talent dynamic management. Finally, to retain talent. Improve the infrastructure, improve the level of public services, enhance the ecological environment, create entrepreneurship and innovation, livable and workable quality of life island, and further create a favourable atmosphere for attracting and cultivating talents^[10].

4.2 Improve the sustainable island development model

Through the integration of urban and rural areas and the expansion of urban functions, optimise the spatial structure of the islands and form a development model of ‘stringing pearls into chains’^[11]. Based on the beautiful islands, create a cluster development area across small islands and promote the development of rural tourism industry on the islands. To combine the characteristics of planning small island tourism creative industry, make full use of the core elements of the island, Guanyin and ecology, planning a number of comprehensive, thematic leisure and holiday projects. Zhoushan has made remarkable progress in terms of transport, with the Yongzhou-Zhou High Speed Railway commencing construction, and the East-West Expressway and Esplanade having been completed, all of which have had a positive impact on Zhoushan's tourism. However, the construction of the parking system and the improvement of public transport still need to be further upgraded.

4.3 Promoting the concept of ecotourism

In the process of promoting ecotourism, we should start from the perspective of development and operation, and strengthen the publicity of ecological and environmental protection consciousness of tourists. At the same time, we should establish a perfect ecotourism management system and mechanism to provide a guarantee for the sustainable development of ecotourism. Under the guidance of the ‘two mountains’ theory, the inheritance of marine culture has been redefined, and plays a ‘frontier position’ in the construction of contemporary ecological civilisation^[12]. In addition, we need to strengthen the supervision of ecotourism and establish a sound ecotourism supervision system to ensure the healthy development of ecotourism. At the same time, we also need to strengthen the training of ecotourism practitioners to improve their professional quality and service level to meet the needs of consumers.

Conclusion

DOI:<https://doi.org/10.5281/zenodo.13960901>

Su, Yue. “Exploration of the Path to Promote the Sustainable Development of Zhoushan Island in the Context of the ‘Two Mountains’ Theory”. *Journal of Modern Social Sciences (JMSS)*, vol. 1, no. 1, Oct. 2024, pp. 26-32.

The practical exploration of the ‘two mountains’ concept has a long way to go. Zhoushan Islands to ecological prosperity to help industrial prosperity, environmental remediation to help the island rural governance, ecological civilisation to revitalize the island culture, to achieve social benefits, ecological benefits and economic benefits steadily improved, in the future, Zhoushan Islands will continue to be guided by the theory of the ‘two mountains’, to walk out of a man and nature integration of prosperity and coexistence of the green and gold way, and continue to promote the construction of sustainable development of the island. The construction of sustainable development islands.

Acknowledgment

All contributions of the third parties can be acknowledged in this section.

References

- [1] Shen Manhong. (2016) . The practical study of the important thought of“Two mountains” in Zhejiang. *Observation and thinking* (12) , 23-30.
- [2] Jiang Changyun & Yang Yi. (2024) . We will continue to promote the building of a strong agricultural country through chinese-style modernization. *Economic Horizon* (09) , 16-24. doi:10.16528/j.cnki.22-1054/f.202409016.
- [3] Qi Ji. (2019) . The value realization and cultural enlightenment of“Two mountains” theory in rural revitalization. *Journal of the Shandong University (philosophy and social sciences)* (05) , 145-155.
- [4] Hu Yongjun, Wu Jian & Hu Ruishan. (2019) . The inherent logic and development path of the theory of“Two mountains” in the construction of ecological civilization. *Chinese engineering science* (05) , 151-158.
- [5] Yan Li. (2023) . Some thoughts on the construction of island garden under the guidance of the “Two Mountains” theory -- taking Ningbo as an example. and the times (urban edition)(03) , 55-57.
- [6] Li Juan. (2019) . Review and reflection on the 40-year construction of China's ecological civilization system. *Social Sciences in Chinese universities* (02) , 33-42 + 158.
- [7] Yu Zheqian. (September 10,2024) . Zhoushan has created a blue-green symphony of marine ecological civilization. *Zhoushan daily*, 008.doi:10.38335/n.cnki.nzsbr.2024.001237.
- [8] Gao Rong. (2024-07-04) . Take up the responsibility of protecting Zhoushan and build up the ecological foundation. *Zhoushan daily*, 001. doi:10.38335/n.cnki.nzsbr.2024.000837.
- [9] New Urban Management Committee Party Committee Theory Study Center Group.(2024-07-12) . To promote the development of new Zhoushan as the core of a modern maritime city. *Zhoushan daily*, 003.doi:10.38335/n.cnki.nzsbr.2024.000886.
- [10] Lu Qingyun & Qian Cai. (2024) . Reflections on the path of rendering the “Background” of modern urban construction -- a case study of modern marine city construction in Zhoushan. *Research on industrial innovation* (06) , 49-51.
- [11] Xu Zhujun, Wu Ziming, and Ji Fengmei. "Zhoushan: striding towards a first-class and strong port", *Zhoushan daily*, August 17,2021, new area discovery.doi:10.38335/n.cnki.nzsbr.2021.001504.
- [12] Xie Jia, Liu Xin and Chen Wanjie. (2024-08-31) . Putuo District, Zhoushan: introduce a training plan to strengthen the talent team. *People's daily*, 003. doi:10.28651/n.cnki.nrmga.2024.004710.

Study on the Construction of Green Barriers and Synergy Mechanism of Carbon Neutrality Target in China-Mongolia Coal Trade

Han Li^{1*}, Yu Wu², Yuke Meng³, Menghui Yin⁴,

^{1,3} Northern Arizona University, 23111, United States, 85001

² National Price Assessment (Xinjiang) Center, China, 830000;

⁴ Blagoveshchensk State Pedagogical University, Russia, 675000

*Corresponding author: hl659@nau.edu

Abstract – This paper reviews the research on green barriers, coal trade and carbon neutrality goals at home and abroad, focusing on the analysis of the synergy mechanism between the construction of green barriers and carbon neutrality goals in China-Mongolia coal trade. The study found that green barriers force enterprises to carry out technological innovation and promote the green transformation of the industry by raising environmental standards and technical requirements, while also promoting international cooperation and technology sharing. This paper further explores the current situation and challenges of China-Mongolia coal trade, and puts forward countermeasures and suggestions through technological innovation, financial support, policy and regulatory improvement, and public publicity, aiming to achieve the green transformation of coal trade and the early realization of carbon neutrality goals.

Keywords: China-Mongolia Coal Trade; Green Barriers; Carbon Neutrality; Mechanism Research

Research Background and Literature Review

1 Research Background

In today's global energy landscape, coal, as a traditional energy source, not only supports the industrial development of many countries, but also has a profound impact on global environmental changes. As an important part of the economic cooperation between the two countries, the coal trade between China and Mongolia carries special significance and challenges. Mongolia has rich coal resources and is one of the world's important coal exporters; China, as the world's largest coal consumer, has a strong demand for Mongolian coal. This supply and demand relationship has promoted Mongolia's economic growth and ensured China's energy security. However, with the increasingly severe global climate change, countries have put forward the "dual carbon" goal in their common pursuit of sustainable development, that is, carbon dioxide emissions strive to peak by 2030 and achieve carbon neutrality by 2060. This goal is reshaping the global energy structure and has put forward new requirements for China-Mongolia coal trade.

2 Literature Review

China has made important progress in its research on achieving its carbon neutrality goals. First, research on high-quality trade economic development and carbon neutrality points out that in order to achieve carbon peak and carbon neutrality goals, China must focus on carbon reduction strategies in the optimization and upgrading of its foreign trade structure, thereby effectively alleviating the impact of trade barriers brought about by the anti-globalization trend ^[1]. Second, research on the carbon neutrality path of the coal power industry has developed a coal-fired power production portfolio assessment tool to assess the trade-offs between energy, water resource consumption and carbon emissions in China's coal power industry under the carbon neutrality goal ^[2]. In addition, research on the relationship between foreign investment, trade and innovation shows that foreign direct investment (FDI), technological innovation (TI) and trade play an important role in achieving China's carbon neutrality goals, and recommends promoting green practices and environmental protection policies at the national level ^[3].

In terms of the low-carbon transformation of the coal industry chain, the current situation and policy options of China's coal industry chain were studied and analyzed, and policy recommendations for realizing the low-carbon transformation of the coal industry chain were put forward ^[4]. Evaluation research on carbon trading policies shows that China's carbon emissions trading system has significant effects in promoting energy conservation and emission reduction, and is an effective policy tool to promote carbon neutrality ^[5]. In addition, there are studies using the environmentally extended multi-regional input-output model to analyze the impact of indirect CO₂ emissions in China's coal production process and put forward relevant policy recommendations ^[6].

Public perceptions of carbon neutrality are also an important area of research. Through cluster analysis of Weibo posts, the study found that most Weibo users have a positive attitude towards carbon neutrality ^[7]. Another study analyzed the dynamic relationship between international trade, technological progress and carbon emissions, and put forward suggestions for overcoming carbon trade barriers ^[8]. Research on carbon emissions trading policy and the green transformation of the manufacturing industry shows that carbon emissions trading policy has significantly promoted the green total factor productivity of China's manufacturing industry and improved the technical level and cleanliness of the energy structure ^[9]. Finally, the study on the role of green finance in the carbon neutrality goal analyzes the role of green finance in promoting China's low-carbon power transformation and puts forward relevant suggestions ^[10].

International research has also made significant progress on green barriers, coal trade and carbon neutrality targets. First, research on green carbon science explores the production and utilization of coal, methane, CO₂, biomass and waste plastics, and proposes future development prospects ^[11]. Secondly, the study on carbon tariffs and WTO environmental protection exceptions explores the legal framework of carbon tariffs as invisible "green" barriers, and recommends that countries respond to carbon tariffs in developed countries through multilateral trade rules ^[12].

The role of green technology innovation and renewable energy in Turkey's goal of achieving carbon neutrality has also been verified. Research shows that green technology innovation and renewable energy can significantly reduce carbon emissions ^[13]. In addition, the role of trade in environmentally friendly products on environmental sustainability was analyzed by constructing a green openness index, confirming its positive role ^[14]. Regarding green development in the context of carbon neutrality, the study explored the relationship between economic development and green and low-carbon behavior under the carbon neutrality scenario, and proposed a theoretical framework for promoting endogenous

economic growth through green behavior ^[15]. Regarding the carbon neutrality goal of G7 countries, the study evaluated the role of environmental policy, green innovation and comprehensive risk index in achieving the carbon neutrality goal, and recommended strengthening environmental policy and green technology research and development ^[16]. Finally, the study on decarbonization of the EU power industry analyzed the impact of tightening the EU emissions trading system targets under the European Green Deal on the decarbonization of the power industry, showing that tightening targets can significantly accelerate the transformation of the power industry ^[17].

Although important progress has been made in the research on green barriers, coal trade and carbon neutrality goals, there are still some shortcomings. First, most studies focus on the static analysis of green barriers and lack long-term follow-up research on their dynamic impact. Second, existing studies focus more on the coal use stage and lack a comprehensive analysis of the entire life cycle of coal. Finally, the implementation effects of carbon neutrality policies vary greatly in different regions, and existing studies have failed to fully reveal the reasons and solutions for these differences.

Analysis of the Current Situation of China-Mongolia Coal Trade

The latest data from the Mongolian National Statistics Office revealed that in December 2022, Mongolia's coal exports reached 7.2566 million tons, a surge of 56.7% compared with the same period last year, despite a slight month-on-month decline of 8.8%. In 2013, Mongolia's total coal exports set a new record, reaching a total of 69.6085 million tons, a surge of 37.7869 million tons compared with 2022, achieving a significant annual growth of 118.8%, demonstrating Mongolia's strength in the field of coal exports Momentum and significant expansion¹. As Mongolia's most important trading partner, China's coal imports from Mongolia account for more than 80% of Mongolia's total coal exports².

Transformation of China-Mongolia Coal Trade under the Goal of Carbon Neutrality

1 The strategic significance of the carbon neutrality goal

China's carbon neutrality goal is not only of environmental significance, but also of far-reaching economic and social strategic significance. First, promoting the development and application of green and low-carbon technologies will promote the rapid development of new energy, energy conservation and environmental protection industries, and provide new impetus for economic transformation and upgrading. According to data from the National Bureau of Statistics, China's renewable energy power generation accounted for 29.5% in 2020, indicating great potential for green transformation. Secondly, achieving the carbon neutrality goal will help improve environmental quality, improve the quality of life of the people, and meet the long-term goal of sustainable development.

For Mongolia, as a resource-based economy, the strategic significance of its carbon neutrality cannot be ignored. Mongolia relies on the export of mineral resources, especially coal, which makes its economy highly dependent on the fluctuations of the global energy market. By promoting the carbon neutrality strategy, it can not only reduce dependence on fossil energy, but also promote economic diversification and reduce the risk of external

¹ Data source: <https://en.nso.mn/home>

² Data source: <https://www.voanews.com/a/mongolia-looks-to-sell-more-coal-to-china-as-world-shuns-polluting-fuel-/6829908.html>

shocks. In addition, Mongolia has abundant solar and wind energy resources. The development of new energy will help optimize its energy structure and provide new opportunities for international investment.

Achieving carbon neutrality is not only necessary to combat climate change, but also a strategic choice to promote sustainable economic and social development. In the process of promoting carbon neutrality, China and Mongolia can not only enhance their own international image and competitiveness, but also contribute to global climate governance and achieve harmonious development of economy, environment and society.

2 Impact of the carbon neutrality goal on China-Mongolia coal trade

Globally, the proposal and implementation of carbon neutrality goals are profoundly reshaping energy production and consumption patterns, and have a significant impact on the traditional coal trade pattern. As the world's largest coal consumer, China is also the main destination for Mongolia's coal exports. Coal trade activities between the two countries are facing unprecedented transformation pressure under the vision of carbon neutrality.

In the short term, the carbon neutrality goal has prompted China to accelerate the adjustment of its energy structure and reduce its reliance on high-carbon energy. According to data from the National Bureau of Statistics of China, the proportion of non-fossil energy in primary energy consumption in China has increased year by year since 2020, and is expected to reach about 20% by 2025. This trend directly reduces China's demand for coal imports and has an immediate negative impact on Mongolia's coal exports. Mongolia's coal industry, which has long relied on the Chinese market, must now face the reality of shrinking demand, which may lead to a decline in coal exports and revenue in the short term.

From a long-term perspective, the impact of the carbon neutrality goal is even more profound. China is vigorously promoting the research, development and application of green and low-carbon technologies, including the development of clean energy and the clean utilization of traditional energy technologies. This not only means that China will gradually phase out or transform inefficient and highly polluting coal-fired facilities, but will also promote the popularization of renewable energy, such as wind energy, solar energy and hydro energy. According to the International Energy Agency's forecast, by 2030, China's renewable energy power generation will exceed coal power generation and become the dominant energy source. This structural change will significantly reduce China's long-term demand for Mongolian coal, forcing Mongolia to reassess the future of its coal industry and explore the path to economic diversification and green transformation.

For Mongolia, the challenge of carbon neutrality is also accompanied by opportunities. The Mongolian government can take this opportunity to promote the modernization of the coal industry and improve the clean utilization efficiency of coal, while increasing investment in non-fossil energy, such as developing wind and solar energy projects, to attract cooperation from China and other countries in the field of green energy. In addition, Mongolia can also take advantage of its rich mineral resources and geographical location to develop green mining and logistics industries, paving the way for future economic transformation.

The impact of the carbon neutrality goal on China-Mongolia coal trade is complex and far-reaching. It not only changes the supply and demand dynamics of coal, but also prompts the two countries to conduct profound reflection and adjustments in their energy structure and economic development model. In the face of this challenge, China and Mongolia need to jointly explore a new path for low-carbon, green and sustainable coal trade through technological innovation, policy guidance and international cooperation.

3 Green transformation path of coal trade

The green transformation of China-Mongolia coal trade is a complex and challenging process, which is related to the adjustment of the energy structure of the two countries and the future development direction. First of all, improving the level of clean and efficient use of coal is an important step in achieving green transformation. This includes the adoption of advanced coal cleaning technologies, such as clean coal technology, coal gasification and liquefaction technology, and technologies to improve coal combustion efficiency. For example, China has implemented supercritical and ultra-supercritical technologies in some coal-fired power plants, which has greatly reduced coal consumption and pollution emissions. The promotion and application of this technology can serve as a typical case of the green transformation of China-Mongolia coal trade.

Secondly, the development of renewable energy is another key path to achieve the green transformation of coal trade. Mongolia has abundant solar and wind energy resources, while China has strong R&D and manufacturing capabilities in solar and wind energy technologies. The two countries can carry out deeper cooperation on renewable energy projects, such as jointly building wind farms and solar power stations, to promote the optimization and upgrading of energy structure. In addition, China can support the development of renewable energy in Mongolia in terms of technology and funds, and promote the diversification and greening of energy trade between the two sides.

However, there will be a series of challenges in the green transformation process. One of them is the dual barriers of technology and capital. Efficient and clean coal technology is usually expensive, while the initial investment and maintenance costs of renewable energy are also high. Solving this problem requires intergovernmental policy support and financial subsidies, as well as the introduction of international capital. For example, by setting up a green development fund specifically to support green transformation projects in China-Mongolia coal trade.

In addition, policy and regulatory uncertainty is also a major obstacle. Inconsistencies in energy policies and environmental standards between the two countries may affect the implementation of green transformation projects. Therefore, establishing a bilateral energy cooperation mechanism to coordinate the policies and actions of both sides is key to ensuring the smooth implementation of green transformation. Such a mechanism could include regular policy dialogues, joint research projects, and technical exchanges.

The green transformation of China-Mongolia coal trade is a systematic project that requires the efforts of technological innovation, capital investment, policy support and international cooperation. By overcoming these challenges, it will not only promote the optimization of the energy structure of the two countries, but also provide an important demonstration for the response to global climate change.

The Construction of Green Barriers and the Synergistic Mechanism of Carbon Neutrality Goals

1 Principles and Strategies for Building Green Barriers

Building green barriers in the Sino-Mongolian coal trade is an important strategy aimed at protecting the environment and promoting sustainable development. The construction of such barriers should follow several basic principles: first, scientificity, that is, all measures must be

based on scientific research and technical evidence to ensure that their environmental protection effects are feasible; second, rationality, which means that the measures should be fair and reasonable, not only in line with environmental protection requirements, but also taking into account the actual needs of economic and social development; finally, operability, emphasizing the feasibility of the implementation of policies and measures, ensuring that they can be effectively implemented in the existing technology and management system.

First, we can start with technical standards. Establish strict coal quality and emission standards, such as limits on sulfur and ash content, as well as sulfur dioxide and particulate matter emission standards during combustion. For example, the EU has set extremely strict environmental standards for coal imports and use, which has prompted suppliers to improve coal quality and reduce environmental pollution.

Secondly, the formulation and implementation of environmental protection laws and regulations are the key to building green barriers. China and Mongolia can jointly discuss and implement a series of cross-border environmental protection laws and regulations, such as the control of dust and noise during coal transportation and the requirements for ecological restoration in mining areas. By formulating legally binding environmental protection laws and regulations, it can be ensured that environmental protection measures in the coal trade process are effectively implemented.

Furthermore, the establishment of market access conditions is also an effective strategy for building green barriers. An environmental standard certification system can be introduced, and only companies and products that meet specific environmental standards can enter the other party's market. This can not only improve the overall environmental standards of the coal industry, but also promote the development and application of environmental protection technologies. For example, the United States has promoted the environmental protection of goods on the market through certification and labeling systems, effectively guiding the environmental protection behavior of consumers and producers.

Through the construction of scientific, reasonable and operational green barriers, China-Mongolia coal trade can achieve a greener and more sustainable development path. This will not only help improve the environment of the two countries, but also help build a fair and reasonable international trade environment. Through strict technical standards, comprehensive environmental protection regulations and effective market access mechanisms, it can ensure that coal trade will not only promote economic development, but also take into account environmental protection and social responsibility.

2 Synergistic Path between Green Barriers and Carbon Neutrality Goals

Green barriers, i.e. trade barriers set up in the name of environmental protection, have attracted widespread attention around the world in recent years, especially in the China-Mongolia coal trade, where they have played an important role in promoting the goal of carbon neutrality. Green barriers can not only restrict the entry of high-pollution, high-carbon emission products into the market, but also encourage companies to adopt cleaner production technologies and energy, thus forming a positive driving force for environmental protection in international trade. In order to achieve the "dual carbon" goal, China has begun to implement a series of strict environmental protection standards and carbon emission restrictions. These measures constitute green barriers to a certain extent, prompting Mongolian coal companies to adopt more environmentally friendly technologies and methods in the process of mining, transportation and processing to reduce carbon footprint.

This synergistic mechanism of green barriers and carbon neutrality policies, on the one hand, forces companies to innovate their technology by raising environmental standards. In order to continue to maintain coal exports to China, Mongolian coal companies are forced to upgrade coal mining and washing technologies to reduce the sulfur and ash content of coal products, while exploring ways to cleanly utilize coal, such as developing coalbed methane resources and promoting coal liquefaction technology. On the other hand, it also promotes cross-border cooperation, especially in the fields of clean energy technology sharing and carbon capture, utilization and storage (CCUS). For example, some Chinese companies have begun to cooperate with Mongolian coal companies to jointly develop and apply clean coal utilization technologies, such as coalbed methane extraction, coal liquefaction and gasification technologies, and coal-fired power generation technologies to improve energy efficiency. The application of these technologies will help reduce the overall carbon emissions of the coal industry.

In addition, the introduction of green financial instruments has also provided financial support for the green transformation of China-Mongolia coal trade. China has provided Mongolian coal companies with financing channels through green bonds and green funds, which are specifically used to invest in environmental protection projects and low-carbon technology transformation. This not only helps coal companies cope with the challenges brought by green barriers, but also accelerates the pace of the two countries towards the goal of carbon neutrality.

The synergy between green barriers and carbon neutrality policies is vividly reflected in the Sino-Mongolian coal trade. Although green barriers may increase the cost pressure of coal enterprises in the short term, in the long run, they can force enterprises to innovate and promote the transformation and upgrading of the industry, thus helping to achieve the carbon neutrality goal. By improving the quality of coal products and promoting the development of clean coal technology, the Sino-Mongolian coal trade, driven by green barriers, not only reduces the impact on the environment, but also lays the foundation for the low-carbon economic transformation of the two countries. It not only promotes the green transformation of the coal industry, but also promotes technological innovation and international cooperation, and contributes to the realization of the global carbon neutrality goal. However, this process also faces many challenges, including high technical costs, large funding gaps, and uneven policy implementation. It requires governments, enterprises and all sectors of society to work together to continuously optimize the design and implementation strategies of green barriers to ensure that they can effectively promote emission reductions without causing unnecessary obstacles to international trade.

Challenges and countermeasures

1 Challenges

In the process of building green barriers to China-Mongolia coal trade, both domestic and foreign countries face a series of challenges. First, from a domestic perspective, as a coal exporter, Mongolia's coal industry may be directly affected by green barriers, resulting in rising production costs and declining market competitiveness. At the same time, Mongolia is relatively backward in environmental protection technology and regulations, and it is difficult to meet the high standards of green barriers, which will put some pressure on Mongolia's coal exports. In addition, there may be differences in the domestic understanding and acceptance

of green barriers, and some companies and stakeholders may oppose it due to short-term losses.

From an international perspective, the construction of green barriers to China-Mongolia coal trade also needs to consider the reaction and rules of the international market. The global coal market is complex and changeable, and international environmental standards and regulations are constantly updated. This requires China and Mongolia to maintain a high degree of sensitivity and flexibility when building green barriers to cope with changes in the international market. At the same time, China and Mongolia also need to face competition and challenges from other coal exporting countries. How to ensure the effectiveness of green barriers while avoiding trade disputes and frictions is also a major problem.

In the process of achieving the carbon neutrality goal, obstacles such as technology, funding and policies should not be ignored. In terms of technology, key technologies such as clean utilization of coal and carbon capture and storage are not yet mature, and require a lot of research and development funds and human and material resources. In terms of funding, achieving carbon neutrality requires a lot of capital investment, including technology research and development, equipment updates, infrastructure construction, etc., which places high demands on the financial strength of China and Mongolia. In terms of policy, the two countries may have differences and disagreements in the formulation and implementation of carbon neutrality policies, and need to strengthen communication and coordination to form a joint force. In addition, the process of policy implementation may also encounter problems such as inadequate supervision and inadequate implementation, and it is necessary to establish a sound supervision mechanism and accountability system.

2 Countermeasures and Suggestions

In response to the complex challenges in building green barriers to China-Mongolia coal trade and achieving carbon neutrality goals, we need to adopt multi-dimensional and in-depth countermeasures and suggestions.

At the technical level, the two sides should deepen cooperation and focus on the research and development and application of clean coal utilization technology, such as breakthroughs in carbon capture, utilization and storage (CCUS) technology, to reduce carbon emissions during coal use. Through technological innovation, not only can production costs be reduced, but the market competitiveness of coal products can also be improved, providing solid technical support for the construction of green barriers.

In terms of funding, the government should play a leading role and encourage enterprises to increase their investment in environmental protection through various means such as setting up special funds, providing low-interest loans, tax incentives, etc. At the same time, it should encourage social capital to enter the field of green energy and environmental protection technology, form a diversified investment and financing system, and provide sufficient financial guarantee for the realization of carbon neutrality goals.

In terms of policies and regulations, the two countries need to further improve their environmental laws and regulations and standards systems, clarify the specific requirements and implementation paths of green barriers, strengthen supervision, ensure the effective implementation of laws and regulations, and impose severe penalties on violations. At the same time, strengthen international policy coordination and docking, learn from international advanced experience, and promote international cooperation and exchanges on carbon neutrality policies.

In addition, public publicity and education are also an important part that cannot be ignored. Through various channels such as media and education, we can increase the awareness and support of all sectors of society for green barriers and carbon neutrality goals, and create a good atmosphere for the participation of the whole society. This can not only enhance the public's environmental awareness, but also provide stronger social supervision and support for enterprises and governments.

Through comprehensive measures in technology, funding, policies and public publicity, we can effectively respond to the challenges in building green barriers to China-Mongolia coal trade and achieving carbon neutrality goals, and promote the green transformation of coal trade and the early realization of carbon neutrality goals.

Conclusion

In the global context of achieving the goal of carbon neutrality, the green transformation of China-Mongolia coal trade is imminent. By building green barriers and implementing strict environmental protection standards and carbon emission restrictions, China-Mongolia coal trade can be effectively promoted to develop in a green and low-carbon direction. This article reviews relevant research on green barriers, coal trade and carbon neutrality goals at home and abroad, and finds that most of the research focuses on static analysis, lacks long-term follow-up research on its dynamic impact, and has little comprehensive analysis of the entire life cycle of coal. In addition, existing research has failed to fully reveal the differences in the implementation effects of carbon neutrality policies in different regions and their causes.

In this context, this paper proposes a green transformation path for China-Mongolia coal trade, including improving the level of clean and efficient use of coal, developing renewable energy, and overcoming technical and financial barriers. Specifically, by adopting advanced clean coal technology and strengthening cooperation between China and Mongolia on renewable energy projects, the optimization and upgrading of the energy structure can be achieved. In addition, the introduction of green financial instruments, such as green bonds and green funds, can provide financial support for green transformation projects. Establish a bilateral energy cooperation mechanism to coordinate policies and actions to ensure the smooth progress of the green transformation.

In terms of the collaborative path of building green barriers and achieving carbon neutrality goals, this paper finds through the analysis of China-Mongolia coal trade that improving the quality standards of imported coal and promoting clean coal utilization technology can not only reduce environmental pollution, but also promote technological innovation and transformation and upgrading of the coal industry. However, the construction of green barriers and the realization of carbon neutrality goals still face many challenges, such as high technical costs, large funding gaps, and poor policy implementation.

In response to these challenges, this paper proposes comprehensive countermeasures such as technological innovation, financial support, policy improvement and public education. Through efforts in technology, funding, policy and public publicity, the green transformation of China-Mongolia coal trade can be effectively promoted and the carbon neutrality goal can be achieved. The research in this paper provides a theoretical basis and practical guidance for the green transformation of China-Mongolia coal trade and the realization of the carbon neutrality goal, which has important practical significance and application value.

Acknowledgment

All contributions of the third parties can be acknowledged in this section.

References

- [1] Hu Guangwen, Gu Yifan, Wu Yufeng, & Mu Xianzhong. China's carbon neutrality: Identification and response to carbon reduction risks. *Journal of Beijing University of Technology (Social Sciences Edition)*, 2024, 24(1), 135-146.
- [2] Huang Sheng, Wang Jingyu, Guo Pei, & Li Zhenyu. Short-term strategies and long-term prospects for optimizing energy structure under the goal of carbon neutrality. *Chemical Industry Progress*, 2022, 41(11), 5695-5708.
- [3] Hu Jianbo, & Mai Junnan. Research on the trend prediction and structural shift of China's export trade embodied carbon. *Progress in Climate Change Research*, 2024, 20(1), 62.
- [4] Liu Renhou, Wang Ge, Huang Ning, & Ding Minglei. Research on the path of China's scientific and technological innovation to support carbon peak and carbon neutrality. *Guangxi Social Sciences*, 2021, 8, 1-7.
- [5] Lei Yao, Zhou Yi, Yang Zhiyun, & Wang Ziwei. Research on the construction of China's carbon footprint system under the background of green "dual circulation". *Finance and Economics*, 2023, (11), 68-75.
- [6] Ruan Wen. The impact of the EU's "carbon border" adjustment mechanism on China-EU trade and its countermeasures. *Scientific Development*, 2021, 4, 90-95.
- [7] Chen Jinxiao. Economic cycle under the "dual carbon" goal: circular low-carbonization and low-carbon circularization. *Economist*, 2022, 1(9), 78-87.
- [8] Ma Junhan. Research on transformation and upgrading paths and countermeasures of traditional coal enterprises under the strategies of "carbon peak" and "carbon neutrality". *Sustainable Development*, 2023, 13, 1663.
- [9] Zhang Zhigang, & Kang Chongqing. Challenges and prospects of building a new power system under the goal of carbon neutrality. *Proceedings of the CSEE*, 2022, 42(8), 2806-2819.
- [10] Lin Boqiang, Zhan Yanhong, & Sun Chuanwang. Research on the coordinated development of energy supply and demand towards carbon neutrality. *Governance Research*, 2022, 38(3), 24.
- [11] He, M., Sun, Y., & Han, B. Green Carbon Science: Efficient Carbon Resource Processing, Utilization, and Recycling Towards Carbon Neutrality.. *Angewandte Chemie*. 2021, <https://doi.org/10.1002/anie.202112835>.
- [12] Juan, H. (Carbon Tariff: A New Green Trade Barrier or WTO Environmental Protection Exception. *World Trade Organization Focus*, 2020 .
- [13] Shan, S., Genç, S., Kamran, H., & Dincă, G. Role of green technology innovation and renewable energy in carbon neutrality: A sustainable investigation from Turkey.. *Journal of environmental management*, 2021, 294, 113004 . <https://doi.org/10.1016/j.jenvman.2021.113004>.
- [14] Can, M., Ahmed, Z., Mercan, M., & Kalugina, O. The role of trading environment-friendly goods in environmental sustainability: Does green openness matter for OECD countries?. *Journal of environmental management*, 2021, 295, 113038 . <https://doi.org/10.1016/j.jenvman.2021.113038>.
- [15] Wan, B., Tian, L., Fu, M., & Zhang, G. Green development growth momentum under carbon neutrality scenario. *Journal of Cleaner Production*, 2021, 316, 128327. <https://doi.org/10.1016/J.JCLEPRO.2021.128327>.
- [16] Qin, L., Kırıkaleli, D., Hou, Y., Miao, X., & Tufail, M. Carbon neutrality target for G7 economies: Examining the role of environmental policy, green innovation and composite risk index.. *Journal of environmental management*, 2021, 295, 113119 . <https://doi.org/10.1016/j.jenvman.2021.113119>.

DOI:<https://doi.org/10.5281/zenodo.13989160>

Li, Han, et al. "Study on the Construction of Green Barriers and Synergy Mechanism of Carbon Neutrality Target in China-Mongolia Coal Trade". *Journal of Modern Social Sciences (JMSS)*, Oct. 2024, pp. 33-43.

1016/j.jenvman.2021.113119.

- [17] Pietzcker, R., Osorio, S., & Rodrigues, R. Tightening EU ETS targets in line with the European Green Deal: Impacts on the decarbonization of the EU power sector. *Applied Energy*. 2021, <https://doi.org/10.1016/J.APENERGY.2021.116914>.

Dance of Imagery: The Dynamic Intertwining of Mirrors, Moons, and Rain in Eileen Chang's Novels

Chen Chen^{1*}, Menghui Yin², Han Li³,

¹ *Ider University, Mongolia;*

² *Blagoveshchensk State Pedagogica, Russia;*

³ *Northern Arizona University, America*

*Corresponding author: 1348415480@qq.com

Abstract – Eileen Chang's novels have the intuitive, metaphorical, and artistic conception characteristics of imagery in the description of the characters' thoughts, emotions, psychology, character, fate, environment, and natural scenes. Analyzing the existence of imagery in Eileen Chang's novels is very helpful for understanding the psychology of the characters in Eileen Chang's novels and the tragic consciousness of the writer, so as to profoundly grasp the artistic characteristics of Eileen Chang's novels. Through Eileen Chang's writings, we can experience the imagery of contemporary society, and in the minds of people in the old society, they have the same feelings and different thoughts. In a sense, Eileen Chang's pen reflects the miserable status of women in the society of that era, and faintly reveals the sad thoughts of women. Through the description of natural scenes, as well as the rich depiction of the inner life of social figures, the thousands of thoughts of mirrors, rain and the moon are eloquently expressed. Eileen Chang's writing has a deep feeling for the moon mirror and the rain. Through Eileen Chang's writing, we can experience the images in the contemporary society. Endless thoughts lingering expression of Eileen Chang's feelings and aspirations, through the text to convey the heart of the sad feelings. Eileen Chang's writing is especially good at depicting beautiful and bleak imagery to create a "sense of desolation" for people, so as to confide in the world the love, hatred, falsehood, truth and falsehood of that world, and create a fantasy that turns a thousand times, but it disappears in an instant. Eileen Chang's unique creative style makes the novel particularly unique, and the imagery of "mirror, moon, and rain" appears more frequently. Therefore, this article will study the imagery of "mirrors, moons, and rain".

Keywords: Eileen Chang; Imago; Mirror; Moon; Rain; Female

Introduction

In the vast and enchanting realm of Chinese literature, Eileen Chang's novels emerge as resplendent jewels, captivating the hearts and minds of scholars and readers across generations. Her literary oeuvre is a tapestry woven with threads of vivid imagery, a powerful medium through which she delves deep into the intricate labyrinth of the human psyche, uncovers the subtleties of social dynamics, and unfolds the tragic fates that befall her characters, with a particular focus on women. This in-depth study embarks on a journey into the imagery of "mirrors, moons, and rain" in Eileen Chang's novels. It is an exploration aimed at peeling back the layers to unearth the profound meanings and the captivating artistic charm

that lie concealed within her unique literary creations, like treasures waiting to be discovered in the depths of a forgotten chest.

Mirror - a symbol of a miserable life

Mirror is the most common item in ordinary life, its main function is to provide people with self-reflection, if just simply look in the mirror is of course has nothing to do with literature, but if the mirror is just to love beauty, the mirror will naturally become a tool for loving beauty, if the mirror is a literati, the mirror will become the companion of the literati and thus enter the literary works, many times the mirror can often become us to reflect on ourselves, reflect on the other side of ourselves; It can reflect many aspects of our hearts. So at this moment, there will be a lot of situations in the mirror, and people who love beauty often reflect their own beautiful side in their hearts, so that they can't see their imperfections. There is another kind of person who is not clear when he looks in the mirror, and the self in the mirror and the real self in reality often live in chaos. So mirrors are often a part of our lives. It can reflect itself in reality, and it can also feel itself in its imagination. Therefore, Eileen Chang's mirrors have a story, and have their own special imagery and literary creation.

Mirrors in everyday life are easily broken, which reflects the image of Eileen Chang's mirrors. Eileen Chang's the living environment of Ling's mirrors is fragile, as if they will shatter if they are pinched.

In "Agarwood Crumbs · the First Incense Burner", in the scene where Zhou Jijie touches up her makeup in the bathroom mirror, Weilong goes upstairs and asks Jijie to go down to play the piano, which causes Jijie to complain to Weilong. It is precisely that these bitter waters are confided by Ji Jie to Weilong in the mirror, so the mirror here is not only as simple as a prop, but more importantly, it reflects the psychology of the characters.

There is a passage in "The Golden Lock" that describes the interplay of bamboo curtains and landscape screens, saying that after looking at it for a long time, there is a feeling of dizziness, but when you look closely, the landscape has become a portrait of her husband, and the person in the mirror seems to be ten years old. Here, Eileen Chang'sling uses the external imagery of the mirror to write the illusion of the characters in a trance, which expresses the permanence and irresistibility of time in a deep and simple way, and at the same time creates a realm of both truth and falsehood, showing the author's wonderful feelings about this ever-changing and incomprehensible world, and conveying a "sad" and heavy attitude towards life. The mirror, as a cruel testimony of time, reminds Cao Qiqiao that he is old and that his life is coming to an end. Eileen Chang'sling used the mirror to express her feelings about the changes in the world and her helplessness about her fate. There is a paragraph in "Love in a Fallen City": "The white tassel saw her slip around and fell on the mirror and felt him."

Their mouths never left each other, and he pushed her against the mirror, and the two of them fell together into another world in the mirror. "The fragility of the mirror is so fragile that it can break at any time. Together, they are forced to fall into another world, completely out of their own hands. Eileen Chang'sling chose to stage such a crazy love scene in the mirror, so that it turned into an imaginary image, so that everything became so ethereal that even her own fate was no longer in control. Under the image of the mirror, the white tassel completes the fission of the soul, and she transforms from a pure young lady of the family into a woman who has lost her personality and is heading for destruction. Her road to love is tragic and tortuous, at the beginning of marrying a nouveau riche, but did not get a good death, which made her disheartened, doubly careful on the road of feelings, always based on the premise and foundation of survival, the purpose of courtship is to survive! It plays the role of

the finishing touch to reveal the character of the character and add the color of the character. Eileen Chang'sling expresses her love through the fragility of the mirror is out of reach.

As an iron-faced and ruthless judge, the mirror tortures everyone's soul and exposes their true selves through the mirror. Eileen Chang'sling uses the image of "mirror" to create a realm that is both real and illusory, expressing her attitude towards life. As a woman, she is gradually going to destruction, and her life and love are all about survival. The mirror plays in Eileen Chang's novel to the finishing touch.

The moon is a metaphor for the desolate woman

From ancient times to the present, the moon has left an immortal legend in the pen of many literati and ink writers, and whenever the ancient poets looked up at the bright and bright moon in the night sky, they would always feel more homesick and always be able to create one masterpiece after another. Therefore, the moon has become a kind of longing and an emotion in the pen of the ancient literati and inkmen. Li Bai, a great poet in ancient China, once wrote the famous sentence of the moon, which is reflected in the thoughts of his family and his various perceptions of life. In addition, the moon also carries a strong sense of sadness and sadness, for example, the poet can use the cold sadness of the moonlight to slowly reveal his inner melancholy. In addition, the moon was often used in ancient times to compare the beauty of women, such as "closed moon shy flower" refers to the appearance of girls, beautiful and dignified. In addition, the moon also has a mother-like tolerant mind at certain moments, such as Lao She's work "Crescent Moon", which tells the story of a student who finally makes people spurn into a prostitute, at this time, the moon plays a kind of maternal brilliance, he can be as tolerant as a mother, and can shiver like a cold wind in winter. The moon is an inclusive and mother-like symbol.

There are many images in Eileen Chang's novels, among which the "moon" is the most typical and distinctive. Her moon imagery carries two or three archetypal meanings, which are inseparable from the background of Eileen Chang's life, and the following will analyze the characteristics of the moon imagery in Eileen Chang's novels.

The best description of the moon imagery in Eileen Chang's novel is "The Golden Lock". The beginning and end of "The Golden Lock".

All end up with the "moon". The beginning of the novel depicts a moonlit night thirty years ago, and explains the time and place of the story in a retrospective tone and sentence structure, giving us a sense of space and time distance. Thirty years is a fragment of the concept of time, but moonlight is an eternal concept of time, which makes people feel that only moonlight can witness the vicissitudes of life in life. Next, I write about the impressions and symbolism of the moon in the different minds of young and old people thirty years ago. Through this contrasting description of the moon in the eyes of young and old people, and writing the different impressions of people of different ages on the past, the beginning and end of the novel emphasize the relationship between the moon and people again, so it reflects that the moon is the witness of Cao Qiqiao's tragic fate. Cao Qiqiao, who was born in a sesame oil shop, is willing to sacrifice his lifelong happiness to marry the second young master of the Jiang Mansion for the sake of money and status. The moon sometimes represents sadness and misery, just like the story of Cao Qiqiao, in the story of Cao Qiqiao, the meaning of the moon is the opposite of the warmth and homesickness expressed by our ordinary poets. In Cao Qiqiao's article, the moon villain represents the woman, and the man represents the sun, in essence, the sun and the moon complement each other, but the moon will always be replaced by the sun. In the text, the moon is sometimes depicted in blue, with sad emotions, and they

reflect the dark side of people's lives: dark greed, which portends death. Judging from the whole story, Cao Qiqiao, who lived after marriage, was not very happy, unlike many wives who married into wealthy families who could enjoy the life of glory and wealth, clothes and food, and a seriously ill husband made his spirit more and more distorted and gloomy. The waning moon in the article also reflects that Cao Qiqiao's life is always so incomplete, as if life is unfair and incomplete to him. Sometimes the clouds obscure the moon, half of it is bright and half of it is dark, and such a contrasting contrast is a distortion of human nature and the production of a kind of perverted psychology. Cao Qiqiao's life is like that, as lonely and miserable as the bleak moonlight.

The love lingering in "Love in a Fallen City" is like the moon, originally in order to realize their respective interests in the love game, the two attack and defend, and they are calculating. During the day, the two of them calmly ghost, she gradually became perverse and moody. The moon she saw that night was a vague waning moon, and under the lure of this moonlight, the two walked towards an emotional climax. However, he did not give the white tassel a promise of marriage, which made the white tassel feel very lost, at this time the moon in his tearful eyes is always blurred, at this time the white tassel has been in a passive state, she has not been able to see the road ahead, the strange change of color of the moonlight reveals the tassel's inner apprehension.

The moon creates a pure atmosphere, which makes her lose her reason and fall into passionate love, not thinking about any floating world, in Fan Liuyuan's mind, he hopes that the white tassel is the moon in his heart, a virtuous, virtuous, obedient and unhesitating Oriental woman for love. Living in the closed and quiet Guanghan Palace, isn't this a true portrayal of Bai Tassel's commitment to Fan Liuyuan.

The moon has always existed, and stories about the moon have always been written into articles, and when Eileen Chang'sling described the external image of the moon, she was very bold in choosing the color of the moon, which made the moon very visually impactful.

Even as a female writer of that era, Eileen Chang still had a sober and rational understanding of the status of women, and her novels not only described the characteristics of traditional women, but also followed the tradition of two-way construction of women as the moon. In a few years, the glitz and glamour depicted in Eileen Chang's novels may be a thing of the past, but the imagery of the moon will not die. Through Eileen Chang'svarious descriptions of the moon, there is no doubt that the faint moonlight can reflect the bumpy road of Eileen Chang'slove. The moon has remained unchanged from ancient times to the present, and modern readers can still feel the meaning of the moon.

Rain - reflects the bleakness

In our lives, we pay attention to the weather every day, among them, rain is the focus of our special attention. Weather, whenever there is a rainy day, Renmei will bring an umbrella to cover the rain, put on rain boots to prevent the splashing of rain, so "rain" in our life, a little more emotion. Whenever the "rain" in our lives enters the cultural study, there is even more a touch of literature and art and beauty, which can make many literati and artists in ancient and modern times, both at home and abroad, shake it, and create excellent works again and again, so that people in later generations will be moved by it. Rain has become a part of literary creation, and it is so thoughtful that it slowly moistens people's hearts. Time is lost little by little, like a drizzle, lingering, endless, time has come to the period of Eileen Chang'sling, the same "rain" in Eileen Chang'spen is also endless, narrating the taste of love, with a little

miserable, the love of men and women, are fused together, but also secretly pave the misery and sadness of women, gradually embodying the theme expressed in the novel.

But when we walked into Eileen Chang's world, it is not difficult to find that there is also a part of rain in her world. As mentioned in the novel, Shen Shijun resolutely wanted to leave, and Mrs. Gu didn't agree to leave any of them, and left with a heart of stone, thinking about Man Zhen's badness and giving up on Man Zhen in the slow long night, just like he didn't have any shelter in the dark and rainy night, and let the rain get wet. Shen Shijun is stubborn, gives up, and is unswerving. That's it, poor Man Zhen, a poor woman who doesn't know anything..... These are all from "Eighteen Spring".

In "Eighteen Spring", a relationship that was also teased by fate is Xu Shuhui and Shi Cuizhi, in this relationship, "Rain" also continues to participate in its tough posture, and "Rain" has become an ominous signal in "Eighteen Spring".

When Shuhui first met Cuizhi and accompanied Shijun to Nanjing for the first time, Cuizhi went to Shijun's house for dinner, and Cuizhi had to stay because it happened to be raining, and the two began to pay attention to each other and fell in love at first sight, and the disparity in their status and economic status made Shuhui such a person with strong self-esteem unwilling to admit and strive for this feeling, and the feelings between them were also lost in this rain like Man Zhen and Shijun, and the relationship between the two was also born with the "rain", but they were also tightly locked by "fate".

There is also another novel that also reflects the desolation and suffering of women. Ah Xiao was trapped by a sudden night rain, she and her son had no choice, the rain became heavier and heavier, and finally they had to rest in the kitchen, and the two of them leaned on the kitchen counter. These are all seen by the master Brother, but Ah Xiao has only become a representative of "sex" or "labor", among which Ah Xiao has only become a representative of "labor", all because of economic money, everything is so humble, and it has nothing to do with what we now call personality. Knowledge because of money. This is a good exposure of the bleak situation of women at that time.

In the above-mentioned novel, a night rain vividly reflects the cruelty and sadness of women, the low status of contemporary women and the disrespect for women, and slowly paves the way for the theme of the novel. What a sad life this is, just as miserable and miserable as that rain, and never see the sunshine of the future rain and sunny sky. The rain at night seems to have become a faint theme in the novel, which can express the author's feelings and reflect the tragic and desolate situation of contemporary women.

Eileen Chang's writing is always good at telling us legendary stories with the least words and the most incisive language. These images, which are made up of various things, make Eileen Chang's novels "endowed with a new meaning that transcends itself and beyond individual texts". It can allow people to slowly feel the true meaning of life brought to us by reality in the most ordinary things. The construction of the imagery of Eileen Chang's novels makes her novels show magical artistic charm. Eileen Chang's novels can closely combine a variety of things, such as the character of the characters in the novel, the ups and downs of the life of the characters in the novel, and some of the intentions embodied in the novel. Undoubtedly, it does not reveal Eileen Chang's true perception of life, as well as her reflection and consideration of the society at that time. Eileen Chang's pen can fully embody, for example, the intention of "rain" conveys the most real feelings and thoughts to people in the society at that time, and achieves the effect of sincerity and sincerity.

Eileen Chang's "truth" is reflected in the perception and true meaning of life, and she is able to saturate "the intention of rain into our lives." Both men and women in her pen are unyielding and loving to life, and they must give persistence and motivation to get along with

two people, even if there is still an inescapable result in the end. Because they rebelled against unworldly circumstances. The characteristics of her novels are inevitably a sad background, and the fierceness and bitterness in the liquor are the aftertaste and endless emotions given by life.

Conclusion

This study on the imagery of "mirrors, moons, and rain" in Eileen Chang's novels has uncovered their profound significance. Eileen Chang's use of these images creates a unique artistic world that showcases her distinctive creative style and artistic charm. Mirrors symbolize the miserable life, reflecting the fragility of characters' fates and acting as a judge to expose their true selves. The moon, a metaphor for desolate women, carries multiple meanings and witnesses the tragic fates of female characters like Cao Qiqiao and Bai Tassel. Rain reflects the bleakness of life, highlighting the cruel and sad situations of women.

Eileen Chang's novels are a significant contribution to Chinese literature due to her deep understanding of human nature and her vivid descriptions of the social environment and human relationships. However, some scholars may focus too much on the literary aspects of her works and overlook the social and historical context. Additionally, the complexity of her imagery may make it difficult for readers to fully understand the intended meanings. To address these issues, scholars could conduct more research on the historical and social background of her novels and undertake a more comprehensive analysis of her imagery, considering different interpretations and perspectives. Collaborative research and the use of multiple research methods could also enrich our understanding.

In conclusion, Eileen Chang's novels with their rich imagery continue to fascinate readers and scholars. The imagery of "mirrors, moons, and rain" offers valuable insights into the human condition and the struggles of women in a particular era. Future research could focus on new perspectives and interpretations, as well as the relevance of her works in today's context. There is a need for more accessible resources and analyses to help a wider audience understand and enjoy her novels.

Acknowledgment

All contributions of the third parties can be acknowledged in this section.

References

- [1] Eileen Chang's Collected Works (Volume II), Anhui Literature and Art Publishing House, 1992.
- [2] Eileen Chang's Collected Works (Volume III), Anhui Literature and Art Publishing House, 1992.
- [3] "Love in a Fallen City: (The Golden Lock)", Beijing October Publishing House, 1998.
- [4] "Love in a Fallen City-(Agarwood Crumbs ~ The First Incense)", Beijing October Publishing House, 1998.
- [5] Zhuang Chaoying, "On the Image of Rain in Eileen Chang's Novel", Journal of Fujian Normal University (Philosophy and Social Science Edition), 2010.06.

- [6] Xia Zhiqing. A Review of Eileen Chang's Novels[A] . Eileen Chang'sling and Su Qing, Hefei: Anhui Literature and Art Publishing House, 1994.
- [7] M· Aether· Harting. The Myth of the Moon, Shanghai: Shanghai Literature and Art Publishing House, 1992.
- [8] Eileen Chang'sling. Ember Remnant[A] . Eileen Chang's Complete Essays, Hangzhou: Zhejiang Literature and Art Publishing House, 1992.
- [9] Eileen Chang'sling. Talking about dancing[A] . Eileen Chang's Complete Essays, Hangzhou: Zhejiang Literature and Art Publishing House, 1992.

Genre Analysis and Sociolinguistic Awareness in IELTS: Preparing Learners for Textual Diversity

Haoyang Feng¹, Yuwen Zhang^{2*}

¹College of International Studies, Shenzhen University, Guangdong, China

²College of International Studies, Shenzhen University, Guangdong, China

* These authors contributed equally to this work

*Corresponding author: 3133507769@qq.com

Abstract - This paper explores the integration of genre analysis and sociolinguistic awareness in preparing learners for the IELTS reading and writing tasks. Using both quantitative and qualitative data from an experimental study involving 20 IELTS learners, the findings indicate that genre-based instruction combined with sociolinguistic factors enhances learners' ability to navigate the diverse text types encountered in the IELTS exam. The experimental group, which received this integrated approach, demonstrated superior performance in all language skills compared to the control group. Furthermore, learners in the experimental group exhibited greater awareness of how to adapt their language to different audiences, purposes, and contexts. The study concludes that integrating genre analysis and sociolinguistic awareness into IELTS preparation not only improves exam performance but also fosters critical thinking and communication skills essential for real-world language use.

Keywords: Genre Analysis, Sociolinguistic Awareness, IELTS Preparation, Reading and Writing Skills, Communicative Language Teaching, Language Variation, Textual Diversity

Introduction

The English language has become a global lingua franca, permeating various domains of communication, from academic discourse to professional interactions. As a result, learners of English as a Second Language or English as a Foreign Language are often required to navigate diverse genres and registers to effectively engage with the language. This is particularly crucial for test-takers in the International English Language Testing System, where they are evaluated on their ability to comprehend and produce a wide range of text types.

Importance of Genre Analysis

Genre analysis has emerged as a crucial field in applied linguistics, offering valuable insights into the ways in which language is used within specific social and cultural contexts. This approach examines the linguistic and rhetorical features that characterize particular genres, enabling learners to develop a deeper understanding of how language is deployed to achieve communicative goals (Kaufer, 2006). As learners become more aware of the conventions and expectations associated with different genres, they can better navigate the textual diversity encountered in the IELTS examination.

Recent studies have highlighted the benefits of incorporating genre analysis into language instruction, particularly in the context of academic writing (Dirgeyasa, 2016). By explicitly teaching students the structural, stylistic, and organizational features of various academic genres, instructors can empower learners to produce more coherent and rhetorically effective texts.

Sociolinguistic Awareness

Alongside genre analysis, the development of sociolinguistic awareness is equally crucial for IELTS preparation. Sociolinguistics is the study of the relationship between language and society, examining how linguistic choices are influenced by social factors such as culture, identity, and power dynamics.

In the context of IELTS, sociolinguistic awareness enables learners to understand the social and cultural nuances embedded within language use (Sankar, 2022). For instance, the way a speaker or writer uses language can vary depending on their relationship with the audience, the purpose of the communication, and the social setting. This awareness is particularly relevant for the IELTS Speaking test, where candidates are assessed on their ability to communicate effectively in different social situations.

Moreover, sociolinguistic awareness can help learners to identify and avoid potential misunderstandings that may arise from cultural differences in communication styles. By understanding the social norms and expectations associated with language use in different cultures, learners can tailor their language accordingly and avoid unintentional offense or misinterpretations.

Literature Review

The importance of genre knowledge and sociolinguistic awareness in academic writing has been well-documented in the literature (Dirgeyasa, 2016). Genre knowledge is described as the recognition and categorization of different literary styles, which allows writers to understand the shared conventions and patterns within a given discourse community (Epstein-Jannai, 2005). Appropriate genre knowledge is crucial for writers, as it allows them to anticipate the expectations of their readers and choose the appropriate language and conventions to communicate effectively.

Several studies have highlighted the challenges faced by English language learners in developing genre awareness. Students often lack an understanding of the distinct features and conventions associated with different academic genres, leading to difficulties in producing coherent and rhetorically effective texts (Johns, 2011).

Moreover, the literature emphasizes the role of sociolinguistic awareness in language learning and communication. Sociolinguists are concerned with the social implications of language use and how factors such as race, class, gender, and age influence linguistic choices (Cong, 2023). In the context of English language teaching, sociolinguistic awareness can help learners navigate the nuances of language use in various social and cultural contexts.

Cong (2023) also found that by incorporating sociolinguistic theory into college English teaching, students were better able to understand the social attributes of language, improve their language acquisition and communication abilities, and develop a more nuanced understanding of language variation and change.

Pedagogical Implications

Based on the insights from genre analysis and sociolinguistic research, several pedagogical implications can be drawn to enhance IELTS preparation:

1. **Explicit Genre Instruction:** IELTS instructors should provide explicit instructions on the characteristics of various genres commonly found in the exam, such as essays, reports, letters, and spoken dialogues. This instruction should encompass the analysis of textual organization, linguistic features, and rhetorical strategies specific to each genre.
2. **Authentic Materials and Tasks:** Integrating authentic materials, like newspaper articles, academic excerpts, and real-life conversations, can expose learners to the diversity of language use in various contexts. Designing tasks that simulate real-world communication scenarios, such as writing letters for specific purposes or engaging in role-plays, can further enhance learners' genre awareness and sociolinguistic competence.
3. **Raising Awareness of Cultural Differences:** It is essential to foster learners' understanding of how sociocultural norms influence language use. Discussions on different communication styles, appropriate language registers for various situations, and potential cross-cultural misunderstandings can be incorporated into IELTS preparation courses.
4. **Developing Critical Analysis Skills:** Learners should be encouraged to critically analyze texts, identifying the intended audience, purpose, and social context of the communication. By analyzing how language choices reflect these factors, learners can develop a more nuanced understanding of how meaning is constructed in different genres and sociocultural settings.
5. **Feedback and Reflection:** Providing constructive feedback on learners' written and spoken production, focusing on both genre conventions and sociolinguistic appropriateness, is crucial. Encouraging learners to reflect on their language use and identify areas for improvement can further enhance their genre analysis and sociolinguistic awareness skills.

Methodology

The study employed a mixed-methods approach, combining quantitative and qualitative data collection and analysis. The researchers used a combination of surveys, interviews, and text analysis to investigate the impact of genre-based and sociolinguistic instruction on IELTS learners' performance and awareness.

Participants: This study involved 20 English language learners preparing for the IELTS exam in a Language training center located in Shenzhen, China. Participants were randomly assigned to two groups: a control group receiving traditional IELTS instruction and an experimental group receiving instruction that integrated genre analysis and sociolinguistic awareness.

Data Collection Instruments:

Pre-test and Post-test: Both groups completed IELTS practice tests before and after the intervention period to assess their progress in all four language skills (listening, reading, writing, and speaking).

Questionnaires: Participants completed questionnaires to gauge their perceptions of genre analysis, sociolinguistic awareness, and their confidence levels in using English in different contexts.

Classroom Observations: Researchers conducted classroom observations to document the teaching practices and materials used in both the control and experimental groups.

Interviews: A subset of participants from both groups participated in semi-structured interviews to provide in-depth insights into their learning experiences and challenges.

Data Analysis: Quantitative data from the pre-test and post-test scores were analyzed using statistical software to determine the significant differences between the two groups.

Qualitative data from questionnaires, classroom observations, and interviews were analyzed thematically to identify patterns and themes related to learners' experiences and perceptions.

Results

Quantitative Findings:

The results of the pre- and post-test analysis revealed a statistically significant difference in the performance of the experimental group compared to the control group, with the experimental group demonstrating higher scores across all IELTS language skills.

Qualitative Findings:

Questionnaire responses and interview data indicated that learners in the experimental group reported a greater understanding of genre characteristics and sociolinguistic factors, as well as increased confidence in their ability to navigate diverse communicative situations.

Learners in the experimental group expressed a better grasp of how to adapt their language use to different audiences, purposes, and contexts, which they attributed to the genre-based and sociolinguistic-focused instruction.

Additionally, participants in the experimental group demonstrated a more nuanced understanding of language variation and the social implications of linguistic choices, as evidenced by their discussions and reflections during the interviews.

Classroom observations revealed distinct differences in the teaching practices and learning activities employed in the two groups. The control group primarily focused on traditional test-taking strategies, grammar rules, and vocabulary building exercises. In contrast, the experimental group engaged in more interactive and communicative activities that emphasized the analysis of authentic texts, the exploration of different genres, and the consideration of sociolinguistic factors in communication.

For instance, the experimental group participated in role-plays simulating real-life scenarios that required them to adapt their language use to different audiences and purposes. They also engaged in critical analysis of texts from various genres, identifying the intended audience, purpose, and social context of the communication. These activities fostered a deeper understanding of how language functions in different contexts and how to use it effectively.

Discussion

The findings of this study underscore the importance of incorporating genre analysis and sociolinguistic awareness into IELTS preparation courses. The experimental group's superior performance on the IELTS assessments suggests that a curriculum that integrates these elements can better equip learners with the necessary skills to navigate the textual diversity encountered in the exam.

The qualitative data further illuminates these findings, revealing that learners in the experimental group developed a more sophisticated understanding of how language functions in different contexts. Their heightened awareness of genre conventions and sociolinguistic factors empowered them to tailor their language use more effectively, resulting in greater clarity, coherence, and persuasiveness in their communication.

Moreover, the study highlights the importance of fostering learners' critical thinking skills and their ability to reflect on their own language use. By engaging in critical analysis of texts and reflecting on their own communication practices, learners can develop a deeper understanding of the relationship between language, culture, and context.

Conclusion

This study underscores the value of incorporating genre analysis and sociolinguistic awareness into IELTS preparation courses. The experimental group's superior performance on the IELTS assessments suggests that a curriculum that integrates these elements can better equip learners with the necessary skills to navigate the textual diversity encountered in the exam. Moreover, integrating authentic materials and tasks, raising awareness of cultural differences, developing critical analysis skills, and providing constructive feedback are crucial pedagogical implications that can enhance learners' genre analysis and sociolinguistic awareness. By embracing these approaches, educators can empower IELTS learners to become more effective and confident communicators in diverse academic and real-world settings.

Acknowledgment

All contributions of the third parties can be acknowledged in this section.

References

- [1] Cong, R. (2023, January 1). The Application of Sociolinguistic Theory in College English Teaching: A Brief Discussion. *EDP Sciences*, 168, 03026-03026. <https://doi.org/10.1051/shsconf/202316803026>.
- [2] Dirgeyasa, I W. (2016, July 17). Genre-Based Approach: What and How to Teach and to Learn Writing. *Canadian Center of Science and Education*, 9(9), 45-45. <https://doi.org/10.5539/elt.v9n9p45>.
- [3] Epstein-Jannai, M. (2005, January 1). Using the Concept of Genre in a Writing Workshop: Description of a Learning Environment. *Springer Science+Business Media*, 5(1), 57-74. <https://doi.org/10.1007/s10674-005-4954-y>.
- [4] Johns, A M. (2011, February 2). The future of genre in L2 writing: Fundamental, but contested, instructional decisions. *Elsevier BV*, 20(1), 56-68. <https://doi.org/10.1016/j.jslw.2010.12.003>.
- [5] Kaufer, D S. (2006, November 1). Genre variation and minority ethnic identity: exploring the 'personal profile' in Indian American community publications. *SAGE Publishing*, 17(6), 761-784. <https://doi.org/10.1177/0957926506068432>.
- [6] Sankar, K P. (2022, January 1). A Theoretical Review: Sociolinguistics in Second Language Education. , 7(1), 211-217. <https://doi.org/10.22161/ijels.71.28>.

Journal of Modern Social Sciences (JMSS)

Asia Technology Research Institute Limited

Room 9042, 9/F, Block B, Chung Mei Centre,
15-17 Hing Yip Street, Kwun Tong, Kowloon,
Hong Kong

Websites:

<https://atripress.org/index.php/JMSS>

Mails:

JMSS@atripress.org

EDIT@atripress.org

© 2024 ATRI



ISSN 3078-4433

