2021, Vol.2 No.2
© Economics & Management Review 2021
DOI: 10.37420/j.emr.2021.006
https://masonpublish.org

Research on Inheritance and Sustainable Development of Nuclear Carving Intangible Cultural Heritage—Take the Nuclear Carving Village in Zhoushan, China as an Example

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Abstract

Nuclear carving is a traditional Chinese folk miniature carving craft, which originated in Suzhou City, Jiangsu Province, China. The Zhoushan Village located in Suzhou is known as the "Chinese Nuclear Carving Village". In 2008, Suzhou nuclear carving was included in the national intangible cultural heritage list, and Zhoushan nuclear carving also ushered in new development opportunities. However, restricted by subjective and objective factors, the inheritance and sustainable development of Zhoushan nuclear carving still faces problems such as lack of professional talents, lack of integrity in tourism planning, insufficient protection of intellectual property rights, and fragmentation of the nuclear carving industry. To realize the sustainable development of Zhoushan nuclear carving intangible cultural heritage, it is necessary to root Wu culture (based on the material civilization and spiritual civilization of Wu kingdom in ancient China), build a "cultural inheritance" development model, improve intellectual property protection, strengthen unified and standardized management of the nuclear carving industry, and create a tourism brand integrating nuclear carving art display center, nuclear carving product trading center and traditional cultural center.

Keywords

Nuclear carving; Intangible cultural heritage; Sustainable development; Wu culture

Introduction

Xi Jinping pointed out in the report of the 19th National Congress of the Communist Party of China that the issue of "agriculture, countryside and farmers" is a fundamental issue related to the national economy and the

people's livelihood. We must always make it a top priority for the whole Party to solve the problems concerning agriculture, countryside and farmers. It is necessary to implement the rural revitalization strategy, promote the spirit of craftsmanship, strengthen cultural self-confidence, and establish the urban-rural integration development system, mechanism and policy system in accordance with the general requirements of industrial prosperity, ecological livability, rural civilization, effective governance, and prosperity in order to accelerate the promotion of agriculture and rural areas Modernization (2017). The revitalization of rural culture is an important part of the rural revitalization strategy. Suzhou City, Jiangsu Province, China, as the birthplace of Wu culture, has always been known for its profound traditional culture and rich tourism resources. In Zhoushan Village, Suzhou City, there is a traditional Chinese folk miniature carving craft-nuclear carving, which carves olive pits, apricot pits and walnuts into crafts. In 2008, the carving process of Suzhou nuclear carving was included in the national intangible cultural heritage list and became an important tourist cultural resource. Intangible cultural heritage is an important cultural wealth created and accumulated by people of all ethnic groups for a long time (Xing, 2013). Passed down from generation to generation by nuclear-carving craftsmen, Zhoushan Village has achieved remarkable results in the inheritance and development of nuclear-carving intangible cultural heritage, and is therefore known as the "Chinese Nuclear Carving Village". This has important practical significance for studying how to further promote the sustainable development of the nuclear carving industry and contribute "Suzhou Wisdom" to rural revitalization and non-genetic inheritance. This paper uses the method of studying typical cases to obtain first-hand data through field investigation, and analyzes the advantages of the development of nuclear carving in Zhoushan Village and the problems in inheritance. Based on the regional advantages and tourism resources of Zhoushan Village, the last part of the article puts forward the construction of a "cultural inheritance" development model. By creating a "hot spot" of nuclear carving tourism culture, perfecting the protection of nuclear carving intellectual property rights to promote the sustainable development of the nuclear carving industry .

Advantages of Inheriting and Developing Nuclear Carving Intangible Cultural Heritage in Zhoushan

Zhoushan Village is located at the foot of Qionglong Mountain in Xiangshan Street, Wuzhong District, Suzhou City, China. It is close to Lake Tai. It covers an area of about eight square kilometers and has a profound cultural heritage and superior natural scenery. The current "Zhoushan Nuclear Carving Village" is formed by the merger of the original four (natural) administrative villages of Zhoushan Village, Huangqu Village, Tang Village and Chenhua Village, and has unique tourism and cultural resources (Chen, 2016). In 2008, Suzhou nuclear carving was included in the national intangible cultural heritage list, and Zhoushan nuclear carving also ushered in new development opportunities. Zhoushan's advantages in developing nuclear carving intangible cultural heritage mainly include the following aspects.

The Cultural Origin of Wu Area

Suzhou was called "Wu" in ancient times. In history, there were many talents from Wu, including literati, science and technology experts and skilled craftsmen. Extensive cultural dissemination has brought about changes in productivity in Wu, and has nurtured tourism culture. Due to the folk ethos of "advocating reading", the Jiangnan region gradually formed the folk form of the literati clan and the cultural origin with the

characteristics of Wu. Under the influence of a strong cultural atmosphere, folk skills can be inherited and developed, and have the foundation for high-level craftsmen to take root in the folk. In the Ming and Qing Dynasties, the material production level of Wu area was greatly improved, which made the local people gradually pursue spiritual enjoyment. It was also during this period that calligraphy, painting, carving art, garden art, and farming and mulberry handicraft culture, etc., which centered on this, developed rapidly, and the most representative of these was the rise of Zhoushan nuclear carving.

Rich Tourism and Cultural Resources

Suzhou has a diverse urban cultural image. Deeply digging the characteristic culture of Wu area and continuously promoting the development of Suzhou's urban tourism and cultural resources industry is its core content as the soft power of urban competition. For example, micro-carving skills, Suzhou embroidery, Kesi skills, sword-making skills, Wu School of painting, and Xiangshan School architectural art all reflect the profound heritage of Xiangshan culture. The inheritance and dissemination of these traditional skills provides an excellent environment for the development of Zhoushan nuclear carving. Since entering the 21st century, the tourism industry known as the "smoke-free industry" has gradually grown into a pillar industry in Suzhou. The rapid development of urbanization has made urban tourism and cultural resources more abundant. Now the traditional opera art, literati painting, Suzhou embroidery, carving art, Tai Lake scenic spot and historical relics in the Wu culture are combined into a network to develop tourism and cultural resources around Suzhou as a whole, which will help promote the further development of Zhoushan nuclear carving intangible cultural heritage.

Vigorous Support of "Rural Revitalization Strategy"

Rural cultural revitalization itself is an important part of "Rural Revitalization Strategy". The implementation of the "Rural Revitalization Strategy" provides important policy support for the inheritance of intangible cultural heritage and the integrated development of cultural tourism in the surrounding villages of Suzhou. Suzhou is rich in historical culture and tourism resources. With the continuous advancement of urbanization, Suzhou has in recent years taken advantage of regional and urban resources to deeply tap traditional cultural resources, and jointly with tourism and publicity departments to vigorously promote the research of Wu culture to keep pace with the times. For example, water culture research, religious culture research and so on. Through the integration of culture and tourism, it will further promote the development of characteristic industries of Suzhou rural intangible cultural heritage represented by Zhoushan nuclear carving, so as to continuously inject new vitality into the development of Suzhou's commerce and urban economy.

Zhoushan Nuclear Carving Passed from Generation to Generation

According to research on historical sites in the Ming and Qing Dynasties, nuclear carving originated in Suzhou and later became popular in Jiangsu, Zhejiang and Guangdong. In the Jiangnan region, since literati and wealthy often hold folding fans, the nuclear carving fan pendant has also become an object for everyone to enjoy and collect (Lei, 2015). Suzhou nuclear carving also gradually flourished, and until the end of the Qing Dynasty, the focus of development shifted to Zhoushan Village, Suzhou. As an intangible cultural heritage,

Zhoushan nuclear carving handicrafts have been passed down from generation to generation and have been passed down to the sixth generation, as shown in Table 1. Zhoushan nuclear carving has absorbed the artistic essence of stone carving, jade carving, wood carving, bamboo carving, and micro carving. It uses olive nucleus as the main carving material. Under the premise of maintaining the shape of olive nucleus, the carved lines are "exquisite, detailed, marvelous and ingenious", to ensure that the final nuclear carving works have more beautiful and unique local features (Liao, 2017). Among them, "Nuclear Boat" is the representative work of Zhoushan nuclear carving. The theme is "Dongpo Boating on Chibi". Dozens of characters can be displayed on a small olive pit, and the doors and windows on the boat can be opened and closed freely. The joints are calculated by a few cents, which has high artistic and cultural value. Zhong Nianfu is also known as "the creator of the first nuclear boat in New China." For the nuclear carving craftsmen in Zhoushan Village, inheriting and developing nuclear carving skills is not only their means of earning a living, but also the inheritance and promotion of the excellent traditional culture of the Chinese nation.

Table 1. Zhoushan Nuclear Carving Inheritance Pedigree and Masterpiece "Nuclear Boat"

Pedigree	Representative figures	Representative work "Nuclear Boat"
1st generation	Yin Fugen	
2nd generation	Xu Yinsheng, Yin Rongsheng, Yin Xueyun, Zhong Nianfu	
3rd generation	Zhou Jianming, Zhou Xueguan, Song Shuiguan, Zhong YaoYuan	
4th generation	Xiao Yanping, Liu Xiaomin, Song Meiying, Zhong Yuan	
5th generation	Zhou Donglin and Lu Xiaoqin	
6th generation	Zhou Chunyi et al.	

Problems in the Development of Nuclear Carving Intangible Cultural Heritage in Zhoushan

Although Zhoushan has unique advantages in developing nuclear carving intangible cultural heritage, there are still some problems that need to be resolved in terms of cultural talents, tourism planning, and rural governance.

Lack of Talents for the Inheritance and Insufficient Knowledge of Nuclear Carving Culture

Even if the nuclear carving is included in the national intangible cultural heritage protection list, it requires practitioners to have solid basic skills, high professional cultural literacy, high investment time cost, and slow economic returns. Moreover, nuclear carving is a micro-carving , so it needs to face long hours of strong light and desk work, which is often more difficult, and it also tests carefulness and patience. Due to the pessimistic development prospects of the industry, many young people are unable to stick to it for a long time, leading to

the sorrow of lack of successors in the inheritance of nuclear carving technology. In addition, many citizens in Suzhou City have insufficient knowledge of the Zhoushan nuclear carving intangible cultural heritage. The older generation of nuclear carvers still carry out carving creation with outdated religious and literary ideas. The relatively single subject matter and the inability to integrate into the contemporary cultural environment have to some extent slowed down the development of the nuclear carving industry. Therefore, the development of the nuclear carving industry requires the participation and innovation of young people. Zhong Yuan, the inheritor of nuclear carving from Zhoushan "Zhong School", is also a teacher at Suzhou Academy of Arts and Crafts. She will also look for suitable candidates among her students, but even students majoring in carving are less willing to engage in nuclear carving. However, a relatively large number of students with professional background choose this industry.

Tourism Planning Lacks Integrity and Management Needs to be Strengthened

Tai Lake is known as "Suzhou's green invitation". Zhoushan Village has a beautiful natural environment, but it is really puzzling that it is not listed in the list of scenic spots in the Suzhou Taihu National Tourism Resort. Our field research found that although Zhoushan Village has superior natural environment and tourism resources, in fact its tourism planning lacks integrity and is not closely related to Tai Lake Basin landscapes. Take Zhoushan Village Nuclear Carving Art Museum as an example. Its overall environment and facilities are relatively outdated, and the layout of public facilities such as bus lines does not meet the requirements of tourist attractions. Due to the inconvenient transportation between the scenic spots, there are not many tourists who specifically visit here. In addition, with the development of Zhoushan nuclear carving, the craftsmen who come here to learn have expanded the market for nuclear carving products. Although Zhoushan Village continues to increase the creative conditions and design investment, the standard management of the nuclear carving intangible cultural heritage market needs to be strengthened, such as the price management of the nuclear carving raw material market and the classification standards of quality grades.

Insufficient Protection of Intellectual Property Rights, and the Nuclear Carving Industry has not yet Formed a Large-scale Development

Through investigations, we found that the villagers of Zhoushan Village know that nuclear carvings are Zhoushan's characteristics, but in fact not every household depends on nuclear carvings to make a living. On the one hand, it is not easy to master the nuclear carving skills and cannot open up a market. On the other hand, the repetition rate of works in the same village is high, which is unable to attract customers. However, the development of new themes requires redesigning graphics based on the "nuclear" form, which is difficult, and most villagers do not have this ability. In addition, the industrial management system related to nuclear carving, especially the intellectual property protection system is not yet perfect. Most of the market entities engaged in nuclear carving production are individual studios or small collector shops. They lack the awareness of intellectual property protection and the ability to promote the establishment of nuclear carving industry standards and industrial development plans. On the whole, Zhoushan nuclear carving industry has not yet formed a large-scale development.

Suggestions on Sustainable Development of Zhoushan Nuclear Carving Inheritance

Suzhou is building a national 5A-level scenic spot "Tai Lake Tourist Area, Wuzhong District, Suzhou". By focusing on the reform and construction of the leisure and tourism resort around Tai Lake, Zhoushan Village will be built into a characteristic tourist spot integrating nuclear carving art exhibition center, nuclear carving product trading center and traditional cultural center. Based on the above analysis of the advantages and problems of the development of nuclear carving industry in Zhoushan Village, we can propose suggestions for the inheritance and sustainable development of nuclear carving intangible cultural heritage from the following five aspects, so as to realize the mutual promotion of tourism culture and economic development.

Take Root in Wu Culture and Construct a "Cultural Inheritance" Development Model

With the gradual expansion of the market and the improvement of people's consumption level, nuclear carving consumers put forward higher requirements for nuclear carving products. While striving to improve their carving skills, craftsmen engaged in nuclear carving should pay more attention to the development of their own ability and constantly improve their innovative consciousness, especially the innovative design thinking of nuclear carving products (Xiang, 2018). In order to broaden the source of inspiration for nuclear carving design and construct the innovative development mode of "cultural inheritance" nuclear carving industry, artisans should draw inspiration from the space-time dimensions of Wu culture and modern Suzhou style. Deeply integrate the craftsman spirit of nuclear carving with the profound Wu culture. At the same time, the revitalization of nuclear carving industry is the leading factor to promote the common prosperity of Zhoushan's economy, culture and tourism. While inheriting Wu culture, we should comply with the changes of the needs of the new generation of nuclear carving consumer groups, design and integrate the traditional and modern nuclear carving role image, and develop personalized customized nuclear carving products. For example, through the combination of practical functions such as mobile phone chain, it can meet the needs of young consumers of the post-90s, post-00s generation, and inject new vitality into the sustainable development of nuclear carving intangible cultural heritage (Luo, 2020).

Give Full Play to the Cultural Leading Role of the Zhoushan Village Nuclear Carving Party Branch and Strengthen Management

On the basis of the establishment of the nuclear carving party branch, Zhoushan Village should give full play to the cultural leading role of the party branch and the positive influence of the "Party Construction +" work. Seize this opportunity of economic restructuring in Zhoushan Village, change the concept of development, and further promote the implementation and effective implementation of the "Youth Creation Post" policy in the inheritance of nuclear carving intangible cultural heritage and the development of tourism culture. The Xiangshan Sub-district Party Working Committee should strengthen the cultural guidance and business guidance of the nuclear carving party branch. By building a "enrich village and enrich people" industry, while inheriting the traditional nuclear carving crafts technology and following the production rules, it will guide the villagers to develop the nuclear carving characteristic cultural industry. We must give full play to the

self-discipline management role of the Zhoushan Nuclear Carving Industry Association to promote the scale, marketization, specialization and sustainable development of the nuclear carving industry (Chen, 2015). Change the form of production organization, support the construction of professional farmer cooperatives, and encourage villagers to join the "Nuclear Carving Creation Association" so that it can truly become an entrepreneurial enrichment association that guides villagers to get rich, and finally realize the goal of revitalizing the rural economy with culture.

"College-Local Government Cooperation" to Train Nuclear Carving Talents and Create "Hot Spot" of Tourism and Cultural Industry

In Zhoushan Village, lectures on nuclear carving craftsmanship can be held from time to time or a nuclear carving master studio can be opened. Explore "college-local cooperation" and establish a demonstration base for nuclear carving industrialization education. Through cooperation with neighboring universities and colleges in carving, e-commerce, tourism management and other majors, the professional chain will be connected to the industrial chain. Cultivate the craftsmanship, culture and management talents needed for the development of nuclear carving industry, so as to help the sustainable development of nuclear carving tourism and cultural industry. It is necessary to give play to the positive role of the nuclear carving art museum in cultural dissemination. Promote the construction of a team of student social practice interpreters, and instill fresh blood into the dissemination of the history of nuclear carving intangible cultural heritage. In this way, on the one hand, more talents can be introduced for the construction of Zhoushan Village. On the other hand, the brand of Zhoushan nuclear carving Village can be promoted in a subtle way, so that more people can know and understand Zhoushan nuclear carving, making it a new consumption growth point and tourist and cultural hot spot.

Implement the "Zhoushan Declaration" and Improve the Intellectual Property Protection System for Nuclear Carving

In order to better inherit the precious skill of nuclear carving, we must promote the healthy and sustainable development of the nuclear carving industry, so as to establish the tourism and cultural brand image of Zhoushan nuclear carving. The Zhoushan Nuclear Carving Village Management Committee and the Nuclear Carving Industry Association of Wuzhong District, Suzhou City put forward the "Zhoushan Declaration" initiative and carried out extensive publicity. With the innovative development of the Zhoushan nuclear carving intangible cultural heritage, the revision of the "Zhoushan Declaration" has promoted the implementation of rural governance mechanisms such as "villagers sign contracts, stores self-discipline". It is necessary to further implement the revised version of the "Zhoushan Declaration". Strengthen the self-discipline of the nuclear carving industry, encourage nuclear carving artists to innovate, improve the self-learning ability of craftsmen, and help the inheritance of intangible cultural heritage and the development of rural civilization. At the same time, it is essential to improve the intellectual property protection of Zhoushan nuclear carving works. Through the registration of the "Zhoushan Nuclear Carving Village" trademark, studios and individuals are encouraged to apply for patents. Initiate measures such as the intellectual property protection registration system, and strengthen the protection, management and guidance of intellectual property rights for villagers engaged in the inheritance and development of nuclear carvings. Finally, government departments should work

with industry associations to formulate standards and industrial development plans for the carving industry, and establish a Zhoushan nuclear carving intangible cultural heritage inheritance and innovation base. Based on the establishment of industry standards, it is possible to strictly distinguish between manual carving and mechanical carving, thereby enhancing the tourist cultural value and economic value of Zhoushan nuclear carving intangible cultural heritage.

Increase Financial Support and Explore New Online and Offline "Hybrid" Sales Model

Traditional nuclear carving production is mostly in the form of family workshops. Due to its small scale and weak ability to resist risks, this form has become a "long tail customer group" which is easy to be ignored by financial institutions. The lack of funds is also an important factor restricting the large-scale development of Zhoushan village nuclear carving industry. The local government should seize the opportunity of Suzhou's approval to build the first "Digital Credit Reporting Pilot Zone for Micro and Small Enterprises" in China, build a comprehensive financial service platform, and guide financial institutions to innovate intellectual property pledge and "credit + financing" characteristic products. By increasing financial support for nuclear carving small and micro enterprises and nuclear carving start-up studios, the nuclear carving industry will grow stronger (Zhou et al., 2019). At the same time, with the development of e-commerce and financial technology, the sales of nuclear carving products should also actively explore a new "hybrid" sales model combining online and offline. In offline sales, we should improve tourism resource planning, build nuclear carving products trading center, and improve tourists' on-the-spot shopping experience. In online sales, it is necessary to make full use of e-commerce platforms, online stores, live delivery, AR, VR and other new ways to show the exquisite nuclear carving skills to the public, especially the younger generation of consumers, so as to spread the nuclear carving culture and product features, as well as achieve the "dual goals" of popularization of intangible cultural heritage and the promotion of economic value, and ultimately promote the sustainability of nuclear carving industry Continued development.

Funding

This paper was supported by the following four projects:

[1] Youth Foundation for Humanities and Social Sciences Research of the Ministry of Education in China, "Research on Internet Financial Risk Cognition, Risk Preference and Investment Behavior of College Students in the New Era" [No. 19YJCZH272].

[2] Key Project of Research on Teaching Reform of Higher Vocational Education in Suzhou, "Research on Textbook Construction and Resource Development of *Network Lending and Crowdfunding* for National Internet Financial Resource Database" [No. SGJGA0205].

[3] Enterprise Practice Training Project for Youth Teachers in Higher Vocational Colleges in Jiangsu Province [No. 2020QYSJ032].

[4] Students Research Training Program for Innovation and Entrepreneurship in Southeast University and Research-based Curriculum in Suzhou Vocational Unversity, "Research on Blockchain in Empowering the Small and Micro Enterprises' Financing" [No. 202114017].

References

Xi, J. P. (2017, October 28). Decisive victory in building a moderately prosperous society in all respects and winning the great victory of socialism with Chinese characteristics in the new era: report on the nineteenth National Congress of the Communist Party of China. *China People's Daily*.

Xing, W. Z. (2013). Thoughts on the protection of intangible cultural heritage of Suzhou traditional arts and crafts. *Soochow Academic*, (3), 89-95.

Chen, Y. W. (2016). From rebirth to rejuvenation: A Study on the development model of cultural heritage type rural areas in Suzhou. *Jiangsu urban planning*, (11), 33-38.

Lei, H. (2015). Nuclear carving on the shore of Taihu Lake: Eighteen Arhats and Doraemon in the micro world. *Global human geography*, (13), 92-101.

Liao, M. H. (2017). Olive stone carving and its artistic features in Zhoushan, Suzhou. *Art and Technology*, 30(5), 147.

Xiang, Y. (2018, April 18). Cultural innovation and creative creation under the strategy of Rural Revitalization. *China Culture Daily*.

Luo, W. (2020, July 11). Three generations of inheritance of small nuclear Carvings: the world of square inch carved with delicate jade hands. *Gusu Evening News*.

Chen, Y. W. (2015). Research on the development of cultural heritage oriented villages in Suzhou. PhD. Dissertation. CHN: Suzhou University of Science and Technology.

Zhou, L., Liu, R., & Jin, J. H. (2019). Study on the Integrated Financial Service System in Servicing the High-quality Development of the Real Economy: A Case Study of Digital Credit Reporting Pilot Zone for Micro and Small Enterprises in Suzhou. *Credit Reference*, (12), 26-30.