



RESEARCH ARTICLE

Liu's Magic Paper Flower: Traditional Production Techniques and the Current Status of Intangible Cultural Heritage Transmission in the Yimeng Countryside

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ARTICLE INFO	ABSTRACT
Received: May 4, 2024	<p>Liu's Magic Paper Flower, this Chinese papercraft introduces unique paper flower patterns with techniques for folding and decoration, and tips for composition, color matching, floral vessels, and display: is a traditional handmade paper toy invented and passed down over centuries in Yimeng County in Shandong Province of the PRC. The production process involves more than twenty steps including pasting, carving, covering, and dyeing by handmade. The technique is a culminative generation of intangible cultural heritage (ICH) inheritors refining the operational process through extensive practice. The expectation of the craft and limited literacy, don't be written records have been preserved. The valuable information and data for future investigations into the traditional production techniques of Liu's Magic Paper Flower to challenge preserving the intangible cultural heritage, the status quo of Liu's Magic Paper Flower warrants careful consideration. The main purposes were to examine the traditional producing techniques of Liu's Magic Paper Flower and assess its current transmission state. As an ICH project in Shandong Province, the transmission of Liu's Magic Paper Flower has departed from conventional familial inheritance models and embraced an innovative approach. These ICH Centers and rural cultural tourism facilitate knowledge dissemination and encourage participation and preservation of traditional culture as an ICH with the practices, representations, expressions, knowledge, skills tools techniques that were invented, objects, artifacts, and cultural spaces associated with communities, and groups individuals recognize as part of their ICH indicate the approach effectively stimulates the revitalization of rural culture and economy while ensuring the safeguarding and continuity.</p>
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INTRODUCTION

In the Yimeng countryside of Linyi City, Shandong Province, it is commonly said, "Yimeng has thirteen families, and every household creates magic paper flowers." Tan Yulong, an associate professor at the School of Fine Arts, Linyi University, also mentioned in a research paper on the chromatics of traditional handicrafts that during the festive period of Chinese New Year, children can be seen throughout the Yimeng Mountain countryside playing with magic paper flowers (Shandong Government, 2016). Linyi

(simplified Chinese: 临沂; traditional Chinese: 臨沂; pinyin: Línyí) is a prefecture-level city in the south of Shandong province, China. As of 2011, Linyi is the largest prefecture-level city in Shandong, both by countryside and population, Linyi borders Rizhao to the east, Weifang to the northeast, Zibo to the north, Tai'an to the northwest, Jining to the west, Zaozhuang to the southwest, and the province of Jiangsu to the south. The name of the city Linyi (临沂) means "close to the Yi River" (Shandong CPPCC, 2022). It is located in the transition zone between Shandong hilly Yimeng Mountain countryside and Yishu River alluvial plain, and the terrain is high in the north and low in the south. The three major mountain ranges of Yishan, Mengshan, and Nishan are distributed in the north, with hills in the center and plains in the south (Hao Jie Gong, 2021).

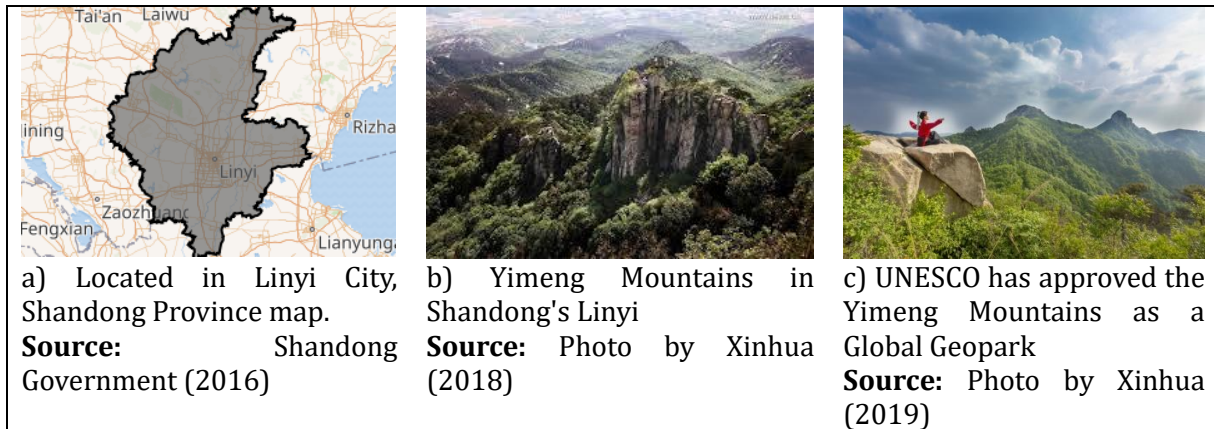


Figure Caption 1: Map and location environments at Yimeng countryside of Linyi City, Shandong Province

Yimeng Mountain in Shandong's Linyi is a famous mountainous countryside in the southeastern part of Shandong. Mixing the beautifully raw scenery of northern China with the south's "fish and rice" (a Chinese way of saying "the Garden of Eden"), this is a stunning place. The beautiful and elegant "Song of Yimeng Mountain" does an excellent job of evoking the imagery of Linyi with just a few words. Linyi is also a city with a profound historical and cultural heritage. Yinqueshan Han Tomb Bamboo Slips Museum has ancient copies of Sun Tzu's "The Art of War" and Sun Bin's "Art of War," which were unearthed in 1972. The Former Residence of Wang Xizhi and the Xunzhi Tomb are also famous cultural tourism sites in Linyi (Wang Jiale Dayu., Pan Wu., Dulong Liu, 2020). UNESCO has approved Yimeng mountain in Shandong Province as a Global Geopark World Heritage according to the local Chinese authorities in 2019. The mountain is the second UNESCO Global Geopark in the province after Mount Tai (Xinhua, 2019).

Historical background of paper, Paper as we know it was invented in China about 2000 years ago, although the Egyptians had been using papyrus (from which the word paper is derived) 5000 years ago to write on. The birth of paper, as it is today, took place under the Chinese Han Dynasty in AD 105. Ts'ai Lun, a court official invented a paper-making process, which primarily used rags (textile waste) as the raw material to make paper (The Confederation of European Paper Industries, 2020). Although not paper in the true sense, papyrus was the first writing material to assume many of the properties of what we now know as paper. Invented by the Egyptians in approximately 3000 B.C., papyrus leaves for writing were made from the papyrus water plant which grew abundantly in the marshy delta of the River Nile (The University of Michigan Papyrus Collection, 2017). The paper has survived for centuries. It's bio-degradable and recyclable. Even its by-products can be used to improve the quality of our lives. Such is the widespread use and enduring nature of paper, that we could be forgiven for thinking its development has been simple, seamless, the result of a 'low technology' of sorts. On the contrary, the development of papyrus, parchment, and paper, the three mediums most often used for the leaves of books, has been quite radical (The University of Adelaide, 2018).

Paper and the pulp-making process is said to have developed in China in the 2nd century A.D. Before that, the Chinese produced ink drawings and paintings on silk. The processes of making papers spread from China, through the Middle East, and into Europe by the 13th century. Some of the most beautiful examples of drawing during this time can be found in the practice of calligraphy. A type of artful writing done with a brush or pen. Drawings were preparatory studies and practices for beginning artists so they could eventually paint with accuracy. The illuminated manuscripts are the closest we get to drawing since the prehistoric artists, until the early Renaissance. In the Renaissance (ca. 1330 – 1550 CE), drawing became much more popular than in previous centuries and was considered the foundation for any work in the arts. Before students learn to paint, sculpt, or build, they had learned to draw accurately. During this period, artists began to draw from the live nude figure for the first time and because of this, figures in drawings and paintings developed greater realism (The West Harlem Art Fund, 2022).

The art of paper is the untold story of how paper revolutionized art-making during the Renaissance and explored how it shaped broader concepts of authorship, memory, and the transmission of ideas throughout three centuries. In the late medieval and Renaissance periods, paper transformed society and its role in the invention of print in the way it influenced artistic production. The Art of Paper tells the history of this medium in the context of the artist's workshop from the thirteenth century when it was imported to Europe from Africa to the sixteenth century, when European paper was exported to the colonies of New Spain (Caroline Fowler, 2019). Fifteenth-century Flemish artists preferred the precision of metal points on white paper. This technique is done by preparing a sheet of paper with a primer or gesso and then drawing with a piece of metal (usually silver, though copper and gold are also used) instead of graphite. The art of the Baroque was exaggerated to produce drama and grandeur and was intended to impress viewers in the 17th and 18th centuries. The Rococo period was dominated by French taste and culture. Artworks from this period are characterized by cheerful, often frivolous subjects and activities' emphasis on decoration and luxury. Artworks from the Rococo period are very soft and gentle. Line work is less harsh and pastels were used to frequently further enhance this new aesthetic (The West Harlem Art Fund, 2022).

The flower-making art is thought to have started in China soon after it was invented, where they made them float on water as religious offerings. Papers and things made from paper including paper flowers traveled and were traded along the Silk Road from China and eventually arrived in Europe in the 11th century. Generally, paper flowers are a beautiful alternative to real flowers and an eco-friendlier alternative to fabric flowers provided they are made from recycled or renewable sources. The paper for many of our flowers is made from the bark of the mulberry tree which can be harvested without destroying the tree (Paper Tree, 2019). Artists use flowers and plants in their art for their symbolic value. Flowers and plants have been used as symbols in art for centuries, and they can represent many different things. For example, a rose can symbolize love, a lily can symbolize purity, and a sunflower can symbolize happiness. By incorporating flowers and plants into their art, artists can add layers of meaning and symbolism to their pattern designs (Art Gallery, 2021).

Previous research on magic paper flowers, in colonial times paper flowers were a popular and inexpensive way to decorate homes and church altars. The original paper flowers were delicate in design, size, and color. As time went by the artisans made the flowers larger, more creative, and more colorful; and established them as a traditional Mexican folk art. Flowers in Chinese art symbolize everything from celebration days, specific months, and seasons to virtuous characteristics, and even death. Flowers are not always depicted realistically, or in their natural setting, as artists seek to communicate a particular message through symbolism and allegory. The range of painting styles is remarkable, from delicate rosebuds to expressive morning glories, sometimes paired with nimble grasshoppers, timid songbirds, or an imperious duck. (Kalamazoo Institute of Arts, 2015).

Focused on Liu's Magic Paper Flower in the Yimeng countryside of Linyi City, Shandong Province, it is commonly said, "Yimeng has thirteen families, and every household creates magic paper flowers." Tan Yulong, an associate professor at the School of Fine Arts, Linyi University, also mentioned in a research paper on the chromatics of traditional handicrafts that during the festive period of Chinese New Year, children can be seen throughout the Yimeng Mountain countryside playing with magic paper flowers. This testament attests to the enduring historical significance of magic paper flowers in Linyi. The crafting process of magic paper flowers involves the meticulous lamination of hundreds of sheets of water-

absorbent paper, subsequent stages include engraving, coloring, drying, and affixing the flowers onto twin bamboo stalks. The overall production procedure entails more than 20 intricate steps. The magic paper flowers' possess is the capability to transform into various forms, resembling flowers or animals. By employing diverse combinations, akin to the art of magic, they can assume 18, 36, or even 72 distinct artistic expressions.

Throughout the research process, there has been a significant lack of literature regarding the origin and development of magic paper flowers, presenting a major challenge to the study. Consequently, this research has employed on-site investigations, direct observations, and in-depth interviews to document the collected data and findings in written form, playing a crucial role in preserving Liu's Magic Paper Flowers as an intangible cultural heritage. With the implementation of the Law of the People's Republic of China on the Protection of Intangible Cultural Heritage in 2011, some inheritors of intangible cultural heritage have responded to national policies and picked up traditional handicrafts. However, magic paper flowers have not gained a widespread market presence but remain primarily within the memories of the middle-aged and elderly population.

Presently, the two most renowned inheritors of magic paper flowers as intangible cultural heritage in China are Guo Yuanfeng, the 16th-generation inheritor of "Guo's Magic Paper Flower" in Fujian, and Liu Qinghuai, the 5th-generation inheritor of "Liu's Magic Paper Flower" in Yimeng countryside. Both are in their forties and have given up their former occupations to devote the transmission of magic paper flowers as an intangible cultural heritage. The number of intangible cultural heritage inheritors has produced and managed to increase the magic paper flowers by the livelihood pressures. The reasons behind this trend include the intricate nature of manual craftsmanship, time-consuming production processes, and the high labor and time costs involved. Furthermore, the low-cost raw materials used in production have positioned magic paper flowers as inexpensive toys, failing to attract significant market attention.

Consequently, younger generations have shown limited interest in pursuing the craft, resulting in a lack of successors. Data obtained through questionnaire surveys in this study indicate a low market share for magic paper flowers, with limited consumer recognition and attention. While national policies support the development of intangible cultural heritage, the general public possesses limited knowledge of the historical and artistic value of magic paper flowers. The simple designing and packaging of traditional magic paper flowers are perceived as inexpensive goods, struggling to find a niche in the toy market. For inheritors of magic paper flowers, the intricate production techniques, demanding production processes, and challenges in sustaining their livelihoods have directly contributed to the difficulties in preserving the craft. Thus, the inheritance methods and current status of Liu's Magic Paper Flowers warrant contemplation in this context.

RESEARCH METHODOLOGY

Research Objective

To investigate and develop Liu's magic paper flowers with the new structural economic theory emphasizes the need for economic development to balance economic, social, and environmental considerations for promoting the intangible cultural heritage of magic paper flowers, attention needs to be paid to the protection of the environment and social justice, as well as the sustainability and long-term development of the intangible cultural heritage.

Target Group

The analysis of the target group is an important element of the research as it relates to the construction of useful information for the study. Depending on the source of information, there are three key pieces of information including casual, and general informants. The target group subjects for the interviews and surveys were set up as follows: two people who were the Intangible Cultural Heritage Inheritor and practitioners of Liu's magic paper flower as the key pieces of information. The casual information consisted of three people who were the intangible cultural heritage researchers and art educators. The general information consisted of 186 people who were the interviewers in the form of a collection questionnaire, they were interviewed as magic paper flower enthusiasts, buyers, and people of different ages, genders, and regions.

Research Instruments

The qualitative research method analysis was designed for the processes and structures based on data collection and factual observation and sought to obtain targeted fieldwork information for qualitative research and the interpretation of the research subjects including:

The *Literature Survey Method* was described to understand the developments and changes associated with magic paper flowers as a starting point analysis and collection of relevant research findings.

The *Observation Method* refers to the observation of the natural state, the researcher went into the specific social environments personally participated investigated cultural and artistic activities, and interacted with the subject purposes. Planning observation was carried out in the local natural environments that played an important role in collecting information about Liu's magic paper flower production process, sales, and intangible cultural heritage transmission activities.

The *Interview Method* is a research method based on dialogue and communication with research subjects, and its main purpose is to obtain research materials through formal or informal dialogue with research subjects. According to the degree of specification and the way the questions are set, interviews can be divided into structured and unstructured interviewers. The interviewees of this study include the intangible cultural heritage inheritors, makers, sellers, and amateurs of Liu's magic paper flowers. Through unstructured, in-depth interviews, a large amount of valid information about the development of magic paper flowers, production techniques, and intangible cultural heritage was obtained.

The *Questionnaire Method* is widely used in social surveys at home and abroad. A questionnaire is a form of statistics and surveys to express questions in the form of set questions. The collective reliable data using this controlled measurement to measure the research questions was administered to practitioners and researchers involved in magic paper flowers, consumers, and enthusiasts. The questionnaires were distributed individually and collectively with respondents filling in their perceptions' responses according to a form. Then I can get first-hand survey information that was more detailed, completed, and made sense to control than interviews.

Theories and Conceptual Frameworks

Theory of Cultural Memory; Cultural memory theory is a framework that elucidates the relationship between the past and the present. At its most basic level, it explains why, how, and with what results certain pieces of information are remembered (Matin T. Dinter, 2023). These facilitate the advancements and preservation of magic paper flowers as an intangible cultural heritage. Cultural memory theory provides a fresh perspective for comprehending intangible cultural heritage and the development of traditional culture. In the case of Liu's magic paper flowers, the processes of forgetting and reproducing cultural memory, the role of memory bearers, the transfer and acceptance of culture, and the pluralism of cultures all assume significant importance. The preservation and transmission of this traditional culture signifies reverence for history and culture but also a reconnection and reaffirmation of our original cultural identities.

Ethnosemiotic Theory is a disciplinary perspective that links semiotic concepts to ethnographic methods. The field of ethnolinguistics can be enlarged to become an ethnic-semiotics; analyses, still rare, of rituals and ceremonies lead us to suppose that ethnology can become, once again, the privileged locus for the construction of general models of signifying behavior (Algirdas Julien Greimas, 1982). A form of intangible cultural heritage that the magic paper flower has profound cultural and symbolic significance. The development and current status of Liu's magic paper flowers have also influenced analysis with the ethnosemiotic theory. Liu's magic paper flowers also need to constantly maintain the traditional cultural symbolic meaning while strengthening the interface with modern society and adapting to its changes and developments.

New Structural Economic Theory is a theoretical framework of economics proposed by the famous Chinese economist Professor Justin Yifu Lin. He has absorbed many useful theories from neoclassical economics, old structural economics, and neoliberalism to update and improve, the currently development economic theory in China. Liu's magic paper flower is the new structural economic theory that can provide a useful analytical framework. The starting point of analysis is factor endowments and their structure which is given at any specific time and changeable over time. It seeks synergies between an effective market and a facilitating government to achieve economic transformation and upgrade economic and social development (Institute of New Structural Economics, 2020).

A New Organizational Model is the development of Liu's magic paper flowers relies on an intangible cultural heritage based on a new organizational model that emphasizes collective learning and transmission. This organizational model is in the concepts of 'sharing economy' and 'social capital' in the *New Structural Economic Theory*. The sharing economy emphasizes the sharing of resources and knowledge, while social capital emphasizes the importance of social relationships. The development of Liu's Magic Paper Flowers is also driving the cultural and economic revitalization of the countryside (Institute of New Structural Economics, 2020). This is in line with the concepts of "creative economy" and "cultural economy" in the new structural economic theory. Living in societies that are vibrant and thought-provoking benefits individuals, who in turn use their creativity and skills to benefit their communities in a cycle of positive mutual benefit. As long as individuals, private institutions, and governments take steps to empower creative and cultural work, it will continue to be a critical driver of economic growth and development (The Policy Circle National Organization of the United States, 2023).

Inheritors of Intangible Cultural Heritage, China would hold several colorful activities to celebrate this year's Cultural and Natural Heritage Day, which falls on June 12, aiming to promote the country's intangible cultural heritage. In order to protect these invaluable cultural assets, the country has established a tiered system for its intangible cultural heritage, spanning the national, provincial, municipal and county levels. More than 100,000 items have been registered in the system, and over 90,000 individuals are currently identified as representative inheritors of intangible cultural heritage. Let's discover the stories behind some of these inheritors. Liu's Magic Paper Flower not only passes on its skills but also provides learning and employment opportunities for local villagers and strengthens social relationships among them (Bianji Hongyu, 2021). In promoting the development and intangible cultural heritage of magic paper flowers, attention needs to be paid to the protection of the environment and social justice, as well as the sustainability and long-term development of the intangible cultural heritage.

Breaking the traditional family heritage model and making the intangible cultural heritage of magic paper flowers more open and diversified, not only promotes the intangible cultural heritage and innovation of the traditional handicrafts but also makes an important contribution to revitalizing local rural culture and economy. In the environmental socialist market economy, folk culture and art, play an important role in promoting economic development, expanding urban and rural employment, and promoting farmers' income (Shanshan Wang, et al., 2023). This research study was to develop Liu's magic paper flowers also needs to focus on sustainability. The new structural economic theory emphasizes the need for economic development to balance economic, social, and environmental considerations. In promoting the development, and intangible cultural heritage of magic paper flowers, attention needs to be paid to the protection of the environment and social justice, as well as the sustainability and long-term development of the intangible cultural heritage.

RESULTS

The Production Techniques of Liu's Magic Paper Flowers

The production techniques of Liu's magic paper flowers are generally divided into three parts: the preparation work before production, the production process, and the application after production. The pre-production of the preparation work focuses on selecting paper, boiling pulp, choosing styles, and preparing tools.

Pre-Production Preparation

The pre-production work of Liu's magic paper flowers is mainly based on paper selection and pulp boiling: thickness, weight, flexibility, productivity, and water absorption of the paper need to be summarized and accumulated in actual operation. Often, it takes dozens or even hundreds of experiments to produce a more suitable raw material to try out a new paper. In Liu Qinghuai's opinion, any paper can be tried to make magic paper flowers.

Most magic paper flower-made papers are different in varieties of textures and prints so artists can make some unique-looking paper flowers and the kind of paper in size, elasticity, color, and playfulness. The main technical characteristics indicate high physical strength, excellent homogeneity, and transparency, good surface properties, delicate, flat, smooth, bubble-free, and good printability. As a result, magic paper

flowers made from copy paper can usually be pasted in more layers. The resulting paper flaps would be tougher and have more vivid colors, such as photocopy and copy paper.

Production Process

The Process of Printing Plates is the most critical and challenging step in producing magic paper flowers. It involves gluing multiple layers of paper together using a specialized paste. After drying, approximately 80-150 sheets of paper are bonded, resulting in a honeycomb-like structure on the flower embryo. The quality of the printing paste, the strength of the paper-to-paper bond, the clarity of the paste marks, and even the viscosity of the paste all play crucial roles in determining the success or failure of creating exquisite magic paper flowers. It was found that the most traditional tool used for printing "Liu's" magic paper flowers is a thread. The thread is dipped into the paste, and the desired pattern is printed on the paper after the paper sheet pieces are carefully glued together. This method ensures the consistency of the printed paste pattern and allows for precise control of the paste quantity. It's challenging to meet the demands of mass production (Figure Cation 2a).

The artisans of "Liu's" Magic Paper Flowers utilize aluminum alloy molds for direct pulp printing, offering advantages such as improved efficiency and better control over the uniformity and quantity of pulp. The molds are classified into three sizes: large, medium, and small. The large mold has an inner frame measuring 120 cm in length and 80 cm in width, the medium mold measures 60 cm in length and 40 cm in width, while the small mold measures 30 cm in length and 20 cm in width. The commonly used sizes are predominantly large and medium. The traditional large cotton thread pulp printing mold is typically constructed with a wooden frame measuring 120 cm in length and 80 cm in width. Cotton threads, usually spaced at equal intervals of 1.5 cm, 2.5 cm, and 3.5 cm, are securely fixed within the 80 cm width of the frame. Aluminum keel molds are created by substituting the cotton thread with aluminum strips, following a similar manufacturing process. The traditional cotton thread mold involves applying glue onto the cotton thread and printing it with glue on white paper. This process is time-consuming and labor-intensive, and the cotton thread tends to stretch and deform when damp, leading to uneven glue thickness (Figure Cation 2b).



a) Liu Qinghuai in the process of boiling the paste



b) Liu Qinghuai's Paste Printing Process



c) Chiseling and cutting



d) Magic paper flower embryo drying on the rooftop



Figure Caption 2: The Production Techniques of Liu's Magic Paper Flowers

Source: Photos by Author (2024)

The Process of Chiseling and Cutting is the execution quality of the cutting process that directly determines the regularity of the paper flower embryo. The traditional cutting method involves the use of cutting molds. The mold is placed flat on the pre-pasted and dried white paper embryo and then struck with a hammer until the crescent or gourd-shaped paper blanks are cut out. In terms of technique, the cutting process requires a combination of hand-eye coordination, with clear and precise force applied to ensure consistency in shape. As the production volume increases, Liu's Magic Paper Flowers has also explored the use of machinery in the production process. Artisan-Specific cutting machines, the pre-printed paper blanks can be placed on the machine and rapidly cut into patterned blanks that meet the required specifications. The cutting machines offer advantages in saving labor and time costs, reducing the error rate during production, and making it more suitable for production on a certain scale (Figure Caption 2c).

The Printing and Dyeing Process is the step of processing in determining the intensity of colors in magic paper flowers the traditional dyeing methods including *the time of printing and dyeing* in different seasons display different colors such as during the summer, the dyed magic paper flowers often lack the vibrancy of the paper flowers typically exhibit vibrant colors, enhancing their visual appeal and significantly increasing the appreciation value of this traditional craft of magic paper flowers.

The Dyeing Order is also known as a crucial factor in determining the effect of magic paper flowers. This process is repeated for other colors after approximately 15 days of drying. Consequently, the dyeing and drying process alone requires a minimum of 45 days. It also exemplifies the craftsmanship spirit inherent in traditional handicrafts, forming the basis for the centuries-long continuity of traditional handcrafted paper magic flowers, for producers, this process can be impacted by weather conditions (Figure Caption 2d).

Printing and Dyeing Techniques are the dyeing process, the strength determines the colour to apply to the thumb and index finger would result in a more evenly dyed, watermark-free, and naturally rendered colour.

Making the Finished Application Process is the final process, the cover and bottom of magic paper flowers are first inventory using cardboard. Artists or artisans used cigarette box cardboard or packaging cardboard from other products as raw materials for processing. Nowadays, due to mass production, the required paper pieces are usually custom-made at printing factories (Figure Caption 2e).

Using the Hot Melt Glue Sticks Process is the most common method that involve hot melt glue sticks, which are heated and then fixed. Hot melt glue sticks are white, opaque, and possess high strength. They are non-toxic, easy to operate, and do not carbonize with continuous use. They exhibit characteristics, such as processing fast bonding speed, high strength, aging resistance, non-toxicity, good thermal stability, and good film toughness (Figure Caption 2f). Hot melt glue sticks are white, opaque, and possess high strength. They are non-toxic, easy to operate, and do not carbonize with continuous use. Figure Captions 2g and 2h show the common style and designing the Miss Petal & Bloom style of Liu's Magic Paper Flowers.

Summarized the Production Steps and Tips for Making Liu's Magic Paper Flowers

Simplify make and cut out 8 to 12 (depending on sizes) petals on the backs of paper remnants. Pinch together one end of each petal, and secure with hot glue. Once dry, glue the petals together in a circle. Secure to wall with pushpins for Liu's Magic Paper Flowers, each step as reported in Table 1.

Table 1: The production steps and tips for making Liu's Magic Paper Flowers

Production Step	Tools	Specification		Cycle Time	Additional content
		Size of paper/material	Accounting Sheets/Sharp		
Paper selection	Repeated tests	Light, flexible, and absorbent paper	80 sheets 120 sheets 150 sheets	-	-
Print Plate	Ancient method, Paste, thread, boards	Large inner frame: Size: 120 X 80 cm ² .	-	-	Pay attention to the amount of paste and the strength of the print.
	Modern: Paste, aluminum moulds	Medium inner frame. 60 X 40 cm Small inner frame. 30 X 20 cm	-	-	-
Dry	None	Ventilation and sunlight	-	12 Days, round	Avoid direct sunlight
Chisel cut	Ancient Method	Home-made cutting dies	Shape 1 :	Crescent shape	-
	Modern	Edge chiseling machine	Shape 2 :	Gourd shape	-
Trim the shape	Scissors	-	Regular shape	-	-
First print	Dry	-	Dry yellow	-	-
Dry	None	-	Ventilation and sunlight	15 Days	Avoid exposure to the sun in summer; avoid mould in rainy weather; the cycle will be longer in winter when the sun is short. The colour stays

					brightest when drying in autumn.
Second Print	Dry	-	Dry red	-	-
Dry	None	-	Ventilation and sunlight	-	Similarly, as the first print
Third Print	Dry	-	Dry yellow		-
Dry	None	-	Ventilation and sunlight	-	Similarly, as the first print
Sticky bamboo sticks	Ancient Method	Bamboo sticks, paste	-	-	Control the amount of paste
	Modern	Bamboo sticks, hot melt glue	-	-	-
Dry	None	-	Ventilation and sunlight	-	Hotmelt saves drying time
Sticky cardboard	Ancient Method	Paste, cigarette boxes or cardboard shells	-	-	-
	Modern	Hot-melt adhesive covers with graphics and logos	-	-	-
Dry	-	-	Ventilation and sunlight	-	-
Check the trial	-	-	Examine failed products due to excessive bonding	-	-

The Current Situation of the Inheritance of Magic Paper Flowers as Intangible Cultural Heritage

"Intangible cultural heritage" refers to the practices, representations, expressions, knowledge, and skills including instruments, objects, artifacts, and cultural spaces associated – that communities, groups in some cases, individuals recognize as part of their cultural heritage. The current situation of the inheritance of magic paper flowers as an intangible cultural heritage is determined as follows:

Status of Magic Paper Flowers as Intangible Cultural Heritage

The recent challenges facing Magic Paper Flowers are evident in their declining market share. According to data published by China's National Bureau of Statistics, recent years have witnessed surge in the popularity of educational toys, dolls, electronic toys, and technological toys in the Chinese toy market (National Bureau of Statistics of China, 2019). The National Bulletin of the Culture and Tourism Industry reported a 27.1% year-on-year increase in sales of educational toys, reaching RMB 16 billion in 2018. In the same year, sales of electronic toys amounted to RMB 9.2 billion, marking a 23.5% year-on-year growth (China Toy and Juvenile Products Association, 2019). The 2019 China Toy Market Development Report released by the China Toy and Baby Products Association indicated a 22.5% year-on-year rise in sales of dolls, reaching RMB 11.1 billion, while technology toys recorded sales of RMB 3 billion, up 27.7% year-on-year. In contrast, traditional paper toys, such as paper puzzles and handicrafts, experienced a decline in sales, with RMB 3.89 billion in 2018, down 5.5% compared to the previous year's sales of RMB 4.11 billion in 2020. China has been the world's largest toy manufacturing and exporting hub for the last three decades. The value of toys and games exported out of China in 2022 exceeded 100 billion U.S. dollars, accounting for 59 percent of global toy exports. Additionally, there has been a considerable increase in China's domestic demand for toys over the past few years. Chinese toys and games generated

approximately 56.2 billion U.S. dollars in revenue in 2022, making it the world's largest toy market (Yihan Ma, 2024).

The survey findings indicate a predominantly female population, primarily data comprising young individuals, whose ages were less than 25 years old, with a significant portion holding a bachelor's degree or higher. The respondents are engaged in various occupations, a considerable proportion of households earning more than RMB 6,000/month. Considering that the surveyed population consists mainly of young females, who currently represent the primary consumer group in China, the sample size for this survey was considered reasonably valid. While half of the respondents have experienced playing with magic paper flowers, more than half of them only engaged with the toy during childhood and have had limited exposure to it as adults. The results are reported in Table 2.

Table 2. Descriptive statistics of the sample

Category	Item	Sample size	Percentage
Gender	Male	59	31.72%
	Female	127	68.28%
Age	12-16	1	0.54%
	17-25	127	68.28%
	26-45	51	27.42%
	Over 46 years old	7	3.76%
Education	Primary	1	0.54%
	Secondary	5	2.69%
	University	159	85.48%
	Masters and above	21	11.29%
Household income	2000 RMB/month Below	53	28.49%
	6000-10,000RMB/month	65	34.95%
	Monthly income over 10,000 RMB	45	24.19%
Have you ever played with magic paper flowers?	Played	53	28.49%
	Played as a child	45	24.19%
	Heard of it but never played it	40	21.51%
	Never heard of it	48	25.81%

N = 186

The questionnaire also set up an open-ended question: What do you think is the biggest problem with the magic paper flower in the process of intangible cultural heritage? A total of 58 people answered this question. The keywords in the answers focused on: innovation, promotion, transmission of the intangible

cultural heritage, difficulties in production, and the need to improve quality. In this questionnaire, the following conclusions can be drawn about the current situation faced by magic paper flowers:

Cultural value: Traditional handmade toys with magic paper flowers have a rich cultural connotation and are one of the important components of traditional Chinese culture, which is of great significance to the intangible cultural heritage of Chinese culture and the enhancement of national cultural confidence.

Educational value: traditional handmade paper flowers can exercise children's hand-eye coordination, creativity, imagination, and hands-on skills, which have a positive impact on their physical and mental health development.

Competition in the toy market: traditional handmade toys, such as magic paper flowers, are less competitive in the modern toy market, and their sales are gradually declining.

Innovation and transformation: traditional handmade toy manufacturers can explore new design concepts and materials and develop innovative paper toy products to increase the attractiveness and competitiveness of their products.

Interviews with multiple inheritors of intangible cultural heritage: the current challenges faced by magic paper flowers are similar to those of most traditional crafts.

Limitations: the transmission of magic paper flower craftsmanship primarily relies on family apprenticeship and oral tradition is limited, resulting in relatively low efficiency from the perspective of market demand, in an era of relative material scarcity, magic paper flowers served as entertainment products that greatly satisfied the needs of young people, especially children, while also meeting the livelihood needs of practitioners. However, the toy market today is vastly different. Additionally, magic paper flowers lack innovation in design, and the quality of finished products varies, leading to the significance of their preservation as intangible cultural heritage being greater than their practicality.

Current Status of Yimeng Liu's Magic Paper Flowers

Liu's Magic Paper Flowers originated in the Yimeng region of Shandong Province. In 2012, Liu Qinghuai, as the fifth-generation inheritor of intangible cultural heritage, initiated the revitalization of his family's traditional craftsmanship. In 2021, Liu's Magic Paper Flowers was recognized as a provincial-level intangible cultural heritage project in Shandong Province. In 2022, Yimeng Liu's Magic Paper Flowers was established as an intangible cultural heritage based in their hometown, enabling villagers to generate income and overcome poverty was created in the production of the Magic Paper Flowers. Today's science art project is one of someone's all-time favorite ideas: A paper project that moves with a little help from science! This paper flower for kids opens up when they put it in water and it's so much fun to watch. For example, an instructor for the intangible cultural heritage project, teaching the art of making Magic Paper Flowers at various vocational and technical colleges in Linyi City with the STREAM instructional design. Creative the Magic Paper Flowers to the science classroom learning environment with the STREAM instructional design. There are lots of STEAM learning objectives packed into the classroom instruction or the primary beneficiaries of the training are local villagers, enabling them to engage at home (Figure Caption 3).



a) The classroom environment was created with the STREAM instructional design using the Magic Paper Flowers

b) The primary beneficiaries of the training are local villagers, enabling them to engage at home to make income

Figure Caption 3: Creative the Magic Paper Flowers to the instructional classroom environment design and family generative production incomes

Source: Photos by the first Author

Finally, for the local government, the practical training of traditional craftsmanship has facilitated the dual promotion of intangible cultural heritage inheritance and poverty alleviation through the integration of culture and tourism. It continuously promotes the revitalization of traditional crafts and contributes to targeted poverty alleviation. Liu's Magic Paper Flowers have become a representative of the local cultural tourism industry, attracting visitors from different regions through traditional culture and enriching the development of the local cultural tourism industry. The primary markets currently include Jinan, Linyi, Nanchang, Dezhou, Qingdao, and other cities. The main sales channels include participation in large-scale exhibitions, designated retail points, and wholesale orders for semi-finished products among . Liu's Magic Paper Flowers have gradually become one of the most renowned varieties of magic paper flowers in China. On the Jitterbug platform, Liu's magic paper flowers are priced at 16.9 yuan for a set of three, with a wholesale price of 630 yuan for 100 sets. Sales throughout six months amount to 400 sets, resulting in a turnover of less than 5,000 yuan.

DISCUSSIONS

Liu's magic paper flowers is a traditional handmade paper toy, constitution an important part of Chinese traditional culture with a long history and unique artistic charm. With the promotion of intangible cultural heritage protection policies, the preservation and development of Liu's magic paper flowers as intangible cultural heritage have also received attention. However, with the rise of modern industrialization, the toy market offers increasingly diverse options, causing a gradual decline in traditional craftsmanship and posing significant challenges to preserving intangible cultural heritage. Nonetheless, Liu Qinghuai, the inheritor of Liu's magic paper flowers, has successfully stimulated the sustainable development of traditional craftsmanship and achieved cultural and economic revitalization by establishing an intangible cultural heritage base and implementing collective learning. Siow Kian Tan, et al., (2019) reported that their study was to understand the elements of creativity and to what extent and how creativity serves as a tool in preserving the intangible cultural heritage (ICH) at World Heritage Sites as a 5As—actor, audience, affordance, artifact, and apprentice—cultural creativity interaction model was constructed.

From the perspective of the production techniques of Liu's magic paper flowers, this art form requires manual craftsmanship, featuring unique production processes and techniques that demand inheritors to possess solid manual skills and extensive experience. The solid manual skills and extensive experience processes of inheriting intangible cultural heritage, breaking away from the familial transmission model, and promoting technology sharing on a broader platform enable more people to experience the charm of traditional handicrafts. Yanfeng Jiang et al., (2021) reported that rural land consolidation (RLC) was beneficial to rural development to a certain extent. While acknowledging this relationship, little is known about the extension of the impact of RLC on rural vitalization at the village level and its change. Based on the theoretical analytical framework and multi-source data. It avoids the risk of traditional craftsmanship being lost in the hands of a few individuals while stimulating collective creativity and cooperation, offering new ideas and methods for the protection and inheritance of traditional crafts.

Data Availability Statement: We encourage all authors of articles published in MDPI journals to share their research data to provide details regarding where data supporting reported results can be found, including links to publicly archived datasets analyzed or generated during the study. The data were created, or where data is unavailable due to privacy or ethical restrictions, a statement is still required. Suggestions that the data availability statements are available in the section “MDPI Research Data Policies” at <https://www.mdpi.com/ethics>.

Investigation and development of Liu's magic paper flowers with the new structural economic theory, the structuralist concept of development as characterized by rigidities that limit economic adjustments requires an analytical framework in which external policy is more closely linked to domestic resource allocation than the neoclassical view, which minimizes these restrictions. Fabrício Missio., Frederico G. Jayme Jr., and José Luís Oreiro (2015) reported that the structuralist tradition in economics, emphasizes the role that structures play in the economic growth of developing countries. Since the subject has a large

local project to cover in a single article, an emphasis has been brought to bear upon the macroeconomic elements of such a tradition exploring its methodological aspects and emphasizing the need for economic development to balance economic, social, and environmental considerations for promoting the intangible cultural heritage of magic paper flowers.

Equitable development is an approach to meeting the needs of underserved communities through policies and programs that reduce disparities while fostering places, which are healthy and vibrant. It is increasingly considered an effective place-based action for creating strong and livable communities. The equitable development outcomes of are the results of clearly set expectations, collaborative problem-solving, and persistent leadership (United Environmental Protection Agency (EPA), 2023). The term 'cultural heritage' has changed content considerably in recent decades, partially owing to the instruments developed by UNESCO. Cultural heritage does not end at monuments and collections of objects. It also includes traditions or living expressions inherited from our ancestors and passed on to our descendants, such as oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe, or the knowledge and skills to produce traditional crafts of the attention that needs to be paid to protecting the environment and social justice, as well as the sustainability and long-term development of the intangible cultural heritage (UNESCO, 2003).

CONCLUSION

Creative mixed qualitative and quantitative research methods combine and integrate the data in a single research study. It involves collecting and analyzing qualitative and quantitative data to understand a phenomenon better and answer the research questions to investigate and develop Liu's magic paper flowers with the new structural economic theory emphasizes the need for economic development to balance economic, social, and environmental considerations for promoting the intangible cultural heritage of magic paper flowers, attention needs to be paid to the protection of the environment and social justice, as well as the sustainability and long-term development of the intangible cultural heritage. Intangible cultural heritage depends on those whose knowledge of traditions, skills, and customs are passed on to the rest of the community, from generation to generation, or other communities. Communities and groups practice these traditions and customs everywhere in the world. They have systems for transmitting their knowledge and skills, usually dependent on word of mouth rather than written texts. Safeguarding activities must therefore always involve the communities, groups, and where appropriate, individuals that bear such heritage.

Liu's Magic Paper Flower: Traditional Production Techniques, the Fold Paper Flowers originated in the prosperous period of the Qing Dynasty in China and have a history of more than 300 years. They were originally toying with the aristocrats of the royal palace. The Fold Paper Flowers are also called the magic flower because they have flowers within the flower. The production of The Fold Paper Flowers is also very complex. They are made by hand in the whole process. The selected paper has the characteristics of good tensile strength and strong water. these traditional paper flowers can only maintain static conditions, greatly affecting their sensory effects, vividness, and appreciation. The design of novel paper flowers with dynamic shape deformation could effectively broaden the application of paper flowers.

Liu's Magic Paper Flower: Intangible Cultural Heritage (ICH) Transmission, cultural transmission is the process through which cultural elements, in attitudes' form, values, beliefs, and behavioral scripts, are passed onto and taught to individuals and local communities. A primary role of culture ICH at Yimeng countryside is to provide a consistent and stable environment or framework whose goal is to ensure at the very least, enhance, the survival of their Liu's Magic Paper Flower arts. At its broadest level, culture represents mainstream tendencies, but there can be "culture within a culture" whereby smaller segments of the population are created.

Liu's Magic Paper Flower: Intangible Cultural Heritage, UNESCO established its list of Intangible Cultural Heritage to ensure better protection of important intangible cultural heritages worldwide and the awareness of their significance. UNESCO has identified the following categories of intangible cultural heritage: dialects and minority languages; performing arts, music, dance, and theater; rituals, festivals, and ceremonies; knowledge and practices concerning nature and the universe; technical knowledge and skills used to produce traditional crafts at Yimeng Countryside, if possible.

Finally, Liu's Magic Paper Flower: Traditional Production for developing academics of the local Yimeng Countryside community is increasingly being advocated as a climate adaptation approach that can deliver multiple benefits to communities. The local government community-based projects can strengthen those ecosystems for delivering critical services to communities and making sense to enhance community resilience. The research findings that there is widespread recognition that indigenous and traditional knowledge is important for Indigenous and local communities and can be employed successfully in Liu's Magic Paper Flower, sustainability.

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Footnote

This research paper includes four authorships, the first author is a PhD student, and three of the four authors are instructors and researchers at the Department of Culture Fine Arts and Design Research, Faculty of Fine and Applied Arts, Khon Kaen University, Khon Kaen, Thailand, accounting words for 8010 words, 2 tables, 3 Figure Captions, and obtains of 19 pages.

This research study doesn't support the grand fund from anywhere.

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APPENDIX

Research Title: Utilising Crowdfunding for Infrastructural Development in Nigeria.

Note: The questions are intended, as part of a research efforts, to address the above topic been part of a research for journal publication. All information provided are kept confidential and the research would not, by any means, reflect personal information supplied on the questionnaire.

Section 1: Demographic information

Demographic Item		Information	Please Mark [X]
Gender		Male	
		Female	
		Prefer not to say	
Age		Below 25	
		25-44	
		45-60	
		Above 60	
Religion		Christian	
		Muslem	
		Prefer not to say	
Education		Undergraduate	
		Graduated	
		Postgraduate	
Employment		Employed	
		Unemployed	
		Prefer not to say	
Program		Accounting	
		Business Administration	
		Economics	
		Finance	
		Information Technology	
Investment		Experience	
		Non-Experience	
		Prefer not to say	

Section 2: Research Objectives

1. Are you **familiar with the concepts** of crowdfunding

Yes [] No []

2. Is crowdfunding **similar** to the following entrepreneurship venture financing?

	Please Mark as [X]: Very similar [1], Somewhat similar [2], Neither similar nor distinct [3], Somewhat distinct [4], Very distinct [5]				
	[1]	[2]	[3]	[4]	[5]

Loan Procurement					
Initial Public Offering					
Venture Capital					
Crowdsourcing					

3. How would crowdfunding be **useful** for infrastructural financing in these sectors?

	Please Mark as [X]: Very useless [1], Somewhat useless [2], Neither useless nor useful [3], Somewhat useful [4], Very useful [5]				
Sectors	[1]	[2]	[3]	[4]	[5]
Agriculture					
Education					
Energy, Oil & Gas					
Financial Service					
Health Care					
Industry (General)					
Real Estates					
Tech. & Telecom.					
Transportation					

4. To what extent will sourcing funds through crowdfunding based on this ownership of infrastructural projects be **successful**?

	Please Mark as [X]: Unsuccessful [1], Somewhat unsuccessful [2], Neither unsuccessful nor successful [3], Somewhat successful [4], Very successful [5]				
Ownership	[1]	[2]	[3]	[4]	[5]
Individual					
Private Enterprises					
Government					
International					