

# The Development of cultural products from waste paper in the context of the Circular Economy

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## Abstract

This research investigates the creation of cultural products from waste paper within a circular economy framework. The study has three objectives: 1) Explore the historical and cultural significance of the 12 zodiac signs in Luoyang; 2) Assess the properties of waste paper to guide material development experiments; 3) Design and develop products inspired by the 12 zodiac signs using recycled waste paper. The study reveals that Luoyang, as an ancient capital, holds a profound cultural heritage, with the 12 zodiac signs being a significant aspect of Chinese tradition. Field investigations, literature reviews, museum visits, and interviews with folk artists highlight the artistic characteristics and expression methods of these zodiac signs in Luoyang. Modern design concepts can be integrated to enhance these traditional forms to meet contemporary aesthetic and cultural needs. The research identifies increasing paper consumption and low recycling rates, leading to resource waste and environmental pollution. Recycling waste paper is environmentally and economically valuable, offering artistic and cultural innovation opportunities. The research combines traditional zodiac elements with modern design concepts in developing artistic products.

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Waste paper is processed into raw materials for artistic creation, creating unique cultural products, such as zodiac-themed handbags. These products blend traditional cultural appeal with the environmental benefits and creative potential of waste paper recycling. The findings underscore the significant ecological, economic, and cultural benefits of recycling waste paper within a circular economy.

**Keywords:** Waste paper, cultural products, Luoyang City

## Introduction

In today's society, environmental protection and resource cycle use have become the focus of attention (Li Rubing, 2014: p. 60). As a common waste in daily life, people increasingly value waste paper. Luoyang is a city with a rich cultural heritage. It combines waste paper with traditional culture. We present a zodiac artwork full of creativity and vitality through artistic innovation design.

Luoyang, the ancient capital of the Thirteen Dynasties, is a living testament to China's deep historical and cultural heritage. The zodiac signs, an integral part of this tradition, carry a rich connotation of folk culture. The fusion of waste paper with the zodiac culture of Luoyang is not just an innovative artistic practice, but a respectful homage to our cultural roots. This practice serves to heighten people's awareness of environmental protection and fosters the growth of cultural and creative industries.

In the paper "The Development Material Form Waste Paper to Creative 12 Zodiac Cultural Products in Circular Economy Context", the author delves into the practicality and environmental benefits of waste paper reuse. By studying Luoyang's twelve zodiac cultures, the author has proposed a series of innovative design solutions. These solutions not only pay attention to artistic aesthetics but also fully consider practicality and

environmental protection. For instance, waste paper can be used to create zodiac cultural and creative products, beautifying our living environment and contributing to the recycling of resources. This inspiring approach offers a hopeful vision for the future of waste management.

In addition, the paper analyzes the practical application of the development material from waste paper to creative 12 zodiac cultural products in the Circular Economy Context from multiple perspectives. Through field surveys and data analysis, the author obtains the advantages and existing problems in art design. This analysis provides valuable references and also provides direction for future research.

However, waste paper still faces some challenges in artistic innovation design. Improving the artistic value of waste paper reuse, combining traditional culture, and promoting industrial development in this field requires us to think further and explore.

In summary, the paper "The Development Material Form Waste Paper to Creative 12 Zodiac Cultural Products in Circular Economy Context" provides a brand-new perspective, letting us see the enormous potential of waste paper reuse in artistic innovation design. In the future, we look forward to more artists and designers paying attention to this field, combining waste paper with traditional culture to create more creative and valuable artworks. At the same time, we also hope that the government and all sectors of society can give more support and attention, promote the industrial development of waste paper to reuse the industrialization of art innovative design, and make more significant contributions to the prosperity of environment protection and cultural and creative industries.

## 1.1 Background of Research

### 1.1.1 Enhancement of environmental protection awareness

As global environmental problems become increasingly severe (Li Huaming, 2006: p.88.), people's awareness of environmental protection

gradually increases. As a common waste, handling waste paper significantly impacts the environment. Traditional methods of waste paper disposal include incineration and landfilling, which not only produce a large amount of carbon dioxide and harmful gases, but also occupy a large amount of land resources. Promoting and using recycled paper resources for papermaking is becoming increasingly urgent. Therefore, waste paper recycling has become an environmentally friendly way that has received widespread attention. Transforming waste paper into artworks or design works can not only reduce the waste of waste paper but also raise people's awareness of environmental protection.

### 1.1.2 Demand for Cultural Heritage

The 12 Chinese zodiac animals are essential symbols in Chinese culture. They represent people's understanding of time and life and recognize and express people's character and destiny. They have profound historical and cultural connotations. However, with the development of modernization, traditional culture has been gradually forgotten. By combining waste paper recycling with the art design of the 12 zodiac animals, traditional culture can be integrated into modern life to achieve cultural inheritance and innovation.

### 1.1.3 The needs of art innovation design

With the development of society, people's demand for artistic innovation and design is also increasing (Liu Xin, 2019: p. 54.) Traditional artworks and design works often use materials like canvas, paper, etc. However, with the rise of waste paper recycling, people have begun to try to use waste paper as a material for artistic innovation and design. Waste paper has a unique texture and texture, which can add a unique charm to artworks and design works. At the same time, waste paper recycling can also provide artists and designers with more creative inspiration and possibilities, enabling them to create more innovative and unique works.

### 1.1.4 Technological development of waste paper reuse

The technological development of waste paper recycling also provides more artistic innovation and design possibilities. Traditional ways of recycling waste paper mainly include hand-made and simple recycled paper production (Shen Kuizhong, 2019: p. 21.) However, with the advancement of science and technology, the technology of waste paper recycling is also developing. Now, people can use advanced technology to convert waste paper into fiberboard, pulp, and other materials, which can be used to make artwork, furniture, decorations, etc. At the same time, the technology of waste paper recycling can also be combined with other materials to create more diverse artworks and design works.

## 1.2 Research objectives

1.2.1 Study history Background related to the belief culture about the 12 zodiac signs of Luoyang City

1.2.2 Study information about waste paper from various parts of Quantitative and quality properties to lead to the material development experiment

1.2.3 Design and develop products by using new materials from waste paper obtained from the experiment, leading to the creation of cultural products using 12 zodiac signs as inspiration

## 1.3 Research Question

1.3.1 What is the historical background related to the belief culture about the 12 zodiac signs of Luoyang City?

1.3.2 What information about waste paper from various parts of quantitative and quality properties, and how can they lead to the material development experiment?

1.3.3 How can we design and develop products using new materials from waste paper obtained from the experiment, leading to the creation of cultural products inspired by the 12 zodiac signs?

## 1.4 Research Methodology

Interview, observation, and survey method: This study collects data through interviews and surveys. Several participants were randomly selected in Luoyang for interviews, observations, and surveys. The interview content includes the participants' understanding of waste paper recycling, their awareness of Luoyang's twelve zodiac art design, and their views on the combination of waste paper recycling and Luoyang's twelve zodiac art design.

## 1.5 Concept, theory, and conceptual framework

### 1.5.1 Research concept

Explore how to convert waste paper materials into artistic value in Luoyang Zodiac art. With the enhancement of environmental protection awareness and sustainable development (Xie Lina, 2019: p. 659), waste paper has become an essential way of recycling and utilizing resource recovery. This study aims to convert waste paper materials into unique Luoyang Zodiac artworks through innovative design concepts and technical means, which not only realizes the reuse of waste paper resources but also shows the charm of Luoyang's traditional culture.

### 1.5.2 Research Concept Framework

This study will be carried out from the following aspects: First, through the research on the characteristics and processing methods of waste paper materials, it will explore how to effectively separate, clean, and process waste paper to meet the needs of the art design. Secondly, through in-depth research on the Twelve Zodiac culture of Luoyang, understand its symbolic significance and artistic expression form and provide inspiration and creative direction for the art design of waste paper. Then, combined with the characteristics of waste paper materials and Luoyang's zodiac

culture, the design concepts and technical innovation methods will be explored, and waste paper will be transformed into artistic value in Luoyang Zodiac art. Finally, through exhibitions and promotion activities, the importance of environmental protection awareness and traditional culture to the public will promote the popularization and promotion of waste paper reuse.

This research concept can not only realize the reuse of waste paper resources and reduce environmental pollution but also protect and inherit the traditional culture of Luoyang and enhance the added value of art and market competitiveness. At the same time, it also provides a reference and revelation for other regions of culture and waste paper.

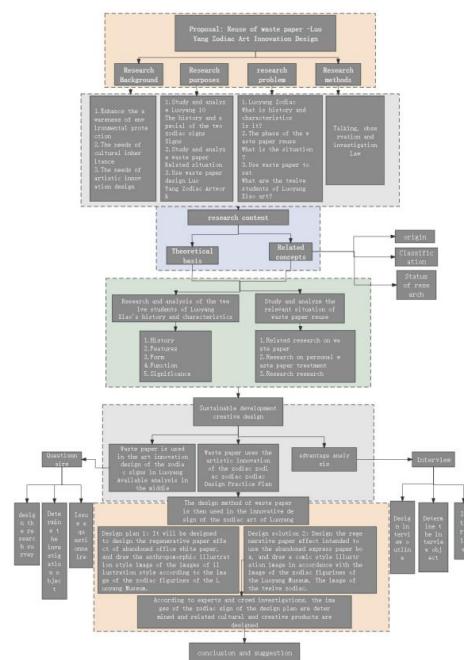


Figure 1: Thesis research framework diagram 1.6 Research Plan

Stage	Time	subject	job content	Stage results
1	2022.11-2022.12	Stage 1. Determine the research topic	Determine the research background, research purpose, research question, research scope, research methodology, data analysis, research conceptual framework, research plan, and research benefits	part 1-> Complete the opening defense and determine the research topic
2	2023.01-2023.02	Stage 2. Explore the current state of the research	To study and analyze the reuse of waste paper, and analyze the history and characteristics of Luoyang zodiac	start2-> The relevant status of the research topic
3	2023.03-2023.05	Stage 3. Study methods and analysis	Feasibility analysis of waste paper reuse in Luoyang	part 3-> Complete the research work Published 1-2 academic papers
4	2023.06-2023.10	Stage 4. Study design and conception	Waste paper reuse - Luoyang twelve Chinese zodiac art innovation design practice program	part4-> Complete the design practice
5	2023.11-2023.12	Stage 5. Summary and discussion	Made a summary of the research thesis and wrote the dissertation	part5-> Write complete the graduation thesis
6	2024.01-2024.02	Stage 6. Organize the research report	Paper revision, final draft, submitted to the tutor for guidance; Thesis submission, to participate in the graduation defense	part6-> Thesis submission, to participate in the graduation defense

Figure 2: The research plan of this project research process

## 2. Study and analyze the history and characteristics of the zodiac signs of Luoyang

### 2.1 The historical origins of the zodiac

In traditional Chinese culture, each zodiac sign has unique symbolic meaning and personality traits. For example, the rat is seen as intelligent and flexible, while the ox represents diligence and stability. These zodiac signs are a sign of time and a symbol of people's self-character and behavioral norms. Therefore, in China's daily life, the zodiac culture is omnipresent and profoundly impacts people's words and deeds.

Luoyang, the political and cultural center of ancient China, the twelve zodiac animals in Luoyang first appeared in the Eastern Han Dynasty, and all the twelve zodiac animals were finalized in Luoyang (Pan Lige, 2020-1: Luoyang Daily.) The twelve zodiac animals have animal heads and human

bodies, standing upright, with either majestic, gentle, or respectful expressions. In addition (Hu Jing, 2014-5: Chizi.), many historical sites are related to the Chinese zodiac in Luoyang.

## 2.2 Characteristic analysis of the zodiac signs of Luoyang

In this chapter, I will conduct an in-depth analysis of the characteristics of the twelve zodiac signs in Luoyang. The study of the characteristics of the twelve zodiac signs in Luoyang fully demonstrates the rich connotation and regional characteristics of Chinese traditional folk culture. First, let's take a look at the rats in the Luoyang area (Zhou Muxin, 2022: p. 7.) The Luoyang rat is usually described as alert, flexible, and intelligent. This echoes Luoyang's historical background and cultural atmosphere. Luoyang has accumulated a deep cultural heritage and wisdom as an ancient capital of China. Then there is a cow. In Luoyang, cows symbolize hard work, tenacity, and stability. This is consistent with the personality characteristics of the Luoyang people. They are famous for hard work, work diligently, and work hard for life. The tiger in the Luoyang area represents bravery, strength, and independence. This is related to the geographical environment of Luoyang. Luoyang is located in the Central Plains. It is a place where soldiers must fight in history. People here are brave and not afraid of difficulties. Rabbits are considered gentle, kind, and innocent in the Luoyang area. This echoes Luoyang's history and culture. The people of Luoyang are gentle, kind, and innocent and are full of humanistic care. As a symbol of China, Long is even more respected in the Luoyang area. Luoyang Dragon symbolizes nobleness, strength, and mystery. This is consistent with Luoyang's status as the ancient capital and reflects people's deep feelings for dragons. Snakes are regarded as wit, keen, and mysterious in the Luoyang area. This is consistent with the characteristics of the Luoyang people. They are intelligent and wise, good at observing and thinking, and can be at ease in complex environments. The horse represents unrestrained accessibility and vitality in the Luoyang area. This is related to the natural environment of Luoyang. Luoyang is located on plain, flat terrain suitable for horses to run on. It also symbolizes the spirit of people's pursuit of freedom and vitality. Sheep is

considered docile, kind, and obedient in the Luoyang area. This is consistent with the kind and gentle personality of the Luoyang people. They respect tradition and are good at adapting to the trends of the times. Monkeys are regarded as having wit, curiosity, and flexibility in the Luoyang area. This is consistent with the wisdom of the Luoyang people. They are good at thinking and dare to explore new fields. The chicken represents hard work, early, and staying in the Luoyang area. This is consistent with the hard work of the Luoyang people. They get up and return early, work diligently, and obey time. Dogs are regarded as loyal, brave, and guardians in the Luoyang area. This is consistent with the importance of the Luoyang people to the family and the nostalgia for their hometown. They are loyal to family and friends and bravely guard their homes—finally, pigs. In the Luoyang area, pigs are considered a symbol of wealth, happiness, and satisfaction. This is consistent with the Luoyang people's pursuit of a better life. They long for a wealthy and happy life and know how to enjoy happiness.

By analyzing these zodiac characteristics, we can better understand the cultural character and spiritual outlook of the people of Luoyang and can also better inherit and develop China's traditional culture.

Study and analyze the relevant situation of waste paper reuse

### 3.1 Research on waste paper

This seemingly insignificant waste paper is vital to our lives and ecological environment. It is a recycled recycling resource everywhere in production and life, including various high-end and waste paper (Chen Yuanhua, 2023-08: Environmental protection science.) Boxes, cutting side paper, corporate unit paper, engineering paper, books and newspapers, etc. In recent years, with the increasing environmental protection awareness, the recovery and treatment of waste paper has become a hot issue for social attention. This paper aims to explore the source, impact, and solutions of waste paper to provide some valuable insights into the reasonable use and environmental protection of waste paper.

#### 3.1.1 Waste paper recycled types

Today, with the increasing awareness of environmental protection, the recycling of waste paper has become the focus of our attention. As a common waste in life, waste paper contains immense regeneration value. So, what kind of recyclable types are recyclable? The category of waste paper is more affluent than what we can get in contact with daily and produces various occasions. Among the national standards that use the technical requirements of waste paper, recyclable waste paper can be roughly divided into the following 11 categories such as joint mixed waste paper, waste books and magazines, waste newspapers (Li Qiong, 2019: Farm Bookstore), office waste paper, etc.3.1 Show.

**Table 3.1** Classification and specific meaning of various waste paper

type	Specific meaning
Mixed waste paper	Composed of unclassified waste paper
Waste packaging carton	Waste packing box without corrugated structure
Waste corrugated carton	Some waste corrugated boxes exist as packaging.
Special waste paper	Special waste paper containing chemicals
Waste books and magazines	Waste magazines or books and similar printed paper
Waste newspaper	Dry primary color discarded newspapers, and do not include scrap magazines.
Waste cowhide paper	Waste kraft paper and paper bag paper do not contain usable lining paper.

Carton cut edge	The material in the production of cartons and cardboard
Office waste paper	Recycled used office waste paper
Journal white paper edge	White paper edge of unprinted publication
newsprint	Unprinted newsprint pages and cutting edges

### 3.1.2 Recycling of waste paper

For a piece of waste paper, the best trajectory should probably be to follow such a closed-loop process: recycling-processing- reuse-waste to minimize damage to the environment and waste of resources. As the first step in this process, waste paper recycling plays a vital role (Zhang Quan, 2017-9: Paper-making information). Without this step, the treatment of waste paper will be empty talk, not to mention the reuse of waste paper. In terms of waste paper recycling, in addition to the waste paper generated in the production and life of our people, it also includes the waste paper imported from abroad by our country every year(Zheng Baochen, 2012-4: Fujian Paper Information) Waste paper accounts for about 60% of the fiber raw materials in China's papermaking industry, of which nearly one-third is imported(Li Tuobin, 2013: Organic fertilizer prepared with sludge.)Importing waste paper saves resources, reduces pollution caused by pulping, and maintains the quality and proportion of various types of fibers in domestic waste paper.

## 3.2 Personal waste paper treatment research

### 3.2.1 Personal waste paper treatment method

- (1) Throw it into the trash can
- (2) Waste paper acquisition station
- (3) Making handicrafts
- (4) The shredder is crushed

(5) Plant fertilizer (Ruan King Kong, 2019-6: Shangxun.)

### 3.2.2 Personal processing method thinking

(1) There is a sense of environmental protection, and the implementation efficiency is not high

(2) The classification of waste paper is not fine enough, and the effect is not good (Leonard Zeid, 2016-11: China papermaking)

(3) There are too few recycling methods to recycle easily

### 3.3 Research on Enterprise Waste Paper Reuse

#### 3.3.1 Enterprise waste paper re-use method

After recycling waste paper (Wang Qinchi, 2018: Chinese paper.), enterprises process it through large machines, and the main reuse direction is to make recycled paper (Ke Yuhong, 2017-8: Journal of Jiamusi Vocational College.) packaging materials, paper furniture, and daily necessities using paper as raw materials. Plant fibers such as grass, bamboo, wood, and reeds are the core of papermaking. "Secondary fiber" is another name for waste paper. The most valuable part of waste paper is the fiber, which can be used to make recycled paper and other products.

(1) Packaging material

(2) Waste paper furniture

(3) Discovery paper

#### 3.3.2 Enterprise waste paper reuse technology

Since different waste papers are made from different fiber raw materials (Wang Jian, 2014-6: Journal of Tongren College), the final types of waste paper pulp that can be produced are determined by the kind of pulp contained in the waste paper (Roberta Cristina Redante, 2019-1 : Sustainable Production and Consumption.) The types of waste paper that use a relatively large amount of waste paper are corrugated paper, boxboard, newsprint, gray-bottom white paperboard, etc.

Chapter **IV** Analysis of the feasibility analysis of waste paper in the innovative design of the zodiac art of Luoyang

#### 4.1 The status quo of waste paper in the art innovation design of the zodiac zodiac zodiac signs

##### 4.1.1 The status quo of waste paper in the innovative design of the zodiac art of Luoyang

(1) The shadow of waste paper artworks in the market is relatively small we must recognize the uniqueness of waste paper artworks(Wang Yijun, 2023-12: Paper equipment and materials.)They are usually made of discarded paper, such as newspapers, magazines, and wrapping paper. Through artists' skillful hands, they turn waste into treasures and become creative and beautiful works of art. This art form not only embodies the concept of environmental protection but also reuses and recreates waste. However, this art form has not been mass-produced and has a relatively small market share, but it is gradually attracting more attention and recognition.

#### 4.2 Questions and Solution Measures

##### 4.2.1 Waste paper is then used to use problems in the art innovation design of the zodiac signs of Luoyang

(1) The market awareness of waste paper is limited to the market awareness of artworks

(2) The waste paper art production process is relatively complicated(Zhu Heping, 2024-1: Ecological economy.)

(3) Insufficient marketing and marketing strategies(Zhu Yue, 2023-6: Environmental sanitation project.)

(4) Insufficient market demand(Zhu Sirui, 2023-7: Design.)

##### 4.2.2 Solution measures

To promote Luoyang's zodiac signs and waste paper artworks, the following solutions have been proposed:

- (1) Strengthen publicity and education
- (2) Establish professional promotion channels
- (3) Encourage innovation and personalized development(Dai Meng, 2015-3: Packaging project.)
- (4) Innovate the cultural innovation of waste paper and Luoyang Zodiac culture

(5) Adhere to sustainable development, establish and improve the industrial chain(Cai Hui, 2024-1: Chinese papermaking.)

## Chapter **V** Use of Waste Paper Again Luoyang Zodiac Art Innovation Design Practice Plan

5.1 Design method in the innovative design of the zodiac art innovation in Luoyang zodiac signs

### 5.1.1 Determine themes

Design Plan 1:

The first step is to use the recycled paper effect of discarded office white paper to design(Guo Xiaoyan, 2020-11: Art Education Research.) and use the twelve zodiac images of Luoyang combined with the twelve zodiac signs of China and the twelve zodiac signs of different countries in the world to draw an anthropomorphic illustration style image line draft because Luoyang is China's ancient capital for thousands of years, so Luoyang is a city of aristocrats, so the new zodiac animals are designed to be aristocratic. Mainly combining animal faces and human bodies, each zodiac animal wears a Tang Dynasty robe. The following design drawings are arranged in the order of the twelve Chinese zodiac animals.





Figure 3: Design plan for the twelve Chinese zodiac signs (I)

#### Design Plan 2:

The first step involves designing the regenerative paper effect of the discarded express carton. Drawing inspiration from the zodiac figurines of the Zodiac pottery of the Luoyang Museum, the illustration image is crafted in a comic style, using a circular shape to create a lively and adorable image of the twelve zodiacs.

The second step is to fill in the drawing line drafts. The background is added to the Chinese calligraphy font and the red seal pattern to complete the design of the second set of zodiac images.

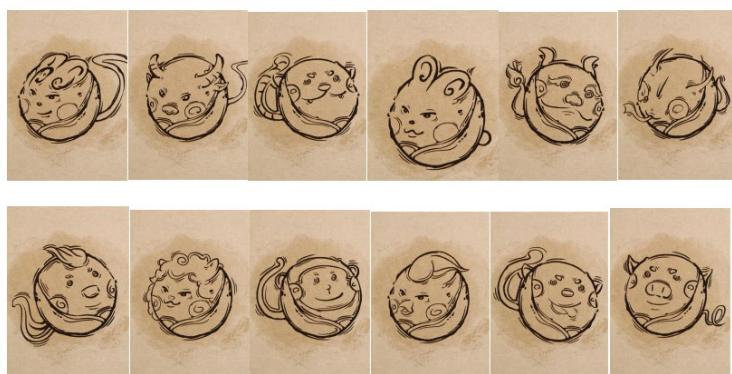




Figure 4: Design plan for the twelve Chinese zodiac signs (II)

## 5.2 Analysis and Positioning

### 5.2.1 Public positioning

First, the interview topic was "Recycling of Waste Paper—Luoyang Zodiac Art Innovation Design." The questionnaire had several questions (Mao Yunshi, 2019-12: Academic Research), and 251 interviewee data were collected.

### 5.2.2 Analysis of art demand analysis

Secondly, the author set some questions for the research topic to conduct interviews. The purpose of these questions is to fully understand the interviewees' views on waste paper recycling and the innovative design of Luoyang Zodiac Art from multiple perspectives and their in-depth thinking on this topic. Through the discussion of these questions (Nie Manman, 2023-5: News enthusiasts), we can better understand this topic and provide valuable references for future research and application.

### 5.2.3 Plan positioning

According to the interviews, investigations, and observations of experts and crowds collected 251 questionnaires, more people supported the first design solution than those who supported the second. The design was done using regenerative paper and abandoned office white paper.



Figure 5: Design plan for the twelve Chinese zodiac signs (I)

### 5.3 Cultural and Creative Product Production Process

#### 5.3.1 Propose a design theme

For this research topic, I plan to use waste paper, dust, white latex, and other comprehensive materials combined with the Luoyang zodiac images in design plan 1 to design a set of four handbag cultural and creative products. First, waste paper and comprehensive materials will be used to make handbags. The shape of the bag will then be printed with the twelve zodiac signs using screen printing. Before production, a design draft must be drawn for post-production reference.

#### 5.3.2 Cultural Creative Handbag Design Sketch

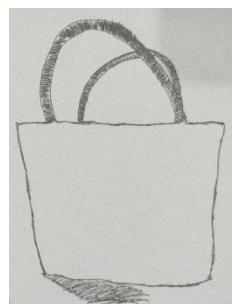


Figure 6: Tote bag design sketch 1

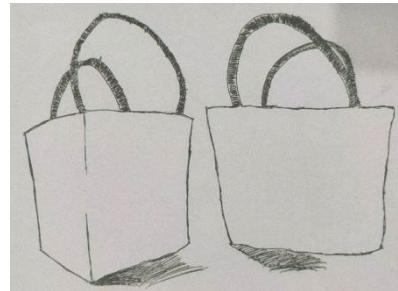


Figure 7: Tote bag design sketch 2

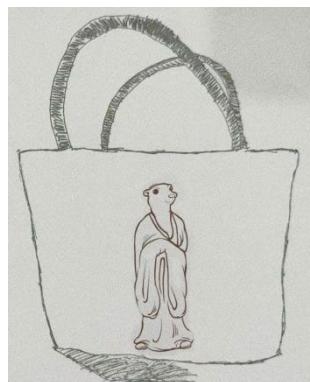


Figure 8: Tote bag design sketch 3



Figure 9: Tote bag design sketch 4

## Research result

### 5.3.5 Complete the work

Finally, after the handbag is trimmed and sorted, the previously selected first set of zodiac designs is printed using screen printing to complete the final cultural and creative handbag work.

Screen printing uses a silk screen as a plate base and a photosensitive plate-making method to create a screen-printing plate with graphics and text. Screen printing consists of five major elements: screen printing plate, scraper, ink, printing table, and substrate. Printing is carried out using the fundamental principle that the mesh of the graphic part of the screen-printing plate can pass through the ink, but the mesh of the non-graphic part cannot. When printing, pour ink into one end of the screen-printing plate, use a scraper to apply a certain amount of pressure on the ink part of the screen-printing plate, and simultaneously move towards the other end at a constant speed. The scraper removes the ink from the image and text during the movement. Part of the mesh is extruded onto the substrate.



Figure 10: Trimmed and beautified tote bag



Figure 11: Combination design tote bag



Figure 12: Combination design tote bag



Figure 13: Combination design tote bag



Figure 14: Other cultural and creative products

## 6. Conclusion

My research topics are The Development of material from waste paper to creative 12 zodiac cultural products in a Circular Economy Context. The research method used in this paper is the interview.

The authors of this paper aim to explore how to Develop material from waste paper to creative 12 zodiac cultural products in a Circular Economy Context. This paper aims to complete three research purposes: 1. Study history and Background related to the belief culture about the 12 zodiac signs of Luoyang City; 2. Study information about waste paper from various parts of Quantitative and quality properties To lead to the material development experiment; 3. Design and develop products using new materials from waste paper obtained from the experiment. This led to creating cultural products using 12 zodiac signs as inspiration. And draw the following conclusions:

1. Corresponding to the first research purpose, it is concluded that Luoyang, as the ancient capital of thirteen dynasties, has a profound cultural heritage. As an essential part of Chinese traditional culture, the twelve zodiac signs have a broad mass base and profound cultural connotations. I have deeply understood the artistic characteristics and expression methods of the twelve zodiac signs in Luoyang through field investigations such as consulting relevant literature, visiting museums, and interviewing folk artists. In addition, as an essential element of Chinese traditional culture, the artistic innovation design of the twelve zodiac signs in Luoyang is also worthy of our continued attention and exploration. We can combine modern aesthetic concepts and design concepts to innovate and expand the artistic form of the twelve zodiac signs to align with modern people's aesthetic needs and cultural pursuits; 2. Corresponding to the second research purpose, it is concluded that in the research process, I conducted a survey on the current situation of waste paper recycling and analyzed the treatment of waste paper by enterprises and individuals. With the development of the economy and the improvement of people's living standards, paper consumption is increasing daily, and the amount of waste paper generated is also growing. However, the recycling rate of waste paper is not high. A large amount of waste paper

is discarded at will, which not only causes waste of resources but also pollutes the environment. Therefore, waste paper recycling has extremely high environmental significance and economic value. The recycling of waste paper, this seemingly simple ecological protection concept, actually contains rich cultural connotations and the possibility of artistic innovation; 3. Corresponding to the third purpose of the study, which was to use waste paper to design the Luoyang Zodiac Artwork, I have collected and sorted a lot of information. In the process of artistic innovation design of waste paper recycling, I pay attention to combining tradition with modernity, retaining the zodiac's traditional elements, and incorporating modern design concepts and techniques. In the research process, I first classified and processed the waste paper, transforming it into raw materials that can be used for artistic creation through a series of physical and chemical methods. Subsequently, I combined the artistic characteristics of the Luoyang area to create a set of unique cultural and creative handbag artworks with the zodiac theme. These works are not only beautiful in form and rich in color but also profound in meaning. They reflect the charm of traditional culture and show the environmental value of waste paper recycling. These works are environmentally friendly and show the infinite possibilities of waste paper recycling in artistic creation.

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