

# Application of Co-Design in Innovative Rural Traditional Food Design: A Case Study of Northern Fujian, China

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## Abstract

In the process of economic globalization and urbanization, China's countryside has shown a trend of decline, which has led to rural areas facing tremendous pressure in economic development and cultural inheritance and has become a focus of social concern. However, in recent years, with the gradual recognition of local culture, traditional Chinese regional food culture has been attracting more and more attention and admiration from young people, and it has become an opportunity for rural development through the dissemination and experience of traditional regional food culture. To transform traditional countryside food into a usable value resource and help countryside economic development, this study selected the countryside in the northern region of Fujian, China, as the research object and explored the methods of countryside food design and innovation, especially the method of collaborative innovation applied to the countryside food design process. Through stakeholder analysis, designers organize collaborative design workshops, inviting sellers, artisans of traditional food production, local government, and regional and foreign food consumers to participate in the design and development process and transform traditional food culture and food into consumer-approved food products. The process and framework of rural traditional food design innovation are constructed, and the model can be directly applied to other cases of rural design innovation.

Keyword : Social innovation, Co-design; China rural, Traditional food, Food design

## 1. Introduction

### 1.1 Background and Purpose

In the course of economic globalization and urbanization, rural China is undergoing a decline [1]. This has heightened the conflict between modern lifestyles and the cultural heritage of traditional food, placing significant pressure on rural areas regarding economic development and cultural heritage [2-4]. In

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recent years, with the gradual recognition of local culture, traditional Chinese food and regional food culture have received more attention, and more and more young people have begun to pay attention to local food in the countryside and are willing to experience regional food culture, which provides opportunities for the development of rural food.

Due to the economic backwardness and inconvenient transport in some rural areas, on the one hand, it is easier to inherit and preserve the food culture of insert the rural regions, such as food raw materials, cooking techniques, festival ceremonies, etc., and the symbolic and emblematic characteristics of rural specialty foods make people identify positively with the regional culture they possess [5-6]. So they become a suitable carrier for cultural fusion and exchange and bring more possibilities for insert revitalizing rural culture. On the other hand, traditional food is not designed to integrate into modern society; its internal community lacks the connecting point of identity, and outsiders are unable to find the relevant entrances to learn about, try, and experience their specialty food, resulting in the lack of attraction of traditional rural food to outsiders.

Therefore, this study aims to use food as an entry point for rural social innovation, transform local specialty food into cultural value, and enhance local residents' sense of belonging and self-confidence in local culture. In the process of food design, local specialty elements are integrated with food to establish a new brand and bring economic benefits to the local area. While using food design to promote the inheritance of rural specialty foods, it also helps the countryside establish a portal for cultural dissemination. It promotes the artistic connection between the city and the countryside.

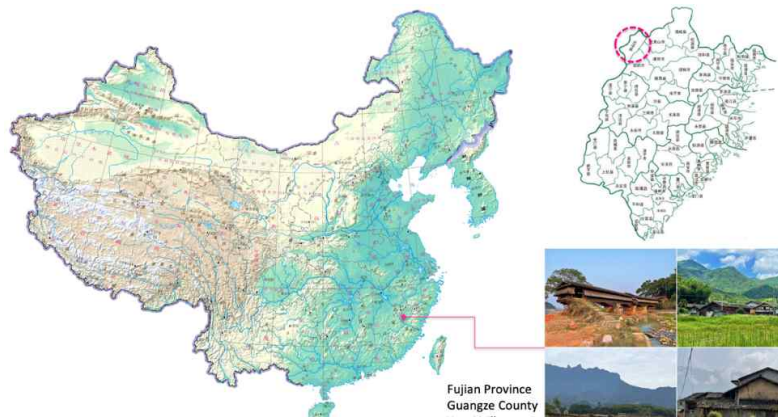
## **1.2 Research Scope**

Based on the research purpose of this paper, the paper selects a representative mountainous regional spatial system in China. It takes the traditional rural food in Glossy County, Fujian Province, Southeastern China, as the research object of design innovation.

Firstly, Glossy County in Fujian Province is one of the relatively complex areas in China in terms of population, culture, ecological environment, and traffic, with rich environmental resources, unique food culture, and lifestyle, which gives it a better geographical advantage in the economic opening of Fujian. Secondly, there are typical traditional villages in Glossy County, not far from the city, that has preserved the traditional way of life, but the relatively closed environment has also caused the slow economic development of the rural areas. The young people have started to go out to work, so that the inheritance of the food culture is facing a crisis. Therefore, it is a suitable experimental site to study the sustainable development of Chinese villages in the face of the cultural impact and business

opportunities brought by tourism [7].

Therefore, we selected the Glossy region of Fujian as the sample for the food design study. [Fig. 1] is a picture about the location and natural environment of Youxi Village in Glossy County, Fujian Province.



[Fig. 1] scope of the case study

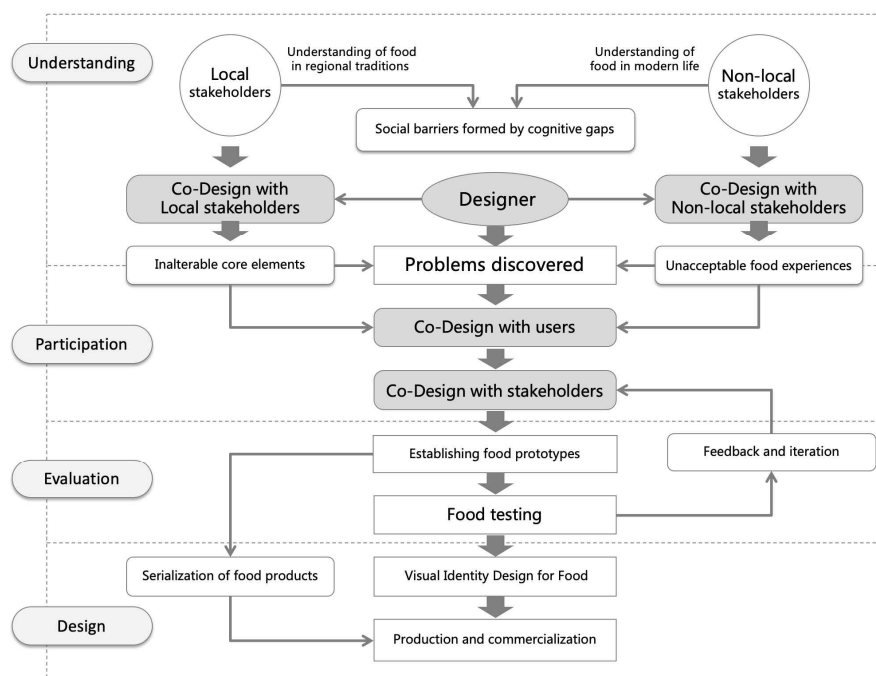
### 1.3 Research Methodology and Process

This paper focuses on food as a vehicle for social innovation in rural areas and the application of co-design methodology to rural food design. Based on the background and objectives of the study, a social innovation model of ‘collaboration between internal and external resources in the countryside’ is identified to construct the design strategy. The design strategy was developed through the co-design method of ‘designers and multi-stakeholders’ and the process of ‘Understanding-Participation-Evaluation-Design’. The design of rural food innovation and empowerment and systematic design. [Fig. 2] is a picture about traditional food design process based on co-design methodology.

Firstly, designers were organized to conduct on-site fieldwork to select the most unique and locally recognized traditional foods, ‘Wenzi Cake’ and ‘Ground Tea’, as typical foods with IP cultural value. Secondly, a stakeholder analysis of local traditional foods was conducted, and local government personnel and investors were invited to participate in the discussion of food design objectives. Non-genetic inheritors of local traditional food production were invited to demonstrate and explain the process of traditional food production, and guide the designers in their food design experiments. Then, based on the preliminary design of the food, local and foreign users are invited to conduct experience

tests to form a perception of the local food's characteristics while finding the experience's pain points and the direction of innovation. Finally, after evaluating the results of the food innovation study, a new collaborative design workshop will be organized to design with vendors, local users, foreign users, local governments, etc., to fully explore the knowledge and capabilities of the stakeholders, to obtain a consensus on the design, to prototype the design, to evaluate the results of the workshop, and to determine the new 'Wenzi Cake' and latest 'Ground Tea' which will retain the regional cultural characteristics while at the same time conforming to the modern way of life and having a commercial value.

The final result of the identified co-design will be visually collated, and the new food will be produced and promoted through branding.



[Fig. 2] food design process based on co-design methodology

## 2. Theoretical background

### 2.1 The Concept of Co-design

Co-design has evolved from user-centered design and participatory design and refers to involving

consumers and users of products and services in the design process with the belief that this will ultimately lead to improvement and innovation [8]. Co-design is also a common approach in social innovation, defined in the field of social innovation as a plan or method for achieving something [9], which emphasizes the involvement of non-designers in the co-innovation process and the way in which different stakeholders innovate together with designers as a form of co-design.

In the context of social innovation in villages, co-design embodies a multidimensional and socially participatory design practice process that improves the quality and standard of living of society as a whole by bringing together the resources and capabilities of various domains to create value, usually including different stakeholders such as business, government, and the community, and emphasizes the importance of public participation and collaboration to maximize the strengths and potential. With the development of urbanization and industrialization, the migration of people from villages to cities has led to the loss of human resources, and problems such as aging and hollowing out of villages have become one of the main contradictions in the current backwardness of villages. Multidimensional social Co-design practices that bring together various talents through the active role of the newborn labor force play a crucial role in effectively promoting rural development. Co-design helps users understand the characteristics of rural food and reach a consensus to eliminate barriers to rural culture, thus helping designers find a direction for design innovation.

## **2.2 The Value of Co-design in Food Design**

Rural food design in China is not only a systematic design based on food culture and food products and services but is, in fact, largely a process of ‘social innovation’ related to social structure, possessing the goal of sustainable development of rural society. Food design, as a cross-cutting discipline, involves the combination of design and many other fields, such as anthropology, sociology, and economics. In contrast, rural food design has firm cultural boundaries, and traditional design approaches are unable to meet the complexity between food, culture, different demand groups, and so on, involved in the process of the development of regional food culture [10]. As a result, designers cannot extend cultural concepts and make judgments on design outcomes on their own and need to have more inclusive and open co-design behaviors in the design process.

Food design, as one of the carriers of rural social innovation activities, aims to use food as a vehicle for integrating visual, product, information, interaction, and service content so—as to emphasize the lifestyle and systematic characteristics associated with food design. In regional food design, through open communication, the knowledge and interests of different stakeholders are integrated. Through joint design

and discussion, a 'traditional food' is formed that is agreed upon both inside and outside the village field, which not only meets the expectations of consumers outside the village for traditional food but also satisfies the traditional villagers' desire to preserve and pass on the food tradition. Inheritance of Food Tradition. The co-design activities, with the participation of talents from different fields, will provide human resources input to the villages, connect the food industry chain and service innovation chain, etc., which will also increase the closeness and compatibility of the links between various stakeholders and promote and assist the innovative development of rural society.

### **3. Co-design Participates in the Food Design Process**

#### **3.1 Food Design Research Subjects**

Before starting the co-design food project, we must decide what food to focus on. Our design team chose 'Ground tea' and 'Wenzi cake' after researching in rural areas. These foods are part of northern Fujian's intangible cultural heritage and are meaningful to the locals. They remind people of home and have a unique regional flavor.

'Wenzi cake' is made during the Ching Ming Festival to honor ancestors. It's made from young leaves of *Pseudognaphalium affine* and rice flour, filled with bamboo shoots, preserved meat, and tofu, then steamed. It's a particular food for the Qingming Festival, shared with friends and relatives to express homesickness.

'Ground tea' is a daily drink made from tea leaves, fried rice, beans, peanuts, and sesame seeds, all ground into powder. It's served with boiling water, often to guests, and helps cool down in summer and detoxify the body. It's also a way for locals to connect, especially when hosting friends or neighbors.

These two kinds of food have been inherited as representative local food for hundreds of years, and the rural cultural value they carry is mainly expressed in the selection of raw materials, the production of pastries, the process of eating, the choice of production tools and tableware, etc. Through the symbolic symbols and presentation methods of 'wenzi' and 'Ground tea', they have carried on the carrying and development of regional culture and have formed a new way of life in the relationships of environment, space, audience, and time continuity, to promote the innovation and development of regional food culture sustainably. [Fig. 3] is a picture about food design research subjects: the making of 'Wenzi cake' and 'Ground tea'.

Procedure Types of Ground Tea	Preparation	Preliminary mashing	Grinding	Flush	Filter	Strain tea	Cultural identity of traditional food
Green tea Fresh herbs							A common drink used by local people to relieve summer heat and fatigue in their daily lives
Black tea Dried herbs							
Procedure	Collect sagegrass (Gnaphalium affine D. Don)	Clean	Extract juice from the herb and mix with flour	Prepare the filling	Make	Steam until cooked	Cultural identity of traditional food
WenZi Cake							Food made by locals to honor their ancestors during the Ching Ming Festival

[Fig. 3] food design research subjects: the making of ‘Wenzi cake’ and ‘Ground tea’

### 3.2 Different Stakeholders Participate in Co-design Design Process

Co-design is a democratic process in which stakeholders affected by a decision participate or share in a part of the design decision and share in the value created [11][12]. The purpose of rural food design is to pass on traditional Chinese food culture, enhance the economic benefits of the time through the design and innovation of traditional food, and attract more young people to pay attention to traditional food and the current situation in the countryside by using regional specialties as a tool for connecting people and regions. Therefore, during the design process, the focus was on organizing different stakeholders to discuss traditional food, reach a consensus, and form a ‘community’ with a common goal.

#### 3.2.1 Stakeholders

Before organizing the co-design workshop, the designers first sorted out the stakeholders, identifying foreign consumers, local consumers and producers of local traditional food, local government staff, and investors as the relevant people for this co-design and inviting them to join in the food design sessions at different stages of the design process so that they could identify the cultural connotations and core elements of the traditional food, the possibilities of innovations, and the co-experiments through discussing and exchanging views on the traditional food experience together. This experimental interaction in co-design results in a food system design that satisfies all stakeholders. The process of

co-design among different stakeholders forms a ‘community’, a complex group of people with multiple interconnected elements whose interactions inspire members to participate in the practice.

### **3.2.2 Co-design with Local Government Staff and Investors**

Before embarking on the food design innovation, discussions were first held with government departments and investors to reach the objectives of this food design. The local government is both a vital initiator and supporter of the food design work, as well as the ultimate beneficiary. The government staff includes the grassroots managers of the villages and the departments that promote the development of the local culture. In the process of co-design, the local government is involved in playing a liaison and communication role to help the designers liaise with the local villagers and the artisans of traditional food production, and the government staff can lead the designers to carry out on-site inspections of the local culture.

Investors are a relatively complex group, and this co-design workshop included three local operators and one outside investor who wanted to invest in local food products. For designers, investors have a high level of discursive power. Including investors in the co-design and defining the design objectives together with government personnel is more conducive to the success of the design innovation and reduces decision-making conflicts with investors.

### **3.2.3 Co-design with Traditional Food Producers and Sellers**

Involving villagers in the food design process is an essential part of Co-design. Through the local government's organization and invitation of the non-hereditary inheritors of the ‘Ground tea’ and ‘Wenzi cake’ productions to conduct demonstrations of traditional food production and on-site explanations and demonstrations of the ingredients and food production process, the designers were able to gain a deeper knowledge and understanding of the local traditional food, analyze and compare the cultural characteristics of these foods, such as ingredients, recipes, processing techniques, ways of eating, etc., to determine the core elements that form the cultural ‘impression’. [Fig. 4] is a picture about the involvement of ICH(Intangible Cultural Heritage) bearers in the process of food design innovation.

Through the co-design, the designers identified cultural elements such as the origin of the ingredients, the particular flavor, and the colors of ‘Wenzi cake’ and ‘Ground tea’. ‘Wenzi cake’ uses the local wild ‘*Pseudognaphalium affine*’ as a flavoring and coloring agent, which has a unique fresh aroma and slightly bitter taste.

Therefore, after a preliminary understanding and experience of the ingredients, the preparation process,



and the taste and color of the food, the designers identified and used modern tools to partially replace the traditional food preparation tools, using a mix of other ingredients to extend the possibilities of more food design innovations. Based on these possibilities, local food sellers were then invited to explore the possibilities of ingredient blending.



[Fig. 4] co-design with traditional food producers

### 3.2.4 Co-design with Local and Nonlocal Consumers

To obtain foreign users' experiential perceptions of local food and to identify new flavors without destroying local users' recognition of the food's regional characteristics, we conducted user testing research. By inviting different users to conduct taste tests and experiential interviews, we were able to increase the users' predictions of the commercial value of the food, formulate a judgment of the new food, and obtain a new design that was recognized as 'local' by both local and nonlocal consumers. At the same time, the designers collected users' perceptions of the size, shape, ingredients, packaging, portability, and consumption of the food products from different user perspectives, which provided the basis for the designers to improve the food design innovations. [Fig. 5] is a picture about co-design with local and nonlocal consumer: consumer experience site survey, It includes consumers of different status such as residents of neighboring cities, tourists, government personnel and children.



[Fig. 5] co-design with local and external consumer: consumer experience site survey

## 4. Co-design of Design Results with Different Stakeholders

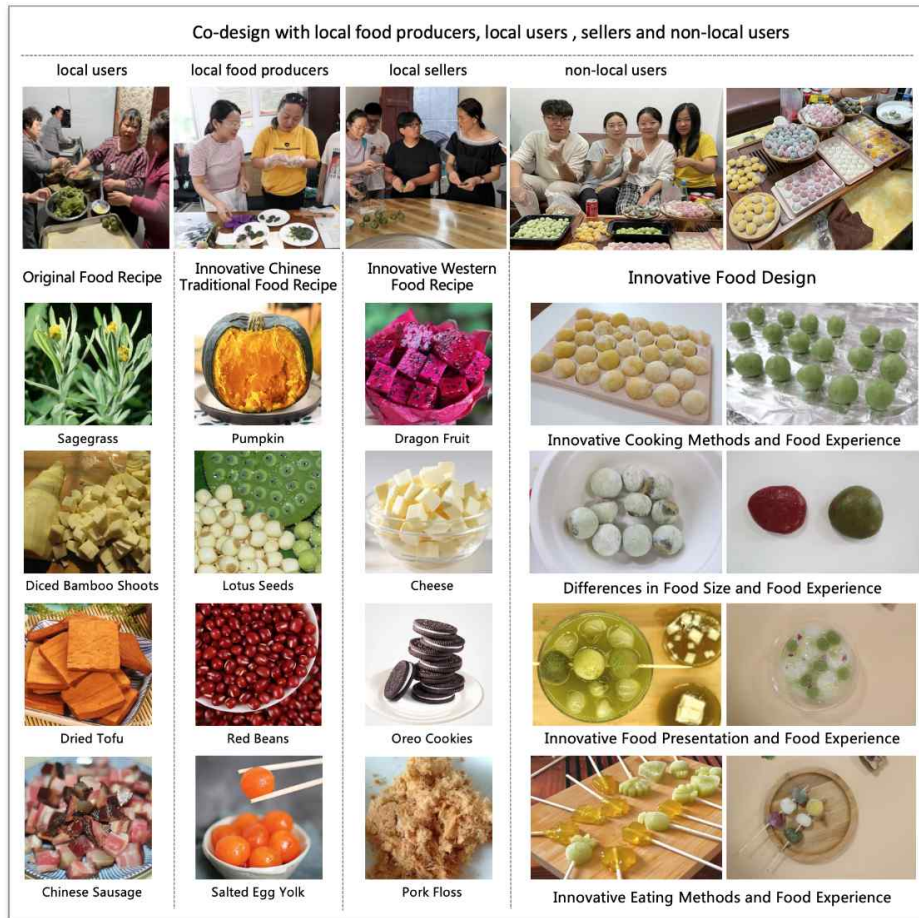
### 4.1 Food Design Innovation

Based on the process of co-design, we have designed different proportions, shapes, colors, and ingredients for the ‘Wenzi cake’ and ‘Ground tea’ based on the original ingredients, we tried the design experiments of brightly colored food, food with a strong flavor, and other local characteristics of 8 - 10 combinations of ingredients, which resulted in 8 food designs according to the different combinations of shapes, colors, flavors, and ways of preparation. [Fig. 6] is a picture about food design feedback: the results of the designers' experiments and innovations.

### 4.2 Food Design Feedback

Through the ‘user food experience card’ information collection and statistics, in terms of taste experience, retaining the traditional basis of salty and spicy can increase the sweet taste, The cheese flavor, especially, is very popular among young people. Visually, most people still agree with the traditional green, thinking it is the characteristic of the regional culture. Some young people like to join the pumpkin blended with the yellow flavor and hope that the new ‘Wenzi cake’ Some young people like the addition of yellow flavor blended with pumpkin and hope that the shape of the new ‘Wenzi

cake' is close to the traditional style, but the size should be reduced. External users like the diverse flavor combinations. For ring tea drinks, most people love the refreshing herbal flavors of licorice, lemon, and tangerine peel. Designers then use these statistics for in-depth design and productized implementation.



[Fig. 6] food design feedback: results of innovations in traditional food design

### 4.3 Food Design Sampling and Implementation

Based on the conclusions of the various co-design workshops, a team of professional designers collates and conducts in-depth design, integrates the concerns and needs of different stakeholders in the design work through professional visual design and product design, and develops a design positioning in

line with the local cultural image. The design results have been proofed and implemented and are ready for production. Food design consists of two parts: online consumption and offline experience. The food sold online is based on the local concept of homology between food and medicine, forming a series of products with health benefits. Restaurants with regional cultural characteristics, as well as drinks and pastries with different tastes, were specially designed in villages to enhance the food experience of travelers and users from various places in the local village environment. Users sample, test, and validate these products, which are then manufactured and sold by village entrepreneurs. [Fig. 7] is a picture about food design sampling and implementation. The content of the design includes: traditional food experience space design, countryside café and innovative ‘Ground tea’ tea drink and ‘Wenzi cake’ pastry design, ‘Ground tea’ and ‘Wenzi cake’ packaging design.



[Fig. 7] food design sampling and implementation

## 5. Conclusion

Through food design as a practical design tool, we can deeply explore the potential food, culture, and natural resources in the countryside, penetrate the local social production and community life from the



perspective of agroecology, not only explore and excavate the characteristics of the folk diet but also discover the pain points and innovation opportunities in the traditional rural cuisine. By adopting a co-design approach, food design involves the systematic design of ingredients, food products, and meals, emphasizing interdisciplinary cooperation, integrating the needs of different stakeholders, and promoting innovation in rural society. Its central values include: firstly, to promote the systematic innovation of rural food and lifestyle and to enhance people's sense of well-being by integrating the systematic relationship between food and people, things, environment, and society into products, space, information, services, and business models through design; secondly, to promote the diversification of rural regional food culture, guide the traditional way of life, and provide methodological support for the sustainable development of rural culture. However, due to the complexity of the rural system, future research still needs to explore the value of collaborative design in food design further to promote the sustainable development of the countryside.

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