LEFEBVRE'S SPATIAL TERNARY THEORY IN REGIONAL PLANNING OF MULAN RETIREMENT COMMUNITY

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ABSTRACT

Purpose: This study takes the Mulan Retirement community as its site and uses the spatial ternary theory from French philosopher and sociologist Henri Lefebvre. It aims to optimize the regional planning of the community and achieve a spatial layout that is more in line with the residents’ needs and its sustainable development.

Methods: The research adopts a qualitative research method and is divided into three stages: spatial practice, representations of space and representational space. Through field surveys, secondary data analysis and stakeholder interviews we compiled a comprehensive understanding of the spatial status and planning concepts of the Mulan Retirement Community.

Results and Conclusion: On this basis, specific ideas and suggestions were put forward for the regional planning of the community, including the overall layout, road system, greening system and public facilities. Achieving a unique and harmonious spatial structure to meet the elderly care, economic, cultural and social needs of residents was the aim. Furthermore, it also provides reference for the construction and practical application of spatial theory.

Research implications: Through in-depth field investigation and stakeholder participation, the study not only proposes specific planning recommendations, but also provides feasible methods and experiences for the development of similar retirement communities.

Originality/value: This research contributes to the existing literature by providing insights into current situation towards the aging society in China, by employing the qualitative research, the study offers an in-depth understanding of the subject, identifying common practices and challenges.

Keywords: Mulan Retirement Community, Spatial Triadic Theory, Regional Planning, Stakeholders.

RESUMO

Propósito: Este estudo utiliza a comunidade de aposentadoria Mulan como seu local e utiliza a teoria ternária espacial do filósofo e sociólogo francês Henri Lefebvre. Tem como objetivo otimizar o planejamento regional da comunidade e alcançar um layout espacial que esteja mais de acordo com as necessidades dos moradores e seu desenvolvimento sustentável.

Métodos: A pesquisa adota um método de pesquisa qualitativa e é dividida em três fases: prática espacial, representações do espaço e espaço representacional. Através de pesquisas de campo, análise de dados secundários e entrevistas com as partes interessadas, compilamos uma compreensão abrangente do status espacial e conceitos de planejamento da Comunidade de Aposentadoria Mulan.

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Resultado e Conclusão: Nesta base, foram apresentadas ideias e sugestões específicas para o planejamento regional da comunidade, incluindo o traçado geral, o sistema rodoviário, o sistema de ecologização e as instalações públicas. O objetivo era alcançar uma estrutura espacial única e harmoniosa para atender às necessidades de assistência, econômicas, culturais e sociais dos idosos. Além disso, também fornece referência para a construção e aplicação prática da teoria especial.

Implicações da pesquisa: Através da investigação de campo aprofundada e da participação das partes interessadas, o estudo não só propõe recomendações específicas de planejamento, mas também fornece métodos e experiências viáveis para o desenvolvimento de comunidades de aposentadoria semelhantes.

Originalidade/valor: Esta pesquisa contribui para a literatura existente, fornecendo insights sobre a situação atual em relação ao envelhecimento da sociedade na China, empregando a pesquisa qualitativa, o estudo oferece uma compreensão aprofundada do assunto, identificando práticas e desafios comuns.

Palavras-chave: Comunidade de Aposentadoria de Mulan, Teoria Espacial Triádica, Planejamento Regional, Stakeholders.

LA TEORÍA ESPACIAL TERNARIA DE LEFEBVRE EN LA PLANIFICACIÓN REGIONAL DE LA COMUNIDAD DE JUBILACIÓN DE MULAN

RESUMEN

Propósito: Este estudio toma la comunidad de retiro de Mulan como su sitio y utiliza la teoría espacial ternaria del filósofo y sociólogo francés Henri Lefebvre. Su objetivo es optimizar la planificación regional de la comunidad y lograr un diseño espacial que esté más en línea con las necesidades de los residentes y su desarrollo sostenible.

Métodos: La investigación adopta un método de investigación cualitativo y se divide en tres etapas: práctica espacial, representaciones del espacio y espacio representacional. A través de encuestas de campo, análisis de datos secundarios y entrevistas a las partes interesadas, compilamos una comprensión integral del estado espacial y los conceptos de planificación de la Comunidad de Jubilación de Mulan.

Resultados y conclusión: Sobre esta base, se propusieron ideas y sugerencias específicas para la planificación regional de la comunidad, incluida la disposición general, el sistema de carreteras, el sistema ecológico y las instalaciones públicas. El objetivo era lograr una estructura espacial única y armoniosa para satisfacer las necesidades económicas, culturales y sociales de los residentes. Además, también proporciona referencia para la construcción y aplicación práctica de la teoría espacial.

Implicaciones de la investigación: A través de una investigación de campo en profundidad y la participación de las partes interesadas, el estudio no solo propone recomendaciones de planificación específicas, sino que también proporciona métodos y experiencias viables para el desarrollo de comunidades de retiro similares.

Originalidad/valor: Esta investigación contribuye a la literatura existente al proporcionar información sobre la situación actual hacia la sociedad de envejecimiento en China, mediante el empleo de la investigación cualitativa, el estudio ofrece una comprensión profunda del tema, identificando prácticas y desafios comunes.

Palabras clave: Comunidad Jubilatoria de Mulan, Teoría Triádica Espacial, Planificación Regional, Actores.

1 INTRODUCTION

The World Health Organization has analyzed the trend of world population aging and predicts that the global elderly population, over 60 years old, will reach 2.1 billion by 2050.
China's social system has enabled rapid economic development, social progress, material abundance, and medical progress, consequently this has driven the average age of the Chinese population to increase continually. The results of the seventh national census show that, as of the end of 2020, China’s population aged 60 and above was 264 million, accounting for 18.7% of the total population; 191 million of these were aged 65 and above, accounting for 13.5% of the total population; it is expected that by 2050, the country will become a deeply aging society (Zhenwu, 2021). China's aging society has led to a series of problems such as declining economic growth, imperfect social security systems, insufficient medical personnel and elderly care resources, labor shortages, and has had a psychological impact on the public.

To actively respond to the challenge of an aging population, it is proposed to improve the basic elderly care service system, vigorously develop elderly care services and support families to assume the function of elderly care. Furthermore, build an elderly care service system that coordinates home and community institutions, elderly medical care, and elderly health care (Agency, 2021). More attention must be paid to the diversity of elderly care methods and the quality of elderly life care. After meeting basic life needs, they should also pursue spiritual socialization and realize self-needs (Ya & Zhe, 2023). Therefore, the traditional, single elderly care model, and relatively indifferent lifestyle can no longer meet the increasing high-level needs of the elderly. This change has also prompted the segmentation of the elderly care market and the diversification of elderly care models.

A retirement community can not only provide a comfortable living environment for the elderly, but also provide professional elderly care services to meet the material, spiritual, social and other needs of the elderly (Tong, 2015). Retirement communities can also promote multiple benefits such as local economic development, social harmony, cultural inheritance, and ecological protection, while achieving an harmonious symbiosis of the elderly, society, and nature (Yansui, 2020).

However, over a period of time, a series of problems have gradually emerged. These include projects that are stagnant, unfinished or abandoned, as well as the situation where some projects have run into trouble, or even gone bankrupt, within a short period of time. Homogenized competition has intensified, resulting in the identical positioning of retirement communities and high levels of project similarity. Some community projects have even evolved into real estate development projects in the name of senior care (Zhaofeng et al., 2020). These problems are closely related to the early regional planning of retirement communities. In the early stages of planning, multiple stakeholders form different interests and demands due to the
influence of their own values, thus affecting the quality, effectiveness and sustainability of the retirement community. As a consequence, the regional planning and design of retirement communities must be able to grasp the demands of multiple interest groups, adapt to the local natural, social, cultural and other environments, achieve coordinated development with the local area, while avoiding the waste of resources and environmental damage. There is a need to reasonably plan residential areas, public facilities and natural environments, within the limited space of the retirement community, so as to improve the quality of life of the community residents (Han, 2022). Past regional planning research has focused mainly on the economic and social levels, while there have been relatively few theoretical studies on the spatial organization of small communities.

Mulan Retirement Community is the first retirement community in Wuhan that aims to serve mainly retirees. It is located in Shimen Community, Huangpi District, Wuhan City, Hubei Province. (Office, 2019). The construction of the Mulan Retirement Community aims to furnish retirees with a safe, comfortable, healthy and happy retirement environment, and also provide a useful attempt at the transformation and upgrading of the regional economy and society. It is the first senior care community in Wuhan to win both the title of “National Rural Tourism Demonstration Site” and the title of “National Ecological Civilization Construction Demonstration Area”.

In order to guide the regional planning of the Mulan Retirement Community more effectively, this study utilized the spatial triad theory of French philosopher and sociologist Henri Lefebvre. It focused on how to optimize the regional planning of the Mulan Retirement Community to achieve a spatial layout, more in line with residents’ needs and sustainable development.

This article aims to provide in-depth, feasible optimization ideas and specific suggestions for the regional planning of the Mulan retirement community by drawing on the perspective and method tools of spatial ternary theory.

2 LITERATURE REVIEW

2.1 THE CONCEPT OF RETIREMENT COMMUNITY

The retirement community is a new type of retirement model developed to actively respond to the aging problem in the context of population aging (Jiaming & Ying, 2018). With the imperfection of the social security system, and the many problems caused by aging, the
concept of a retirement community emphasizes adjusting the industrial structure of the elderly, expanding industries suitable for the consumption of the elderly, and establishing a new social pension pattern. "The 14th Five-Year Plan of the People's Republic of China" puts forward requirements for actively developing elderly care and the elderly care industry, promoting the high-quality development of elderly health services based on the health needs of the elderly (Council, 2022).

2.2 REGIONAL PLANNING OF RETIREMENT COMMUNITY

Regional planning, in the context of retirement communities, is an important task that aims to optimize human activities and improve living conditions by re-configuring the material base. MacKaye, of the American Regional Planning Association proposed the definition of regional planning as the process of re-configuring production, living facilities, resources, population and other human activities within a specific region (MacKaye, 1921). In the regional planning of retirement communities, spatial layout is a key factor. Its guiding role covers many aspects such as resource integration, residents' needs, and consumer satisfaction. It is crucial to ensure the sustainable development of the community (Yanwei et al., 2019). The regional planning of retirement communities needs to consider comprehensively cultural elements and the construction of an environment to achieve urban economic development, creating a unique city brand. It must provide reasonable and functional zoning, infrastructure construction, satisfaction with surrounding living service facilities, etc. Moreover, it must include master planning, public facilities, greening systems, and road systems. Therefore, the regional planning elements of the retirement community need to be comprehensively considered to ensure that the community can achieve a coordinated and sustainable process in its development, while highlighting its unique cultural charm.

2.3 OBJECTIVES AND PRINCIPLES OF REGIONAL PLANNING FOR RETIREMENT COMMUNITY

Retirement communities are not only ideal places for people to live in retirement homes, but also comprehensive communities that integrate multiple elements such as health, leisure, and culture (Ke, 2013). Regional planning has become a key element in ensuring the sustainable development of retirement communities. The regional planning of retirement communities should focus on the four aspects of economic, cultural, social and ecological factors (Guangyu...
& Yong, 1997). By setting these four factors as goals and incorporating them into planning and design, retirement communities can not only meet the basic needs of residents, but also promote local economic prosperity, social harmony, ecological health, and cultural inheritance. In the process of planning and design, the principles of development and protection, outstanding features, priority for elderly care and multiple benefits must be employed.

2.4 STAKEHOLDERS OF RETIREMENT COMMUNITY

Stakeholder theory points out that when individuals or groups support or influence organizational decisions, the organization will also provide support to those individuals and groups through decision-making or other methods, and have an impact, to a certain extent (Freeman, 2006).

In practice, understanding and analyzing the interrelationships between stakeholders and establishing effective communication and collaboration mechanisms between the organization and the environment are crucial to the long-term sustainable development of enterprises (Hui & Yi, 2018). By sharing interests and risks, enterprises can better adapt to changes and improve their ability to resist risks, thereby better achieving the organization's strategic goals.

2.5 SPACE PRODUCTION IN RETIREMENT COMMUNITY

Lefebvre proposed a three-dimensional dialectical space system: material space (spatial practice), spiritual space (representations of space), and social space (representational space) (Lefebvre, 1967). Among them, "spatial practice" is the sum of human beings’ social production, reproduction and daily life practice, and is the basis of material space; "representations of space" is conceptualized space, which is conceived in relation to space and is ideological; “Representational space” is real living space, which becomes reality through the externalization of material power. It is a social space form that integrates material and spiritual imagination (Wei, 2014).

In general, Lefebvre's three-dimensional dialectical theory of space emphasizes the complexity of space, viewing it as a dynamic practical process and a product of society, breaking through the traditional dualist concept.

The spatial ternary structure of the retirement community is based on the cognitive method of spatial ternary theory, covering the physical space environment, spiritual civilization
and human social life. In terms of spatial practice in retirement communities, the physical space environment is the material result of human activities (Zhengxin et al., 2021). It is possible to create a livable and harmonious retirement place by cleverly connecting buildings, facilities, roads, greening and other elements. At the same time, deeply exploring local traditional culture, including cultural activities, food culture and folk activities. It constitutes the unique spatial charm of the retirement community, provides services to consumers, brings benefits to residents and enterprises, promotes the reappearance of local national culture, and promotes sustainable development.

In terms of representations of space in retirement communities, people’s subjective perceptions and their spiritual conceptions of the space they live in include urban culture, regional traditional characteristics, expressions, etc., forming a diverse and dynamic conception state. (Zhengxin et al., 2021). Stakeholders responded to market demand by rebuilding the retirement community. Representations of space have become a diversified conception process, with all parties playing different roles in shaping the space, jointly affecting the retirement community, making it closer to market demand, community expectations and the balance of interests. It covers all aspects such as space, economy, society and culture.

The representational space of a retirement community refers to the construction of life scenes in the city based on material space and spiritual connotation. Physical transformation not only involves the transformation of physical objects, but also the comprehensive reconstruction of social relations and cultural connotations. In the new production, life, leisure and residential spaces of the retirement community have undergone changes. The reproduction of space is not only carried out in the physical dimension, but also includes the comprehensive shaping of social space and spiritual space.

3 METHODS

This study uses qualitative research methods to deeply explore the application of Lefebvre's spatial ternary theory in the regional planning of the Mulan retirement community. To ensure the comprehensiveness and objectivity of data collection and analysis, the first stage is spatial practice, which is dedicated to a comprehensive understanding of material space and non-material space. Physical space includes tangible spatial elements such as building structure, facility layout, road system, and greening. To gain an in-depth understanding of this aspect, field investigation was chosen as the main research method to observe and record the spatial form and function of the community. On the other hand, non-material space involves intangible
Lefebvre's Spatial Ternary Theory in Regional Planning of Mulan Retirement Community

spatial elements such as cultural activities, food culture and folk activities. Participant observation and non-participant observation methods were used to gain an in-depth understanding of the socio-cultural aspects of the community and to experience and perceive its atmosphere and characteristics. The second stage is representations of space, using secondary data and stakeholder interviews. Through in-depth analysis of secondary data, information such as community planning documents, promotional materials, and news reports were obtained to fully understand the overall goals and principles of the plan, as well as its theoretical basis and implementation. Stakeholder interviews involve governments, enterprise local residents and consumers. Purposive sampling method was used to select 5 government enterprise, local residents and consumers as interview subjects, a total of 20 people. They reflected their expectations, needs, suggestions and opinions on the retirement community from different perspectives and positions. Through the collection and analysis of interview data, their ideas on retirement community planning were collected, including retirement space concepts, economic space concepts, social space concepts and cultural space concepts. Finally, the third stage is representational space, which re-creates, redesigns and reuses the spatial layout of the retirement community. This includes the social, spiritual and physical spatial layout. During the planning and design phase, researchers integrated spatial practice and representations of space, covering key aspects such as master planning, public facilities, greening systems, and road systems. Through this process, new spatial ideas are presented in a more concrete and implementable form. At the same time, to ensure that the generated spatial planning options are practical, and meet relevant stakeholder expectations, researchers conducted focused interviews. Focus interviews consist of in-depth exchanges with key stakeholders, including government representatives, business representatives, consumers and residents. Through these interviews, researchers confirmed whether planning options met actual needs, sustainable development principles, and the expectations of community residents.

These three stages of research and design ensured that the regional planning of the Mulan retirement community is not just a theoretical concept, but a practical spatial layout that can meet the needs of all parties.
4 RESULTS AND DISCUSSION

4.1 OVERVIEW OF THE RESEARCH SITE

The Mulan retirement community is located in the the Mulan Cultural and Ecological Tourism Zone, Shimen Community, Huangpi District, Wuhan City, Hubei Province. It is about 55 kilometers away from the center of Wuhan and has very convenient transportation.

The natural environment of the Mulan retirement community is very beautiful, with rich natural resources and ecological landscapes. Surrounding the community are natural attractions such as Tianchi, Mulan Mountain, and Yuanji Temple Reservoir.

The residents of the community come from different backgrounds and experiences, including comrades-in-arms, alumni, chess friends, old classmates, old confidants, and older generation intellectuals. They gather together to reminisce about their youth, enjoy their old age, and realize that they can be productive, dependent, happy, and supported when growing old. Some are local farmers who maintain traditional rural lifestyles and customs, such as planting, breeding, fishing, picking, and making agricultural products.

The Mulan retirement community takes ecological health and organic living as its concept and is committed to building a rural tourism-style retirement complex to provide a comfortable, safe, convenient and healthy living environment for the elderly.

4.2 SPATIAL PRACTICE

This section analyzes the spatial practice of the Mulan retirement community, the various activities that people carry out in material space and non-material space, including production, consumption, communication, leisure, etc. Spatial practice is both restricted by space and affects space, thus forming a dynamic interactive relationship. The research method in this section is mainly through field investigation and participatory, and non-participant observation, from two aspects: material space and non-material space. Analysis of the spatial practice of the Mulan retirement community from three levels: macro, meso and micro (Figure 1).
4.2.1 Analysis of Material Elements

Material elements refer to the spatial elements with material form in the spatial practice of retirement community, including buildings, facilities, roads, greening, etc.

4.2.1.1 Building

Architecture is the main spatial carrier of a retirement community and a place for residence, leisure, culture and other activities.

At the macro level, the Mulan retirement community buildings are mainly divided into residential and public buildings. Residences include villas, apartments, etc., and public buildings cover functions such as commerce, community centers, and education. These two types of buildings are connected to each other through roads, greening, and water systems to form a complete living space.

At the meso level, residences in the retirement community are divided into two categories: new and old. New residential housing, such as Tianchi Yayuan, has a variety of designs, including high-rise elevator bungalows and Beijing-style courtyard houses. The old-fashioned residential houses are mainly the old houses of local residents, retaining the traditional Chinese architectural style, with rural characteristics and cultural atmosphere.

At the micro level, new residential housing considers the needs of residents and provides small to large units with different architectural styles and decorations. The layout is optimized to ensure lighting, ventilation and views. The old-fashioned residential buildings maintain their...
original characteristics. The first floor is mostly used for store business and the upper floors are used for living. The architectural style reflects the Chinese aesthetics of the 1960s and 1970s. The overall layout is mostly built along the street, in the form of single-family row houses with dark blue roofs and white walls.

4.2.1.2 Facilities

Facilities refer to the supporting facilities of the community, including various infrastructure and public facilities such as water, electricity, communications, transportation, security, sanitation, education, and medical care.

At the macro level, the Mulan retirement community’s facilities mainly include transportation, water, electricity, communications, etc. Transportation facilities include roads and buses, and China Post ensures connections to the outside world. It has complete water and electricity equipment, and China Telecom provides comprehensive communication services.

The meso level involves the functional positioning of the community and the needs of residents, including community, educational and commercial facilities. Community service agencies, such as community neighborhood committees and retired military service stations, are located in the center of the community to facilitate residents' participation. Educational facilities are mainly Shimen Kindergarten, distributed in edge areas to ensure safety and a good learning environment. Commercial facilities such as Shanye Farmhouse and Yanjing Supermarket are mainly concentrated along Shimen Street to meet the daily needs of residents.

At the micro level, the residence and life of individual residents include forest sanatoriums, agricultural fields, artificial beaches and Graceland College, a senior university. These facilities provide hiking, farming, beach activities and cultural education, promoting interaction among residents.

4.2.1.3 Roads

Roads not only undertake transportation functions, connecting various areas and nodes inside and outside the community, but also reflect the spatial form and style of the community, affecting residents' travel and life.

At the macro level, the Mulan retirement community is close to Highway S108, only 5.7 kilometers from Shikesong Interchange G0424, 55 kilometers from Wuhan city center, 45 kilometers from Tianhe Airport, and 41 kilometers from Wuhan North Railway Station. The
community connects with arterial roads to surrounding cities, forming a convenient transportation network (Figure 2).

**Figure 2**  
*Transportation outside the community (Author own drawing)*

At the meso level, the main roads connecting the interior of the community connect various functional areas and important nodes of the community. The main road in the community is a two-way single lane with a width of about 6 meters. The road surface is of cement. There are narrow sidewalks and simple green belts on the roadside, and street lights are equipped along the road. The branch road of the main road is a one-way road with a width of 4 meters and with a cement surface.

At the micro level, the roads in the community also have some unique tourist trails. The walking trails in the farmland and forest are dirt roads or brick, with a width of 2 meters, running along the forest and passing through the natural landscape of the community.

**4.2.2 Analysis of Non-Material Elements**

In addition to the elements of material space, the spatial practice of the retirement community also includes non-material elements, which constitute the spatial atmosphere and characteristics of the community, and also affect the lifestyle and values of residents within the retirement community. This section will analyze the intangible elements of the Mulan retirement community from three aspects: cultural activities, food culture and folk activities.
4.2.2.1 Cultural Activities

Cultural activities refer to the cultural life of the retirement community, including cultural performance and cultural consumption in various forms and contents.

At the macro level, Huangpi District of Wuhan, where the Mulan Retirement Community is located, has a long history and profound cultural heritage. Including Mulan culture, Panlong culture, Ercheng culture, Li "Huangpi" culture, etc (Ziman & Fan, 2023). They organize activities such as the "Huangpi Cultural Tourism Network" to showcase local customs, history, culture and tourism resources in order to attract tourists (center, 2023). Furthermore, they participated in the National Year of Rural Cultural Activities and displayed Huangpi intangible cultural heritage projects, enriching cultural life.

At the meso level, Shimen Ancient Community, as the location of Mulan retirement community, has rich history and culture. The Shimen Mountain, the history of the Red Revolution and the birthplace of Chu Opera have provided rich materials for cultural activities (Xiang, 2006). Focusing on the history, scenery, intangible cultural heritage, etc. of the ancient community.

At the micro level, residents’ sacrificial activities express awe and worship to gods, ancestors, heroes, etc. Sacrifice forms include offerings of incense, food, wine, etc. to express respect, remembrance, birthday wishes and blessings. Residents also perform various sacrificial activities based on traditions, personal birthdays and death anniversaries, demonstrating their profound cultural traditions.

4.2.2.2 Food Culture

Food culture refers to the eating habits and dietary characteristics of the retirement community, including the preparation and consumption of various foods.

At the macro level, the food culture of the community is dominated by farmhouse flavor, focusing on authenticity and a preference for spicy, sour and delicious food. It includes fish, poultry, soy products, vegetables and other ingredients, and has many famous dishes and snacks with local characteristics, such as Huangpi Bean Silk, Huangpi Sanxian, Crock Pot Chicken Soup, Shimen Fish Head, Sushan Temple Vegetarian Dishes, etc. (Guohong, 2020).

At the meso level, the food culture of the Mulan retirement community was influenced by immigrants from Jiangxi, Anhui, Henan and other places, forming a unique style of Shimen cuisine. The catering industry, mainly from farmhouses, has developed along the street,
attracting tourists to taste Shimen's special delicacies, such as Shimen kudzu chicken, Shimen chestnut roasted pork, Shimen ginkgo scrambled eggs, Shimen pheasant soup, Shimen wild boar meat, etc.

At the micro level, residents’ eating habits consist mainly of home-cooked meals, with a preference for fish and aquatic products, as well as delicacies such as bamboo shoots, wild vegetables, mushrooms, and native chickens. For breakfast, pasta is often chosen, such as fried dough sticks, steamed buns, and noodles, while for lunch and dinner, rice is the main meal. Residents value family ties and neighborly communication, and like to eat by sharing food together. Their diet is simple, keeping the original taste of the food and occasionally enjoying special snacks, such as Shimen fairy grass tofu, Bagua soup, etc.

4.2.2.3 Folk Activities

Folk activities refer to the folk traditions and customs of the retirement community, including various festivals, ceremonies, etiquette, games, etc.

At the macro level, as the location of the Mulan retirement community, Huangpi District’s folk culture is formed under the influence of history, geography, ethnicity, religion and other factors, and has strong regional characteristics and national customs. Typical folk culture includes Huangpi clay sculptures (Kang, 2012), colorful poems, general lions (News, 2015), flower drum opera, etc.

4.3 REPRESENTATION OF SPACE

In this study, the representations of space in the Mulan retirement community in Wuhan are analyzed based on Lefebvre’s spatial ternary theory. Mainly stakeholders conceived from four aspects: senior care space, economic space, cultural space and social space.

4.3.1 Retirement Space Concept

The concept of retirement space form refers to the improvement and protection of the physical environment and infrastructure of the community, including transportation, water, electricity, sanitation, etc. The retirement community aims to create an ideal retirement place integrating ecology, culture and services. By improving infrastructure, the accessibility and comfort of the community will be improved, while the original style and characteristics will be
maintained to avoid over-development and destruction. It provides an enjoyable retirement life in a beautiful, convenient and safe environment, and allows the experience of original natural scenery and a cultural landscape.

The government guides the development of the retirement community by formulating policies and plans, emphasizing the improvement of the elderly care service system, encouraging green and low-carbon consumption, and realizing the construction of a green and livable city with the Mulan Cultural Ecological Tourism Zone at its core (Government, 2023).

Wuhan Mulan Ecological Real Estate Co., Ltd., with the support of the government, is committed to building a rural retirement resort. By integrating culture, ecology and services, it can provide diversified residences and all-round services to create a unique senior care experience while respecting the living habits and cultural traditions of the local residents.

4.3.2 Economic Space Concept

The development of the Mulan retirement community needs to promote local economic development, increase tax revenue, improve the employment and income levels of local villagers, and maximize the economic benefits of stakeholders. The economic space concept mainly involves the development, marketing, and management of the community's elderly care products and services. This will have an important impact on the community's economic benefits and competitiveness. The economic concept is to optimize the resource allocation of the community, improve its quality and value, and at the same time reduce the community's pension costs and risks. The economic concept should also consider the sustainable development of the community, avoid excessive consumption and waste of resources, and ensure the long-term interests of the community (Province, 2021).

Through the development of the Mulan retirement community, the government creates economic benefits, promotes industrial development, improves tax revenue and image, ensures sustainable regional coordinated development, and effectively supervises economic pursuits to avoid harming public interests (District, 2021).

Enterprises pursue profits, market expansion and brand promotion by developing elderly care products and services. Effectively market, establish credibility and cooperative relationships, reduce costs and risks, innovate and improve the elderly care business, attract capital inflows through cultural tourism and specialty industries, and promote economic benefits.
4.3.3 Social Space Concept

The cultural space concept needs to promote local cultural inheritance and innovation, increase the cultural identity and related exchanges of local villagers and consumers, and improve the cultural influence and attraction of the community. The concept of cultural space mainly involves the cultural heritage, activities, education and other cultural aspects of the community.

The government's cultural space concept aims to protect and inherit local cultural heritage, increase such activities and improve cultural and educational standards. The government will support cultural protection and development projects through laws and regulations, and invest in cultural and artistic activities, also traditional craft displays to enhance the cultural influence of the community (Office, 2020).

The company's cultural vision focuses on using local cultural resources to enhance related products and services, consolidate corporate cultural competitiveness, meet the cultural needs of the small community. Furthermore, establish cultural cooperation relationships, and innovate cultural business and management to realize corporate cultural value and profits.

The cultural vision of local residents emphasizes maintaining and promoting the local cultural characteristics, enjoying related activities and benefits, improving cultural literacy, establishing inheritance centers and training classes, participating in cultural inheritance and obtaining economic benefits, while protecting and developing local cultural connotations.

Consumers' cultural conception focuses on experiencing local scenery, increasing cultural knowledge, supporting related products and services, participating in cultural activities, respecting ancient village culture, providing rich cultural activities for the elderly, and supporting them to maintain a positive psychological state in their later years.

4.3.4 Cultural Space Concept

The social harmony and stability of the Mulan retirement community will increase the exchanges and connections between local villagers and consumers, and improve the image and reputation of the local government. It mainly involves social relations, social order, security and other aspects of the community. The social space concept enhances the cohesion and social responsibility of the community, improves the community's participation and social management, and at the same time reduces social conflicts and problems within the community.
There must be social diversity and fairness in the community, respecting different social groups and their interests, while ensuring social justice and harmony in the community.

The government maintains social harmony and stability, promotes communication and understanding, balances the social interests and costs of a small community, enhances credibility and authority, achieves coordinated development of urban and rural economies, and alleviates the uneven distribution trend caused by changes in the labor market.

Enterprises fulfill social responsibilities, respect cultural traditions, protect social resources and the environment, meet the social needs of the small community, promote social diversity and fairness, improve social recognition and trust of enterprises, and achieve social benefits and impacts.

4.4 REPRESENTATIONAL SPACE

Representative space is based on spatial practice and representations of space, created through planning, design, and implementation to create differentiated and diverse retention community spaces that meet the needs and expectations of various stakeholders, and achieve spatial integration and coordination. The main content of a representational space includes overall layout, road system planning, greening system planning, and public facility planning.

4.4.1 Master Plan

The overall layout design of this article is based on the perspective and method of Lefebvre's spatial ternary theory, taking into account the analysis results of spatial practice and representations of space in the Mulan retirement community. It aims to achieve diversification, coordination and sustainability of senior care space, economic space, cultural space and social space. Geographically, the community’s three economic, elderly care and cultural areas are divided by the Yuanjisi Reservoir. The main road serves as a link connecting the entire community, allowing the various areas to connect with each other. Figure 3 shows the overall functional layout of this article.
The senior care space is located in the east and west of the community, including residential buildings, senior universities, hospitals, community canteens, etc. These provide a comfortable, safe, convenient and healthy living environment to meet needs, in all aspects. The economic space is located in the northwest, including fishing areas, farms, commercial streets, etc., and plans to diversify industries and enhance economic vitality. The cultural space is in the southeast, including beaches, pavilions, parks, etc., dedicated to providing cultural activities and experiences to showcase the history and culture of the community. The master plan connects various areas through main roads, emphasizes the waterfront landscape, and creates a coordinated, diverse, and sustainable community environment (Figure 4).
The main road is the connection channel between the community, the external county roads and the rural roads. The plan will improve the landscape of the X046 County Road, and reconstruct and widen the Y148 Community Road, as the main road of the community. The width of the main road is 6m, two-way and two-lane, and the cement pavement is upgraded to asphalt. Shrubs are planted on both sides of the main road, street lights and traffic signs are set up to ensure the comfort and beauty of the road. Pedestrian and bicycle lanes are found on both sides of the road.

The branch road is the internal passage of each functional area of the community, and mainly undertakes the micro-circulation and service functions of the community. It is designed to be one-way, one-lane, with a branch road width of 4m and cement as the main road surface material. Flowers and plants are found on both sides of the branch road, and street lights and traffic signs are provided to ensure the convenience and friendliness of the road.

The trails in the community are paved with wear-resistant, anti-slip materials to ensure the safety of the elderly when walking. Light effect edge paving improves lighting, reduces costs, and enhances the night time safety and outlook. The width of the trail is 1-2.3 meters, while steps, safety warning signs, and guardrails are provided to keep it safe for users.

4.4.2 Public Facilities Planning

In terms of public facilities planning, the Mulan retirement community focuses on improving residents' living convenience and providing reasonable supporting facilities. It also pays attention to management effects, ease of use, reduction of interference, and the needs of middle-aged and elderly groups. Public facilities are divided into four categories: senior care facilities, cultural facilities, commercial facilities and public service facilities in order to meet the different needs of residents.

In terms of elderly care facilities, the establishment of universities for the elderly provides lifelong learning opportunities, including various interest courses and social activities. Community canteens provide healthy and nutritious catering services to meet the living needs of the elderly residents. The community health center plans to integrate functions such as basic medical care, health consultation, rehabilitation services and elderly care assistance, health promotion to disease treatment and rehabilitation. The aim being to comprehensively support residents' medical and health management. The community service center hosts art exhibitions and cultural activities, creating multi-functional spaces to promote close social interaction among the community residents. The center has multiple activity areas, including artistic
performances, leisure reading, etc., to provide residents with diversified cultural experiences. Various regular activities help residents better integrate into community life, while strengthening the inheritance of local culture and enhancing the overall cultural heritage of the community.

In the cultural facilities planning of the Mulan retirement community, parks, farming experiences, beaches and cruise ship terminals are carefully planned in the cultural area. By integrating Mulan culture and Chu opera culture, and using the Mulan logo and Chu opera logo in related facilities, a cultural space, rich in cultural atmosphere and creative inspiration, is created. Yuanji Temple Reservoir is a strategic water reserve in Wuhan City. It is named after the ancient temple Jisi and has a long history. The reservoir's boat dock is integrated with temple culture, providing residents with the opportunity to experience unique culture. This plan not only meets residents’ needs for cultural activities, but also further enhances the cultural heritage of the community by displaying local characteristics. The goal of this unique plan is to create diverse cultural experiences for residents so that they can feel the profound cultural connotation in their home community.

In the planning of commercial facilities in the Mulan retirement community, special attention is paid to the design of fishing areas and farms to actively support residents’ fishing hobbies and their participation in farming activities. Greenhouses and agricultural warehouses are planned in the farm area to improve the production efficiency of agricultural products and provide sales channels. The establishment of pastures supports the breeding industry and provides high-quality livestock products. The planning of the commercial district includes food stalls, specialty gourmet shops and handicraft shops, dedicated to meeting the shopping, dining and entertainment needs of residents. This comprehensive design aims to promote the community's unique economic characteristics and provide residents with diversified employment and consumption opportunities. The specialty food and handicrafts in the commercial street showcase the unique local food and handicraft traditions and promote the inheritance and development of local culture. The diversified planning of commercial facilities not only meets the basic needs of residents, but also provides them with a variety of leisure and entertainment options, creating pleasant shopping and entertainment venues, while promoting the prosperity of local specialty food and handicrafts.

In terms of public service facilities, this includes the arrangement of public toilets, street lights, seats, and trash cans, as well as the settings of monitoring systems and emergency call systems. The service radius of public toilets is set at 800 meters, matching the road alignment. Street lights are set up along the roadways and pedestrian paths in the community. Street lights
are spaced 20 meters apart in residential areas and 30 meters apart on roads to ensure adequate lighting for pedestrians and vehicles. The design scope of the trash can is one every 900 square meters. Garbage disposal points should be set up on roads and activity gathering points, and corresponding trash cans and other facilities should be provided. Monitoring systems and emergency call systems are closely deployed in activity venues and residential areas to ensure the safety of the elderly in the community public spaces. Monitoring points should be complementary to form comprehensive coverage of emergency calls.

Overall, through these comprehensive plans and designs, the Mulan retirement community will become a vibrant, culturally rich and ideal place to live with complete services, providing residents with a comfortable, convenient and fulfilling life experience.

5 CONCLUSION

This article aims to provide feasible optimization ideas, and specific suggestions, for the regional planning of the Mulan retirement community by drawing on the perspective and method tools of spatial ternary theory.

The main research question of this article is: How to optimize the regional planning of the Mulan retirement community to achieve a spatial layout that is more in line with residents' needs and sustainable development?

In order to answer this question, this article first conducts a literature review on the concepts of retirement community, regional planning, spatial triad and stakeholders, and clarifies the basic concepts and theoretical framework of the research. Next, the article chose the Mulan retirement community in Mulan Community, Huangpi District, Wuhan City as the research site. Through qualitative research methods such as field investigation, secondary data analysis and stakeholder interviews, a comprehensive analysis was conducted on the spatial practice, representations of space and representational space of the Mulan retirement community. It reveals the spatial morphological characteristics of the community, as well as the spatial concepts and expectations of different stakeholders. On this basis, specific ideas and suggestions were put forward for the regional planning of the Mulan retirement community, including the overall layout, road system, greening system and public facilities. This was in order to achieve a spatial layout more in line with the residents' needs and sustainable development.

In the overall layout, senior care space, economic space and cultural space are designed, forming a unique and harmonious spatial structure. The planning of road systems, greening
systems and public facilities pays more attention to residents’ travel convenience, natural environment and public services. In terms of planning of elderly care facilities, it includes planning of elderly universities, community canteens, community service centers and hospitals to meet the learning, nutritional, social and health needs of the elderly residents. In terms of cultural facilities planning, beach and pavilion areas, farmland and picking gardens, parks, marinas and campsites are planned to promote cultural activities and social interaction. In terms of economic facility planning, fishing areas, farms, greenhouses and agricultural warehouses, pastures, and commercial blocks are planned to support the residents’ fishing hobbies, participate in agricultural production, and to meet their shopping needs.

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