

Landscape Value Perception in Rural Development

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Rural Spaces are becoming increasingly multifunctional, which requires a spatial approach that combines the natural features of the landscape with the socio-economic and cultural factors that drive its change. The understanding and evaluation of local landscapes by local populations should be considered an important benchmark for the management and conservation of these landscapes.

Keywords: traditional villages ; rural landscape values ; PPGIS ; villagers' perceptions

1. Introduction

The technocratic and exclusionary model of environmental management in China has substantially constrained public participation ^{[1][2]}. Villagers' core needs and local knowledge are often overlooked ^[3]. This regime has contributed to China's rapid urbanization and modernization, while simultaneously inflicting severe impacts on the cultural landscapes of traditional villages, posing grave challenges to the sustainability of their cultural heritage ^{[4][5][6][7][8]}. Despite the national emphasis on the selection and protection of traditional villages since 2012, demonstrating a commitment to cultural heritage and legal backing, local governments, in practice, continue to promote rural tourism as a tool for development and poverty alleviation, neglecting the trends of marginalization and commercialization of villages in the wave of urbanization ^{[9][10][11]}. In this context, scholars have emphasized the importance of understanding and identifying landscape values ^[12]. The current transformation in rural areas is predominantly characterized by fundamental reorganizations of demographics, employment, economy, social strata, and landscape ^[13]. Rural space is becoming increasingly multifunctional, which requires a spatial approach to integrate the natural features of the landscape with the socio-economic and cultural factors that drive its changes ^[14]. It has become an international consensus that policies targeting rural areas must take into full account the social, economic, and cultural aspects of rural life ^[15]. Moreover, as an expression of culture ^[16], the narrative capacity of landscapes enhances local identity and cultural value ^[17]. Hence, local residents' understanding and valuation of local landscapes should be regarded as essential benchmarks for managing and protecting these landscapes. This encompasses not only the recreational value of the landscape but also a comprehensive consideration of more elusive aspects such as spiritual fulfillment, educational significance, and aesthetic value ^[18].

In recent years, the Chinese government has persistently highlighted the necessity for provinces to enhance the legal framework protecting traditional villages. It is pivotal to secure the discourse and participation rights of native villagers to ensure the continuation of vibrant rural cultures. In 2019, propelled by the Rural Revitalization Strategy, the General Office of the State Council disseminated "Guiding Opinions on Strengthening and Improving Rural Governance". The document advocated for reinforcing cultural leadership in rural locales and tailored cultural activities extensively, necessitating that local plans align with the residents' values and demands. This signifies a growing nexus between the policy-level development of traditional villages and public awareness. However, the quest for effective public engagement in any nation or society encounters multifaceted hurdles. In China, public engagement is predominantly a localized practice, and its theoretical exploration remains profoundly scarce. The notion of public participation is somewhat nebulous and lacks scientific precision among the masses and some policymakers. This manifests in traditional village surveys that are superficial and do not inform participatory planning proposals effectively, suggesting that governmental bodies may not be adequately responsive to grassroots initiatives, leading to skepticism about the validity of local knowledge and the efficacy of public engagement techniques. Thus, a scientific approach that can authentically and profoundly apprehend residents' perspectives and thoroughly dissect the formation mechanisms of these opinions is urgently needed.

Accordingly, the primary objective of this study is to delve into the perception of landscape values by rural community members amidst the development and construction of traditional Chinese villages. Given the criticality of spatial information in identifying the priorities, conceptions, and preferences of locals ^[19], researchers employ Public Participation Geographic Information Systems (PPGIS) as a supplementary research tool. This approach is intended to transcend the

constraints of traditional GIS, yielding more detailed data that correlates villagers' perceptions with the tangible space, analyzing their subjective perspectives. Furthermore, this study applies regression analysis to discern the variability in landscape value assessments among different social demographic groups, thus revealing the individual's role and impact within village development. The research aims not just to gather villagers' cognitive evaluations of landscape values but also to examine the formation mechanisms of these evaluations, providing methods and quantifiable findings that offer substantial references for the participatory planning and design of rural landscapes. It also aims to bridge the research gap concerning the convergence and divergence between the development value orientation of traditional village residents and the government-directed development trajectory under the public participation research framework [20]. The results of this study are intended to provide references for policymakers in devising strategies for protection and development, advancing traditional villages toward sustainable social development.

2. Landscape Value Perception in Rural Development

2.1. Evolution of the Connotation of Rural Landscape Value

Unlike urban or suburban landscapes, rural landscapes are often perceived as spaces enveloped by nature and vernacular architecture, characterized by natural settings, agricultural activities, settlement patterns, and traditional lifestyles [21]. The study of rural landscapes originated in the West post-World War II [22], with a focus on ecologically related fields such as sustainable landscapes [23][24][25] and biodiversity [26][27][28][29], while also attending to cultural heritage [30], landscape assessment [31][32], and the exploration of values in landscape change [33][34]. In recent years, rural landscapes have been playing an increasingly important role in various fields such as tourism, cultural heritage, and ecology [35]. Research commonly finds that urbanization, accessibility, and other factors influence the changing values of landscapes [36], with rural landscapes being influenced by both natural environments and human management activities [37]. The appreciation basis of rural landscapes is shifting from traditional cultivation and productivity capacities toward aesthetics, environmental, and heritage qualities [38][39]. Over time, studies on landscape value have gradually transitioned from geological and ecological aspects to generating knowledge and innovative technologies for decision-making processes [40].

In 2017, the 19th International Council on Monuments and Sites (ICOMOS) conference in New Delhi adopted the "Guidelines for Rural Landscapes as Heritage". These guidelines underscore the profound cultural significance of all rural areas as part of the landscape [41][42], marking an international consensus on the importance of rural landscape values. This has changed perceptions and values toward rural landscapes [43] and, as this re-perception deepens, the integration of rural landscape values with modern societal living becomes increasingly pronounced. Landscape value constitutes a subjective interpretation of landscapes based on individuals' interactions with the environment [44], crucial for aesthetic preferences, a sense of well-being, a characteristic assessment, travel motivations, planning, and regional development [45].

In recent years, with rapid urbanization and rural revitalization strategies in China, rural landscapes have been undergoing profound transformations [6][46][47]. However, in the study of rural landscape values in China, scholars tend to focus more on built heritage while overlooking the value of everyday landscapes, especially the significance of their tangible and intangible characteristics [48].

2.2. The Significance of Landscape Value Perception in Rural Development

Tuan proposed the concept of "place consciousness" to interpret the relationship between individuals and places [49]. Our emotional or aesthetic evaluation of landscapes is not an isolated psychological process; rather, it is intrinsically linked with other relevant emotional and perceptive structures associated with our relationships to the social and physical environment [50]. The World Health Organization has indicated that the quality of life is closely related to the cultural and value systems, goals, expectations, standards, and concerns of individuals [51]. Research has shown that overlooking the perception derived from residents' daily operational experiences in space can affect the deconstruction of spatial characteristics [52], and underestimating the perspectives, needs, and expectations of rural residents brings numerous challenges to the rural service process [53]. In the context of China's rural revitalization strategy, formulating spatial planning suitable for rural development should be a dynamic process integrating local knowledge, as residents familiar with a specific area can identify more landscape values and unique locations. Accordingly, incorporating the perception of local villagers in rural spatial planning is key to improving decision-making quality and enhancing public participation [54].

Many studies have identified significant individual and group differences in landscape perception [55][56][57], with the preferences of different groups largely endowing landscapes with meaning and value [58][59][60]. However, there is a paucity of research on groups' perceptions of changes in rural landscapes in China [21] and limited consideration of

different stakeholders' opinions in planning processes ^[61], and while research on the changing values of rural landscapes often focuses on the macro level, studies at a smaller scale are relatively scarce ^{[30][62]}.

2.3. PPGIS as a Method to Obtain Landscape Values and Preferences

PPGIS have two important roles in analyzing perception. Firstly, as a tool for empowerment evaluation, PPGIS enable resident empowerment. Initially, Geographic Information Systems (GIS) were primarily used by elitist groups of experts for spatial analysis and decision-making related to land use and planning ^[52]. However, as early as 1995, Sheppard ^[63] proposed that "GIS should not only be a tool for analysis and problem-solving but also a social process". PPGIS aim to enhance the transparency and impact of government decision-making through public participation ^[64], identifying critical spatial information, especially in the fields of environmental and natural resource planning ^[65]. It breaks through the expert barriers of traditional cartography, emphasizing the empowerment of communities and marginalized groups ^{[66][67][68][69][70][71][72][73]}, reducing inequality in public access to information and technology ^[74]. Secondly, PPGIS overcome the limitations of traditional GIS by incorporating local knowledge and resident perception, offering a more inclusive and adaptable method of decision-making participation ^[75], providing a unique approach for civil society to participate in decision-making ^[76], with the flexibility to adapt to different environments and groups ^[77]. Additionally, by integrating local spatial knowledge, PPGIS promote reflexive practice in communities regarding the documentation, interpretation, protection, and management of cultural heritage ^[78], capturing the complex relationship between people and landscapes through landscape value mapping in natural resource planning and decision-making ^[79].

However, PPGIS research also faces several challenges in practice. Firstly, although this method allows landowners to mark and describe important locations on maps, this practice does not sufficiently consider the spatial connection between place meaning and the specific types of place attachment or values ^[77]. Secondly, effective spatial assessment should integrate both subjective and objective methods ^[80], yet most participatory mapping studies tend to adopt a singular methodological design ^[81] and lack an organizational framework to describe and guide their systematic application ^[59].

To summarize, set against the backdrop of profound changes in rural landscapes, this study aims to address gaps in research on landscape values and endeavors to construct a conceptual framework to deeply examine villagers' cognition of the connotations of rural landscape values and their evolution ^{[82][83][84]}. A wealth of studies has illustrated that place attachment, a theory that characterizes the emotional bonds between individuals and specific geographic settings, plays a pivotal role in research related to landscape cognition and evaluation. Furthermore, psychologist Albert Bandura's social cognitive theory suggests that individuals' understanding and perception of the social world influence their behaviors and decision-making ^[85]. On this basis, to gain a more precise understanding of the deep mechanisms behind villagers' assessments of rural landscape values, the study draws on place attachment and social cognitive theory. Researchers introduce variables such as villagers' development value orientations and the social attributes of groups, exploring their interrelationships to help identify the needs and preferences of various groups. Concurrently, the study's conceptual framework aims to surpass the limitations inherent in collecting respondents' viewpoints via PPGIS method, by combining coding and statistical methods with both qualitative and quantitative research approaches. This not only links respondents' landscape ratings with the deep value orientations expressed in their interview texts but also correlates respondents' perceptual data with geographical information, fostering an in-depth understanding of the cognitive formation mechanisms of rural landscapes. Taking the village as the research unit, this study provides a detailed analysis of the shifts in landscape values at a granular level, offering more effective decision-making support for rural planning and management.

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