

Original Research

Tourism's Impact on Visual Landscape: Residents' Perceptions from a Traditional Chinese Village

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Abstract

As spending on measures to protect the quality of the visual landscape of traditional villages has increased, it is important to better understand tourism development's impact on how visual landscapes are perceived by residents of these traditional villages. Using Huangdu Dong Village as a case study, this study examined tourism development's impact on visual landscape perception from residents' perspective. A questionnaire was designed that focused on three landscape dimensions-natural, cultural, and tourism and facilities landscapes; 152 questionnaires were analyzed using the Pearson correlation coefficient. The results showed that the impact of tourism development on the natural landscape was not significant, but it exerted a more pronounced influence on village topography. It significantly improved the tourism and facilities landscape. Additionally, tourism development's impact on perceived visual landscape differed according to demographic characteristics; for example, respondents aged 18-30 had perceived less change of some visual landscape elements than older respondents, and respondents who had lived in the village for 21-30 years asserted that tourism development had impacted the animal diversity more than other groups. Based on the results, recommendations were made for local governments, policymakers, and residents.

Keywords: Visual landscape, tourism development, traditional villages, landscape perception

Introduction

In the context of China's rural revitalization strategy, traditional villages have gradually become an important destination for rural tourism [1, 2]. To a

certain extent, the development of tourism provides funds to protect traditional villages, promotes local economic development, and improves residents' quality of life; however, it can also have detrimental effects on villages [3, 4]. Often, little consideration has been given to changes resulting from tourism development and how these changes affect local residents [5]. Nevertheless, researchers have developed measurement scales to understand local residents' perceptions of tourism

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impacts, that is, their attitudes toward tourism [6, 7]; these include perceptions of the natural environment [8-10], the cultural landscape [11, 12], and the quality of life [13, 14], among other dimensions. However, few studies have focused on residents' visual landscape perceptions, and although some visual landscape elements are included in the aforementioned categories, they have not been studied in sufficient depth.

Traditional villages are an important part of China's traditional culture; they provide nonrenewable cultural heritage in tangible and intangible forms, offering historical, cultural, archival, and research value [15, 16], as well as a wealth of humanistic and natural landscape resources [17]. In recent years, excessive tourism development and the proliferation of homogenized tourism products in traditional villages have caused their original rural landscape elements, industrial structure, and cultural imagery to change; these changes include the destruction of the natural environment, the gradual disappearance of cultural heritage, heavy commercialization, the obliteration of regional characteristics, and the application of similar development models [18-20]. Local residents are therefore concerned about environmental and cultural changes that accompany tourism development [21, 22], which are first experienced via visual impacts [23]. Keleş et al. has emphasized that understanding visual landscape changes can help identify areas in need of protection within the framework of cultural heritage conservation planning, as well as address lost natural and cultural characteristics, physical development, and village social life [24]. Further, research has demonstrated that the quality of the visual landscape directly affects residents' mental health and well-being [25, 26]. Local residents are key stakeholders in sustainable tourism development [27, 28], and thus one of the main focuses of tourism impact research should be on their perception of tourism impacts. Therefore, it is essential to understand tourism development's effect on the visual landscapes of traditional villages from the perspective of residents. This can help improve the quality of the visual landscapes in traditional villages and improve residents' mental health and happiness while simultaneously providing theoretical guidance for village tourism development.

This study considers landscape perception the theoretical basis for studying the impact of tourism development on residents' perception of village visual landscapes. Three specific research questions were set to study this impact: 1. What visual landscapes are perceived by residents? 2. What are the important factors of tourism development that affect residents' perception of traditional village visual landscapes? 3. What measures should be taken to prevent tourism's negative effects in the future? Accordingly, this study can serve as a reference for the protection of the visual landscapes of traditional villages, provide theoretical guidance for the development of tourism in traditional villages, and ultimately promote sustainable development of tourism in traditional villages.

Literature Review

Current research on tourism development's impact on tourism destinations can be categorized into three aspects: economic, sociocultural, and environmental. Regarding the economic aspect, tourism development has been found to have a positive impact on the local economy, attracting tourists to the area, who spend their money on tourism activities, accommodation, and the purchase of goods, thus bringing wealth to the local area [29, 30]. Tourism also provides local employment opportunities, thus increasing residents' income, and this economic improvement promotes local infrastructure construction [31-33]. In terms of the sociocultural aspect, tourism development's impacts are more difficult to measure. These can be related to quality of life, values, norms, social patterns, and environmental damage [34], with both positive and negative impacts. Positive impacts include positive interactions with foreign tourists, serving local traditional snacks to foreign tourists, preserving the local culture, respecting the customs of others, and increasing the sense of village autonomy [29, 35, 36]. Negative impacts include tourists' bad habits that conflict with the customs of the destination (e.g., drunkenness or prostitution), which can negatively affect minors [37]. The environmental dimension, also known as the physical environmental impact, encompasses changes in natural and cultural environments [38]. The natural environment usually involves the natural landscape, ecology, and conservation measures, and relevant issues include air quality, water quality, destruction of native habitats and topography, and the overexploitation of woodlands [35, 36, 39]. The cultural environment encompasses the spatial environment for public activities and tourism facilities [40].

Previous studies have explored the impacts of tourism development on the economy, sociocultural settings, and environment. For example, after studying their villages for over 40 years, Movono et al. found that tourism development has produced a series of ecological changes in indigenous villages in Fijian [5]. Lin et al. examined tourism's effects on rural development and the ecological environment after the new crown pneumonia epidemic in rural areas of Fujian Province, finding that villagers perceived their air quality, water quality, and environmental sanitation had deteriorated, but there were improvements in villages' public infrastructure and higher local income [29]. Liang et al., Lin et al., and Lin et al. found that rural tourism development led to enhanced cultural and historical characteristics, natural ecological resources, cultural and creative products, and recreational facilities [11, 39, 41].

Nevertheless, despite this previous research, studies have rarely explored the impacts of tourism development from the perspective of residents' perception of visual landscapes. Regarding human perception of the environmental landscape, vision is dominant, corresponding to 87% of sensory perception [42]; it also directly affects residents' psychological health

Table 1. Visual landscape indicator system for traditional villages.

Focus	Indicator dimension	Serial No.	Indicator
Visual landscape of traditional villages	Natural landscape	A01	Topography and geomorphology
		A02	Water quality
		A03	Plant diversity
		A04	Plant coverage
		A05	Productive agricultural landscapes
		A06	Animal diversity
	Cultural landscape	A07	Architectural style
		A08	Architectural authenticity
		A09	Type of folkloric activities
		A10	Spectatorship of folkloric activities
		A11	Degree of protection of historical sites
		A12	Level of road historicalness and quaintness
		A13	Type of public activity spaces
		A14	Harmony between the public activity space and village environment
		A15	Overall village landscape and harmony with surroundings
	Tourism and facilities landscape	A16	Impact of number of tourists on village visual landscape
		A17	Village sanitation
		A18	Type of service facilities
		A19	Harmony between additional service facilities and the village environment

and well-being [25, 26]. Creating an agreeable visual atmosphere can promote tourism development, drive the local economy, and provide funds for village heritage conservation [43]. Although previous studies have included some visual landscape elements, the coverage is insufficient. For example, the in-depth exploration of visual elements such as architectural and agricultural landscapes, folkloric activities, and historical artifacts of tourism destinations needs to be strengthened, which can be done by investigating such specifics as architectural style and originality, types of folkloric activities, and dynamism of folklore activities, among others. Therefore, this study considered the traditional village as the research object to explore the impact of tourism development on the visual landscape perception of residents.

Methodology

Setting

Huangdu Dong Village in Tongdao Dong Autonomous County, Huaihua City, Hunan Province, China was selected as the research site for the following reasons:

Abundant visual landscape resources: The village, established during the Ming Dynasty, boasts a history spanning more than seven centuries. It possesses breathtaking natural scenery, well-preserved architectural aesthetics, and numerous public buildings with intricate structural designs. Additionally, it showcases the rich cultural traditions of the Dong ethnic group, such as Dong ethnic songs and dances, traditional attire, traditional sports, and folk activities. These elements encapsulate the essence of Dong ethnic culture, offering a wealth of visual landscape resources. This makes it a suitable research site for this study's objectives.

Tourism development: Huangdu Dong Village began developing its tourism industry in 1995 and has since become a 4A-level tourist attraction. It has transitioned from relative obscurity to gradually becoming a popular tourist destination. This transformation provides empirical evidence for analyzing the impact of tourism development on the visual landscape of traditional villages.

Scale Design

In this study, a Semantic Differential scale was employed to evaluate village residents' perceptions of visual landscape changes. The initial scale was developed based on relevant literature and consisted

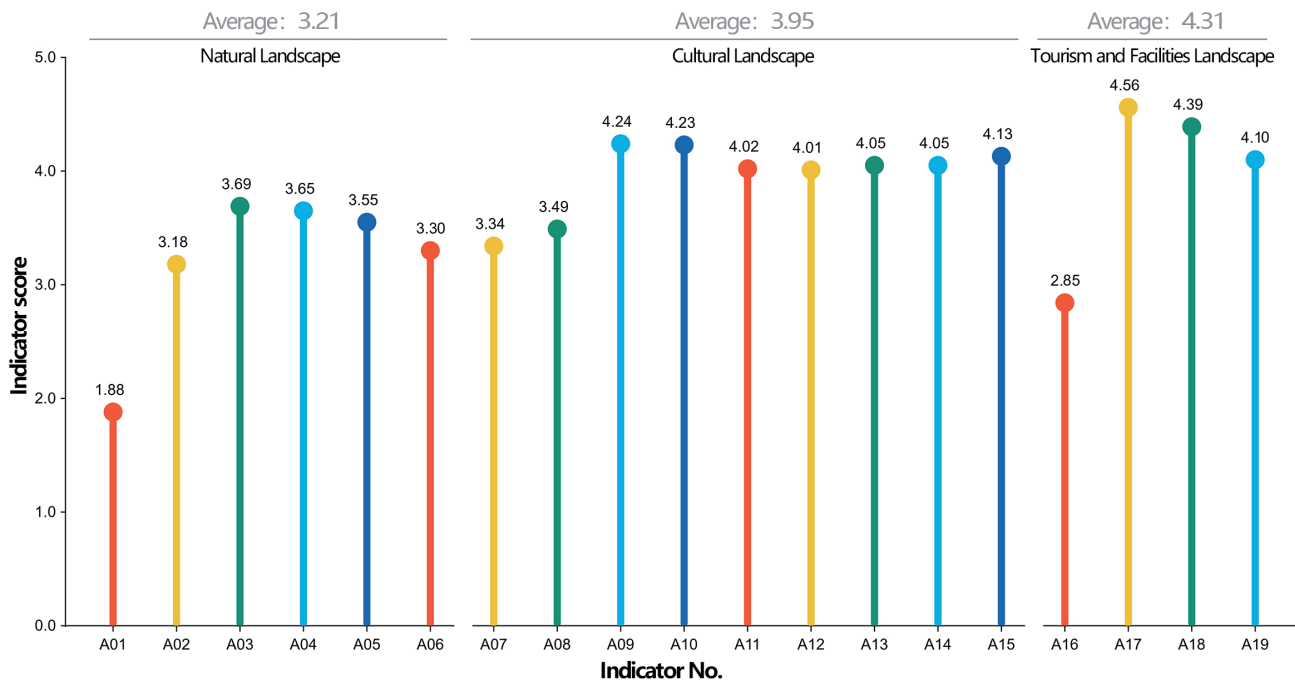


Fig. 1. Impact of tourism development on residents' perceptions of visual landscape by indicator.

of 19 indicator items across three subscales: natural landscape, cultural landscape, and tourism and facilities landscape [44-46]. Scale details are provided in Table 1. In addition to the scale, a questionnaire on residents' demographic characteristics was used, including items on gender, age, educational background, relationship with tourism, whether they served as village officials, and the length of residence in the village. The 19 scale items were rated on a five-point Semantic Differential scale. The scores indicate residents' perceived changes in the visual landscape owing to tourism development. Lower scores denote a more negative impact brought about by tourism development, while higher scores indicate a more positive impact. For example, for assessing village sanitation, the questionnaire included the following options: "Considering the changes in village sanitation after tourism development: 1 = Much dirtier, 2 = Dirtier, 3 = No change, 4 = Cleaner, 5 = Much cleaner."

Data Analysis

In the analysis of the questionnaire responses, we used SPSS statistical analysis software to calculate the means and standard deviations for the responses to each question to examine which indicators contributed to differences in residents' perceptions of tourism's impact on the visual landscape. Indicator scores were ranked according to their mean values to determine their level of influence. We used Pearson's correlation coefficient to determine significant relationships between demographic variables and the indicators ($p < 0.05$) and compared them in subsequent analyses. The six demographic variables were compared to the 19

visual landscape perception indicators using a two-by-two table to analyze group differences.

Determination of Sample Size

The required sample size was calculated using G*Power 3.1.9.7 software, with a statistical efficacy value of 0.80, a significance level of 0.05, and a larger value for the effect of the test. Considering this study used the t-test, F-test, and factor analysis in the subsequent analysis, the minimum sample size required for the t-test and F-test was calculated using G*Power; the minimum for the t-test was 52, while the F-test detected the mean value of five groups with a minimum sample size of 80. The effective sample size of this study was 152, which met the requirements.

Respondents and Questionnaire Distribution

The village had 230 households at the time of the study. The questionnaires were distributed in a one-to-one, face-to-face format through door-to-door visits. A total of 165 questionnaires were distributed; 152 valid questionnaires were obtained, excluding those with unclear answers or incomplete responses, resulting in an effective response rate of 94.4%.

Results

Respondent Characteristics

Table 2 shows the results of the frequency analysis of each demographic variable, namely gender, age,

Table 2. Descriptive statistical analysis of demographic variables (n = 152).

Variable	Option	Number	Percentage
Gender	Male	84	55.30%
	Female	68	44.70%
Age	18–30	11	7.20%
	31–40	40	26.30%
	41–50	31	20.40%
	51–60	32	21.10%
	>60	38	25.00%
Educational background	Junior high school and below	93	61.20%
	High school/junior college	29	19.10%
	Associate's Degree	16	10.50%
	Bachelor's Degree	11	7.20%
	Master's degree and above	3	2.00%
Relationship with tourism	Directly engaged in tourism	33	21.70%
	Someone in my family works in tourism	27	17.80%
	Not engaged in tourism	92	60.50%
Whether or not he/she is a village official	No	141	92.80%
	Yes	11	7.20%
Length of time living in the village	10 years or less	18	11.80%
	11–20 years	16	10.50%
	21–30 years	22	14.50%
	31–40 years	30	19.70%
	41 years or more	66	43.40%

educational background, relationship with the tourism industry, whether they serve as village officials, and the number of years they have lived in the village.

Tourism Development's Impact on Residents' Visual Landscape Perception

As seen in Fig. 1, the tourism and facilities landscape had the highest mean score (4.31), followed by cultural (3.95) and natural landscape (3.21). Tourism development positively impacted both the cultural landscape and tourism and facilities landscape, while its influence on the natural landscape was not significant, with only select natural landscape indicators showing negative effects.

Among the natural landscape dimensions, the village topography and geomorphology indicator had the lowest score (1.88), and most respondents (87.5%) thought that there was either a very substantial or small change in village topography and geomorphology, indicating that tourism development had greatly impacted the topography and geomorphology of the village. The water quality indicator score was 3.18, with nearly

45.3% of the respondents believing that water quality had improved, 36.1% that it had deteriorated, and 18.4% that it had not changed. With a score of 3.69, a majority of respondents (65.7%) believed that after tourism development, the village had better plant diversity than before. Additionally, 67.8% of respondents thought that the degree of plant cover was higher than before. The score for the agricultural productive landscape indicator was 3.55, and 57.8% of respondents considered that the agricultural landscape was more beautiful than before. The animal diversity indicator score was 3.30, and respondents' opinions on a change in animal diversity had no apparent consensus.

Regarding the cultural landscape, architectural style (3.34) and architectural authenticity (3.49) had the lowest scores, although almost 50% of respondents thought that building style was somewhat uniform or very uniform and that the architectural authenticity was somewhat good or very good; however, almost 25% of respondents thought that tourism development had negatively impacted these aspects. All other indicators scored high in the following order: types of folkloric activities (4.24), spectatorship of folkloric activities (4.23), overall

Table 3. Analysis of gender differences in indicator A05.

Indicator	Gender	Mean	SD	<i>t</i>	<i>P</i>
A05: Agricultural productive landscapes (farmland, vegetable plots, etc.)	Male	3.35	1.06	-2.847	0.005
	Female	3.81	0.92		

Table 4. Analysis of village cadres status differences in indicator A03.

Indicator	Whether or not he/she is a village official	Mean	SD	<i>t</i>	<i>P</i>
A03: Plant diversity	No	3.65	0.93	-2.183	0.031
	Yes	4.27	0.79		

village landscape and harmony with surroundings (4.13), types of public activity spaces (4.05), harmony between the public activity space and village environment (4.05), degree of protection of historical sites (4.02), and level of road historicalness and quaintness (4.01). Over 90% of respondents said that tourism development has had a positive impact on these cultural landscape indicators.

For the tourism and facilities landscape dimension, the indicator with the highest score was village sanitation (4.56), with 92.7% of respondents believing that village sanitation was cleaner or much cleaner, indicating that village sanitation considerably improved after tourism development. The second highest indicator was type of service facility, with a score of 4.39. Of all respondents, 93.4% believed that the type of service facilities in the village had increased somewhat or significantly after tourism development, while 80.9% believed that the newly added service facilities were good or very harmonized with the village environment. Finally, the score for the indicator regarding the number of tourists was 2.85, with 55.9% of respondents believing that the increase in tourists has negatively affected the village's visual landscape.

Analysis of Differences between Groups According to Demographic Variables

Before the analysis, a consistency test was conducted on the 19 questionnaire items using SPSS software. Cronbach's alpha was 0.879. This signifies a statistically strong interrelatedness among the various questionnaire items, indicating their internal consistency. Subsequently, the demographic variables of gender, age, educational background, relationship with tourism, being a village official, and years lived in the village were used as grouping variables to analyze the differences between groups for each item. Gender and cadre status were dichotomous variables, while all other variables were polychotomous; therefore, *t*-tests and one-way analysis of variance (ANOVA) were used to analyze differences between groups, respectively. These tables were further labeled for differences between groups using the marked letter method (*i.e.*, any differences

between groups that include any letter more than once are not significant, and those between groups with completely different letters are significant). Statistically significant differences between the groups were collated and exported, and the results are shown in Tables 3-8.

Table 3 shows the analysis results for productive agricultural landscapes by gender. The difference was significant ($p=0.005$), with female respondents giving higher scores for agricultural productive landscapes.

Table 4 shows the analysis results for the effect of village official status on evaluation of village plant diversity. Respondents who were village officials had significantly higher scores for village plant diversity than those who were not, with mean values of 4.27 and 3.65, respectively.

Table 5 shows the analysis results of differences in the evaluation of indicators A05, A10, A11, A17, A12, A18, and A19 by age. Respondents aged 18–30 years gave significantly lower scores than those in older age groups regarding the Spectatorship of folkloric activities, village sanitation, level of road historicalness and quaintness, type of service facilities, and harmony between the public activity space and village environment. Regarding the evaluation of productive agricultural landscapes, there was no significant difference in scores of respondents aged 18-30 and those 61 years and older, but these were both significantly lower than those aged 51-60; none of the score differences between the other age groups were significant. Regarding the degree of protection of historical sites, there was no significant difference in scores of respondents aged 18-30 and 61 years and above, but these were both significantly lower than those aged 41-50.

Table 6 shows the results of the analysis of water quality change by educational background. The scores of respondents with an Associate's Degree education were significantly higher than those of respondents with other educational backgrounds. Further, respondents with a high school and junior college education believed tourism development had a negative impact on water quality.

Table 7 shows the analysis results of differences in the evaluation of productive agricultural landscapes

Table 5. Analysis of differences in indicators A05, A10, A11, A17, A12, A18, A19 by age.

Indicator	Age	n	Mean±SD	F	P
A05: Agricultural productive landscapes (e.g., farmland, vegetable plots, etc.)	18–30	11	3.09±1.14a	2.763	0.030
	31–40	40	3.68±1.02ab		
	41–50	31	3.39±1.15ab		
	51–60	32	3.97±0.90b		
	>60	38	3.34±0.88a		
A10: Spectatorship of folkloric activities	18–30	11	3.36±1.29a	3.658	0.007
	31–40	40	4.30±0.72b		
	41–50	31	4.42±0.85b		
	51–60	32	4.31±0.78b		
	>60	38	4.18±0.77b		
A11: Degree of protection of historical sites (e.g., ancient bridges, wells, monuments, etc.)	18–30	11	3.64±1.12a	2.78	0.029
	31–40	40	4.08±0.80ab		
	41–50	31	4.35±0.84b		
	51–60	32	4.03±0.70ab		
	>60	38	3.79±0.78a		
A17: Village sanitation	18–30	11	3.82±1.17a	5.946	<0.001
	31–40	40	4.65±0.62b		
	41–50	31	4.74±0.45b		
	51–60	32	4.75±0.51b		
	>60	38	4.37±0.71b		
A12: Level of road historicalness and quaintness	18–30	11	3.00±1.00a	4.101	0.004
	31–40	40	4.08±0.89b		
	41–50	31	4.32±0.79b		
	51–60	32	3.94±1.19b		
	>60	38	4.05±0.87b		
A18: Type of service facilities (e.g., street lights, signage, trash cans, etc.)	18–30	11	3.82±0.87a	3.498	0.009
	31–40	40	4.47±0.60b		
	41–50	31	4.55±0.57b		
	51–60	32	4.47±0.57b		
	>60	38	4.29±0.61b		
A19: Harmony between additional service facilities and the village environment	18–30	11	3.55±1.29a	3.059	0.019
	31–40	40	4.15±0.80b		
	41–50	31	4.42±0.67b		
	51–60	32	4.09±0.73b		
	>60	38	3.97±0.64ab		

by respondents' relationship with tourism. Respondents who were directly involved in tourism had significantly higher scores than those in the other two categories.

Table 8 shows the results for change in animal diversity according to respondents' length of residence

in the village. Respondents who had lived in the village for 21–30 years had significantly lower scores than the other respondents, and they believed there was a tendency for the animal diversity to decrease slightly after tourism development.

Table 6. Analysis of differences in indicator A02 by educational background.

Indicator	Educational background	<i>n</i>	Mean±SD	<i>F</i>	<i>P</i>
A02: Water quality	Junior high school and below	93	3.16±1.12a	4.348	0.006
	High school/junior college	29	2.83±1.44a		
	Associate's Degree	16	4.13±0.96b		
	Bachelor's Degree and above	14	3.00±1.30a		

Table 7. Analysis of differences in indicator A05 by relationship to the tourism industry.

Indicator	Relationship with tourism	<i>n</i>	Mean±SD	<i>F</i>	<i>P</i>
A05: Agricultural productive landscapes (farmland, vegetable plots, etc.)	Directly engaged in tourism	33	3.97±0.64b	3.637	0.029
	Someone in my family works in tourism	27	3.44±1.25a		
	Not engaged in tourism	92	3.43±1.03a		

Table 8. Analysis of differences in indicator A06 by length of village residence.

Indicator	Length of residence in the village (years)	<i>n</i>	Mean±SD	<i>F</i>	<i>P</i>
A06: Animal diversity (e.g., birds, frogs, insects, etc.)	≤10	18	3.83±0.99b	3.171	0.016
	11–20	16	3.56±0.96b		
	21–30	22	2.73±1.03a		
	31–40	30	3.27±1.11b		
	≥41	66	3.29±1.02b		

Discussion

This study examined the impact of tourism development on the perception of the visual landscape of village residents in a traditional village tourist destination in Hunan Province, China. Using a quantitative approach and descriptive analysis, our results are consistent with those from previous landscape studies and are discussed below.

First, of the three visual landscape "dimensions perceived by residents (*i.e.*, natural, cultural, and tourism and facilities landscape), the impact of tourism development on the natural landscape was not significant, with only substantial negative effects on topography and geomorphology. This finding contradicts those by Pramanik & Ingkadijaya, and Sosamphanh [33, 47], who asserted a more pronounced impact of tourism development on the natural landscape. This inconsistency primarily resulted from this study's focus on traditional villages, which differed from those in other studies. Traditional villages are often located in remote mountainous areas, possess better natural ecological environments, and generally experience lower tourist volumes [48, 49]. Additionally, effective protective measures have been implemented by the Chinese government for traditional villages [50, 51].

Therefore, the conclusion that tourism development has a relatively minor impact on the natural landscape of traditional villages can be attributed to the geographical location, tourist volume, and government protective measures in these villages. However, this does not imply that tourism development has no impact.

The results indicated that the influence of tourism development was particularly pronounced in terms of topography and geomorphology indicators. On-site investigations revealed that the village was situated in a mountainous area, necessitating substantial infrastructure construction during the tourism development process, such as the addition of tourist service buildings, development of folk performances along riverbanks, and creation of spaces for tourist activities. Consequently, topography and geomorphology are more susceptible to change. Topography is one of the main factors affecting visual landscape quality [52–54]; therefore, it should be emphasized in tourism development. The scores for plant diversity, plant coverage, and agricultural productive landscape were between 3.55 and 3.69, indicating a positive impact from tourism development. The respective scores of the water quality and animal diversity indicators, 3.18 and 3.30, indicate that most respondents considered that tourism development has had no impact or a small

positive effect; however, 36.1% of respondents perceived a negative impact on water quality and 21% a negative impact on animal diversity. This is inconsistent with Lin et al., who analyzed the impact of tourism development on water quality in villages from the perspective of residents and tourists and found a significant negative impact on water quality [29, 55]. The on-site investigations revealed that traditional villages were situated in remote mountainous areas, with their water sources primarily originating from nearby mountain ranges and forested regions. Furthermore, there were fewer upstream villages, resulting in relatively minimal influence on water quality.

Chen et al. found that tourists preferred natural landscapes above other landscapes [56, 57]. Shen et al. observed that tourists' evaluation of natural landscape elements in traditional villages was generally high and these were most important to them, demonstrating how essential natural landscapes are to tourism [58]. This underscores the significance of natural landscapes in tourism, emphasizing the need for continued and effective preservation of natural landscapes during the tourism development process.

Conversely, the indicators related to the tourism and facilities landscape generally had high scores, which demonstrates residents' perception that tourism development has positively impacted village services and facilities. Song et al., Mamirkulova et al., and Hoang et al. demonstrated that tourism development can better improve basic village services and facilities, facilitate beneficial and sustainable tourism development, and improve tourism quality as well as residents' quality of life [31, 59, 60]. In the current study, village sanitation ranked the highest (4.56), and the type of service facility score was 4.39; this indicates that village sanitation and service facility provision were perceived to have significantly improved after tourism development, which is consistent with Shen and, Pramanik and Ingridijaya [33, 61]. However, some researchers have also examined traditional village service facilities and environmental sanitation indicators from the perspective of tourists, and the scores were low [58], which illustrates discrepancies in the perceptions of villagers and tourists. The score for harmony between additional service facilities and the village environment was 4.10, indicating that the appearance and style of the newly added service facilities during the process of tourism development had a good degree of coherence with the village's original characteristics. Many researchers have emphasized that in the planning and design of traditional villages, new additions should be constructed so that they are in harmony with the village environment and culture and avoid destroying the original atmosphere [62-64]. Finally, regarding the impact on the landscape from the number of tourists, 54.9% of respondents believed that an increase in tourists would impact the village's visual landscape. Studies have shown that more tourists affect local residents' quality of life [65]; therefore, it is

likely that increased tourists also would affect the visual landscape quality of traditional villages.

For the cultural landscape dimension, traditional village residents perceived that tourism development has had a positive effect on the visual landscape. The scores for architectural style and authenticity were relatively low, 3.34 and 3.49, respectively, and the majority of respondents considered architectural style and authenticity were unchanged or somewhat changed for the better by tourism development; however, nearly 25% believed both indicators had worsened after tourism development. Through on-site research, we found that the styles of a few new tourism service buildings differed from the original styles, mainly in the use of building materials. New buildings are reinforced concrete frame structures, whereas traditional buildings are mainly wood-based. Mean scores for village historical site protection and road historicalness and quaintness were 4.02 and 4.01, respectively, indicating respondents believed that both historical sites and roads were better preserved after tourism development. This is consistent with Song et al. and can be attributed to the strong protection measures taken by the government [59]. For example, in 2012, the Ministry of Housing and Construction, the Ministry of Culture, and the Ministry of Finance jointly issued the Guiding Opinions on Strengthening the Protection and Development of Traditional Villages, and in 2014, the Ministry of Housing and Construction, the Ministry of Culture, the State Administration of Cultural Heritage, and the Ministry of Finance jointly issued the Guiding Opinions on Effectively Strengthening the Protection of Traditional Villages in China. These laws and regulations have prevented traditional villages from being destroyed during modern times.

All other cultural element indicators ranged from 4.05 to 4.24. For example, respondents perceived that both the variety of folkloric activities had increased and that the spectatorship of folkloric activities had improved. Attending folkloric performances and experiencing these kinds of activities is popular with tourists, and they are also lucrative cultural resources for tourism destinations and operators [66, 67]. At the same time, tourism has been a way to revitalize artistic folkloric activities and has led to more varied and improved traditional village folkloric activities [68]. Further, with tourism development came respondents' perceptions that the variety of public activity spaces in the village had increased and that there was a better degree of harmonization between these and the village environment, which supports the findings of W. Shen [61]. Respondents also perceived that the overall village landscape was more congruent after tourism development.

In addition, the analysis of group differences revealed that respondents aged 18-30 years have lower scores than older age groups for seven visual landscape elements, suggesting young people perceive less change in the visual landscape than older individuals. Older

adult residents often have a deeper connection and richer memories of their traditional culture and village. They have witnessed the transformation of the village and possess clear recollections of the original visual landscape, making them more sensitive to the changes brought about by tourism development. Contrastingly, the younger generation, due to limitations in personal historical experience, may not have direct memories of the village's original landscape. Consequently, their perception of these changes may be relatively less pronounced. Further, women perceived a positive impact of tourism development on the agricultural landscape, which is in line with Molnarova et al., who found women gave higher scores in agricultural landscape evaluations than male respondents [69], which is consistent with Howley et al. [70]. Respondents who were village officials gave significantly higher scores in plant diversity than non-officials, and respondents who had lived in the village for 21-30 years perceived that tourism reduced the number of local animal diversity.

Conclusions, Suggestions, and Study Limitations

This study's results suggest that tourism development has had both positive and negative impacts on the visual landscape of Huangdu Dong Village. According to residents, tourism has helped improve basic service facilities and sanitation in the village, increase spaces for traditional folkloric and public activities, and promote heritage conservation. Although tourism has led to improvements in the village's cultural and tourism and facilities landscapes, it has also worsened some aspects: for example, all respondents perceived that tourism development has significantly damaged village topography, and a small number believed it has decreased village architectural style and originality, water quality, and the number of animal species. After comparing the results of previous studies with those of this study, we found discrepancies between the perceptions of villagers and tourists.

Overall, because of the financial, human, and material resource constraints of each traditional village, as well as the different degrees of tourism development, the scope of this case study is limited to Huangdu Dong Village in Hunan Province, China, and the results are not generalizable to traditional villages in other regions or countries.

Nevertheless, the following recommendations are based on this study's results.

1. For governments and decision-makers: In the process of developing tourism in traditional villages, not only should tourists' visual landscape perception experience be considered but also the impact that tourism has on residents. Steps should thus be taken to minimize the destruction of the local topography and landscapes in the building of new tourism

facilities, which should be built in accordance with local conditions. The number of tourists should also be reasonably controlled to minimize visual distractions for residents. Furthermore, the approval of new buildings should be strengthened to ensure harmony between new and original buildings in terms of style. Finally, water quality should be monitored, and the environmental awareness of tourists and villagers should be increased.

2. For residents: The development of tourism is not a unilateral responsibility of the government, traditional villages are also home to residents, who inherit and safeguard traditional village culture [71]. Residents should thus take care to foster coexistence and co-prosperity by participating in village tourism, working together to formulate plans and policies to avoid overdevelopment and resource waste, protect the natural environment and resources, and reduce their impact on the ecosystem. Through participation in self-governance, they can ensure that tourism development and operations do not jeopardize or erode local traditional culture but instead promote its inheritance and enhancement.

The aforementioned measures would facilitate a pleasant visual landscape for villagers and tourists, which would not only enhance villagers' mental health and well-being but also promote tourism, drive the local economy, and provide an economic basis for heritage conservation of traditional villages.

This study had some limitations. Because it analyzed tourism development's impact only on villagers' perceptions of the visual landscape rather than that of both villagers and tourists, future research should comparatively analyze the perceptions of both groups. Additionally, as only one traditional village was selected as the object of the study, further villages should be selected at a later stage to more comprehensively understand tourism development's impact on the visual landscapes of different villages and to improve the reliability and generalizability of the results.

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Conflict of Interest

The author(s) declare(s) that there is no conflict of interest regarding the publication of this manuscript.

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