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Evaluation of the Perception and Experience of Rural Natural Landscape among Youth Groups: An Empirical Analysis from Three Villages around Hefei

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Abstract: Research on the perception and evaluation degree that the rural natural landscape plays an important role in improving rural sustainable development and construction. However, the views of young people, who play a key role in social development, on the natural landscape of the countryside have been neglected. Based on the perspective of the rural natural landscape in China, this study combines the field research of Ma Ying, San Shi Gang, and Shen Fu villages around Hefei, Anhui Province, and constructs a perception and experience evaluation index and questionnaire of the rural natural landscape from four dimensions of rural landscape ecology, water environment, climate, and sound. Through the online questionnaire, 316 questionnaires were distributed to young people aged 18 to 35 years old, and 283 valid questionnaires were recovered with an effective recovery rate of 89.56%. The Cronbach coefficient was 0.954, and the KMO value was 0.968. The reliability and validity were good. The analytic hierarchy process (AHP) combined with the entropy method was used to calculate the weight of each index and analyze the influencing factors of young people's perception evaluation of the rural landscape. Firstly, young people have a good perception of rural climate conditions, but the planning and layout of rural landscape ecology need to be improved. Secondly, sound comfort, air cleanliness, and landscape adaptation in a rural environment are the key factors that affect young people's perception and experience of rural areas. Thirdly, improving the adaptability of the rural natural landscape to the local environment and the richness of vegetation is conducive to improving young people's favorable understanding of the rural environment.

Keywords: natural landscapes; perceptual experience; evaluation; youth groups

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1. Introduction

China has been an agricultural country since ancient times. Agriculture and rural areas have accounted for the largest proportion of China's economy since ancient times, which is the foundation of China's stable economic development. For the countryside, the sustainable development of its natural landscape is of great theoretical and practical significance to realize a harmonious coexistence between man and nature, to practice the ecological construction concept of experience, and to build a new structure of human civil ligation. The construction and planning of the rural landscape are key points of the future development potential of rural China.

Today, China's social development has entered a new stage. To promote the coordinated and sustainable development of rural and urban areas, China proposes to build an innovative, green, open, and shared sustainable development model [1]. It has a very good strategic significance for constructing the geographical improvement sample of the

new countryside, realizing the harmonious development of man and nature, and realizing the sustainability of the rural revitalization strategy. However, with the continuous improvement of China's urbanization rate, the rural population continues to flow to the city, and labor loss and an aging population lead to the increasingly serious problem of rural hollowing out.

According to data from the sixth and seventh population censuses in China in 2010 and 2020, the city populace will increase by 236,415,856 and the rural populace decreases by 16,436,1984, with the share of the rural populace lowering using 14.21 share factors over the decade [2]. According to the agricultural census and data related to the monitoring reports on migrant workers in previous years, a total of 314.22 million people were employed in agriculture nationwide, 9.9% less than in the Second National Agricultural Census in 2006. Compared to 2006 statistics from the Second National Agricultural Census, the number of humans employed in agriculture in the Eastern Region fell with aid of 7.76 million or 8.1% in 2016 [3].

Facts show that China's rural areas are shrinking to some extent. This not only exacerbates the decline of the rural population in remote areas, but also exacerbates the spatial polarization effect and the improvement of urban-rural imbalance. The value of rural landscapes mainly includes the economic value of providing agricultural products, the ecological value of maintaining ecological balance, and the aesthetic value of providing tourism and viewing. In the process of rural development, people mainly pay attention to the production capacity of rural areas, meanwhile, the research of rural agricultural landscape perception also tends to its economic value. However, the ecological value and aesthetic value of rural landscapes have not been deeply explored, and good strategies have not been adopted to guide the young labor force to rural development. This has led to a series of problems such as the decline in the naturalness of the rural landscape, the loss of rural characteristic culture, and the loss of rural landscape values, resulting in the irrational development of the rural landscape and the low level of development direction.

Based on ecological and aesthetic problems, this paper further discusses a series of problems in the rural natural landscape. By evaluating teenagers' perceptions and experience of the ecological landscape. To guide the planning and construction practice of the Anhui rural natural landscape, and improve the ecological quality and landscape aesthetic value of the rural natural landscape. Eventually, it will attract more young people to pay attention to the countryside. It will provide guidance and reference for the integrated development of urban and rural areas, the construction of rural ecosystems, and the development strategy for rural revitalization.

1.1. Rural Landscape-Related Studies

1.1.1. Ecology of the Rural Landscape

As far as rural landscape is concerned, developed countries such as Britain and the United States take the lead in evaluating the seriousness of rural landscape problems. The United States mostly uses the natural resources landscape evaluation system, while the United Kingdom evaluates the rural landscape quality from many aspects [4]. Ayadi et al. evaluated the landscape and agricultural elements of the low mountainous areas in southeastern Spain based on the joint evaluation (CA) method [5]. Conjoint Analysis (CA) is a statistical analysis method used to evaluate the relative importance of different attributes to consumers and the utility brought to consumers by different attribute levels. The previous international research on rural landscapes mainly focuses on two aspects: comprehensive evaluation and visual quality evaluation [6,7]. The European Union established the index system of rural landscape sustainable development from 1993 to 1997 [8–11]. Nijnik et al. evaluated rural land use patterns by analyzing stakeholders and rural landscape elements [12]. Some scholars conducted landscape assessments in rural areas by establishing a landscape assessment framework [13–15]. Forman, USA, has identified general principles of landscape planning and landscape evaluation through years of research into landscape ecology. It also suggests that the wise use of landscape and

regional ecology principles can improve the ecology of regional landscapes more effectively and in the long term [16].

At present, the research on the ecological evaluation of rural landscapes is quite deep in China, but mainly from the perspective of comprehensive evaluation and environmental protection [17]. Chen, J.H. integrated regional landscape into urban development planning through research. This provides certain ideas for regional cultural inheritance and promotes regional economic and social development [18–20]. Wang Qiujiao et al. established a complete evaluation model with multi-objective linear weighting characteristics through research [21]. The quality evaluation of modern rural landscapes should reflect not only the ecological value of the rural landscape, but also the characteristics and emotional value of the landscape [22].

The rural ecosystem is the carrier and a necessary condition of rural sustainable development. Therefore, this study takes rural landscape ecology as a standard index to evaluate teenagers' perception of the rural natural landscape.

1.1.2. Rural Water Bodies

International protection and utilization of rural water bodies have a long history, and the construction of the rural water system landscape in various countries is multifaceted. The first act relating to rural water, the Rural Water Supply and Sewerage Act, was created in England in 1944 [23,24]. In the 1980s, Germany introduced the concept of "denaturalization," or landscaping of rural rivers. It not only has aesthetic requirements but also pays attention to ecological protection and cultural heritage [25,26]. In 1993, France enacted the first specific law on the landscape—the Landscape Exploitation and Protection Act. The law provides for the development of hedges and streams in the countryside and the planting of trees.

China's research on landscape design and related aspects of rural water systems has gradually shifted from purely river management, flood control, and riparian greening and beautification to the comprehensive improvement of water bodies. The ecological restoration of river water bodies has also made some research progress based on international experience, providing a good basis for the construction of rural water system landscapes. Chen Boyuan takes the improvement of the ecological environment of rural waterscapes as a research point, citing a large number of cases from China and the West for different analyses, introducing some ecological techniques of waterscapes, and exploring the ecological planning methods and techniques of rural waterscapes [7].

The perceptual evaluation of rural natural landscapes needs to focus on the specificity of the rural environment and the subjective nature of people's perceptions. Water bodies in the countryside, as an important part of the rural landscape, are therefore an important indicator in the evaluation of young people's perception of the natural landscape of the countryside.

1.1.3. Rural Climate

International research on climate and comfort began in the 1970s and has been extensive and thorough [27,28]. However, the areas studied are mostly concentrated in urban areas. In recent years, research has turned to rural landscapes. For example, Anastasia Nikologianni et al. discussed strategies related to climate emergencies through three rural cases [29]. Patrik Reidsma et al. used a bio-economic farm model to comprehensively assess the impact of sustainable development in rural areas in the eastern Netherlands [30]. Gul Akturk explored how the climate in rural Turkey affects the local rural landscape and lifestyle [6]. Marius et al. assessed the climatic suitability of tourism activities in Constanta County through the climate bath index and climate-tourism index [31].

Related research has been conducted in China since the 1990s. Through research on climate adaptation planning and design and climate comfort evaluation [32–34].

At present, there are few rural landscape retrieval methods using qualitative and quantitative integrated techniques, such as built-in evaluation. The rural climate is a

necessary condition for the formation and improvement of rural herbaceous landscapes and an indicator that must be paid attention to in the evaluation of human landscapes and natural landscapes. Therefore, climate factors must be included in the study of the rural natural landscape in the study of the perception experience evaluation of youth groups.

1.1.4. Rural Soundscape

International research on rural soundscapes began in 1929 when the concept of "soundscape" was proposed. Since then, Schafer and his research team have further researched and promoted soundscapes through Johannes Gabriel Grano.

After the 1990s, soundscape studies became popular. Corresponding soundscape research organizations have been set up in various places. In the 21st century, the study of soundscapes has gradually deepened, and the international study of rural soundscapes has paid more attention to the quiet quality and perceived value of this area [35–37].

With the continuous development of research, multiple perspectives on soundscape research have brought the field into the limelight, and the object of soundscape research has become more widespread. In 2010, Kin-Che et al. conducted a study on the soundscapes of rural Hong Kong. It was found that there was a high correlation between hearing the desired sound in the corresponding landscape. [38–40].

There are also several problems with the current study of rural soundscapes. Firstly, there is still a lack of in-depth excavation of characteristic soundscape construction and cultural connotations of the countryside, and a more focused theory has yet to be developed. Secondly, there is a lack of in-depth excavation of traditional cultural memories in the rural soundscapes. Soundscapes are designed to make the visual landscape more three-dimensional. To some extent, it can enhance people's perceptual comfort, which is best when resonating with deep genetic memory. In the classical Chinese literary system, the spatial imagery of the soundscape forms a theoretical source for contemporary soundscape design, reaching a resonance that further enhances the participants' experience through the relevance of space-time to itself. Finally, the noise generated by industrial development inevitably affects the unique soundscape environment of the countryside. The characteristics of the rural soundscape environment are being lost. It is therefore necessary to introduce the concept of soundscapes in the process of constructing a perceptual evaluation system for rural natural landscapes.

1.1.5. Summary of Relevant Studies

To sum up, the main problems in the research of rural natural landscapes are as follows: First, the evaluation of rural landscapes in recent years still emphasizes the generalization of the index system. The in-depth exploration of human perception is not enough, especially on the research of young people, the lack of the mining of influencing factors, and the generalization of theoretical results. Secondly, industrial development has seriously damaged the unique regionalism of the rural natural landscape. With the improvement of urbanization level, the rural panoramic ecology is experiencing great challenges. Therefore, it is imperative to study rural natural landscapes. Thirdly, the exploration of the rural herbaceous landscape has been carried out in many countries, but the research perspectives are different. In international research, researchers in specific fields generally follow the research methods of their respective disciplines. Although fruitful, it is difficult to form an academic intersection. The ecological planning and cultural connotation of the rural natural landscape has not been deeply explored, and the theory and evaluation criteria of the rural natural landscape have not been established. Aiming at a series of problems existing in the rural natural landscape, this study comprehensively evaluates the perception and experience of the rural natural landscape from four aspects: landscape ecology, water body, climate, and sound.

The study of rural landscape perception journey evaluation can not only guide the long-term harmonious coexistence between human beings and rural ecology, but also have important theoretical and practical significance for the planning, management, protection,

and restoration of the rural ecosystem [41–44]. At the same time, youth are the main force of social development and the driving force of a region's economic growth. They represent the future lifestyle, ideology, and consumer mentality of society. Youth groups are, therefore, very important for the development and planning of rural areas. Young people aged 14–35 have a distinct group personality in terms of values, lifestyle, behavior, and psychological characteristics, which are markedly different from past generations. This generation of young people is a new generation that has grown up since China's reform and opening up. They tend to accept new things and ideas, strive for a new way of life, and are no longer old-fashioned or conservative. They think independently, are critical and creative, and have a strong desire to learn from challenging authority. Therefore, this study focuses on the youth group to study the rural natural landscape, with the help of landscape ecology thought to improve the rural natural landscape planning and design suggestions for the future youth population to promote rural construction and rural planning and development to provide a reference.

2. Study Area and Research Methodology

2.1. Overview of the Study Area

The countryside is a special form of a regional ecosystem because it is located near the city. Compared with the remote countryside, its ecological environment, landscape elements, and industrial structure are more easily affected by urban development. It is not only a transition zone between the countryside and the city, but also fully possesses the characteristics of the natural landscape of the countryside. Taking these areas as research areas can not only provide a sufficient theoretical and practical basis for the future urban-rural integration construction but also further explore the development road of the rural natural landscape in the process of promoting ecological civilization construction. Therefore, Ma Ying, San Shi Gang, and Shen Fu Village located around Hefei are selected as the research area of this paper.

To compare and analyze the results of data analysis and field investigation, the research method of observation point survey was set up in this study. The observation points are mainly placed in locations with prominent rural natural landscape characteristics to obtain the most typical local landscape elements, ecological climate, environmental features, and other information. At the same time, these observation points are located around the main traffic lines of each village and have the closest contact with residents and tourists. Taking these sites as observation points can reveal people's most appropriate perception and experience evaluation of the rural natural landscape. Therefore, observation points were set up at suitable locations in Ma Ying, San Shi Gang, and Shen Fu Village.

2.1.1. Ma Ying

Ma Ying Village is located in the south of Yangmiao Town, Changfeng County, Anhui Province. It is bordered by Tao Dian Village to the north, Gu Da Ying Village to the west, and surrounded by Si Shu Village to the southeast and is in a good location. He Huai Road passes through the village and has 12 natural villages under its jurisdiction, with a total area of 442.67 hectares and 341.33 hectares of arable land. Ma Ying village is a typical hilly landscape, located in the middle of Anhui Province, Jiang Huai watershed, the terrain is undulating and falling. The village has 408 farming households and 1778 people. Ma Ying Village was originally a key poverty-stricken village in Anhui Province in April 2015 the local town government led Ma Ying Village to integrate urban and rural resources and begin preparations for the "Ma Ying Project". The Ma Ying Project was officially launched in early 2016, while the Ma Ying community implemented the first and second phases of the Ma Ying Field Complex in 2017 and 2018 respectively. Today, Ma Ying is building a field complex through the implementation of the rural revitalization strategy. (Table 1 and Figure 1).

Table 1. Ma Ying observation point information table.

Observation Points	Specific Location	Longitude	Dimensionality	Landscape Elements
O1	Ma Ying East Farmhouse	117°5′19″ E	32°10′19″ N	Grassland, nurseries, broadleaf trees, rural settlements, country roads,
O2	Northeast Ma Ying Family Farm	117°5′3″ E	32°10′18″ N	Grassland, dryland, scrub, gently sloping vegetable patches, lowland farmland protection forests, artificial open gardens,
O3	Ma Ying love round the countryside	117°5′ E	32°10′11″ N	Low-level watered land, heathland, flower gardens, artificial open spaces, rural settlements,
O4	Eco-rural Ma Ying West	117°4′44″ E	32°10′7″ N	Paddy fields, grasslands, lowland watered land, lowland farmland protection forests,
O5	Ma Ying South Angling Centre	117°4′50″ E	32°10′ N	Water lakes, wetland scrub, paddy fields, sandy beaches,

Where On is the code for each observation point in Ma Ying (n = 1, 2, 3, . . . , n). O1 is located in the eastern part of the agora of Ma Ying with longitude 117°5′19″ E and dimension 32°10′18″ N. O2 is located on the parent farm northeast of Ma Ying at 117°5′3″ E longitude and 32°10′18″ N dimension. O3 is located in the rural area of Ma Ying love circle, with longitude 117°5′ E and dimension 32°10′11″ N. O4 is located in the western ecological countryside of Ma Ying with longitude 117°4′44″ E and dimension 32°10′7″ N. O5 is located in the southern angling center of Ma Ying with a longitude of 117°4′50″ E and a dimension of 32°10′ N.

2.1.2. San Shi Gang

San Shi Gang is located in the northwestern suburb of Luyang District, Hefei, close to Dongpu Reservoir, the water source of Hefei. San Shi Gang with a total area of 5 square kilometers, is located in the Jianghuai River basin. Local is a typical hilly landscape, south of Dongpu reservoir, north of Chu River trunk canal. The region has a national aaaa class scenic spot—ecological agriculture scenic spot. It is an important ecological barrier for the city of Hefei, with a pristine environment and proximity to the city and the major transport hubs of Hefei. The township is about 8 km from the Hefei West Hub, only 18 km from Xinqiao Airport, and 20 km from Hefei Railway Station. At present, Hefei city center, Changfeng County, and Xinqiao International Airport have a smooth external transportation system and a well-developed regional road network. (Figure 2 and Table 2).

Table 2. Information Table of each observation point in the thirty hills.

Observation Points	Specific Location	Longitude	Dimensionality	Landscape Elements
G1	Chu River Trunk Canal Bridge, Chu River, north of San Shi Gang	117°6′ E	31°57′ N	Rivers, dry scrub on steep slopes, evergreen broadleaved forests, artificial roads,
G2	Cui Gang Art Village Visitor Centre, northwest of San Shi Gang	117°53′ E	31°57′ N	Rural settlements, evergreen broadleaf trees, artificial potted plants, grassland, tourist land, country roads,
G3	Southwest of San Shi Gang	117°7′19″ E	31°55′52″ N	Broadleaved evergreen forests, rivers, dry scrub, countryside corridors,

Table 2. *Cont.*

Observation Points	Specific Location	Longitude	Dimensionality	Landscape Elements
G4	San Shi Gang pagoda	117°9′ E	31°55′ N	Dry scrub, evergreen broadleaved forest, man-made ditches, country roads,

Where Gn is the code for each observation point in the thirty posts (n = 1, 2, 3, . . . , n). G1 is located at the bridge over the Chu River trunk canal on the Chu River north of San Shi Gang, with a longitude of 117°6′ E and a dimension of 31°57′ N. G2 is located in the visitor center of Cui Gang Art Village, northwest of San Shi Gang, at 117°53′ E longitude and 31°57′ N dimension. G3 is located in the south-west of San Shi Gang, with longitude 117°7′19″ E and dimension 31°55′52″ N. G4 is located at San Shi Gang pagoda, longitude 117°9′ E, dimension 31°55′ N.

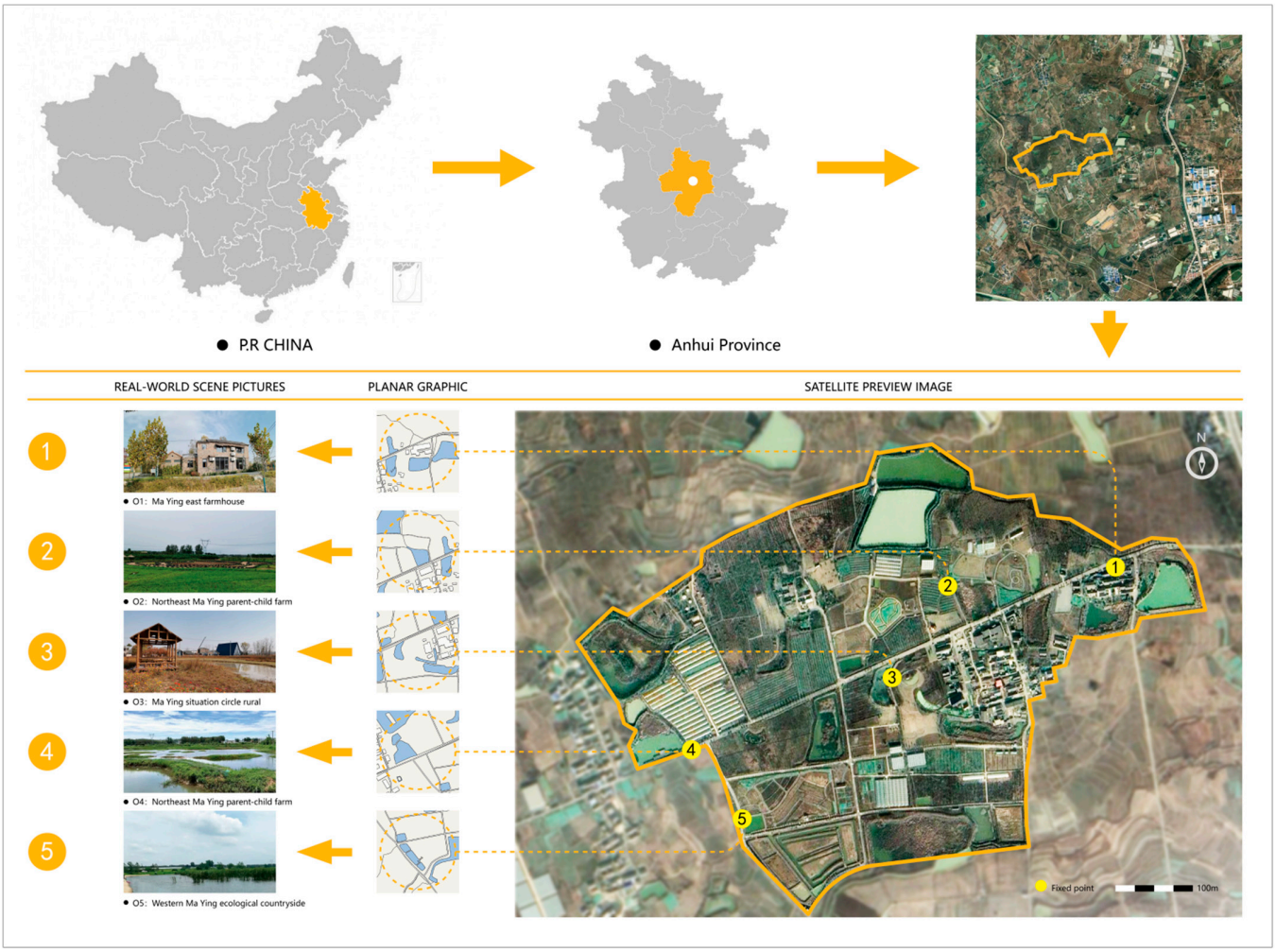

Figure 1. Map of the Ma Ying region.

2.1.3. Shen Fu Village

Shen Fu Village is located at the south end of Daxu Town, Baohe District, Hefei City. It is a new rural construction demonstration zone in Anhui Province. The village land area of 5110 mu, and the village forest area of 2200 mu. In the past, the main industry of Shen Fu Village was fruit and vegetable cultivation. In addition, there are aquaculture, pollution-free facilities, greenhouse vegetable planting, seedling flower production, grapefruit picking, agricultural tourism leisure fishing, and so on. In recent years, it has insisted on promoting the improvement model of "cooperatives + companies + farmers", forcing the formation of a wide variety of unique "pollution-free agricultural products". (Table 3 and Figure 3).

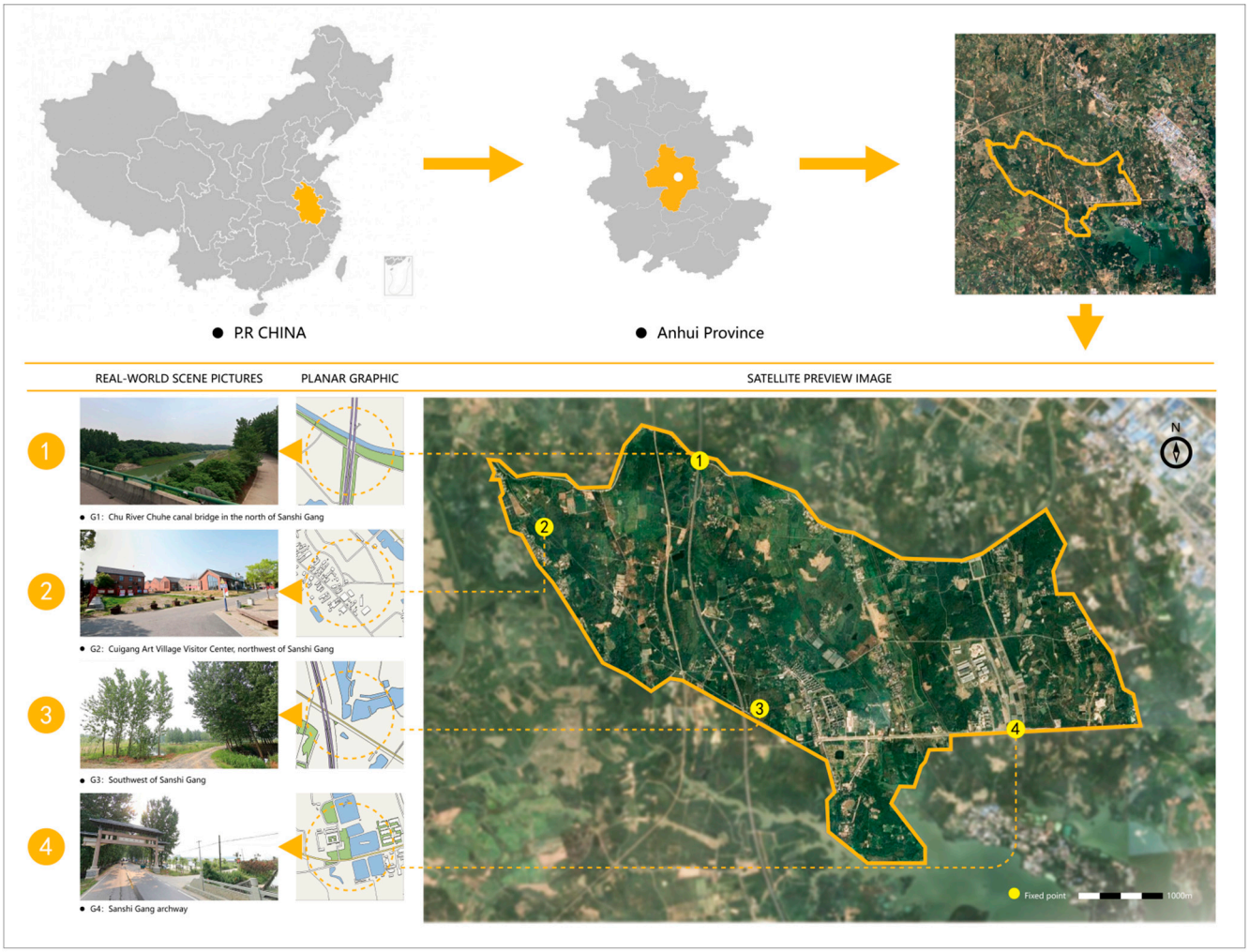

Figure 2. Regional map of the San Shi Gang.

Table 3. Information Table of observation points in Shen Fu Village.

Observation Points	Specific Location	Longitude	Dimensionality	Landscape Elements
U1	Tai Yi Road, northwest of Shen Fu Village	117°22′49″ E	31°10′33″ N	Water lakes, dry grassland, evergreen broadleaved forest, country roads, rural settlements,
U2	Da Yi Road, northeast of Shen Fu Village	117°23′8″ E	31°45′25″ N	Artificial ditches, dry grassland, evergreen broadleaf forest, country roads, rural settlements,
U3	Shen Fu Road, east of Shen Fu Village	117°23′2″ E	31°45′6″ N	Artificial ditches, dry grassland, evergreen broadleaved forest, country roads, rural settlements, wetland scrub,
U4	Junction of Shen Fu Road and Shen Dong Road, east of Shen Fu Village	117°23′ E	31°44′59″ N	Artificial ditches, evergreen broadleaf forests, country roads, rural settlements,

Table 3. *Cont.*

Observation Points	Specific Location	Longitude	Dimensionality	Landscape Elements
U5	Shen Fu Road, south of Shen Fu Village	117°22′58″ E	31°44′50″ N	Water lakes, dry grassland, evergreen broadleaf forest, gently sloping nurseries, bare rocky ground, country roads, rural settlements,

Where Un is the code for each observation point in Shen Fu village (n = 1, 2, 3, . . . , n). U1 is located on Dayi Road in the north-western part of Shen Fu Village, with longitude 117°22′49″ E and dimension 31°10′33″ N. U2 is located on Dayi Road, northeast of Shen Fu Village, with longitude 117°23′8″ E and dimension 31°45′25″ N. U3 is located on Shen Fu Road, east of Shen Fu Village, with longitude 117°23′2″ E and dimension 31°45′6″ N. U4 is located at the junction of Shen Fu Road and Shen Dong Road, east of Shen Fu Village, with longitude 117°23′ E and dimension 31°44′59″ N. U5 is located on Shen Fu Road, south of Shen Fu Village, with longitude 117°22′58″ E and dimension 31°44′50″ N.

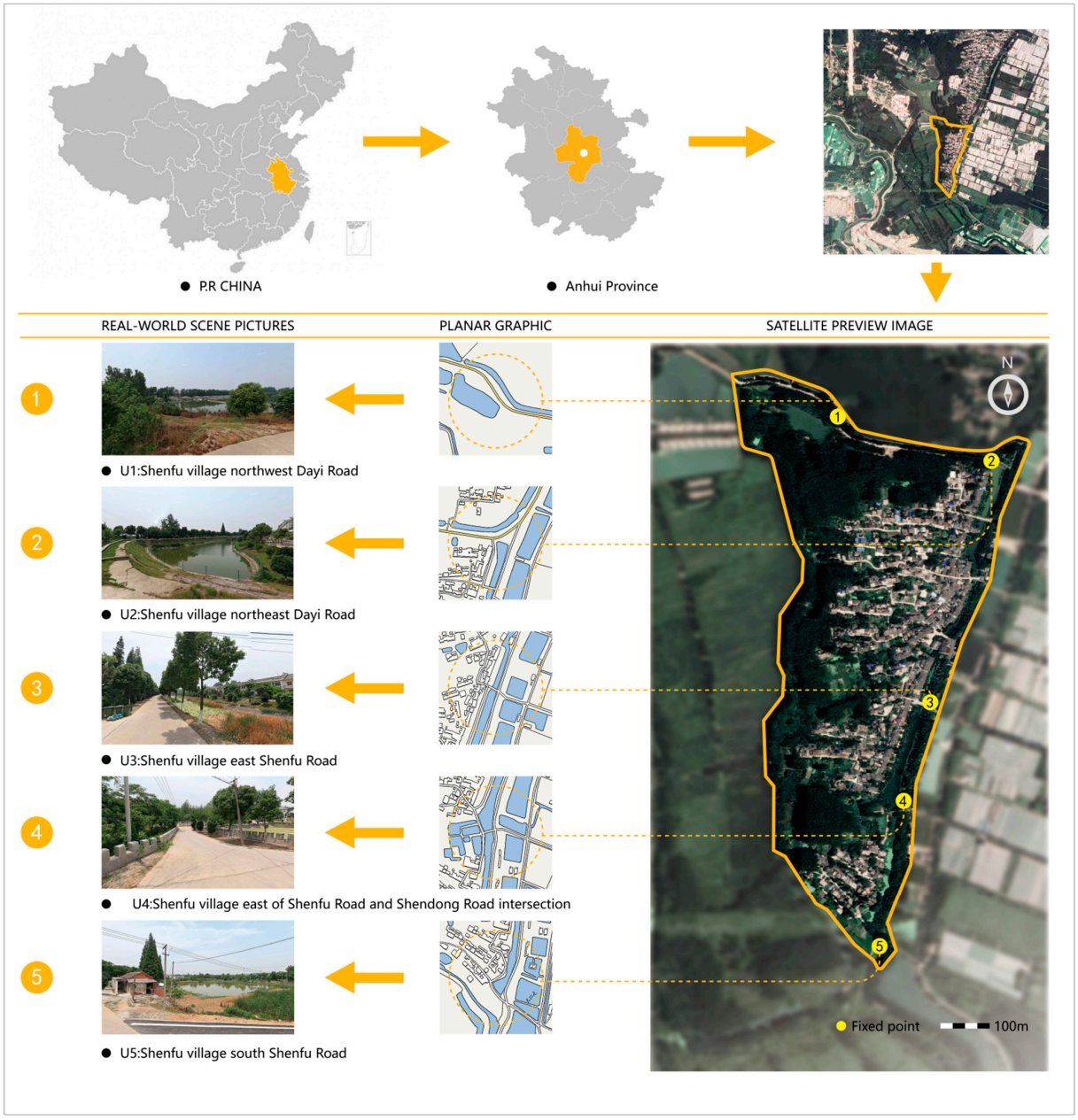

Figure 3. Regional map of Shen Fu Village.

2.2. Research Methodology

2.2.1. Hierarchical Analysis

This paper introduced the analytic hierarchy process, combined with the regional characteristics of the rural natural landscape and the cognitive characteristics of the youth group, and all the perceptual evaluation targets were screened and selected. The weight value of each element is calculated by the weight coefficient, and the importance of each element is prioritized. Thus, the improvement method of rural natural landscape design planning is obtained. Analytic Hierarchy Process (AHP) is a multi-objective decision analysis method. By calculating the maximum eigenvalue and corresponding eigenvector of the rural natural landscape perception evaluation system, it deduces the weight of importance of each level. It provides a theoretical and practical basis for the construction of a rural natural landscape perception evaluation system.

The steps of AHP adopted in this study are as follows: Firstly, AHP is used to establish the evaluation index system of rural natural landscape perception experience; Then, sample data is collected and the AHP weight calculation formula is used to calculate the weight of each index. Finally, the importance of each index is determined by the weight ranking of each index, and the results are used to determine the results of the study. The evaluation method based on AHP can combine the advantages of qualitative and quantitative research. A series of complex information elements of the rural natural landscape are decomposed into multi-layer information and arranged in an orderly manner, and the weight of each influencing factor is evaluated in its unique way. Therefore, it is included in this study. Combined with the entropy method, this paper analyzes the evaluation of teenagers' perception and experience of the rural natural landscape.

2.2.2. Entropy Method

The entropy method is an objective method of assigning values. Based on the preliminary development of the panoramic contrast index system of rural medicinal materials, the hierarchical evaluation method and entropy weight technique were combined. In this way, the model data can be analyzed and tested more scientifically, and the precision and reliability of data analysis can be improved. In the specific application process, the entropy weight method can calculate the entropy weight of each index by using information entropy according to the variation degree of the evaluation index of the rural natural landscape. Then, the entropy weight is used to modify each index, to obtain the objective index weight. Firstly, by constructing the evaluation index system of rural natural landscape perception, the evaluation factors of teenagers on the rural natural landscape are clarified. Secondly, through the identification of ecological landscape evaluation factors, determine the construction objectives of ecological landscape improvement and planning. This will provide a reference for the integrated development of urban and rural areas, the construction of rural ecosystems, and the development strategy of rural revitalization. Chua nan LIU et al. conducted a quantitative study on the visual environment of Beijing's rural park landscape based on the entropy weight method and combined it with field data. It provides a scientific basis for spatial planning and repositioning of park attributes in urban fringe areas [45,46]. Xiaoqian Liang et al. developed a method to assess the quality of mountain forests and to comprehensively evaluate the quality of mountain forests in the Chongli area in terms of landscape aesthetics, area condition, and stand structure, respectively [47].

This study analyzes the perception and experience of the rural natural landscape by referring to the existing literature research. Through the analysis and comparison of the entropy weight method and analytic hierarchy process and comprehensive weight calculation, the research results are more consistent with the objective facts. By comparing the analysis results of the entropy weight method and analytic hierarchy process, the errors caused by the subjective assignment of the analytic hierarchy process can be avoided. It can also avoid the disadvantage that the entropy weight method is not flexible due to objective calculation. When the results of the two algorithms are inconsistent, the comprehensive weight calculation method can get more practical analysis results.

This method combines the index weight determined by the analytic hierarchy process (AHP) with the entropy value method to make the evaluation structure more objective. The above examples show that the entropy weight method can reduce the errors caused by human factors. The combination of entropy and analytic hierarchy process can more effectively analyze young people's perception of rural natural landscape experience. Therefore, this paper proposes a complete comparison method combining the entropy method and hierarchical evaluation method, and uses the entropy method to objectively assign weights to evaluation data indicators. The objective evaluation of young people's perception and experience of the rural natural landscape was obtained by weighted calculation.

3. Construction of Perceptual Experience Evaluation Index System of Rural Natural Landscape and Calculation of Weights

3.1. Principles for the Selection of Rural Natural Landscape Evaluation Indicators

The evaluation index system of rural natural landscape perception experience should be objective, scientific, complete, and effective. On the premise of basic criteria, we should fully reflect the characteristics of the rural natural landscape. Establish a set of hierarchical and systematic evaluation index systems from macro to micro [48]. Based on various connotations of the rural landscape, existing studies have proposed the selection of evaluation indicators for rural landscapes [3,6,7]. Previous studies have laid a solid foundation for the evaluation of rural landscapes [19]. As the cognitive characteristics of the youth group are unique, we should grasp the cognitive characteristics of the youth group. Therefore, it is very important to put forward the evaluation index suitable for contemporary youth.

3.1.1. Representativeness of Indicators

The representativeness of the indicator is mirrored in two ways. Firstly, the comparison indications need to be capable of truly categorical the most important traits of the stage and kind in which they are located. Secondly, the diversity of natural landscape types in the countryside differs from both urban and completely untouched natural environments. It is characterized by a mixture of residential and agricultural land of varying sizes. There are settlements as well as farmland, orchards, and natural scenery. The natural landscape is distinctive in different areas. Therefore, the evaluation index system of the rural landscape should fully consider the characteristics of the rural natural landscape. Based on the actual situation of the evaluation area, corresponding indicators are selected [19].

3.1.2. Independence and Hierarchy

Independence is reflected in the fact that each indicator at each level should be independent of each other and not affect each other. The index system should be divided into levels according to the structure of the research system, from macro to micro, from abstract to concrete. For example, the structure of the target layer; guidance layer, programmer layer, index layer, and on this basis, the index is analyzed. This will make the indicator system clear and easy to use [19].

3.1.3. The Indicators Selected Should Be Comparable and Measurable

Comparability requires the evaluation results to be comparable in time between the present and the past and space between different regions. Through the comparison of time and space, it reflects the evolution track of rural landscape development and the advantages and disadvantages of each rural landscape. The corresponding countermeasures are put forward. This requires that the statistics and significance of indicators be the same over time and in different regions. Quantification requires that the qualitative index can be quantified indirectly, and the quantitative index can be quantified directly. Feasibility requires that the indicator system be easy to obtain and easy to analyze. At the same time, it should be based on realistic statistical data [49].

3.2. Perceptual Experience Evaluation Index System of the Rural Natural Landscape

There are many factors affecting the perception and experience of the rural natural landscape. Therefore, it is difficult to evaluate the multifaceted experience of an environmental system with a single criterion. To this end, the analytic hierarchy process (AHP) combined with the selection principle of the rural natural landscape evaluation index is used to construct the evaluation index system of young people's perception and experience of the rural natural landscape. To determine the indicators and attributes of each information level, there are many factors affecting the rural natural landscape; the most common are terrain, climate, soil, water, animals, and plants. When determining the evaluation index, by collecting the opinions of relevant experts and designers, the evaluation index elements are supplemented and screened. Through the above analysis methods, the hierarchy structure of the evaluation index system of rural natural landscape perception experience was finally determined, namely, 1 target layer, 4 first-level indicators, and 10 s-level indicators. Objective level: the overall objective of this hierarchical model is the evaluation of the perceived experience of a rural natural landscape.

Criterion layer (Level 1 indicator): is a further breakdown and specification of the target level of the hierarchical model. It is divided into four categories: B1 landscape ecology, B2 water environment, B3 climate, and B4 sound, which are the evaluation elements of the criterion layer. B1 Landscape ecology: mainly includes vegetation coverage, species richness, and landscape suitability. B2 Water environment: water body has a special position among the factors affecting the rural natural landscape. It is a kind of natural, flowing landscape element, and is the most dynamic element of a rural natural landscape. It can regulate the rural ecological microclimate and is the ecological link between most elements. B3 Climate: the influence of local weather on the herbaceous panorama in the geographic area is often reflected in the structure of photoelectric radiation, precipitation, wind speed, and temperature. As a rural natural landscape is a regional ecological landscape, the area and coverage of its ecological landscape are small. At the same time, due to the subjective nature of people and the transient nature of their perception of ecological landscapes (in terms of period, people can only feel the experience of the moment and do not scrutinize an ecological landscape for a long time). Therefore, long-term influences such as solar radiation, precipitation, and wind speed are excluded from the evaluation system. B4 Sound: indicates the state of the sound environment in the countryside. Includes the quiet condition of the environment and the condition of the soundscape interaction. The quiet condition of the environment refers to the level of noise disturbance and is expressed in terms of the frequency of noise disturbance (in decibels). The status of the soundscape interaction indicates the degree of interaction and resonance between the landscape and the sound.

Project level (second-level index): it is divided in detail according to the design elements of the first-level index. A total of 10 secondary evaluation indexes from C1 to C10 were selected by induction. Based on the characteristics and forms of these elements, the evaluation index system of rural natural landscape perception experience is constructed (Table 4).

Table 4. Perception and experience evaluation index system of the rural natural landscape.

Target Level	Guideline Level (Level 1 Indicators)	Program Level (Secondary Indicator)	Reference Sources
A: Evaluation of the perceptual experience of the rural nature landscape	B1: Landscape Ecology	C1: Vegetation cover	James, A., et al. (1998) [8] Stobbelaar, D.J., et al. (2000) [9] Van den Berg, A.E., et al. (1998) [10] Daniel, T.C., et al. (2001) [14]
		C2: Species richness	
		C3: Landscape suitability	
	B2: Water Environment	C4: Quality of water bodies	Hardwick, S.R., et al. (2015) [50] Xie, H.L., et al. (2003) [18,19] Peng, S.-H., et al. (2018) [51]
		C5: Water body ornamental	
	B3: Climate	C6: Climate suitability	Lungu, M., et al. (2013) [31] Hardwick, S.R., et al. (2015) [50] Xue, Y., et al. (1996) [52]
		C7: Air cleanliness	
		C8: Air Dryness	
	B4: Sound	C9: Soundscape interactivity	Pheasant, R.J., et al. (2010) [35] Aletta, F., et al. (2016) [53]
		C10: Sound comfort	

3.3. Questionnaire Design

3.3.1. Questionnaire

Based on an extensive literature review of ecological landscapes and perceived experiences, a total of 10 attributes were selected to assess the perceived experience of ecological landscapes by youth groups. The 10 attributes were assessed through an online questionnaire survey of youth groups who had visited the villages of Ma Ying, San Shi Gang, and Shen Fu. The questionnaire was constructed from the questionnaire on Star. The first method is an open-ended questionnaire survey. The survey was conducted among young residents and young visitors to Ma Ying, San Shi Gang, and Shen Fu Village to assess the implementation effects described in the indicators (Table 4).

The questionnaire is in the form of a scale, and each question consists of a set of statements, with 9 responses for each statement. The scores are 1, 2, 3, 4, 5, 6, 7, 8, and 9 according to the degree of effectiveness rating. Each score represents the respondent's rating of the set of statements (Table 5). Participants were asked to rank the importance of each attribute using a nine-point scale.

Table 5. Description of the metric conversion questionnaire.

Program Level (Secondary Indicator)	Program Level Description
C1: Vegetation cover	D1: How much vegetation cover do you think is present in the village
C2: Species richness	D2: How rich do you think the village is in terms of biological diversity
C3: Landscape suitability	D3: How well do you think the landscape fits in with the local environment
C4: Quality of water bodies	D4: How do you think the water is in the village
C5: Water body amenity	D5: How enjoyable do you think the water is
C6: Climate suitability	D6: How suitable do you think the climate in the village is
C7: Air cleanliness	D7: How clean do you think the air in the village is
C8: Air dryness and humidity	D8: How dry or humid do you think the air is in the village
C9: Soundscape interactivity	D9: How well do you think the landscape and sound in the village interact and resonate with each other
C10: Acoustic comfort	D10: How comfortable do you think the acoustic environment in the village is

The questionnaire includes basic information (gender, age, education level, whether you have been to the three places of Ma Ying, San Shi Gang, and Shen Fu Village) and an evaluation of the perceived experience of the village's natural landscape (such as how rich you think the ecological landscape of Ma Ying, San Shi Gang, and Shen Fu Village is, etc.). The questionnaires were accurately distributed in the field by research team members with specialist knowledge, at representative nodal spaces in Ma Ying, San Shi Gang, and Shen Fu Village.

3.3.2. Statistics and Analysis

A total of 316 questionnaires were distributed online through a questionnaire. As the main research population of this paper is the youth group, the age range of the target group was determined to be 18–35 years old. The actual valid sample after excluding other age groups was 283, with an effective rate of 89.56%. The proportion of males and females was 25.44% and 74.56% respectively, among which those with junior high school, senior high school, bachelor's degree, and master's degree or above were 21.55%, 23.32%, 27.56%, and 27.56%, respectively. Education is evenly distributed (Table 6). The questionnaire was distributed randomly. Among them, women accounted for 74.56% of the survey population, which was caused by the randomness and chance of questionnaire distribution. As the target population of this study is young people, its research objectives and focus are also aimed at young people. As a result, other information about the survey population is not strictly controlled.

Table 6. Statistical chart of questionnaire data.

Basic Information		Frequency	Proportion (%)
Gender	Male	72	25.44
	Female	211	74.56
Academic qualifications	Junior High School	61	21.55
	High School	66	23.32
	Undergraduate	78	27.56
	Postgraduate and above	78	27.56
	Total	283	100

At the same time, the randomness of the questionnaire is to avoid the influence of subjective will on the research results, so the random male-female ratio does not have a significant impact on the research results. Determine the proportion and distribution of data, and perform AHP hierarchical analysis on the collected data. The value of each weight is obtained and a consistency test is carried out.

3.4. Confidence and Validity Analysis

The validity learned about is used to analyze whether or not the lookup gadgets are real looking and meaningful. The element analysis method was used to analyze the validity of the data. This is a fact-evaluation technique that combines KMO value, common value, variance definition value, and element loading coefficient value to confirm the validity of the data. KMO (Kaiser-Meyer-Olkin) test statistics are used to compare the simple correlation coefficient and partial correlation coefficient between variables. It is mainly used in multivariate statistical factor analysis. The KMO statistic is between 0 and 1. The KMO value is used to determine the suitability of the statistics extraction, and the generic value is used to remove unreasonable lookups. If KMO is higher than 0.8, it indicates that it is very suitable for information extraction (the validity is good from one side). If KMO is between 0.7 and 0.8, it indicates that it is suitable for information extraction (the validity is good from one side). If KMO is between 0.6 and 0.7, it indicates that information extraction can be carried out (from one side, the validity is general). KMO and Bartlett tests were used for validity verification.

Firstly, the reliability coefficient Cronbach's α was used to evaluate the internal consistency of the obtained factors. When Cronbach's α value is higher than 0.70, it indicates that the data is acceptable and has good reliability. Finally, the validity of the questionnaire data is analyzed based on confirming that the reliability is good.

The questionnaire data were imported into SPSSAU statistical software for reliability analysis and reliability tests. After analysis, the Cronbach α value of the sample is 0.954, and the KMO value is greater than 0.8, which indicates that the reliability quality of the research data is high. The KMO value of sample data was 0.968, and the significance level was $p < 0.05$. The validity test met the applicable conditions for factor analysis.

3.5. Weight Calculation and Consistency Test

Analytic hierarchy Process (AHP) is a subjective empowerment method that describes relative importance through expert and public ratings. And then calculate the weights. The 283 valid questionnaires received in this study rated each indicator in the evaluation system on a scale of "1–9" according to importance (Table 7). SPSSAU was used to calculate the weight of each index. The greater the weight, the greater its relative significance.

Table 7. Element importance scale.

Discriminative Quantification Values	Description of Meaning
1	The two factors are of equal importance.
3	Indicates that the former is slightly more important than the latter.
5	Indicates that the former is more important than the latter.
7	Indicates that the former is much more important than the latter.
9	Indicates that the former is extremely more important than the latter.
2, 4, 6, 8	Denotes the middle value of the above adjacent judgment.

Creating a comparative judgment matrix. The judgment matrix uses a structured chart format to establish relationships between factors at each level. The importance of all relevant factors in the ladder level is compared in pairs. Each evaluation index is compared in pairs within the range of 1–9, and the judgment matrix A is as follows:

$$A = \begin{bmatrix} \alpha 11 & \alpha 12 & \dots & \alpha 1n \\ \alpha 21 & \alpha 22 & \dots & \alpha 2n \\ \dots & \dots & \dots & \dots \\ \alpha n1 & \alpha n2 & \dots & \alpha \mathrm{nn} \end{bmatrix} \quad (1)$$

where α_{ij} indicates the importance of Xi relative to X_j for α. The price of α_{ij} is normally given through specialists in the area or based totally on questionnaire data and has $\alpha_{ij} \times \alpha_{ji} = 1$. Through the above judgment matrix, the weight price of every indicator is the eigenvector corresponding to the greatest eigenvalue of the judgment matrix, and the square root method is used to calculate the weight value of the judgment matrix, and the weighting weight of the evaluation index of the perceptual experience of the rural natural landscape is derived.

To keep away from the effect of subjective elements of the subjects, consistency takes a look at evaluation is required for the outcomes of the consistency test used to calculate the consequences of the comparison weights of the study, i.e., to calculate the consistency indicator CR value ($CR = CI/RI$). The test process is as follows:

$$W1 = \frac{\sqrt{Mi}}{\sum i\sqrt{Mi}} = 0.996,\ W2 = 1.000,\ W3 = 1.004,\ W4 = 0.999$$

$$BW = A \times W = \begin{bmatrix} 1 & 0.996 & 0.992 & 0.997 \\ 1.004 & 1 & 0.996 & 1.001 \\ 1.008 & 1.004 & 1 & 1.005 \\ 1.003 & 0.999 & 0.995 & 1 \end{bmatrix}$$

The maximum eigenvalue of the judgment matrix can be obtained as

$$\lambda \max = \sum \frac{(\mathrm{AW})i}{10\mathrm{W}i} = 10 \quad (2)$$

Next, the consistency ratio of this matrix can be calculated as

$$CI = \frac{\lambda \max - 10}{10 - 1} = 0 \quad (3)$$

A query of the mean random consistency table shows that RI = 1.490, Then therefore

$$CR = \frac{CI}{RI} = 0 \ < \ 0.1 \quad (4)$$

The judgment matrix passed the consistency test. Similarly, the CR values of the remaining judgment matrices are all 0, indicating that all judgment matrices pass the consistency test (Tables 8 and 9).

Table 8. Scheme layer weight of the perception and experience evaluation system of the rural natural landscape.

Item	Eigenvectors	Weighting Values	Maximum Eigenvalue	*CI* Value
C1: Vegetation cover	0.994	0.0994	10.000	0.000
C2: Species richness	1.003	0.1003		
C3: Landscape suitability	0.992	0.0993		
C4: Quality of water bodies	1.005	0.1005		
C5: Beauty of water bodies	0.996	0.0996		
C6: Climate suitability	1.024	0.1024		
C7: Air cleanliness	0.989	0.0989		
C8: Air dryness and humidity	1.000	0.0999		
C9: Soundscape interactivity	1.005	0.1005		
C10: Sound comfort	0.993	0.0993		

Table 9. Criterion layer judgment matrix and weight value of perception and experience evaluation system of the rural natural landscape.

A	B1	B2	B3	B4	w_i	Maximum Eigenvalue	*CI* Value	*CR* Value
B1	1	0.996	0.992	0.997	0.996	4.000	0.000	0.000
B2	1.004	1	0.996	1.001	1.000			
B3	1.008	1.004	1	1.005	1.004			
B4	1.003	0.999	0.995	1	0.999			

3.6. Entropy Weight Method Weight Calculation

The entropy weight method is an objective task method, which provides higher accuracy than the subjective task method. Entropy is a measure of the disorder of a system. Compare the amount of information a variable possesses by measuring its disorder degree. Using it can profoundly reflect the differentiation ability of indicators to determine the weight, with high credibility and accuracy. However, due to the excessive dispersion of a particular index, this method is prone to produce unbalanced weights.

The entropy weight method first calculates the entropy weight of the indicator by applying the information entropy after standardizing the original data, where the value X_{ij}, when the indicator is a positive indicator, is standardized by the formula:

$$Y_{ij} = \frac{X_{ij} - X_{i_{min}}}{X_{i_{max}} - X_{i_{min}}} \tag{5}$$

where: X_{ij} is the original data; i = 1, 2, 3, . . . , m; j = 1, 2, 3, . . . , m; j = 1, 2, 3, . . . , n; i and j denote the need for the unit being evaluated and the number of evaluation indicators, respectively. X_{imax} and X_{imin} are the maximum and minimum values of the indicator, respectively. Y_{ij} is the normalized result setting the j as the influence factor that affects the perceived experience of the rural nature landscape.

Next, the information entropy of each indicator and the ratio of each indicator under each scenario are found. For a given impact factor j, its information entropy is calculated by the formula E_j:

$$E_j = -\frac{1}{\ln m} \sum_{i=1}^{m} P_{ij} \ln P_{ij} \tag{6}$$

$$P_{ij} = \frac{Y_{ij}}{\sum_{i=1}^{m} Y_{ij}} \tag{7}$$

where: P_{ij} is the proportion of the standardized value Y_{ij} to the total standardized value. E_j is the entropy value of the j the indicator, n is the number of indicators evaluated and ln is the natural logarithm function.

If the information entropy E_j of the impact factor affecting prevention and control is smaller, it indicates that the variability of the factor is smaller and the sample data are more orderly. The greater the ability to distinguish the evaluation image, the greater the information utility value provided by the factor. The greater the influence on the perception and experience of the rural natural landscape, the greater the weight; on the contrary, the larger the information entropy is, the greater the variation of the influence factor is. The smaller the information utility value provided by the factor, the smaller the impact on the perception and experience of the rural natural landscape, and the smaller the weight. According to the calculated information entropy of each factor E_1, E_2, . . . , E_k, the weight Wj of each factor is calculated, and the formula is:

$$W_j = \frac{1 - E_j}{k - \sum_{j=1}^{k} E_j} \tag{8}$$

where: k is the wide variety of influence factors.

Finally, the entropy weight S_j of everything is calculated based totally on the weight W_j of every factor, and the system is:

$$S_j = \sum_{j=1}^{n} P_{ij} W_{ij} \tag{9}$$

Calculate the weight of the perceptual experience evaluation index for each rural natural landscape by the entropy weighting method (Tables 10 and 11).

Table 10. Comprehensive weight of perception and experience evaluation index of the rural natural landscape.

Target Level	Guideline Level	Weighting Values	Program Level	Weighting Values	Weighted Weight Value R_j	Ranking
A: Evaluation of the perceptual experience of the rural nature landscape	B1: Environmental Ecology	0.2491	C1: Vegetation cover	0.0994	0.0248	5
			C2: Species richness	0.1003	0.0250	3
			C3: Landscape suitability	0.0993	0.0247	6
	B2: Water Environment	0.2501	C4: Quality of water bodies	0.1005	0.0251	2
			C5: Water beauty	0.0996	0.0249	4
	B3: Climate	0.2511	C6: Climate suitability	0.1024	0.0257	1
			C7: Air cleanliness	0.0989	0.0248	5
			C8: Air dryness and humidity	0.0999	0.0250	3
	B4: Sound	0.2497	C9: Soundscape interactivity	0.1005	0.0251	2
			C10: Sound Comfort	0.0993	0.0248	5

Table 11. Scheme layer weight of rural natural landscape perception and experience evaluation system based on entropy weight method.

Indicators	Entropy Value E_j	Entropy Weight S_j	Ranking
C1: Vegetation cover	0.9732	0.1227	1
C2: Species richness	0.9808	0.0877	9
C3: Landscape suitability	0.9797	0.0928	8
C4: Quality of water bodies	0.9777	0.1022	3
C5: Water beauty	0.9781	0.1003	4
C6: Climate suitability	0.9810	0.0872	10
C7: Air cleanliness	0.9794	0.0944	7
C8: Air dryness and humidity	0.9786	0.0980	5
C9: Soundscape interactivity	0.9788	0.0972	6
C10: Sound Comfort	0.9743	0.1175	2

4. Combined Weights Based on a Combination of Hierarchical Analysis and Entropy Weighting

The entropy and AHP methods are used to calculate weights, one for subjective and one for objective weights. The mixture of the two techniques makes the records more reflective of the genuine situation. Based on the results of the weighting of the indicators by the above two methods, the combined weight C_j is calculated with the following formula, i.e., A × B/(sum of A × B). A and B are the weights derived from the 2 methods. The formulae are as follows:

$$Cj = \frac{RjSj}{\sum_{j=1}^{n} RjSj} \tag{10}$$

where: R_j represents the weighted weight of every contrast indicator calculated via the hierarchical evaluation method. S_j represents the entropy weight of every contrast indicator calculated using the entropy weight method. The consequences of each subjective and goal assignment have been synthesized and calculated to decide the closing composite weight cost C_j for every indicator (Table 12).

Table 12. Two weighting methods and comprehensive weight results.

Indicators	AHP Weighted Weighting Value R_j	Entropy Weighting Method Weight Value S_j	Combined Weight Value C_j	Overall Ranking
C1: Vegetation cover	0.0248	0.1227	0.1205	1
C2: Species richness	0.0250	0.0877	0.0884	7
C3: Landscape suitability	0.0247	0.0928	0.0924	6
C4: Quality of water bodies	0.0251	0.1022	0.1044	3
C5: Water beauty	0.0249	0.1003	0.1004	4
C6: Climate suitability	0.0257	0.0872	0.0884	7
C7: Air cleanliness	0.0248	0.0944	0.0924	6
C8: Air dryness and humidity	0.0250	0.0980	0.1004	4
C9: Soundscape interactivity	0.0251	0.0972	0.0964	5
C10: Sound Comfort	0.0248	0.1175	0.1165	2

5. Statistical Analysis

When the entropy weight method and analytic hierarchy process get the same weight order. The weight coefficient obtained by the entropy weight method is used as the final weight coefficient of each index. This can effectively eliminate the subjectivity of the index weight coefficient. When the weight coefficient obtained by the two methods is inconsistent in the importance of the index. The weight coefficient obtained by AHP is the final weight coefficient of each index. This can eliminate the error that the weight determined by the entropy weight method is opposite to the real significance of the index. When in the middle, you can use a compromise. This evaluation method combines the advantages of the entropy method and hierarchical evaluation method, which makes the weight determination of multi-index comprehensive evaluation more reasonable.

As can be seen from the table, the weight order obtained by the analytic hierarchy process is as follows C6 climate suitability (0.0257), C9 soundscape interactivity (0.0251), C4 water quality (0.0251), C2 species richness (0.0250), C8 air dryness and humidity (0.0250), C5 water beauty (0.0249), C7 air cleanliness (0.0248), C1 vegetation cover (0.0248), C10 sound comfort (0.0248), C3 landscape suitability (0.0247) (Table 12).

The entropy weighting method weights were ranked as C1 vegetation cover (0.1227), C10 sound comfort (0.1175), C4 water quality (0.1022), C5 water beauty (0.1003), C8 air dryness and humidity (0.0980), C9 soundscape interactivity (0.0980), C7 air cleanliness (0.0944), C3 landscape suitability (0.0928), C2 species richness (0.0877), C6 climate suitability (0.0872). As can be seen from the data above, the weighting factors derived from the two types of methods are not consistent in terms of the ranking of importance of the indicators. Therefore, the weighted weight coefficient obtained by the analytic hierarchy process is used as the final weight coefficient of each index. This eliminates the error that the weight determined by the entropy weight method does not match the actual importance of the index.

The weighting coefficient reveals the relationship between the evaluation indicators and the perceived experience. The magnitude of the weight coefficient is positively correlated with the perceived experience. The higher the weighting factor, the better the youth group's experience of the indicator. Conversely, the worse the youth group's experience of the indicator, the greater the need to improve and enhance the content of the indicator.

According to the weight of the criterion layer, it can be seen that the ranking order of importance of the perceptual experience evaluation system of the rural natural landscape is B3 climate (0.2511), B2 water environment (0.2501), B4 sound (0.2497) and B1 landscape ecology (0.2491). That is, the youth group generally experiences the countryside best in terms of climate and water environment and less so in terms of sound. The countryside, on

the other hand, is the least experienced in terms of landscape ecology, and there is a need to focus on enhancing it. This result is consistent with the actual study of the village. It indicates that the climate condition of the village is good, but the planning and layout of landscape ecology need to be improved and strengthened (Figure 4).

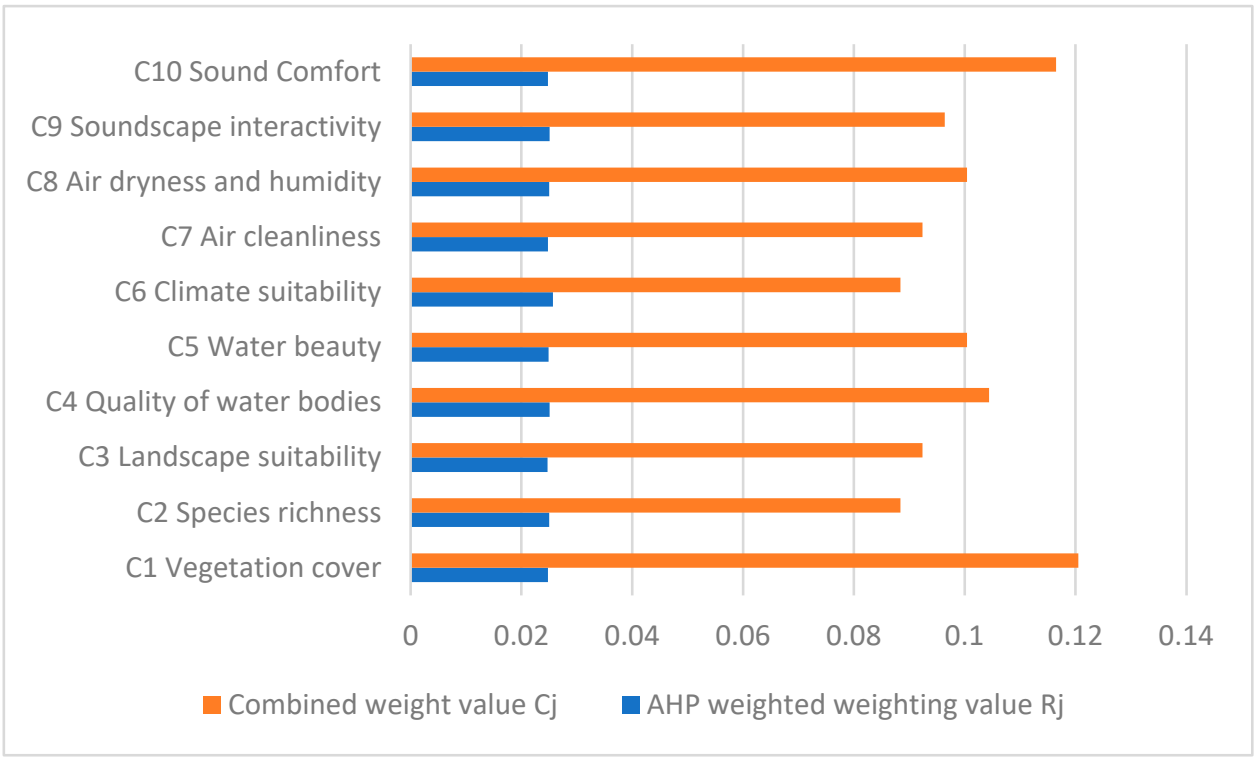

Figure 4. Weight value statistics chart.

Based on the weighted weights assigned to the program strata, it can be seen that the youth group rated C6 Climate suitability, C9 Soundscape interactivity, and C4 Water quality, which affect the natural landscape of the countryside, higher. Meanwhile, C2 species richness, C8 air dryness and humidity, C5 water beauty, and C1 vegetation cover were rated moderately, indicating that the experience of these five indicators could be improved. In addition, the youth group has a low level of recognition of the C10 sound comfort, C7 air cleanliness, and C3 landscape suitability, and needs to focus on improving the experience in these three areas. The results of this evaluation further indicate that the countryside has good climatic comfort, soundscape interactivity, and water quality, but that emphasis should be placed on improving the sound comfort and air cleanliness of the countryside, as well as on the planning and layout of the landscape.

6. Discussion

6.1. Similarities and Differences with Existing Studies

Compared to current research, this study has both commonalities and differences with the former. In terms of commonalities, firstly, the research method combining AHP with other methods is similar to many existing research methods. For example, Jeong, JS et al. used the analytic Hierarchy Process (AHP) to explore the environmental and economic factors of tourist destinations [54]. The comprehensive evaluation system based on hierarchical analysis and the entropy method can reflect the advantages and disadvantages of the rural natural environment, which has high theoretical and practical value. As a commonly used evaluation model, hierarchical analysis can be combined with a variety of methodological systems and further assist in the planning and construction of rural landscapes. Secondly, the evaluation index system of the rural landscape has a lot in common

with the indicators that have been studied. For example, Rodrigues, GS et al. proposed a "Weighted Assessment System of Environmental Impact of Rural Activities". The system includes 62 objective indicators such as landscape ecology, environmental quality (atmosphere, water, and soil), social and cultural value, economic value, and management [55]. The index system of this study has fully drawn on the content of the existing research. The establishment of its indicators fully draws on the empirical results of previous studies. By reviewing the literature and drawing on existing research, the description of the solution layer has been made more precise and detailed. For example, Rodrigues et al. constructed a weighted assessment system for the environmental impact of new rural activities and evaluated environmental performance indicators of agricultural activities. Its index system has five aspects, specifically divided into landscape ecology, environmental quality (air, water, and soil), social and cultural value, economic value, and management and administration [56].

In terms of points of difference, the first is the difference in the object of study. At present, the research on the rural landscape is not targeted and in-depth enough. Because different groups have different characteristics, different people have different influences and perceptions of experience on the rural landscape. Therefore, the outstanding advantage of this study lies in the uniqueness of the research object. This study was conducted with a youth population. The cognitive characteristics of the youth population are used to further explore the range of problems that exist in rural natural landscapes. This is a refinement of an existing field of study in terms of the object of study. Second, the research goal is more detailed. This paper focuses on the natural landscape in the countryside. Based on ecological and aesthetic issues, this paper takes the natural landscape of Ma Ying, San Shi Gang, and Shen Fu Village in Anhui as the research target. These three villages are located close to the city and have sufficient natural environmental conditions, so the research sites have certain particularity and depth. Based on landscape ecology, landscape aesthetics, and the ecological nature of rural landscapes, the evaluation index system of rural natural landscape perception experience is constructed. For the existing research fields, its research results are more targeted, which makes the research of rural landscape ecology more in-depth and specific. To a certain extent, it provides a research basis for regional rural development. At present, there are more and more research results on ecological civilization construction in China, which has laid a solid foundation for future research on related topics.

6.2. Problems and Deficiencies

This study also has some shortcomings. Firstly, the research perspective is limited to the rural natural landscape. Due to the complexity and comprehensiveness of the rural landscape, this leads to the diversity of the comprehensive evaluation theory and index system. The evaluation of modern rural landscapes comprehensively considers the social effect, ecological quality, and aesthetic influence of the rural landscape. In this paper, the perspective of rural landscape evaluation is limited to the rural natural landscape, and how to analyze the humanistic landscape as the component elements of the rural landscape more carefully. The relationship between cultural landscape and rural natural landscape should be further studied in the future.

Secondly, the evaluation index needs to be further improved. Whether the four first-level indicators and ten second-level indicators comprehensively test the perception and experience of the rural natural landscape of the adolescent group is worthy of discussion. Therefore, the accuracy of existing indicators should be considered while expanding the number of symptoms. Climate indicators, for example, actually include solar radiation, precipitation, wind speed, temperature, and soil. These factors are not included in the index system of this paper. Different regions can be further determined according to the actual situation of the study area. In addition, this paper considers the sound, climate, water environment, and environmental ecology of the rural natural landscape from a single

point of view of natural ecology. Further optimization from the perspective of landscape ecology can be considered to enhance the representativeness of the index system.

Thirdly, rural landscapes are not only evaluated by young people. China's children, middle-aged people, and an increasing number of elderlies are also important forces in rural development and construction. They are also worthy of further study. In the future, we need to expand the research population and conduct specific analyses and research on other age groups from a more comprehensive perspective to examine the shortcomings and defects of the rural landscape, to ensure that the research results are more objective and reasonable.

Fourthly, this study does not involve the content of rural agricultural landscape perception. As an important part of the rural landscape, the agricultural landscape is of great significance to the development and evolution of rural areas. This study mainly studies the rural natural landscape, mainly aimed at the rural natural landscape elements and environmental conditions. However, the agricultural landscape belongs to the category of cultural landscape, because the research team considered academic rigor. Therefore, this study did not research the rural agricultural landscape. In the future, the scope of research objectives should be further expanded, and improve all aspects of rural landscape perception research.

Fifthly, the differences and characteristics of the three research sites are not reflected. In this study, sample data from three villages, Ma Ying, San Shi Gang, and Shen Fu Village, were combined into a unified research result. Because the three villages of Ma Ying, San Shi Gang, and Shen Fu Village are all located around Hefei, Anhui Province, there are no significant differences in geographical and climatic conditions. At the same time, it is considered that the focus of this study is the perception and experience of young people on the rural natural landscape. Therefore, the characteristics and differences between the three were not studied at the initial stage of the study. In the future, the research methods will be further improved to analyze the perceptual characteristics of different types of village natural landscapes, to provide a reference for the future study of the rural landscape in China.

7. Conclusions

This study evaluates the experience of the rural natural landscape from the perspective of young people. It is expected to integrate the strength of the vast number of young people into the future development of the countryside, which has a broader development space and prospects.

The results show that: firstly, in the criterion layer, the weight of landscape ecology is 0.2491, which is smaller than other indicators. The weighted weight value of AHP of landscape suitability under landscape ecological conditions is 0.0247, which is also much smaller than other indicators. This indicates that the landscape ecology of these three villages has the greatest impact on young people's perception and experience of the rural natural landscapes, especially the landscape fitness of the rural natural landscape. Therefore, the countryside needs to carry on landscape ecological construction, to perfect the rural natural landscape planning and layout. The ecological problem of rural natural landscapes originates from unreasonable and uncoordinated rural development. To solve this key problem, we must carry out the construction of rural landscape ecology, and improve the rural natural landscape planning layout. For the ecological construction of rural landscapes, on the one hand, it is necessary to coordinate the relationship between the local natural ecosystem and rural cultural landscape, coordinate the relationship between local human activities and natural ecology, and stimulate the inherent potential of the rural natural landscape. The influence of human activities on landscape evolution is introduced into a virtuous circle to make full use of ecological principles to improve energy and material input efficiency, optimize and beautify the landscape, give play to the comprehensive value of landscape as the human living environment (economic value, ecological value, and aesthetic value), and make it more pleasant.

Secondly, in the scheme layer, the AHP weights of air cleanliness, sound comfort, and vegetation coverage are all 0.0248, and the weights of the three are relatively low. The results showed that in the three villages, air cleanliness, sound comfort, and vegetation coverage had a strong influence on the rural natural landscape of young people. Therefore, the countryside should improve air cleanliness, to improve the good comfort conditions, enrich the density of vegetation coverage, and create a fresh and comfortable rural environment. The results show that rural air cleanliness is an important factor affecting young people's perception and evaluation of rural natural landscape experience. The air environment problem of the rural natural landscape is caused by the extensive industrial production and development in the past, but also by a series of unreasonable rural construction. Create a fresh and comfortable rural air environment. On the one hand, we should improve the air quality in the countryside and raise the villagers' awareness of environmental protection, establish perfect air purification facilities and equipment, and establish a rural environmental protection system and reasonable regulation of people's behavior. On the other hand, effective strategies can be formulated to control and eliminate pollution sources, making pollution-free and clean strategies. For example, a monitoring system for air pollution prevention and control and an air quality forecasting and early warning system has been established to regularly monitor rural air quality and carry out cleaning activities in severely polluted areas. The rural soundscape experience is also an important factor to note at the moment. With the development of the economy, people have higher and higher requirements for environmental quality, especially young people who are at the forefront of receiving information and are more sensitive to the perception of new things. Therefore, it is necessary to improve sound comfort in rural areas, establish low noise and no noise, and create a quiet and harmonious rural sound environment. On the one hand, we should reduce the sources of noise pollution and limit the possibility of sound pollution and on the other hand, build a comfortable sound environment. A reasonable construction of a rural landscape layout reduces the direct transmission of sound.

Thirdly, the weighted weights of AHP for species richness, air dry humidity, and body beauty are 0.0250, 0.0250, and 0.0249, respectively, which are in moderate positions among all indexes. This indicates that the young people's perception and experience of the species richness, air dryness and humidity, and water beauty in these three villages are moderate. Therefore, the countryside can continue to enhance the overall quality of the rural natural landscape. The improvement and planning of rural natural landscape perception and experience need a more systematic and comprehensive perspective. Further improvement of such moderately evaluated indicators will further improve the perceived experience of young people. Therefore, it is not only necessary to propose solutions for the hard-to-solve index problems, but also necessary to further strengthen and refine the advantages of the original rural natural landscape, to improve the overall quality of the rural natural landscape, pay attention to the protection of the original natural ecological environment and wild animals, improve the diversity and heterogeneity of the landscape, and prohibit the destruction of the ecological environment. For air-dry humidity, we should protect the vegetation and water in the countryside, coordinate the relationship between farmland and greening, maintain the natural characteristics and ecological functions of water bodies, and rationally plan the layout of water bodies and rural landscapes. For vegetation coverage, the blind expansion of building patches should be controlled, and a green environment and living environment with a pleasant landscape should be built.

Fourthly, the weighted weights of AHP for climate suitability, soundscape interaction, and water quality are 0.0257, 0.0251, and 0.0251 respectively, and their weights are in the optimal position among all indicators. This indicates that the youth group has the best perception and experience evaluation of climate suitability, soundscape interaction, and water quality in these three villages. Therefore, for the high score indicators to continue to improve, to prevent their deterioration, specifically, for climate suitability based on being comfortable and livable, the local climate characteristics should be reflected to improve the uniqueness of the rural natural landscape. In terms of soundscape interaction, artificial

facilities can be set in harmony with the natural landscape according to the environment, and strengthen the harmonious coexistence between people and the environment to create a comfortable and pleasant rural environment. For water quality, in addition to maintaining the beauty of clean, but also need to strengthen its ecological effect and create harmony and organic interaction between people, things, and the environment. At the same time, there is also the need to transfer water or hydration, restore and improve the water ecosystem composed of various organisms, and further improve the natural purification capacity of water bodies. In the process of natural landscape management in rural areas, it is necessary to adhere to the whole view and the system view, to promote the virtuous cycle of the ecosystem.

The above data analysis and conclusion statement are consistent with the actual survey results of the three villages. The data and conclusion of this study can help and guide the practice of rural natural landscape planning and construction in Anhui Province. At the same time, this study can help improve young people's identification of rural construction. It will provide guidance and reference for the integrated development of urban and rural areas, the construction of rural ecosystems, and the development strategy for rural revitalization.

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