airiti

JAD May 2019, NO.7
Academic Article

Differences between Local Residents' and Visitors' Environmental Perception of Landscape Change of Rural Communities in Taiwan

Chun-Wei Tsou*, Sheng-Jung Ou
*Department of Landscape Architecture, Tunghai University; No.1727, Sec. 4, Taiwan Boulevard, Taichung 40704, Taiwan; +886.4.2359.0417, cwtsou@thu.edu.tw

Abstract
Rural community development on landscape environment has become a hot issue in making rural travel attractions and this development phenomenon is getting popular in Taiwan. Visitors' environmental perception on rural landscape environment would affect their behavior, impressions, and willingness-to-return about that rural area. Therefore, residents and visitors who travelled in the top ten rural villages of Taiwan elected in 2007 were subjects in this research in order to analyze differences between local residents' and visitors' environmental perception of landscape change of rural communities. Three factors, perception on rural environmental change, perception on rural environmental characteristic, and perception on life emotion about rural environment, were extracted after exploratory factor analysis was done on acceptability of perception on community landscape environment of all subjects. The result of this research could act as references for management of landscape environment in developing rural communities. It is expected that numerous difference could be avoided between development goals of rural communities and visitors' perception on landscape environment.

Keywords: Rural community, Local resident, Visitor, Environmental perception

1.Introduction

The development of rural communities and rural and agricultural land use have always been policies of great concern to the government. As Taiwan continues to urbanize and rural tourism has become an emerging tourism trend in recent years, travelers have seized upon experiencing the culture and relaxed way of living of the countryside as ways to get a feel for a pace different from that of the busy and fast paced urban one. Thus, to boost rural development and recover the value of the countryside, the government issued the Rural Regeneration Act in August, 2010, and the Enforcement Rules for the Rural Regeneration Act in July, 2011. Based on these, the government then established a NT$150 billion rural regeneration fund to promote rural regeneration programs to facilitate rural sustainability and revitalization, improve production infrastructure, conserve rural ecology and culture, upgrade the quality of life, and construct new rural prosperity and beauty. With legal and budgetary support, rural communities are helped to first improve their basic living environments, then to develop tourism and leisure services based on their resources and circumstances. Soil and Water Conservation Bureau (2011), in the Rural Community Zoning and Survey Classification Demonstration Project and in accordance with policy, advocated the promotion and allocation of resources as a foundation. Based on historical comparisons of rural communities' current usage situations and community visions, and ordered to form a reclassification, six functional and visionary categories were proposed. These were including, the type of Rural Experiential; the type of Environmental Restoration; the type of Innovative Agriculture; the type of General Prosperity and Beauty; the type of Economic Production; and the type of Aboriginal Life Style. Recommendations were given for each category, based on their environmental orientations and infrastructure level.

If we approach from the perspectives of resource planning for sustainable use, as well as supply and demand, then the sightseeing/environmental, tourism, and rural communities of the six major development categories should echo each other. When rural areas gradually change from basic production patterns to modes that are service-based, such as tourism or agricultural recreation, the land usage and spatial patterns of the life, production, and ecology within these areas will also change. In the past, research and analysis have been carried out on the landscape changes of rural areas, agricultural land, and ponds and lakes in Taiwan (Lo, 2002; Chen, et al., 2003; Lai, 2005; Tsai & Huang, 2007; Yang, 2009; Wang, 2012; Hu, 2012; Chung, 2016), but they just focused on the research level of land use change, and structure & patterns in landscape ecology. Studied on the landscape perception of users (residents, tourists) in these areas are few.

However, the development of rural areas must necessarily be based on the economic activities of rural community residents. Consumption brought by tourists as they enter rural communities also affects residents' real earnings in forms other than agricultural production. The primary role in the formation of the rural community landscape environment is the residents. Does the atmosphere

airiti

suit tourist's travel expectations? Thus, this study is conducted through both a literature review and a questionnaire, to understand differences in landscape perception of tourists and residents. This can then be used as a reference for managing the environmental landscape during the process of rural community development.

2.Literature Review

Landscape perception forms the basis of people's actions, but it is not enough to rely solely on landscape perception. People must understand whether their actions to come are good or bad, as well as the value and meaning of their actions. Only when landscape perception and landscape assessment are linked together can people choose their actions. Studies related to landscape perception began in the 1980s, mainly in the field of landscape psychology. Zube, Sell, and Taylor (1982) opened the field of research on landscape perception, which led to subsequent studies on landscape aesthetics and design, perception, and visual management. Zube et al. (1982) used the perception process of the interaction between people and environment to describe the interaction between people and environment. Through the observer's attention, understanding, and memory, as well as through interactive effects with the environment's structure, the interaction produces results such as behaviors, values, satisfaction, which lead to the formation of various environmental usage modes. Zube (1987) believed that landscape perception is a psychological process in which people interact with the environment. They receive environmental information and generate landscape perception through various senses. People interpret and understand the landscape through exercising willpower, social and cultural experiences, and their personal socio-economic backgrounds to form their environmental attitudes and behavioral responses.

Xu and Yang (2005) proposed that the nature of landscape perception is the transmission of messages about the external environment to the brain through the senses, with the brain then interpreting these messages. It involves a series of complex psychological processes, relying on two different forms of information: environmental information, and the experiences of the perceiver. The process involved in landscape perception is the senses obtaining information from the external world, extracting a wide range of characteristics from external stimuli, and mixing with the perceived context and background to form a perception. Landscape assessment involves many aspects of people's landscape perceptions, such as description, satisfaction, affection, and emotions. Landscape assessment is developed by our interaction process with the environment, and can be expressed through related vocabulary, especially descriptions that can express degrees of subjective feelings.

Wei (2012) explained that the perception process is the core of environmental behavior because it is the source of all environmental information. The environment stimulates the senses and provides more information than individuals can effectively process. Thus, the difference between perception and feelings can be said to be a result of the individuals' filtering processes. Chang (1995) pro-

posed that perception is a response to the overall relatedness of the various attributes of an objective thing, including a comprehensive understanding of all aspects of the matter. Wang (2015) studies show that from the perspective of a planner's practical applications, landscape perception information needs include primarily landscape characteristics, landscape values, and landscape changes.

Thus, regarding the research variables of landscape perception, different variables are formulated based on different research environments and subjects. In the past, in research on rural environments and tourists or local residents, Lin (2000) integrated environmental awareness into behavioral geography to understand the various cognitions of residents toward ponds. Lin employed a definition of landscape ecology elements to view ponds as a patch within landscape ecology, and explored the ecological structure of patches' typologies, sizes, and shapes, according to a quantitative index analysis. Lai (2006) proposed that the rural imagery which rural community residents are familiar with includes four concepts, namely, the physical environment; local identity and particularities; landscape perception; and value meaning. Within these concepts, landscape perception includes the categories of environmental awareness, emotion, and assessment.

In reference to the main points of argument from past discussions on landscape perception, landscape perception as referred to in this study includes tourists visiting rural communities; local residents' perceptions, emotions and assessments of the landscape environment, and a comprehensive understanding of all aspects of the community's landscape environment.

3.Research Methods

This study uses Taiwan's top ten classic agricultural and fishing villages in 2007 as its scope of research. These villages are: Zhaomen community (Xinpu Township, Hsinchu County); Fuxing community (Tongxiao Township, Miaoli County); Jiangmayuan and Shuangtan community (Dahu Township and Sanyi Township, Miaoli County); Seshui community (Yuchi Township, Nantou County); Dalian community (Tianwei Township, Changhua County); Huashan community (Gukeng Township, Yunlin County); Gangbian community (Su'ao Township, Yilan County); Matai'an community (Guangfu Township, Hualien County); Wuhe community (Ruisui Township, Hualien County); and Yong'an community (Luye Township, Taitung County). Questions in the landscape perception questionnaire were developed through an extraction of coded results, categorized under different developmental types, from in-depth interviews that were performed with key persons of the rural communities. A total of 56 descriptors were extracted from 19 respondents. In order to render the semantic differences easily understood, by means of sampling and peer assessment, invited relevant professionals to assist in the screening of descriptors to help residents fill out the questionnaires. Considering that the remaining descriptors should number no more than 25 (5 times the number of variables in the rural community of the five basic development types (disregarding the

original types) of Soil and Water Conservation Bureau (2011), 19 descriptors encountered a total of 4 or more times were deleted first so that 37 remain. Next, the respondents were asked to circle the descriptors that have the same meaning. The results were then calculated; the researchers considered the degrees of differentiation the descriptors have, and combined the descriptors to propose 25 descriptors (LP1 to LP25) to describe feelings regarding changes in the landscape environment. The 25 descriptors are: Beautiful; harmonious; ecological; refined; progressive; friendly; memorable; Lifestyles of Health and Sustainability (LOHAS); happy; sustainable; active; changing; local; green; diverse; surprising; moving; hopeful; rich; cleaner; prosperous; healthy; vital; simple; and cohesive.

Residents and tourists of this study were surveyed from July to October of 2014. Surveying of community residents was based on the times that were convenient for them or during large community events. Former or current leaders of the community (directors, supervisors, executive secretaries, etc.) were surveyed first. At least 40 valid questionnaires were collected from each community. The survey time was between one week and one month; a total of 504 valid questionnaires were collected by convenient sampling. As for surveying tourists, in consideration that the majority of tourists visit rural communities during weekends and holidays, survey times were mainly on weekends. Each community was surveyed an average of 8 hours; a total of 1595 valid questionnaires were collected through convenient sampling.

4. Results

The following is a breakdown of the descriptive statistics and exploratory factor analysis for residents and visitors of rural communities.

4.1. Descriptive Analysis for Local Residents

4.1.1. Respondents' social backgrounds

Among the valid responses from community residents, 251 were male, accounting for 49.9%, and 252 were female, accounting for 50.1%. Although the study investigated 10 rural communities, the overall male-female ratio is still close to 1: 1. The age range accounting for the highest portion of responses, 30.7%, is 46 to 55 years old, which is close to 1/3 of the total; the second-most numerous segment is 36 to 45 years old, accounting for 19.3%; and third is 56 to 65 years old, accounting for 16.5%. These ratios reflect the distribution of the primary age structure of residents currently involved in rural community organizations and affairs. The occupation types accounting for the highest proportion of responses are: Agricultural, forestry, fishery, and husbandry, representative of the occupations found in agricultural villages, at 27.6%; the service industry, established after rural communities begin developing into tourist attractions, accounts for 23.1%; and third, household management at 13.3%. The proportions of remaining occupation types are all below 10%.

4.1.2. Respondents' participation in community affairs

The length of residence for resident respondents that accounts for the highest proportion of valid questionnaires is 11 to 20 years, at 20.5% of the total; this is followed by 51 years or more at 19%;

and then by 21 to 30 years, at 16.4%. Most of the residents falling into the 51 years or more category are older respondents who have resided in the communities their whole lives. However, respondents who have resided in the communities for less than 10 years account for 15.8% of the total (with respondents younger than 18 years old accounting for 5.2%). It is obvious that a portion of the current rural community participants yearn for rural life or to return to rural life after retiring, and thus actively contribute to and participate in community affairs. Since participation of community organizations depends on active participation of community residents, and since the main community organization, the Community Development Association (CDA), will not reject residents' participation in community events just because such residents have not joined the CDA, those who have joined community organizations account for 57.8% of the valid questionnaires. Respondents who had served as community leaders account for 33.1% of the total, which is still a 24.7% gap from the 57.8% who have joined community organizations.

4.1.3. Local residents' degree of agreement regarding the community landscape environment

(1) Local residents' perception of and identification with changes in the community landscape environment

Of the valid questionnaires, local residents' perception of and identification with changes in the community landscape environment is the highest for "the number of tourists in the community has increased in recent years" question, at an average of 3.95, followed by "the number of green beautification sites in the community have increased in recent years," at an average of 3.91. The preceding two questions show that the communities' increases in construction and marketing have increased due to the funding invested in the top ten classic agricultural and fishing villages, thereby significantly increasing the number of visitors in recent years. The lowest score is the "area of ponds in the community have increased in recent years" question, at an average of 3.03; However, the average score for the controversial perspective that the increase in tourism might lead to an increase in fallow ground, the "area of fallow ground in the community has decreased" question, ranks second to last at 3.26. This is a positive impact instead of a negative one (increase in the area of fallow ground). Overall, respondents' degree of identification with and perception of the changes in the landscape environment tends toward identification, and they had all felt the changes in the types of land use (farmland in the agricultural fallow area, developed land for constructing buildings, ponds as "bodies of water", roads, etc.). Refer to Table 1.

(2) Local residents' degree of identification with and perception of changes in the community landscape environment

airiti

Table 1. Local residents' degree of identification with and perception of changes in the community landscape environment

Ranking	Item	Question	Mean	S. D.
1	LC10	The number of tourists in the community has increased in recent years	3.95	0.933
2	LC8	The number of green beautification sites in the community has increased in recent years	3.91	0.893
3	LC1	Planting areas in the community have increased in recent years	3.76	0.823
4	LC4	The number of birds and insects in the community has increased in recent years	3.74	0.898
5	LC9	The types of industry in the community have increased in recent years	3.72	0.917
6	LC5	The types of farming in the community have increased in recent years	3.61	0.836
7	LC2	The number of buildings in the community has increased in recent years	3.49	0.860
8	LC3	Roads within the community have increased	3.28	0.911
9	LC6	The area of fallow ground in the community has decreased in recent years	3.26	0.926
10	LC7	The area of ponds in the community has increased in recent years	3.03	0.897
Number of valid questionnaires (N)			504	

Notes: A score of 5 means "strongly agree;" a score of 1 means "strongly disagree"

The design of this questionnaire is based on the semantic analysis method, which means that a score of 3 or below represents negative identification with changes in the community landscape environment. The results of the analysis shows that the "LOHAS ←→ depressed" question of the degree of identification with the perception of changes in the community landscape environment scores the highest at an average of 4.26, followed by the "green ←→ withered" and "healthy ←→ sick" questions at averages of 4.25. Four items scored an average of 4 or less: "Changing ←→ stagnating," "moving ←→ indifferent," "exquisite ←→ rough," and "surprising ←→ dull," which scored the lowest at 3.75. On the whole, respondents showed positive feelings toward the perceived psychological level of environment changes in the landscape over recent years, after the communities were ranked as the top ten classic agricultural and fishing villages. Refer to Table 2.

Table 2. Local residents' degree of identification with the changes in the community landscape environment

Ranking	Item	Question	Mean	S. D.
1	LP8	LOHAS ←→Depressed	4.26	0.699
2	LP14	Green ←→Withered	4.25	0.756
2	LP22	Healthy←→Sick	4.25	0.750
3	LP6	Friendly←→Cold	4.22	0.759
3	LP9	Happy←→Painful	4.22	0.740
3	LP24	Simple←→Showy	4.22	0.782
4	LP1	Beautiful←→Ugly	4.18	0.693
4	LP18	Hopeful←→Despairing	4.18	0.756
5	LP7	Memorable←→Leaves no impression	4.15	0.692
5	LP23	Vital←→Deathly still	4.15	0.736
6	LP10	Sustainable←→Short-lived	4.12	0.824
7	LP20	Cleaner←→Dirtier	4.11	0.819
8	LP21	Prosperous←→Lifeless	4.10	0.809
9	LP13	Local←→Foreign	4.07	0.863
10	LP2	Harmonious←→Unbalanced	4.05	0.817
10	LP3	Ecological←→Artificial	4.05	0.942
10	LP15	Diverse←→Single	4.05	0.862
11	LP5	Progressive←→Regressive	4.03	0.875
11	LP11	Active←→Quiet	4.03	0.768
12	LP25	Cohesive←→Careless	4.02	0.824
13	LP19	Rich←→Poor	4.00	0.855
14	LP12	Changing←→Stagnating	3.96	0.873
15	LP17	Moving←→Indifferent	3.92	0.850
16	LP4	Refined←→Rough	3.78	0.853
17	LP16	Surprising←→Dull	3.75	0.893
Number of valid questionnaires (N)			504	

Notes: A score of 5 means "strongly agree" with perception described on the left; a score of 1 means "strongly agree" with perception described on the right.

4.2. Descriptive Analysis of Tourists

4.2.1. Overview of tourists' social backgrounds and tourism characteristics

Among the valid responses from community tourists, men account for 47.2%, while women account for 52.8%. Similar to the sample of residents, the overall male-female ratio approached 1: 1. The age group accounting for the highest portion of responses, 30.4%, is under 25 years old, followed by 26 to 35 years old at 25.4%, and 36 to 45 years old at 20.4%. The number of tourists who have visited the community for the first time within the last 7 years accounts for the highest proportion, at 48.7% or nearly half. Most respondents did not know that the community had received the honor of ranking in the top ten classic farming and fishing villages in Taiwan. This is followed by 2 to 5 times, at 33%. Moreover, tourists who have visited 11 times or more account for 11.5%; many tourists of this type include the rural community as one of their daily leisure destinations and engage in activities like hiking, viewing scenery, dining together, etc. Those planning to stay half a day account for the largest proportion, at 41.2%, followed by two hours or less, at 27.9%. The proportions of one day and two-day, one-night are similar, at 13.2% and 13% respectively.

4.2.2. Tourists' degree of identification with the changes in the community landscape environment

From the semantic analysis of tourists' degree of identification with the changes in the community landscape in Table 3, results tend toward positive descriptions on average. The highest average score (green ←→ withered) and the lowest (exquisite ←→ rough) have a difference of 0.82; the standard deviation lies between 0.613 (beautiful) and 0.926 (surprising). Tourists' degree of identification with feelings toward the rural community landscape environment ranked the lowest in seven items: moving, diverse, changing, rich, surprising, progressive, and exquisite. The difference in the degree of agreement (standard deviation between 0.828 and 0.926) is located between positive and negative feelings. Thus, we infer that the majority of respondents were visiting for the first time and weren't familiar with how the environment had been in the past. However, the overall perception of the landscape environment of rural communities showed still positive agreement. Refer to Table 2.

Table 3. Tourists' degree of identification with changes in the community landscape environment

Ranking	Item	Question	Mean	S. D.
1	LP14	Green ←→Withered	4.49	0.668
2	LP24	Simple←→Showy	4.40	0.669
3	LP22	Healthy←→Sick	4.34	0.660
4	LP8	LOHAS ←→Depressed	4.29	0.644
5	LP23	Vital←→Deathly still	4.26	0.700
6	LP1	Beautiful←→Ugly	4.25	0.613
7	LP2	Harmonious←→Unbalanced	4.24	0.662
8	LP3	Ecological←→Artificial	4.22	0.791
9	LP6	Friendly←→Cold	4.22	0.693
10	LP9	Happy←→Painful	4.18	0.705

11	LP13	Local←→Foreign	4.16	0.836
12	LP10	Sustainable←→Short-lived	4.12	0.802
13	LP7	Memorable←→Leaves no impression	4.11	0.765
14	LP18	Hopeful←→Despairing	4.09	0.766
15	LP20	Cleaner←→Dirtier	4.00	0.750
16	LP21	Prosperous←→Lifeless	3.98	0.761
17	LP25	Cohesive←→Careless	3.97	0.803
18	LP11	Active←→Quiet	3.93	0.850
19	LP17	Moving←→Indifferent	3.85	0.871
20	LP15	Diverse←→Single	3.81	0.890
21	LP12	Changing←→Stagnating	3.79	0.859
22	LP19	Rich←→Poor	3.78	0.853
23	LP16	Surprising←→Dull	3.74	0.926
24	LP5	Progressive←→Regressive	3.74	0.828
25	LP4	Refined←→Rough	3.67	0.868
		Number of valid questionnaires (N)	1574	

Notes: A score of 5 means "strongly agree" with perception described on the left; a score of 1 means "strongly agree" with perception described on the right.

4.3. Analysis on Exploratory Factors for the Degree of Identification with Changes in the Community Landscape Environment

4.3.1. Analysis on exploratory factors for the residents' degree of identification with changes in the community landscape environment

After analyzing the exploratory factors for local residents' degree of identification with environmental changes in the top ten rural communities, only two factors were extracted. As shown in Table 4, the results show good relevancy (KMO = 0.963, variance explained = 56.3%, Cronbach's α = 0.961). The first factor primarily includes feelings brought on by environmental changes, including 17 sensory factors such as surprising, diverse, moving, rich, and LOHAS. These are thus named "Feelings Toward Changes in Rural Environment" (Cronbach's α = 0.947); the second factor primarily includes 8 sensory factors such as harmonious, ecological, and beautiful. These are thus named "Feelings Toward Features of Rural Environment" (Cronbach's α = 0.898).

Table 4. Analysis on exploratory factors for the residents' degree of identification with the changes in the community landscape environment

		Factor Ⅰ	Factor Ⅱ
LP16	Surprising←→Dull	.736	.241
LP15	Diverse←→Single	.718	.215
LP17	Moving←→Indifferent	.703	.287
LP19	Rich←→Poor	.698	.281
LP11	Active←→Quiet	.687	.305
LP18	Hopeful←→Despairing	.686	.343
LP21	Prosperous←→Lifeless	.685	.349
LP12	Changing←→Stagnating	.620	.286
LP20	Cleaner←→Dirtier	.613	.478
LP22	Healthy←→Sick	.588	.463
LP 23	Vital←→Deathly still	.581	.489
LP 13	Local←→Foreign	.578	.409
LP 10	Sustainable←→Short-lived	.572	.506
LP 25	Cohesive←→Careless	.568	.513
LP 5	Progressive←→Regressive	.532	.509
LP 14	Green ←→Withered	.529	.452
LP 4	Refined←→Rough	.505	.425
LP 2	Harmonious←→Unbalanced	.241	.788
LP 3	Ecological←→Artificial	.174	.772
LP 1	Beautiful←→Ugly	.293	.717
LP 9	Happy←→Painful	.410	.654
LP 6	Friendly←→Cold	.398	.649
LP 24	Simple←→Showy	.379	.628
LP 8	LOHAS ←→Depressed	.476	.621
LP 7	Memorable←→Leaves no impression	.434	.517

KMO = 0.963 variance explained=56.3% Cronbach's α = 0.961

4.3.2. Analysis on exploratory factors for the tourists' degree of identification with the community landscape environment

After analyzing the exploratory factors of tourists' degree of identification with the community landscape environment, only three factors were extracted. As shown in Table 5, the results show good relevancy (KMO = 0.961, variance explained = 53.2%, Cronbach's α = 0.941). The first factor primarily includes feelings brought by environmental changes, including 10 sensory factors such as change, progressive, diverse, moving, rich, and surprising. These are thus named Feelings Toward Changes in Rural Environment (Cronbach's α = 0.904); the second factor primarily includes 8 sensory factors such as simple, healthy, and vital. These are thus named Feelings Toward Features of Rural Environment (Cronbach's α = 0.847); the third factor primarily includes 7 sensory factors such as memorable, happy, and LOHAS. These are thus named "Lifestyle Feelings Toward Rural Environments" (Cronbach's α = 0.850).

Table 5. Analysis on exploratory factors for tourists' degree of identification with the community landscape environment

		Factor Ⅰ	Factor Ⅱ	Factor Ⅲ
LP12	Changing←→Stagnating	.747	.106	.170
LP 5	Progressive←→Regressive	.718	.064	.262
LP15	Diverse←→Single	.688	.253	.160
LP19	Rich←→Poor	.661	.235	.249
LP16	Surprising←→Dull	.643	.268	.314
LP11	Active←→Quiet	.638	.186	.257
LP 4	Refined←→Rough	.637	.110	.325
LP21	Prosperous←→Lifeless	.577	.464	.068
LP18	Hopeful←→Despairing	.560	.323	.382
LP17	Memorable←→Leaves no impression	.527	.360	.368
LP 24	Simple←→Showy	.027	.727	.273
LP22	Healthy←→Sick	.251	.716	.245
LP 23	Vital←→Deathly still	.252	.695	.244
LP 14	Green ←→Withered	.206	.548	.302
LP20	Cleaner←→Dirtier	.404	.544	.076
LP 3	Ecological←→Artificial	.133	.499	.406
LP 25	Cohesive←→Careless	.481	.493	.192
LP 13	Local←→Foreign	.188	.448	.379
LP 7	Memorable←→Leaves no impression	.193	.111	.673
LP 9	Happy←→Painful	.342	.243	.669
LP 8	LOHAS ←→Depressed	.283	.248	.662
LP 6	Friendly←→Cold	.220	.230	.640
LP 2	Harmonious←→Unbalanced	.192	.347	.572
LP 10	Sustainable←→Short-lived	.325	.359	.525
LP 1	Beautiful←→Ugly	.319	.294	.516
KMO＝0.961	variance explained=53.2%	Cronbach's α＝0.941		

airiti

5.Discussion and Suggestions

5.1. Discussion

1. Local residents of rural communities degree of agreement with the community landscape, from landscape perception regarding physical changes in the landscape to feelings toward the changes, are continuous and consistent.

2. Overall, respondents showed positive feelings toward the perceived psychological level of environment changes in the landscape over recent years, after the communities were ranked as the top ten classic agricultural and fishing villages. The perceptions ranked in the top five, LOHAS, green, healthy, friendly, and happy, are also commonly used descriptors for marketing the rural environments. Moreover, the results for the semantic analysis of the degree of identification with community landscapes are positive. Three perceptions out of the top five with the highest averages (green, simple, LOHAS, healthy, and vital) are the same as that of community residents. However, vital and simple are also in the top ten of the overall perceptions of residents. This shows that there are few differences in basic landscape perceptions; this also means that the changes in rural environments in Taiwan in recent years have tended to give people positive perceptions.

3. Corresponding to the overall satisfaction of the resident respondents to the community landscape environment, the overall average satisfaction score is 4.06, with a standard deviation of 0.752. Therefore, overall satisfaction is also positive. We can infer that there must a direct relationship between the 10 communities' status as classic agricultural and fishing villages and the government continuing to perform relevant construction.

4. From Tables 5 and 6, we can see that the KMO values for the exploratory factors of the community residents' degree of identification are above 0.96, and the relevance is extremely high. Tourists' perceptions, in addition to the common Feelings Toward Changes in Rural Environment and Feelings Toward Features of Rural Environment, compared to local residents, have an additional Lifestyle Feelings Toward Rural Environments factor, which is equivalent to the interpretation variation of Feelings Toward Features of Rural Environment. Thus, local residents' and tourists' perceptions of the changes in rural community landscapes are still different. The comparison factors are shown in Table 6.

airiti

Table 6. Comparison of factors for residents' and tourists' degree of identification with the community landscape environment

	Residents		Tourists	
	Factor named	variance%	Factor named	variance %
Factor Ⅰ	Feelings Toward Changes in Rural Environment	31%	Feelings Toward Changes in Rural Environment	21.1%
Factor Ⅱ	Feelings Toward Features of Rural Environment	25.3%	Feelings Toward Features of Rural Environment	16.1%
Factor Ⅲ	—		Lifestyle Feelings Toward Rural Environments	16%
variance explained	56.3%		53.2%	

5.2. Practical Suggestions for Research and Rural Environment Creation

1. In this study, the descriptors for rural landscape perceptions were extracted from in-depth interviews with main leaders of community organizations. After combining the descriptors and using them in the design of the questionnaire, semantic analysis showed that some descriptors were used to indicate the same degree of perception by both residents and tourists. Through this, we can thus understand the psychological (cognitive, emotional) perceptions regarding the changes in rural landscapes. Moreover, local residents residing in rural communities have high semantic understandings of and identification with the descriptors, which can be used as a reference for subsequent landscape perception research.

2. The statistical results of this study show that tourists visiting rural communities are more perceptive to Lifestyle Feelings Toward Rural Environments factors, as compared to local residents. This aspect also reflects how the positive impression of current domestic and foreign tourists on Taiwan's rural landscape environment and its residents have a direct relationship, such as "memorable" (in this study, interpreted in conjunction with the current trend toward a rural retro style), "happy," "LOHAS," "friendly," and "sustainable." This is also an important development that government authorities in charge of rural development and rural communities who are in the process of autonomously shaping their landscape environments hope to bring to residents and tourists (both those using and experiencing the locale). Thus, basic common landscape perceptions should be maintained; and in addition, community residents can differentiate and

airiti

strengthen their communities via the characteristics, culture, and environmental conditions of their communities.

References

1. Aretano, R., Petrosillo, I., Zaccarelli, N., Semeraro, T., Zurlini, G. (2013) People perception of landscape change effects on ecosystem services in small Mediterranean islands: A combination of subjective and objective assessments. Landscape and Urban Planning, 11, 263- 73.
2. Bell, S. (2001) Landscape pattern, perception and visualization in the visual management of forests. Landscape and Urban Planning, 54, 201-211.
3. Chang, H. S. (1996) Environmental Psychology of Architecture (1st ed.). Taipei: Garden City Book Company.
4. Chen, Y. C., Lee, M. J., Huang, C. J., Deng, Y. H. (2003) A Study on Landscape Structure Changes after Farmland Consolidation. Journal of Soil and Water Conservation, 35(1), 97-110.
5. Chung, N. H. (2016) The Industrial Transformation and Landscape Change in Land Subsidence Area at Jiadong and Linbien. Unpublished master's dissertation, Department of Geography, National Kaohsiung Normal University.
6. Guan, T. L. (2005) Valuation of Farmland Landscape Change. Unpublished master's dissertation, Department of Landscape Architecture, Chinese Culture University.
7. Hu, K. W. (2012) The Transformation of Horticultural Industry Landscape in Tienwei. Unpublished master's dissertation, Department of Landscape Architecture, Tung Hai University.
8. Lin, Y. C. (2000) Application of Environmental Perception and Landscape Ecological Theory in Irrigation Ponds- A case study in Luchu, Taoyuan. Unpublished master's dissertation, Graduate School of Earth Science, Chinese Cul ture University.
9. Lo, H. M. (2002) Planning for The Ecological Corridor of Agricultural Landscape in De-Zi-Kuo River Basin. Unpublished master's dissertation, Department of Horticulture, National Taiwan University.
10. Lai, Y. M. (2006) Exploring Residents' Rural Image of Fuhsing Community, Tungshiau, Miaoli. Unpublished master's dissertation, Department of Horticulture, National Chung Hsing University.
11. Ou, S. J. (2002) Influences of Billboards on the Environmental Perception of Highways Users. Journal of the Chinese Society for Horticultural Science, 48(2), 67-182.
12. Soil and Water Conservation Bureau. (2011) Rural Community Zoning and Survey Classification Demonstration Planning. Council of Agriculture, Executive Yuan. R.O.C.
13. Soini, K., Vaarala, H., Pouta, E. (2012) Residents' sense of place and landscape perceptions at the rural–urban interface. Landscape and Urban Planning, 104, 124-134.
14. Tsai, H. N., Huang, T. A. (2007) Evaluating the Effect on the Change of Rural Landscape Pattern by Agricultural Fallow Land- A Case Study of Kwanshan Area, Taitung Conunty. Journal of Landscape, 13(1), 57-83.
15. Wang, R. H. (2012) Applying GIS on Change of Farm Landscape in Chupei City. Unpublished

master's dissertation, Department of Architecture and Urban Planning, Chung Hua University.
16. Wang, K. Y. (2015) A Study of the Framework for Using Perceptual Information in Landscape Planning. Unpublished doctoral dissertation, Department of Geography, National Taiwan University.
17. Wei, Z. F. (2012) Environmental Psychology, Taipei, Wu-Nan Book Inc.
18. Xu, L. Q. and Yang, G. X. (2005) Environmental Psychology- Environment, Perception and Behavior. Taipei, Wu-Nan Book Inc.
19. Yang, C. L. (2009) Analyzing Ecological Green Networks in a Rural Area Using Landscape Me tries: A case study in the area around the Ji-Ji township. Unpublished master's dissertation, Department of Architecture and Urban Design, Chao Yang University of Technology.
20. Zube, E. H., Sell, J.L., Taylor, J. G. (1982) Landscape perception: Research, application and theory. Landscape Planning, 9, 1-33.
21. Zube, E. H. (1987) Perceived land use patterns and landscape values. Landscape Ecology, 1, 37-45.
22. Zube , E.H., Friedman, S., Simcox, D. E. (1989) Landscape Change: Perceptions and Physical Measures. Environmental Management, 13, 639-644.