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The Study of the Cognitive Tendency of Chinese Y and Z Generations towards the Design Element Shan-Shui in Architectural Environments

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Abstract: The future of architectural environments in China will serve the needs of, and thus be shaped/re-shaped by, the Chinese Y and Z generations. Although Shan-Shui designs have long been a classic style of architectural environment in China, there is a lack of comprehensive studies on how the Chinese Y and Z generations perceive Shan-Shui designs as an architectural style. Quantitatively analyzing and understanding Chinese YZ generations' perceived relationships between Shan-Shui designs and architectural environments will have many implications for both the economy and education. In this paper, we present a large-scale study by conducting a questionnaire survey of 441 human subjects representative of both the Y and Z generations. The questionnaires were carefully designed with a focus on understanding the perceptions and cognitions of Shan-Shui designs in the survey group. The survey results were analyzed using the widely adopted SPSS25 method. Our overall analyses show that the Chinese Y and Z generations have a tendency to subconsciously perceive Shan-Shui as a relatively independent form/style from architectural environments. Between the Y and Z generations, our comparative analyses show that the latter has a more positive perception with respect to different aspects of Shan-Shui designs in architectural environments.

Keywords: architectural environment; Shan-Shui design; YZ generation; identification

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1. Introduction

China has a long history of profound cultural heritage. Its traditional culture has shown remarkable uniqueness in the world cultural system. With the deepening of globalization, people are increasingly valuing designs guided by traditional cultures [1]. Products based on cultural improvement can enhance user satisfaction and strengthen the core value of the products [2]. Cultural-based designs can also evoke emotional experiences in consumers [3]. In the design process, it is necessary to appropriately incorporate traditional cultural elements based on historical and urban cultural artistic conditions [4,5]. This approach not only enhances environmental characteristics but also improves the overall quality of the design. This highlights the importance of traditional cultural elements in modern design [6,7].

As a representative traditional cultural element of China, Shan-Shui (mountains and waters) embodies the Chinese people's philosophy of understanding the natural environment. Since ancient times, Chinese designers have been trying to incorporate the spirit and elements of Shan-Shui into urban, landscape, architectural, and interior design. With the development of the times, Shan-Shui has shown diverse trends in design and theory. Research has utilized Computational Fluid Dynamics (CFD) with PHOENICS (Parabolic Hyperbolic Or Elliptic Numerical Integration Code Series) to quantitatively analyze 62 traditional villages in China, confirming that elements such as mountains, water, and vegetation play a positive role in improving the thermal environment of villages. It also verifies the rationality of selecting sites with mountains at the back and water at the front [8]. Research has found that houses located near Shan-Shui scenery generally have

higher prices, and the Shan-Shui view is highly valued in the market and is often regarded as a representation of luxury [9]. This indicates that Shan-Shui not only enhances the physical comfort of residents but can also serve as a Mood State Correction Factor for residents [10].

With the extensive practice of Chinese representative designers and design companies based on the Shan-Shui concept, and the development of Shan-Shui design thinking, it can be seen that Shan-Shui, as a representative of Chinese traditional culture, has shown a new face in the field of design. Designers have incorporated Shan-Shui as a design element in space through continuous practice. However, people's attitudes towards this culture and design elements have not been fully validated, especially for the Y and Z generations in the high-tech electronic age, who are digital natives [11,12]. With the entrance of Generation Z into adulthood and the workforce, Generation Y and Generation Z will become the main forces in the workplace and the market. According to statistics, by 2020, Generation Z will make up 20% of the workforce [13], while Generation Y and Generation Z together will occupy almost half of the workplace [14]. This also shows that the Y and Z generations have grown into key driving forces in guiding social development, and it is necessary to study their understanding of culture.

With the growth of these younger generations, they demonstrate more influence in the economic and cultural aspects, and the periodicity and turning points of generational shifts often lead to changes in global cultural value trends [15,16]. Therefore, their attitudes towards Shan-Shui elements determine the development trend of Shan-Shui culture.

Therefore, the purpose of this study is to clarify the cognitive status of the Y and Z generations towards Shan-Shui culture, especially their perception of the relationship between Shan-Shui and architectural environments. Second, by combining relevant design images, this study aimed to investigate the cognitive status of the Y and Z generations towards Shan-Shui design elements in architectural exteriors, external environments, and interior environments. Additionally, the study aims to observe the cognitive status of the Y and Z generations towards Shan-Shui design elements after viewing Shan-Shui design images and compare them with their perceptions of Shan-Shui culture. Finally, by comparing the cognitive status of different generations, this study aims to examine the existence of generational differences and provide directions for the future development of Shan-Shui culture and Shan-Shui design elements.

2. Shan-Shui Relevant Literature Review

2.1. Shan-Shui and Architectural Environment

The word Shan-Shui has rich connotations in Chinese culture. It is not only synonymous with real mountains and water in nature, it has also been an important subject matter in Chinese ink painting for thousands of years. With the development of artistic creation in Shan-Shui, its representation in ink painting has gradually evolved into a highly abstracted formal expression of real mountains and water [17,18]. Simultaneously, ancient Chinese artists began to incorporate Shan-Shui in three-dimensional forms, artistically integrating it into courtyards and architecture. In the current context of diversified development trends in Chinese design, the representation of Shan-Shui in architectural environments has become more diverse. Although this study focuses on the design expressions of simulated Shan-Shui forms in architectural environments, to explore the specific cognitive status of Generation YZ towards Shan-Shui, a broader definition of Shan-Shui is adopted. That is, Shan-Shui encompasses not only the real mountains and waters but also the re-creation and designing based on the forms of these two elements.

Chinese contemporary architect Wang Shu, the 2012 winner of the Pritzker Architecture Prize, expressed that "natural elements such as mountains and water are more important than buildings" [19]. He is devoted to modernizing traditional Chinese gardens, and between 2003 and 2018, he designed 19 "Taihu houses" inspired by the Taihu rocks used in garden rockery. Wang Shu incorporates the Taihu rocks in his architectural works, maintaining the continuity of traditional Chinese architectural values while embodying

the characteristics of modern aesthetics [20]. Chinese-American architect I.M. Pei integrated Eastern concepts of time and space into his aesthetic thinking and creative practice while also emphasizing the incorporation of natural elements into his designs [21]. In 2013, Chinese architect Ma Yansong held the "Shan-Shui City" book launch and exhibition in Beijing, showcasing over 20 architectural models and artworks of the Shan-Shui City concept. During the exhibition, Ma Yansong emphasized that "Shan-Shui City" is a fusion of urban density, functionality, and natural landscape aesthetics. It represents a future city centered around human spirit and emotions. Ma Yansong believes that the concept of "Shan-Shui City" contributes to the global discourse on urbanization and represents China's contribution to the world [22]. S.P.I Landscape Group has been dedicated to the "New Shan-Shui Design Methodology", which involves integrating design with the natural spirit and cultural values rooted in the mountains and water. By utilizing nature as a medium for human emotional communication, they strive to create spaces with poetic sensibility. Their approach combines new ideas, techniques, technologies, processes, and materials with the foundation of modern lifestyles to design spaces full of poetic beauty [23].

2.2. The Theory of Shan-Shui

In related research, Guiwen Liu et. al., estimated the amenity value of "mountain and water" landscapes using the hedonic pricing model, and the results showed that "mountain and water" landscapes can increase housing prices by 15.01%, indicating a spatial spillover effect of its value [9]. Zhiyi Zhou and colleagues conducted CFD simulations on 62 traditional villages in China using the PHOENICS 2016. They verified the positive effects of elements such as mountains, water, and forests on improving the wind and thermal environment of villages, as well as the rationality of the site selection principle of "facing water with a mountain behind" advocated by Feng Shui [8]. From related research, it can be seen that the current research on Shan-Shui mainly focuses on its natural attributes, and there is still a lack of research on its role as a cultural and design element.

Based on relevant theories, Shan-Shui can be deeply reflected as a form of culture. In early research on the definition of culture, Tylor (1871) proposed that culture is a "complex whole, which includes knowledge, beliefs, arts, morals, laws, customs, and any other capabilities and habits acquired by humans as members of society". Hofstede (1984) defined culture as "the interactive collection of common characteristics that influences a group's response to the environment [24]". Bidney (1954) conducted a comprehensive classification of over 160 cultural connotations [25], while Trompenaars (1997) proposed a three-level essence of culture. The surface level involves the display of everyday art, crafts, and tools (i.e., explicit products). The intermediate level comprises cultural norms and values. Lastly, the core level represents the cultural efforts for survival [26]. Based on the research on these cultural levels, Leong and Clark (2003) further subdivided cultural elements into three structural cultural levels: (1) the external level, which encompasses tangible and visible aspects; (2) the intermediate level, which involves human behaviors, rituals, and rules expressed in written and verbal forms; and (3) the internal level, which represents human ideological expressions [27]. In a study conducted by Zhiyuan Y and others, they explored the cognition and application of different levels of Chinese cultural elements among design students. Drawing on the theory of cultural levels, the study identified 15 representative cultural design elements at three levels in Chinese culture, including an outer "tangible" level (color, dermatoglyphic pattern, material, form, and structure), middle "behavioral" level (operation, function, expression of legend and allusion, and expression of custom), and inner "intangible" level (spiritual values, religion, mode of philosophic thinking, manner of aesthetics, historical features, and geographical features). Through comparing the results of questionnaires from design students and experts, the study found that students, compared to experts, have shortcomings in understanding the "intangible" and "behavioral" cultural design levels. They lack application experience and capabilities in the internal "intangible" and intermediate "behavior" levels of design elements. This study also revealed problems and deficiencies in the cognitive and application aspects of Chinese design students.

3. Methodology

In the first stage, the scope of the sample objects for investigation was clearly defined. Simultaneously, to clarify the current situation of relevant research, this study primarily conducted a literature review to examine the status of landscape design theory and cultural layer theory. Through methods such as field surveys and internet data research, materials for architectural environment designs with landscape design elements were collected. This stage provides theoretical support for the study and design of materials needed for subsequent research.

In the second stage, to clarify the focus of the survey research, this study used expert focus group discussions to refine the relevant content in the questionnaire construction phase. The focus group consisted of four design Ph.D. holders and four university lecturers with a Ph.D. in design. This stage determines the steps of the research, the content of the research, the required images for the research, and the relationships between various questions.

In the third stage, to clarify the research findings, this study primarily utilized methods including reliability and validity analysis, classification and summarization, post hoc multiple comparison analysis, correlation analysis, and linear regression during the data analysis phase. These methods were employed to analyze the research data and clarify the research outcomes.

A flowchart of the study is presented in Figure 1. Detailed research methods are described in the following sections.

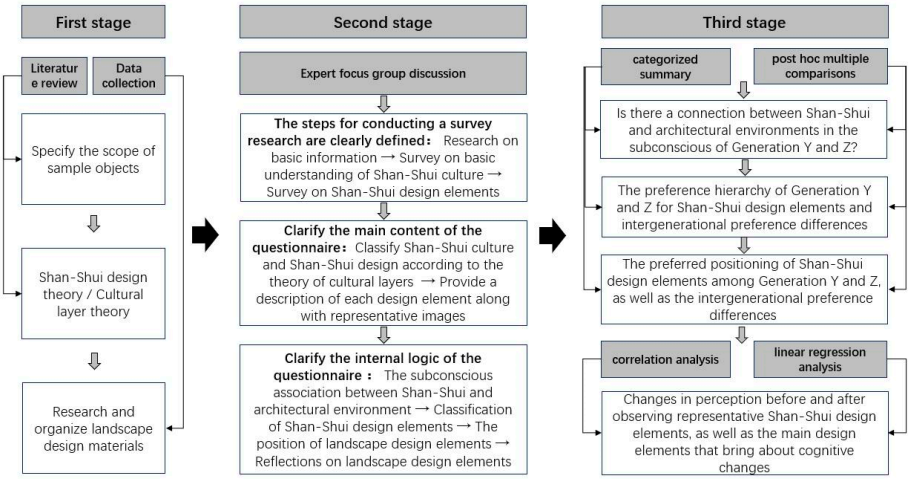


Figure 1. Flowchart of the research methodology.

3.1. Specifications of the Research Sample Target

A generation is a "symbolic community," the division of which is not based on the number of people but on their common life experiences, which unify them. This community has no clear time boundaries and can reflect the dynamics of changes in customs, behaviors, and types of actions. The life path of a generation is determined by historical events, changes in education methods, changes in lifestyle, evolution of relationship systems, and the sum of values and life programs [1,28–30].

Generations are typically defined as identifiable groups born during the same period that share important life events at key stages of the lifecycle [31]. Generally, the divisions between different generations are determined based on timelines. A common classification of generations includes [32]: the Silent, or Mature Generation (the builders) (1925–1946); the Baby Boomers, the hippies, the idealists (1943–1964); Generation X, the post-Baby Boomers, the TV generation, the latchkey kids (1961–1981); Generation Y, the Generation of the Millennium, or the Millennials (1978–2000); Generation Z, the post-Millennials or Centennials (1995–2010); and Generation Alpha, the touch-screeners (2010–).

In addition, Generation Y and Z are technology savvy and are constantly connected to the internet [33]. Their main communication tools are online, mostly with handphones.

To provide a better basis for comparison and understanding for researchers in the same field, this study chose the internationally common generational classification method, rather than the generational classification method specific to China.

3.2. The Structure of the Questionnaire

This study first established an expert focus group to discuss the logic, content, and feasibility of the questionnaire, and related research was conducted with ethical permission. Based on the results of the group discussions, the questionnaire was divided into the following four parts: research on basic information, cognitive research on the relationship between Shan-Shui culture and the architectural environment, research on Shan-Shui design elements combined with images, and reflective research on Shan-Shui design elements. The questionnaire consists of 14 questions and 40 items. Except for the basic information questions, all items were surveyed using a five-point Likert scale. The research results can be categorized into five situations based on the average values: $0 \leq$ totally disagree < 1, $1 \leq$ more disagree < 2, $2 \leq$ generally disagree < 3, $3 \leq$ more agree < 4, and $4 \leq$ fully agree ≤ 5.

The first part of the questionnaire consisted of Q1, Q2, Q3, and Q4, which mainly aimed to gather basic information such as age group, gender, occupation, and professional field. These were designed as multiple-choice questions.

The second part includes Q5, Q6, Q7, Q8, and Q9. Q5, Q6, and Q7 aimed to assess the basic understanding of Shan-Shui culture. Q8 and Q9 focused on the perception of the relationship between Shan-Shui and architectural environments.

- Q5: Do you agree that Shan-Shui culture is excellent traditional Chinese culture?
- Q6: In traditional Chinese culture, which aspects does the term Shan-Shui describe?
- According to the theory of cultural hierarchy, the options for Q6 were divided into three sub-options:
- Q6-1: Real mountains and rivers in natural environments.
- Q6-2: Architectural, landscape, and decorative elements with Shan-Shui intentions.
- Q6-3: Paintings with Shan-Shui themes, such as Chinese landscape paintings.
- Q7: Do you think Shan-Shui culture is sufficiently attractive for you?
- Q8: What is the relationship between Shan-Shui and the size of architecture perceived in traditional Chinese culture? This question includes three sub-options:
- Q8-1: The size of Shan-Shui is usually larger than that of architecture.
- Q8-2: The size of Shan-Shui is usually related to architecture (no significant size difference between Shan-Shui and architecture).
- Q8-3: The size of Shan-Shui is usually smaller than that of architecture (typically a decoration of the architectural environment).
- Q9: How is the relationship between Shan-Shui and the structure (location) of architecture perceived in traditional Chinese culture? This question includes three sub-options:
- Q9-1: Shan-Shui is usually independent of the scope of architecture (outside the architectural courtyard or building line).
- Q9-2: Shan-Shui usually appears in outdoor environments within the scope of architecture (such as architectural courtyards or building lines).
- Q9-3: Shan-Shui usually appears in an indoor environment within the scope of architecture.

The options in this section were surveyed using a five-point Likert scale. The logical structure of the second section of the questionnaire is shown in Figure 2.

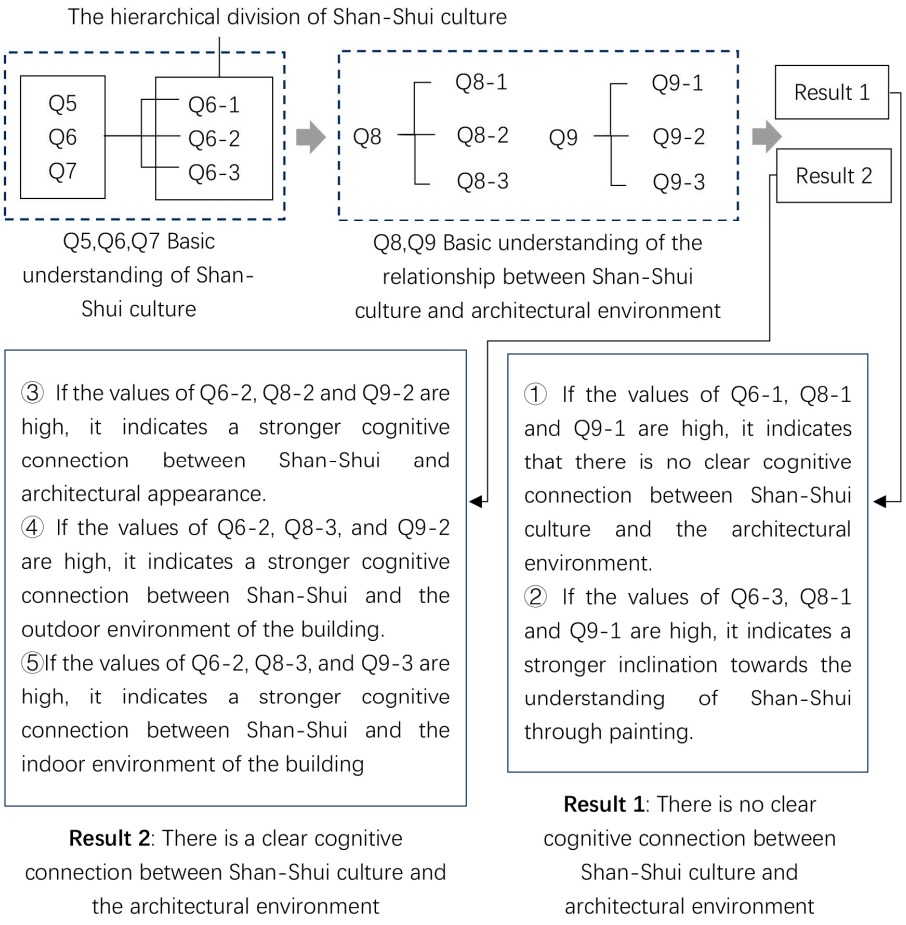


Figure 2. Logical model of questionnaire.

The third part consisted of Q10, Q11, Q12, Q13, and Q14. Among them, Q10, Q11, and Q12 are related to a representative design image labeled Shan-Shui, which aims to gather insights into the perception of the architectural appearance, outdoor environment, and indoor environment of participants. Q10, Q11, and Q12 each consisted of four sub-options, which were categorized based on the levels of Shan-Shui culture theory and the expression of design styles. The specific content of question 10 in the questionnaire is shown in Figure 3.

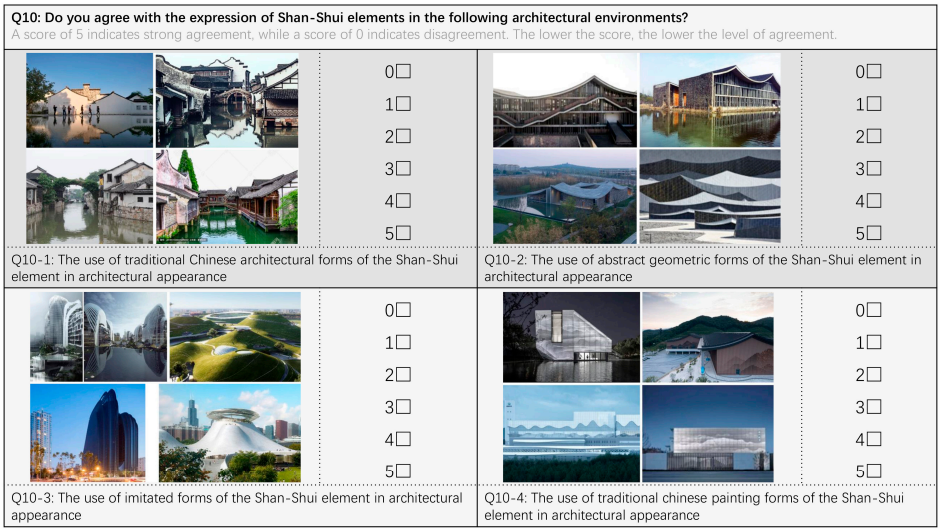


Figure 3. Specific content of question 10 of the questionnaire.

By comparing the data results of Q10, Q11, and Q12, we can clearly identify the specific cognitive differences of Generation YZ towards Shan-Shui design in the architectural environment, as well as the cognitive differences in the cultural levels of Shan-Shui design. The purpose of Q13 in the survey was to determine whether the application of Shan-Shui elements in the architectural environment is a positive expression of the Shan-Shui culture. The purpose of Q14 in the survey was to determine whether respondents agreed with and expected to see the use of Shan-Shui elements in more architectural environments. By comparing Q5, Q6, Q13, and Q14, we can clearly observe the cognitive changes regarding the Shan-Shui design elements. The options in this section are surveyed using a five-point Likert scale.

3.3. Methods of Data Analysis

The analysis tool used in this study during the data analysis phase was SPSS (Statistical Package for the Social Sciences) version 25.0. The specific processes and methods of analysis are as follows.

First, a total of 441 valid questionnaires were collected, with 237 participants from Generation Y, accounting for 53.74%, and 204 participants from Generation Z, accounting for 46.26%. In terms of sex, 48.3% were male and 51.7% were female. In terms of occupation, 21.09% were students, 39.46% were company employees, 27.89% were self-employed, 6.12% were freelancers, and 5.44% were employed in other occupations. In terms of professional fields, 27.21% were from the humanities and social sciences, 21.54% were from natural sciences and engineering, 35.15% were from the arts and sports, and 16.1% were from other fields. The proportion of each category was relatively evenly distributed, as shown in Table 1.

Table 1. Frequency.

Items	Categories	N	Percent (%)	Cumulative Percent (%)
Q1	Born in 1979–1995	237	53.74	53.74
	Born in 1996–2010	204	46.26	100.00
Q2	Male	213	48.30	48.30
	Female	228	51.70	100.00
Q3	Student	93	21.09	21.09
	Company employee	174	39.46	60.54
	Private trader	123	27.89	88.44
	Freelance	27	6.12	94.56
	Other occupations	24	5.44	100.00
Q4	Humanities and Sociology fields	120	27.21	27.21
	Natural and Engineering fields	95	21.54	48.75
	Art and Sports	155	35.15	83.90
	Other fields	71	16.10	100.00
	Total	441	100.0	100.0

Second, in order to evaluate the quality of the questionnaire and ensure the reliability and validity of the measurement tool, this study conducted a reliability and validity analysis on the questionnaire. The results of the reliability analysis are presented in Table 2. The analysis showed that the Cronbach's α value was 0.896, which was greater than 0.8. This indicates that the reliability of the research data was high. Regarding the "deleted α coefficient", when any item is deleted, the reliability coefficient does not show a significant increase. This suggests that the items should not be deleted.

Table 2. Reliability statistics (Cronbach Alpha).

Items	Corrected Item-Total Correlation (CITC)	Cronbach Alpha if Item Deleted	Cronbach α
Q5	0.211	0.900	
Q6-1	0.635	0.889	
Q6-2	0.594	0.890	
Q6-3	0.605	0.890	
Q7	0.436	0.894	
Q8-1	0.300	0.897	
Q8-2	0.431	0.894	
Q8-3	0.339	0.897	
Q9-1	0.326	0.896	
Q9-2	0.413	0.894	
Q9-3	0.401	0.895	
Q10-1	0.542	0.891	
Q10-2	0.594	0.890	0.896
Q10-3	0.529	0.891	
Q10-4	0.473	0.893	
Q11-1	0.508	0.892	
Q11-2	0.514	0.892	
Q11-3	0.490	0.892	
Q11-4	0.507	0.892	
Q12-1	0.612	0.890	
Q12-2	0.570	0.891	
Q12-3	0.583	0.890	
Q12-4	0.558	0.891	
Q13	0.525	0.892	
Q14	0.566	0.891	

Cronbach α (standardized): 0.902.

The results of the validity analysis are presented in Table 3. The KMO value was 0.881, which was greater than 0.6, indicating that the data could be extracted effectively.

Third, this study compares and explains the data results of the YZ generation for Q5, Q6, Q7, Q8, and Q9 as well as Q10, Q11, Q12, Q13, and Q14 through a categorized summary. It also analyzes the specific differences in how the YZ generation faces the above-mentioned issues through post hoc multiple comparisons. Furthermore, a correlation analysis was conducted on Q5, Q7, Q13, and Q14 to verify the role of design images in the first and third stages and to compare the cognitive changes generated by the YZ generation through a categorized summary of Q5, Q7, Q13, and Q14. Finally, we analyzed the impact of Shan-Shui design elements on cognitive changes in the YZ generation through linear regression analysis of Q13-Q10, Q11, and Q12 as well as Q14-Q10, Q11, and Q12. The details of the correlation analysis are presented below.

Table 3. Validity analysis.

Items	Factor Loadings							Communalities
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	
Q5	−0.046	0.051	0.045	−0.018	0.030	**0.786**	0.109	0.638
Q6-1	0.236	0.146	0.266	0.161	**0.687**	0.155	0.156	0.695
Q6-2	0.249	0.191	0.226	0.090	**0.766**	0.046	0.085	0.754
Q6-3	0.187	0.220	0.187	0.137	**0.751**	0.139	0.093	0.730
Q7	0.056	0.182	0.022	**0.500**	0.292	0.277	−0.028	0.450
Q8-1	0.043	0.133	0.047	0.104	0.022	0.115	**0.860**	0.786
Q8-2	0.133	0.224	0.081	**0.678**	−0.069	0.045	0.189	0.577
Q8-3	0.153	0.049	0.096	**0.767**	−0.092	−0.036	0.019	0.634

Table 3. *Cont.*

Items	Factor Loadings							Communalities
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	
Q9-1	0.112	−0.032	0.103	0.150	0.216	−0.025	**0.788**	0.715
Q9-2	0.007	0.142	0.072	**0.583**	0.247	0.058	0.154	0.453
Q9-3	0.108	−0.015	0.046	**0.784**	0.201	−0.018	0.011	0.669
Q10-1	0.148	0.103	**0.780**	0.136	0.183	0.063	0.033	0.697
Q10-2	0.179	0.158	**0.809**	0.097	0.201	0.099	0.041	0.774
Q10-3	0.122	0.120	**0.805**	0.030	0.132	0.191	0.075	0.738
Q10-4	0.167	0.075	**0.824**	0.051	0.071	0.029	0.051	0.724
Q11-1	0.151	**0.814**	0.075	0.137	0.129	0.030	0.057	0.731
Q11-2	0.165	**0.809**	0.126	0.070	0.184	0.038	−0.009	0.738
Q11-3	0.112	**0.818**	0.076	0.138	0.101	0.072	0.069	0.726
Q11-4	0.123	**0.819**	0.164	0.103	0.088	0.060	0.027	0.735
Q12-1	**0.748**	0.210	0.159	0.156	0.178	0.062	0.047	0.691
Q12-2	**0.797**	0.097	0.140	0.141	0.118	0.168	0.012	0.726
Q12-3	**0.781**	0.145	0.152	0.079	0.145	0.148	0.077	0.710
Q12-4	**0.797**	0.149	0.167	0.080	0.142	0.005	0.085	0.720
Q13	0.370	0.081	0.226	0.070	0.168	**0.678**	−0.001	0.687
Q14	**0.428**	0.059	0.208	0.162	0.179	**0.652**	−0.042	0.715
Eigenvalues (Initial)	7.779	2.200	1.895	1.687	1.335	1.241	1.076	-
% of Variance (Initial)	31.114%	8.801%	7.580%	6.747%	5.339%	4.963%	4.305%	-
% of Cum. Variance (Initial)	31.114%	39.915%	47.496%	54.242%	59.581%	64.544%	68.849%	-
Eigenvalues (Rotated)	3.161	3.053	3.032	2.511	2.183	1.762	1.510	-
% of Variance (Rotated)	12.645%	12.212%	12.127%	10.045%	8.732%	7.048%	6.040%	-
% of Cum. Variance (Rotated)	12.645%	24.857%	36.984%	47.029%	55.761%	62.809%	68.849%	-
KMO				0.881				-
Bartlett's Test of Sphericity (Chi-Square)				5135.046				-
df				300				-
p value				0.000				-

Note: Bold indicates that the absolute value of loading is greater than 0.4.

4. Results

4.1. Research on the Basic Understanding of Shan-Shui and the Basic Understanding of the Relationship between Shan-Shui and the Architectural Environment

According to the analysis results in Table 4, the average value of Q5 (Do you agree that the Shan-Shui culture is an excellent traditional Chinese culture?) is 3.107. Among them, the average value for Generation Y is 2.641, whereas for Generation Z, it is 3.647. This indicates that the YZ generation generally agrees that Shan-Shui is an excellent traditional culture in China, and Generation Y tends to generally agree, while Generation Z tends to agree more. The average value for Q7 (Do you think Shan-Shui culture is sufficiently attractive for you?) was 3.265, with values of 2.979 for Generation Y and 3.598 for Generation Z. This indicates that the YZ generation generally agrees that Shan-Shui has sufficient appeal to them, with Generation Y generally agreeing, whereas Generation Z tends to agree more.

The survey results on the level of awareness of Shan-Shui culture in Q6 (In traditional Chinese culture, which aspects of the term Shan-Shui tend to describe?) show that the average value for Q6-1 (Real mountains and rivers in natural environments.) was 3.805, with a value of 3.591 for Generation Y and 4.054 for Generation Z. This indicates that the YZ generation generally agrees on the authenticity of mountains and rivers in natural environments, with Generation Y showing a tendency to agree more, while Generation Z holds a fully agree attitude. The average value for Q6-2 (Architectural, landscape, and decorative elements with Shan-Shui intentions.) was 3.610, with values of 3.388 for Generation Y and 3.868 for Generation Z. This indicates that the YZ generation generally agrees with the intention of having Shan-Shui architecture, landscapes, and decorative items. The average value for Q6-3 (Paintings with Shan-Shui themes, such as Chinese

Landscape Painting.) was 3.478, with values of 3.207 for Generation Y and 3.794 for Generation Z. This indicates that the YZ generation generally agreed with Shan-Shui-themed Chinese landscape paintings.

Table 4. Subtotals.

Items	Q1 (Age Group)		Total
	Born in 1979–1995	Born in 1996–2010	
Q5	2.641	3.647	3.107
Q6-1	3.591	4.054	3.805
Q6-2	3.388	3.868	3.610
Q6-3	3.207	3.794	3.478
Q7	2.979	3.598	3.265
Q8-1	3.730	3.931	3.823
Q8-2	2.992	3.083	3.034
Q8-3	2.599	2.657	2.626
Q9-1	3.333	3.539	3.429
Q9-2	2.882	3.132	2.998
Q9-3	2.557	2.804	2.671

The survey results regarding the relationship between Shan-Shui and the volume of the architectural environment in Q8 (What is the relationship between Shan-Shui and the size of architecture perceived in traditional Chinese culture?) show that the average value for Q8-1 (The size of Shan-Shui is usually larger than that of architecture.) is 3.823, with a value of 3.730 for Generation Y and 3.931 for Generation Z. This indicates that the YZ generation generally agrees that the volume of Shan-Shui is usually larger than that of architecture. The average value for Q8-2 (The size of Shan-Shui is typically related to its architecture.) was 3.034, with values of 2.992 for Generation Y and 3.083 for Generation Z. This indicates that the YZ generation generally agrees that the volume of Shan-Shui is similar to the volume of the architecture. Specifically, Generation Y generally agrees, whereas Generation Z agrees more with this statement. The average value for Q8-3 (The size of Shan-Shui is usually smaller than that of architecture.) was 2.626, with values of 2.599 for Generation Y and 2.657 for Generation Z. This indicates that the YZ generation generally agrees that the volume of Shan-Shui is usually smaller than that of architecture.

The survey results regarding the relationship between Shan-Shui and the location of the architectural environment in Q9 (What is the relationship between Shan-Shui and the structure of architecture perceived in traditional Chinese culture?) show that the average value of Q9-1 (Shan-Shui is usually independent of the scope of architecture.) is 3.429. Generation Y scored 3.33, while Generation Z scored 3.539. This indicates that the YZ generation tends to agree that Shan-Shui is usually independent of the scope of architecture. The average value for Q9-2 (Shan-Shui usually appears in the outdoor environment within the scope of architecture.) was 2.998, with values of 2.882 for Generation Y and 3.132 for Generation Z. This indicates that the YZ generation generally agrees that Shan-Shui usually appears in an outdoor environment within the scope of architecture. Specifically, the Y generation generally agrees, whereas the Z generation tends to agree more. The average value for Q9-3 (Shan-Shui usually appears in the indoor environment within the scope of architecture.) was 2.671, with values of 2.557 for Generation Y and 2.804 for Generation Z. This indicates that the YZ generation generally agrees that Shan-Shui usually appears in an indoor environment within the scope of architecture.

To clarify the specific cognitive differences of the YZ generation, this study conducted an analysis of variance (ANOVA) and post hoc multiple comparison analysis on Q5, Q6, Q7, Q8, and Q9. The results are presented in Table 5. The ANOVA results indicated that there were significant differences ($p < 0.05$) in Q5, Q6-1, Q6-2, Q6-3, Q7, and Q9-2 among the Q1 samples, suggesting that there were differences in Q5, Q6-1, Q6-2, Q6-3, Q7, and Q9-2 among the Q1 samples.

Table 5. ANOVA.

	Q1 (Mean ± Std. Deviation)		*F*	*p*
	Born in 1979–1995 (*n* = 237)	**Born in 1996–2010 (*n* = 204)**		
Q5	2.64 ± 1.63	3.65 ± 1.37	48.433	0.000 **
Q6-1	3.59 ± 1.21	4.05 ± 1.10	17.452	0.000 **
Q6-2	3.39 ± 1.19	3.87 ± 1.13	18.573	0.000 **
Q6-3	3.21 ± 1.19	3.79 ± 1.19	26.600	0.000 **
Q7	2.98 ± 1.49	3.60 ± 1.47	19.100	0.000 **
Q8-1	3.73 ± 1.25	3.93 ± 1.29	2.767	0.097
Q8-2	2.99 ± 1.07	3.08 ± 1.24	0.695	0.405
Q8-3	2.60 ± 1.57	2.66 ± 1.64	0.142	0.706
Q9-1	3.33 ± 1.41	3.54 ± 1.47	2.243	0.135
Q9-2	2.88 ± 1.27	3.13 ± 1.24	4.338	0.038 *
Q9-3	2.56 ± 1.55	2.80 ± 1.54	2.805	0.095

* $p < 0.05$ ** $p < 0.01$.

The results of the post hoc multiple comparison analysis using the LSD method indicate that Q1 shows a significant difference at the 0.01 level for Q5, Q6-1, Q6-2, Q6-3, and Q7. Additionally, Q1 shows a significant difference at a 0.05 level for Q9-2. Overall, the average values for individuals born in 1979–1995 were significantly lower than those born in 1996–2010. This suggests that the Z generation holds significantly more positive cognitive attitudes towards Q5 (Shan-Shui culture is an excellent traditional Chinese culture), Q6-1 (Real mountains and rivers in natural environments), Q6-2 (Architectural, landscape, and decorative elements with Shan-Shui intentions), Q6-3 (Paintings with Shan-Shui themes, such as Chinese Landscape Painting), Q7 (Shan-Shui culture is attractive enough for you), and Q9-2 (Shan-Shui usually appears in the outdoor environment within the scope of architecture) than the Y generation. The results of the specific analysis are presented in Table 6.

Table 6. Post hoc analysis.

	(I) Items	**(J) Items**	**(I) Mean**	**(J) Mean**	**Difference (I-J)**	***p***
Q5	Born in 1979–1995	Born in 1996–2010	2.641	3.647	−1.006	0.000 **
Q6-1	Born in 1979–1995	Born in 1996–2010	3.591	4.054	−0.463	0.000 **
Q6-2	Born in 1979–1995	Born in 1996–2010	3.388	3.868	−0.479	0.000 **
Q6-3	Born in 1979–1995	Born in 1996–2010	3.207	3.794	−0.587	0.000 **
Q7	Born in 1979–1995	Born in 1996–2010	2.979	3.598	−0.619	0.000 **
Q8-1	Born in 1979–1995	Born in 1996–2010	3.730	3.931	−0.201	0.097
Q8-2	Born in 1979–1995	Born in 1996–2010	2.992	3.083	−0.092	0.405
Q8-3	Born in 1979–1995	Born in 1996–2010	2.599	2.657	−0.058	0.706
Q9-1	Born in 1979–1995	Born in 1996–2010	3.333	3.539	−0.206	0.135
Q9-2	Born in 1979–1995	Born in 1996–2010	2.882	3.132	−0.250	0.038 *
Q9-3	Born in 1979–1995	Born in 1996–2010	2.557	2.804	−0.247	0.095

* $p < 0.05$ ** $p < 0.01$.

4.2. Cognitive Research on Traditional Design Elements

According to the analysis results in Table 7, the average value of Q10-1 (The use of traditional Chinese architectural forms of the Shan-Shui element in architectural appearance.) is 3.862. The average value for Generation Y = 3.717 and Generation Z = 4.029. This indicates that the YZ generation agrees more with the use of traditional Chinese architectural forms of the Shan-Shui element in architectural appearance. Specifically, the Y generation tended to agree more, whereas the Z generation tended to agree fully. The average value of Q10-2 (The use of abstract geometric forms of the Shan-Shui element in architectural appearance.) is 3.630, with Generation Y = 3.502 and Generation Z = 3.779. This means that Generation Y and Generation Z tend to show more agreement in the use of abstract geometric forms of the Shan-Shui element in architectural appearance. The

average value of Q10-3 (Use of imitated forms of the Shan-Shui element in architectural appearance.) is 3.490, with Generation Y = 3.274 and Generation Z = 3.740. This means that Generation Y and Generation Z tend to show more agreement in the use of imitated forms of the Shan-Shui element in architectural appearance. The average value of Q10-4 (Use of traditional Chinese painting forms of the Shan-Shui element in architectural appearance.) is 3.757, with Generation Y = 3.679 and Generation Z = 3.848. This means that Generation Y and Generation Z tended to show more agreement in the use of traditional Chinese painting forms of the Shan-Shui element in architectural appearance. Generation Z showed a more positive attitude towards the items in Q10-1, Q10-2, Q10-3, and Q10-4.

Table 7. Subtotals.

Items	Q1		Total
	Born in 1979–1995	Born in 1996–2010	
Q10-1	3.717	4.029	3.862
Q10-2	3.502	3.779	3.630
Q10-3	3.274	3.740	3.490
Q10-4	3.679	3.848	3.757
Q11-1	3.709	3.789	3.746
Q11-2	3.405	3.721	3.551
Q11-3	3.291	3.623	3.444
Q11-4	3.671	3.784	3.723
Q12-1	3.329	3.667	3.485
Q12-2	3.219	3.534	3.365
Q12-3	3.059	3.490	3.259
Q12-4	3.325	3.603	3.454
Q13	3.034	3.583	3.288
Q14	2.975	3.520	3.227

The average value of Q11-1 (The use of traditional Chinese architectural forms of the Shan-Shui element in outdoor environment.) is 3.746. The average value for Generation Y = 3.709 and Generation Z = 3.789. This indicates that the YZ generation agrees more with the use of traditional Chinese architectural/natural forms of the Shan-Shui element in outdoor environments. The average value of Q11-2 (The use of abstract geometric forms of the Shan-Shui element in outdoor environment.) is 3.511, with Generation Y = 3.405 and Generation Z = 3.721. This means that Generation Y and Generation Z tended to show more agreement in the use of abstract geometric forms of the Shan-Shui element in outdoor environments. The average value of Q11-3 (The use of imitated forms of the Shan-Shui element in an outdoor environments.) is 3.444, with Generation Y = 3.291 and Generation Z = 3.623. This means that Generation Y and Generation Z tended to show more agreement in the use of imitated forms of the Shan-Shui element in outdoor environments. The average value of Q11-4 (The use of traditional Chinese painting forms of the Shan-Shui element in an outdoor environments.) is 3.723, with Generation Y = 3.671 and Generation Z = 3.784. This means that Generation Y and Generation Z tended to show more agreement in the use of traditional Chinese painting forms of the Shan-Shui element in outdoor environments. Generation Z showed a more positive attitude towards the items in Q11-1, Q11-2, Q11-3, and Q11-4.

The average value of Q12-1 (The use of traditional Chinese architectural forms of the Shan-Shui element in indoor environments.) is 3.485, with Generation Y = 3.329 and Generation Z = 3.667. This indicates that the YZ generation agrees more with the use of traditional Chinese architecture/natural forms of the Shan-Shui element in indoor environments. The average value of Q12-2 (The use of abstract geometric forms of the Shan-Shui element in an indoor environment.) is 3.365, with Generation Y = 3.219 and Generation Z = 3.534. This means that Generation Y and Generation Z tended to show more agreement in the use of abstract geometric forms of the Shan-Shui element in indoor environments. The average value of Q12-3 (The use of imitated forms of the Shan-Shui

element in an indoor environment.) is 3.259, with Generation Y = 3.059 and Generation Z = 3.490. This means that Generation Y and Generation Z tended to show more agreement in the use of imitated forms of the Shan-Shui element in indoor environments. The average value of Q12-4 (The use of traditional Chinese painting forms of the Shan-Shui element in an indoor environment.) is 3.454, with Generation Y = 3.325 and Generation Z = 3.603. This means that Generation Y and Generation Z tended to show more agreement in the use of traditional Chinese painting forms of the Shan-Shui element in indoor environments. Generation Z showed a more positive attitude towards the items in Q12-1, Q12-2, Q12-3, and Q12-4.

The average value of Q13 (Do you think that incorporating the element of Shan-Shui into the architectural environment is a positive expression of Shan-Shui culture?) is 3.288, with Generation Y = 3.034 and Generation Z = 3.583. This indicates that the YZ generation agrees more with the incorporation of Shan-Shui into the architectural environment as a positive expression of Shan-Shui culture. Among them, Generation Z showed an even more positive attitude towards agreement. The average value of Q14 (Do you agree with and look forward to seeing the use and expression of Shan-Shui elements in more architectural environments?) is 3.227, with Generation Y = 3.520 and Generation Z = 2.975. This indicates that the YZ generation agrees and expects to see the use and expression of Shan-Shui elements in more architectural environments. Generation Y generally agrees, whereas Generation Z shows a stronger level of agreement. Generation Z exhibited a more positive attitude towards Q13 and Q14.

To clarify the specific cognitive differences of the YZ generation, this study conducted an analysis of variance (ANOVA) and post hoc multiple comparison analysis on Q10, Q11, Q12, Q13, and Q14. The results are listed in Table 8. The ANOVA results indicated that the Q1 sample showed significance ($p < 0.05$) for Q5, Q6-1, Q6-2, Q6-3, Q7, and Q9-2, suggesting that there were differences in Q10-1, Q10-2, Q10-3, Q11-2, Q11-3, Q12-1, Q12-2, Q12-3, Q12-4, Q13, and Q14 among the Q1 sample.

Table 8. ANOVA.

	Q1 (Mean ± Std. Deviation)		***F***	***p***
	Born in 1979–1995 (n = 237)	**Born in 1996–2010 (n = 204)**		
Q10-1	3.72 ± 1.23	4.03 ± 1.06	8.030	0.005 **
Q10-2	3.50 ± 1.30	3.78 ± 1.19	5.392	0.021 *
Q10-3	3.27 ± 1.32	3.74 ± 1.14	15.447	0.000 **
Q10-4	3.68 ± 1.20	3.85 ± 1.16	2.246	0.135
Q11-1	3.71 ± 1.13	3.79 ± 1.09	0.572	0.450
Q11-2	3.41 ± 1.23	3.72 ± 1.13	7.776	0.006 **
Q11-3	3.29 ± 1.23	3.62 ± 1.23	7.951	0.005 **
Q11-4	3.67 ± 1.12	3.78 ± 1.16	1.089	0.297
Q12-1	3.33 ± 1.19	3.67 ± 1.20	8.765	0.003 **
Q12-2	3.22 ± 1.22	3.53 ± 1.24	7.238	0.007 **
Q12-3	3.06 ± 1.23	3.49 ± 1.23	13.389	0.000 **
Q12-4	3.32 ± 1.23	3.60 ± 1.20	5.752	0.017 *
Q13	3.03 ± 1.29	3.58 ± 1.21	21.089	0.000 **
Q14	2.97 ± 1.25	3.52 ± 1.32	19.773	0.000 **

* $p < 0.05$ ** $p < 0.01$.

The results of the post hoc multiple comparison analysis using the LSD method show that Q1 exhibits significance at the 0.01 level for Q10-1, Q10-3, Q11-2, Q11-3, Q12-1, Q12-2, Q12-3, Q13, and Q14. Q1 also showed significance at the 0.05 level for Q10-2 and Q12-4. Overall, the average values for individuals born in 1979-1995 were significantly lower than those born in 1996-2010. This indicates that the Z generation holds significantly more positive cognitive attitudes towards Q10-1 (The use of traditional Chinese architectural forms of the Shan-Shui element in architectural appearance.), Q10-2 (The use of abstract geometric forms of the Shan-Shui element in architectural appearance.), Q10-3 (Use of imitated

forms of the Shan-Shui element in architectural appearance.), Q11-2 (Abstract geometric forms of the Shan-Shui element in outdoor environments.), Q11-3 (Use of imitated forms of the Shan-Shui element in an outdoor environment.), Q12-1 (Use of traditional Chinese architectural forms of the Shan-Shui element in an indoor environment.), Q12-2 (Use of abstract geometric forms of the Shan-Shui element in an indoor environment.), Q12-3 (The use of imitated forms of the Shan-Shui element in indoor environment.), Q12-4 (Use of traditional Chinese painting forms of the Shan-Shui element in indoor environments.), Q13 (Incorporating Shan-Shui elements into architectural environments is a positive expression of the Shan-Shui culture.), and Q14 (I agree and look forward to seeing the use and expression of Shan-Shui elements in architectural environments.) than the Y generation. The results of the specific analysis are presented in Table 9.

Table 9. Post hoc analysis.

	(I) Items	(J) Items	(I) Mean	(J) Mean	Difference (I-J)	*p*
Q10-1	Born in 1979–1995	Born in 1996–2010	3.717	4.029	−0.312	0.005 **
Q10-2	Born in 1979–1995	Born in 1996–2010	3.502	3.779	−0.277	0.021 *
Q10-3	Born in 1979–1995	Born in 1996–2010	3.274	3.740	−0.466	0.000 **
Q10-4	Born in 1979–1995	Born in 1996–2010	3.679	3.848	−0.169	0.135
Q11-1	Born in 1979–1995	Born in 1996–2010	3.709	3.789	−0.080	0.450
Q11-2	Born in 1979–1995	Born in 1996–2010	3.405	3.721	−0.316	0.006 **
Q11-3	Born in 1979–1995	Born in 1996–2010	3.291	3.623	−0.331	0.005 **
Q11-4	Born in 1979–1995	Born in 1996–2010	3.671	3.784	−0.113	0.297
Q12-1	Born in 1979–1995	Born in 1996–2010	3.329	3.667	−0.338	0.003 **
Q12-2	Born in 1979–1995	Born in 1996–2010	3.219	3.534	−0.315	0.007 **
Q12-3	Born in 1979–1995	Born in 1996–2010	3.059	3.490	−0.431	0.000 **
Q12-4	Born in 1979–1995	Born in 1996–2010	3.325	3.603	−0.278	0.017 *
Q13	Born in 1979–1995	Born in 1996–2010	3.034	3.583	−0.550	0.000 **
Q14	Born in 1979–1995	Born in 1996–2010	2.975	3.520	−0.545	0.000 **

* $p < 0.05$ ** $p < 0.01$.

4.3. The Cognitive Changes Resulting from the Influence of Traditional Design Elements in Images

Questions Q5 and Q7 in the questionnaire represented the overall perception of Shan-Shui culture in the subconscious mind of the YZ generation, while Q13 and Q14 represented the overall perception of Shan-Shui design elements after observing relevant images. Therefore, the relationship and changes between Q5, Q7, Q13, and Q14 can be considered as the result of observing the Shan-Shui design element images. To verify the impact of this observation, a correlation analysis was conducted on the four questions mentioned above, and the results are shown in Table 10.

Table 10. Pearson correlation.

		Q5	Q7
Q13	Coefficient	0.306 **	0.246 **
Q14	Coefficient	0.326 **	0.266 **

** $p < 0.01$.

From the table above, it can be observed that the correlation coefficient between Q5 and Q13 is 0.306, which shows a significant positive correlation at the 0.01 level. This indicates a significant positive relationship between Q5 and Q13. Similarly, the correlation coefficient between Q5 and Q14 was 0.326, showing a significant positive correlation at the 0.01 level, indicating a significant positive relationship between Q5 and Q14. The correlation coefficient between Q7 and Q13 was 0.246, showing a significant positive correlation at the 0.01 level, indicating a significant positive relationship between Q7 and Q13. Similarly, the correlation coefficient between Q7 and Q14 was 0.266, showing a significant positive correlation at the 0.01 level, indicating a significant positive relationship

between Q7 and Q14. In other words, the more positive the attitude towards Q5 (Shan-Shui culture is an excellent traditional Chinese culture), the more positive the perception of Q13 (Incorporating Shan-Shui elements into architectural environments is a positive expression of Shan-Shui culture.) and Q14 (I agree and look forward to seeing the use and expression of Shan-Shui elements in more architectural environments). Similarly, the more positive the attitude towards Q7 (Shan-Shui culture is attractive enough for you.), the more positive the perception of Q13 (Incorporating Shan-Shui elements into architectural environments is a positive expression of the Shan-Shui culture.) and Q14 (I agree and look forward to seeing the use and expression of Shan-Shui elements in architectural environments.). This indirectly suggests that images of landscape design elements do not have a negative impact on the expression of Shan-Shui and Shan-Shui designs.

To clarify the specific elements that influence the overall perception of Shan-Shui design, this study conducted a linear regression analysis using Q10, Q11, and Q12 as independent variables and Q13 and Q14 as dependent variables. The specific analysis results are presented in Tables 11 and 12.

Table 11. Parameter estimates (n = 441).

	Unstandardized Coefficients		**Standardized Coefficients**	***t***	***p***	**Collinearity Diagnostics**	
	B	**Std. Error**	**Beta**			**VIF**	**Tolerance**
Constant	0.753	0.254	-	2.960	0.003 **	-	-
Q10-1	−0.018	0.066	−0.016	−0.271	0.786	2.167	0.461
Q10-2	0.105	0.068	0.103	1.536	0.125	2.711	0.369
Q10-3	0.225	0.062	0.221	3.610	0.000 **	2.280	0.439
Q10-4	−0.055	0.063	−0.051	−0.878	0.381	2.049	0.488
Q11-1	0.015	0.072	0.013	0.210	0.834	2.397	0.417
Q11-2	−0.052	0.067	−0.048	−0.774	0.440	2.339	0.427
Q11-3	0.006	0.062	0.006	0.092	0.927	2.190	0.457
Q11-4	0.073	0.070	0.065	1.050	0.294	2.336	0.428
Q12-1	0.114	0.063	0.107	1.791	0.074	2.160	0.463
Q12-2	0.228	0.062	0.219	3.678	0.000 **	2.162	0.463
Q12-3	0.164	0.061	0.161	2.693	0.007 **	2.162	0.463
Q12-4	−0.063	0.063	−0.060	−1.001	0.318	2.162	0.463
R 2				0.296			
Adj R 2				0.276			
F				$F(12,428) = 14.982$, $p = 0.000$			
D-W value				1.856			

Dependent Variable: Q13; ** $p < 0.01$.

It can be seen from Table 11 that the R-squared value of the model is 0.296, indicating that Q10-1, Q10-2, Q10-3, Q10-4, Q11-1, Q11-2, Q11-3, Q11-4, Q12-1, Q12-2, Q12-3, and Q12-4 can explain 29.6% of the variation in Q13. The F-test for the model showed that it was statistically significant ($F = 14.982$, $p = 0.000 < 0.05$), indicating that at least one of the variables Q10-1, Q10-2, Q10-3, Q10-4, Q11-1, Q11-2, Q11-3, Q11-4, Q12-1, Q12-2, Q12-3, and Q12 had an impact on Q13. Additionally, the variance inflation factor (VIF) values for all variables in the model were less than 5, indicating the absence of multicollinearity. The Durbin–Watson (D-W) statistic was approximately 2, suggesting no autocorrelation in the model and no relationship between the sample data, indicating a good model fit.

The regression coefficient for Q10-3 is 0.225 ($t = 3.610$, $p = 0.000 < 0.01$), the regression coefficient for Q12-2 is 0.228 ($t = 3.678$, $p = 0.000 < 0.01$), and the regression coefficient for Q12-3 is 0.164 ($t = 2.693$, $p = 0.007 < 0.01$). This means that Q10-3 (Use of imitated forms of the Shan-Shui element in architectural appearance.), Q12-2 (Use of abstract geometric forms of the Shan-Shui element in an indoor environment.), and Q12-3 (Use of imitated forms of the Shan-Shui element in an indoor environment.) had a significant positive impact on Q13 (Incorporating Shan-Shui elements into architectural environments is a positive expression

of Shan-Shui culture.). The more positive the cognitive attitudes towards items "the use of imitated forms of the Shan-Shui element in architectural appearance," "the use of abstract geometric forms of the Shan-Shui element in indoor environment", and "the use of imitated forms of the Shan-Shui element in indoor environment" are, the more agreement there is towards "the positive expression of Shan-Shui culture through the application of Shan-Shui elements in the architectural environment".

Table 12. Parameter estimates (n = 441).

	Unstandardized Coefficients		Standardized Coefficients	*t*	*p*	Collinearity Diagnostics	
	B	**Std. Error**	**Beta**			**VIF**	**Tolerance**
Constant	0.493	0.255	-	1.930	0.054	-	-
Q10-1	0.026	0.066	0.023	0.389	0.698	2.167	0.461
Q10-2	0.055	0.068	0.053	0.806	0.421	2.711	0.369
Q10-3	0.166	0.062	0.160	2.661	0.008 **	2.280	0.439
Q10-4	−0.002	0.063	−0.002	−0.034	0.973	2.049	0.488
Q11-1	−0.044	0.073	−0.038	−0.610	0.543	2.397	0.417
Q11-2	−0.050	0.067	−0.046	−0.751	0.453	2.339	0.427
Q11-3	0.116	0.062	0.110	1.868	0.062	2.190	0.457
Q11-4	−0.002	0.070	−0.001	−0.024	0.981	2.336	0.428
Q12-1	0.138	0.064	0.127	2.166	0.031 *	2.160	0.463
Q12-2	0.239	0.062	0.225	3.844	0.000 **	2.162	0.463
Q12-3	0.163	0.061	0.156	2.660	0.008 **	2.162	0.463
Q12-4	−0.000	0.063	−0.000	−0.007	0.995	2.162	0.463
R 2				0.322			
Adj R 2				0.303			
F				F (12,428) = 16.946, p = 0.000			
D-W value				1.953			

Dependent variable: Q14; * $p < 0.05$ ** $p < 0.01$.

From Table 12, it can be seen that the R-squared value of the model is 0.322, which means that Q10-1, Q10-2, Q10-3, Q10-4, Q11-1, Q11-2, Q11-3, Q11-4, Q12-1, Q12-2, Q12-3, and Q12-4 can explain 32.2% of the variation in Q14. When conducting an F-test on the model, it was found that the model passed the F-test (F = 16.946, p = 0.000 < 0.05), indicating that at least one of the variables, Q10-1, Q10-2, Q10-3, Q10-4, Q11-1, Q11-2, Q11-3, Q11-4, Q12-1, Q12-2, Q12-3, and Q12, had an impact on Q14. Additionally, a test for multicollinearity in the model revealed that all VIF values are less than 5, indicating the absence of collinearity issues. Furthermore, the D-W value was approximately 2, suggesting that there was no autocorrelation in the model and no relationship between the sample data, indicating a good model fit.

The regression coefficient for Q10-3 is 0.166 (t = 2.661, p = 0.008 < 0.01), the regression coefficient for Q12-1 is 0.138 (t = 2.166, p = 0.031 < 0.05), the regression coefficient for Q12-2 is 0.239 (t = 3.844, p = 0.000 < 0.01), and the regression coefficient for Q12-3 is 0.163 (t = 2.660, p = 0.008 < 0.01). This means that Q10-3 (Use of imitated forms of the Shan-Shui element in architectural appearance.), Q12-1 (Use of traditional Chinese architectural forms of the Shan-Shui element in an indoor environment.), Q12-2 (The use of abstract geometric forms of the Shan-Shui element in indoor environment.), and Q12-3 (Use of imitated forms of the Shan-Shui element in an indoor environment.) had a significant positive impact on Q14 (I agree and look forward to seeing the use and expression of Shan-Shui elements in architectural environments.). In other words, the more positive the attitudes towards the "the use of imitated forms of the Shan-Shui element in architectural appearance", "the use of traditional Chinese architectural/natural forms of the Shan-Shui element in indoor environment", "the use of abstract geometric forms of the Shan-Shui element in indoor environment", and "the use of imitated forms of the Shan-Shui element in indoor

environment" items are, the more agreement and expectation there is to see Shan-Shui elements in more architectural environments.

5. Discussion

First, the research results of the first part (Q6-1 > Q6-2 > Q6-3, Q8-1 > Q8-2 > Q8-3, Q9-1 > Q9-2 > Q9-3) validate one of the hypotheses of this study, that is the YZ generation subconsciously perceives Shan-Shui as relatively independent from the architectural environment and identifies Shan-Shui more with natural elements such as mountains and water. Furthermore, the adjustment of the position and scale relationship between Shan-Shui and architecture further confirms this cognitive phenomenon. From the perspective of cultural-level theory, the YZ generation's perception of Shan-Shui culture tends to focus more on the outer "tangible" level. Based on these survey results, it is indicated that the Chinese YZ generation does not consciously associate Shan-Shui with architecture and that they have relatively fixed perceptions regarding the volumetric and spatial relationships between Shan-Shui and architecture. This result also indirectly suggests that, although Shan-Shui elements have been widely implemented in architectural environments, they have not yet garnered widespread attention from the Chinese YZ generation.

Second, the results of the second part, which combines the survey on Shan-Shui design elements in images (Q10-1 > Q10-4 > Q10-2 > Q10-3, Q11-1 > Q11-4 > Q11-2 > Q11-3, Q12-1 > Q12-4 > Q12-2 > Q12-3), show that regardless of whether the Shan-Shui design elements appear in the architectural appearance, outdoor environments, or indoor environments, the ranking of the level of recognition of the expression of Shan-Shui design forms among the Chinese YZ generation are traditional/natural forms, Chinese painting forms, geometric forms, and imitated forms. This result indicates that the Chinese YZ generation has a clear preference for the design expression forms of Shan-Shui, which plays an important guiding role in its application and design. The preference of the Chinese YZ generation for the traditional natural style and painting style Shan-Shui also indirectly indicates that they prefer familiar design forms. Moreover, from the overall preference sequence of the form, it can also be seen that the YZ generation prefers simpler design forms.

Third, the survey results also indicate that the YZ generation's ranking of the level of recognition of the position where Shan-Shui design is expressed is architectural appearance, outdoor environments, and indoor environments, as shown by Q10-1 > Q11-1 > Q12-1, Q10-2 > Q11-2 > Q12-2, Q10-3 > Q11-3 > Q12-3, Q10-4 > Q11-4 > Q12-4. According to this result, it is evident that the Chinese YZ generation has a clear preference for the position of Shan-Shui design expression, which also indicates the importance of Shan-Shui design application and design. Moreover, from this result, it can also be seen that the cognitive preferences of the Chinese YZ generation for Shan-Shui are influenced by cognitive inertia, and that their preferences do not deviate from the real cognition of the position and volume relationship between Shan-Shui and architecture.

Fourth, there was a significant positive correlation between the overall understanding of Shan-Shui culture and Shan-Shui design elements among the YZ generation. This indicates that the YZ generation does not separate Shan-Shui culture from Shan-Shui design; it can be said that the development of Shan-Shui culture can promote the development of Shan-Shui design, and the development of Shan-Shui design can in turn enrich Shan-Shui culture. The results of the linear regression show that Q10-3, Q12-1, Q12-2, and Q12-3 have a significant positive impact on the perception of Shan-Shui design. Therefore, to enhance the overall understanding of Shan-Shui design, it is important to focus on improving the perception attitudes of the YZ generation towards imitated forms of Shan-Shui in architectural appearance, traditional Chinese architectural/natural forms of Shan-Shui in indoor environments, abstract geometric forms of Shan-Shui in indoor environments, and imitated forms of Shan-Shui in indoor environments.

Fifth, the survey results clearly indicate that the Shan-Shui culture and Shan-Shui design have a solid foundation for development among the YZ generation in China, especially the Z generation. From the survey data, it is evident that the Z generation

shows a more positive attitude towards various aspects of Shan-Shui culture and Shan-Shui design, and it is highly favored by the younger generation. This also indicates that Shan-Shui design has an audience base for forward development. Meanwhile, as the Z generation is just entering the workforce or is still in school, their identification with this culture and design form increases the likelihood of their participation in Shan-Shui design practices and the development of its theories.

6. Conclusions

First, the issue of the relationship between Shan-Shui and architectural environments has a long history in China, often explained from the perspectives of architects and artists [10–14], lacking the investigation and research of public awareness of this issue, especially among the younger generation. This study aims to fill the gap in public understanding of this issue by refining Shan-Shui culture and the basic elements of Shan-Shui design and conducting a survey specifically targeting the YZ generation.

Second, in traditional Chinese garden architecture and painting, mountains and rivers are depicted in an idealized natural form through rationalized shapes [19]. The research results of this study also show that the traditional representation of Shan-Shui continues to be highly recognized by the YZ generation in China. This suggests that the relationship between Shan-Shui and architectural environments in the transmission and development of the YZ generation can maintain consistency with traditional theories.

Third, it is difficult to form a widespread and profound understanding of the inner "intangible" aspects of culture (spiritual values, philosophical thinking, and aesthetic preferences) [26]. However, the YZ generation in China has a widespread and profound understanding of the inner "intangible" aspects of Shan-Shui, which gives Shan-Shui a stronger vitality in the design field. When integrating the concept of Shan-Shui into modern architectural environments for the YZ generation, it can not only intervene in the space in a highly primitive and natural state but also in the space in a highly formalized manner, leveraging traditional Chinese painting elements. The former can effectively control the energy consumption of production, while the latter can attract more elderly people, indicating that Shan-Shui design elements in architectural environments can provide long-term benefits.

Fourth, this study is a foundational research study on the relationship between landscape culture, landscape design elements, and architectural environments. The main purpose is to construct a foundational theoretical framework, thus lacking a more specific and in-depth investigation and analysis. Moreover, this study used the YZ generation in China as the sample; therefore, there are certain limitations to the research results. Whether other generations will present similar cognitive results regarding Shan-Shui culture and Shan-Shui design elements depends on extensive research.

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