A Study on the Image of Landscape of Japanese and Chinese Gardens

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Abstract
The purpose of this study is to evaluate the image of landscape of Japanese and Chinese gardens, and to analyze the landscape elements which have an effect in forming those images. Although the landscape of both countries’ gardens share many similarities in many aspects, the image of “Country-likeness” is different based on the environment, climate and traditions. In order to explore the unique image characteristics of landscape of garden such as “Japan-likeness” and “China-likeness”, four psychological investigations consisting of three parts were carried out separately on Japanese and Chinese subjects. Through a comparative analysis, we found that there were many obvious distinctions between the Japanese and Chinese subjects regarding the image of Japan-likeness and China-likeness. Furthermore, this study has clarified that some landscape elements have an effect on forming Country-likeness image.

Keywords: image; landscape of garden; Japan-likeness; China-likeness; landscape element

1. Introduction
It is well known that the culture exchange had been carried out between Japan and China since ancient times. Chinese culture has exerted great influence on the evolvement and development of Japanese gardens. In the Asuka period, the Chinese ideology of landscaping was introduced to Japan, and became the dominant theory, such as the ideology of “one pond with three hills”. Therefore, the gardens of both countries have had a close relationship from ancestry.

However, due to the different environment, climate, and traditions, gardens of both countries showed their own significant characteristics in such aspects as form, structure and the image of landscape, as they became more and more mature. At the same time, the image of “Country-likeness” developed and separated from the general image of landscape in both countries. Also, it can’t be denied that the image of Country-likeness plays a significant role in forming the ordinary evaluation of landscape. There have been many analyses of the image of landscape of garden, but some of them were unclear, due to a lack of clarity regarding the basic distinction concerning Country-likeness. Therefore, it is necessary to clarify country-likeness by comparative research, before engaging in any further study.

Regarding previous research in Japan, Suzuki Makoto2 has been engaged in the research of Japanese and other countries’ gardens. The author tried to explain the structure of landscape of garden evaluation in various countries from a design evaluation point of view, while the objects of the Chinese garden covered by the study are limited to private gardens with a lack of attention being given in particular to the imperial garden which is the origin of the Chinese garden. In China, Chen-Wei3 has carried out a comparative study on Japanese and Chinese gardens, focusing especially on the aesthetic preferences of people.

Therefore, there is still a wide gap between the study of the image and elements in gardens. This study aims to illustrate the unique scenic image of both countries’ gardens, in terms of “Japan-likeness” and “China-likeness”, while trying to explain which kinds of landscape elements affect the forming of image.

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(Received May 8, 2003 : accepted September 17, 2003)
2. Outline of Questionnaire Survey

The unique image of Country-likeness can be deduced by comparing the landscape of both countries’ gardens. Therefore, in order to explore the image, four surveys were carried out at universities in Japan and China (Table 1).

2.1 Objects

Chinese gardens have evolved into two main types, royal gardens and private gardens, the former are concentrated in the Beijing area, the latter are located in the Suzhou area. Meanwhile Japanese gardens consisted of three main types, stroll gardens, dry landscape gardens, and tea house gardens; famous gardens among three types can be found in the Kyoto area. As typical gardens of both countries are concentrated in these areas, the objects (photographs) used in this survey were mainly selected from these existing gardens based on given criterion (Fig. 1). Therefore, according to relevant documents and the result of a preliminary survey, it was decided that 33 landscape photographs be selected from each country for the questionnaire survey (Fig. 2).

2.2 Image Terms

The image terms consisted of 32 bipolar adjectives, which were decided by collecting the subject’s intuitive response to photographs and referencing previous research. In addition, it was ensured by a preliminary survey that there were no differences in meaning between the Japanese and Chinese bipolar adjectives used in the questionnaire survey.

2.3 Survey Contents

The questionnaire survey consisted of three parts. The first part focused on the personal information of the subjects. The second part consisted of an image investigation with the adoption of the SD7 method. The subjects were asked to assign a seven-point scale rating to the photographs with image terms. The final part consisted of a survey concerning Country-likeness and landscape element. The subjects were asked to pick ten typical Country-likeness photographs and to write down their corresponding numbers and the reason for their choice in simple words. While choosing the objects, elements that bore a relation to the forming of the Country-likeness were selected. In order to guarantee that the landscape elements which bore the closest relation to the image could be obtained, the subjects were required to choose one item as an answer separately from the elements and features offered (Table 2).

2.4 Survey Procedure

The surveys were carried out in the lecture room at universities in both countries, separately. In order to ensure that the subjects could observe the pictures clearly without being affected by different distance and viewpoint, they were divided into separate groups for experiments, such as six groups in China and five groups in Japan. The procedure was as follows: First, the contents and answering method were explained to the subjects; they were then asked to look at the objects quickly in order to obtain a total image and to answer the first part, this step lasted for about 10 minutes. Next, they were shown photographs at random and asked to finish the second part; each photograph was shown for about 2.5 minutes until all subjects could finish the survey. This step lasted for about 82~85 minutes (33*2.5) at least. Finally, the subjects were shown the photographs again and asked to answer the third part. The total time taken by each group was approximately 110~120 minutes.

2.5 Method for Evaluation of Survey

2.5.1 Factor Analysis

Factor analysis (principal factor method, varimax rotation) was performed by using the data gathered from experiments. The factors were then derived based on the standard that eigenvalue is larger than 1.0.

2.5.2 Quantification of Country-likeness

The steps were as follows: Step1, the number of votes selected by every subject was gathered in order of Country-likeness ranking (1st~10th) for each object. Step2, the scores for each object were multiplied by 10~1 respectively based on the order (1st~10th). Step3, the total result of allocation of mark could then be derived by adding up the data. Step4, the score of object was obtained by averaging the total data by number of subject (Table 3).

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Table 1. Outline of the Experiments

| Experiment | Period | Place | Subject |
|------------|--------|-------|---------|
| 1 | J.G by Chinese | 25th-26th Oct. 2001 | Lab Dept. of Arch in U1 | 31 students |
| 2 | C.G by Japanese | 19th-22nd Nov. 2001 | Lab Dept. of Arch in NIT | 26 students |
| 3 | J.G by Japanese | 5th-8th Nov. 2001 | Lab Dept. of Arch in NIT | 26 students |
| 4 | C.G by Chinese | 15th-16th Mar. 2002 | Lab Dept. of Arch in U1 | 31 students |

J.G: Japanese gardens; C.G: Chinese gardens.

Table 2. Contents of Questionnaire Survey

| Item of Survey | Detail |
|----------------|--------|
| 1 | Subject attribute | Age, sex, hometown, experience as tourist |
| 2 | Image survey | Rating photographs with adjective |
| 3 | Country-likeness landscape element | Select photo, elements, feature, and reasons |

Table 3. The Quantification Process of Country-likeness

| Order | Data of vote(step1) | Allocation of Marks | Quantification(step2) |
|-------|---------------------|---------------------|----------------------|
| 1     | 0 7 2               | *10                 | 0 70 30             |
| 2     | 2 3 2               | *0                  | 18 27 18            |
|       |                     |                     | 18 27 18            |
| 10    | 0 1 2               | *1                  | 0 1 2               |

SUM(step3) = 18 98 50

ORDER=SUM/NUMBER OF SUBJECT(step4)

0.3 1.7 0.8
Fig.2. Photographs of Evaluated Garden Landscape in Japan (former 33) and China (latter 33)
2.5.3 Aggregation of Elements and Explanations
The indication frequencies of elements and features were collected with the simple aggregations, and the result shown by percentage format. Then, according to the ratio of the elements, we analyzed the important reasons for forming the image in order to identify the relationship between the image and element.

2.6 Subject Attribute
The subjects consisted of undergraduate, graduate and research students at universities in Japan and China, separately. The total number of Chinese subjects was 62; 22 females and 40 males. The subjects were mostly in their twenties and came from 15 different provinces, while 66% of them had experience of gardens in their country. The total number of Japanese subjects was 52; 16 females and 36 males. The subjects were mostly in their twenties and came from eight provinces, while 52% of them had experience of gardens in their own country. Moreover, a few subjects in both countries had experience of other country’s gardens.

Moreover, in this paper the questionnaires of Japanese subjects and Chinese subjects were collected separately, in order to carry out a comparative study.

3. Result and Analysis of Japanese Subjects
3.1 Factor Analysis
Using the data obtained from the evaluation experiments, factor analysis was carried out by adopting the method offered by 2.5.1. Factor A was occupied by the following bipolar adjectives such as orderly-disorderly, harmonious-disharmonious, and unified-disunified, the factor was labeled as sense of “Harmony”. In factor B, the three uppermost bipolar adjectives were wide-narrow, open-closed, and far-near; as these adjectives related to the space and volume of landscapes, the factor was labeled as sense of “Openness”. In factor C, as adjectives relating to sensibility, such as familiar-unfamiliar, comfortable-uncomfortable, interesting-boring were gathered, it was considered appropriate to label the factor as sense of “Affinity”. Factor D was composed of lonely-animated, plain-gorgeous, and cold-warm, so the factor was labeled as sense of “Loneliness”. Factor E was composed of monotonous-varied and plane-solid, so the factor was labeled as sense of “Variety” (Table 4). Because the contribution rate of factor A account for 48% of cumulative contribute rate, “Harmony” comes to play an important role in explaining the image.

3.2 Country-likeness Order
Data were collected based on adopting the method offered by 2.5.2. The Japanese thought that numbers 8,11,31, etc. of Japanese photos and numbers 4,20,15, etc. of Chinese photos represented typical images of Country-likeness in both countries(Fig. 3). Additionally, according to the results of factor scores and Country-likeness scores, the correlation was shown between the factor and the Country-likeness. For Japanese objects, factor A(Harmony) and factor E(Variety) show positive correlation (0.855 and 0.521) with Japan-likeness; whereas, for Chinese objects, factor A(Harmony) and factor E(Variety) show negative correlation (-0.818 and -0.593) with China-likeness. Therefore, the factor of “Harmony and Variety” comes to play an important role in explaining the image of Country-likeness (Table 5).

3.3 Analysis of Country-likeness with Average Scores
In order to distinguish the images of the two Country-likenesses, a comparison was made between the two groups of objects selected based on the Country-likeness scores (more than 5) in 3.2., in terms of 8,11,31,5 of Japanese objects and 4,20,15,10,17 of Chinese ones. The contents of comparison are the average scores of 32 bipolar adjectives regarding the above objects. A close study of the “average” in Figure 4 leads us to find that the layout of objects is almost symmetrical. Objects separated by a large distance on a left-right axis were distributed on special bipolar adjectives, and these adjectives almost belong to factor A(Harmony) and E(Variety). These adjectives selected to describe Japanese landscapes are: orderly, harmonious, stable, still, monotonous, plane, etc.; while those selected to describe Chinese landscapes are: disorderly, disharmonious, unstable, dynamic, varied, solid, etc.

Therefore, the following conclusions can be drawn: the Japan-likeness image was based on such evaluation comments as “higher harmony, still atmosphere, simple color, lower variety, and level layout”, representing an ideal world; an image of “pure and still(‘純,‘静’ in Japanese) views”; on the other hand, the China-likeness image was based on “lower harmony, dynamic atmosphere, a wide range of color and shape, higher variety, and three-dimensional layout”, representing the real world; an image of “mixed and dynamic(‘雜,‘動’ in Japanese) views”.

3.4 Elements and Features
Figure 5 shows the results of the indication frequencies of the elements and features concerning Country-likeness. Regarding the Japanese landscapes, the image of Japan-likeness is influenced sequentially by water, plant, bridge, etc., therefore the indication frequencies of natural elements are more than the artificial elements; and such features as layout, shape, color and texture account for 32.5%, 29.4%, 25.8% and 12.3%, respectively. While, regarding the Chinese landscapes, the image of China-likeness is obviously influenced by house, corridor/bridge, stone/sand, etc., therefore the indication frequencies of artificial elements are more than the natural elements, the house and corridor/bridge of the artificial elements were indicated almost equally; and such features as shape, color, layout and texture account for 50.7%,22.5%,19.8% and 6.9%, respectively. Furthermore, texture was mentioned almost twice as much in relation to Japanese gardens as it was in the Chinese gardens.
Table 4. Result of Factor Analysis

| No. | Image terms | Factor A | Factor B | Factor C | Factor D | Factor E |
|-----|-------------|----------|----------|----------|----------|----------|
| 9   | harmony-disharmony | 0.901 | -0.016 | 0.036 | -0.096 | -0.130 |
| 20  | unified-divunified | 0.729 | -0.054 | 0.171 | -0.280 | -0.112 |
| 27  | stable-unstable | 0.648 | -0.206 | 0.081 | -0.063 | 0.074 |
| 28  | still-dynamic | 0.802 | -0.108 | 0.209 | -0.330 | 0.324 |
| 29  | disinteresting-interesting | 0.760 | -0.162 | 0.436 | -0.301 | 0.195 |
| 31  | wet-dry | 0.668 | -0.080 | 0.022 | -0.089 | 0.203 |
| 32  | familiar-unfamiliar | 0.463 | -0.189 | 0.642 | -0.238 | 0.322 |
| 33  | living-abstract | 0.461 | -0.223 | 0.614 | -0.094 | 0.118 |
| 34  | soft-hard | 0.071 | -0.415 | -0.503 | 0.257 | -0.017 |
| 35  | active-passive | 0.010 | 0.151 | -0.052 | -0.520 | -0.294 |
| 36  | cold-warm | 0.080 | -0.238 | 0.728 | -0.078 | 0.128 |
| 37  | plain-complicated | 0.222 | -0.183 | 0.010 | 0.725 | -0.044 |
| 38  | cheerful-grim | 0.086 | -0.159 | -0.022 | 0.073 | -0.133 |
| 39  | bright-dark | 0.081 | 0.130 | 0.312 | -0.055 | 0.246 |
| 40  | masculine-feminine | 0.077 | 0.140 | 0.012 | -0.206 | 0.124 |
| 41  | calm-restless | 0.380 | 0.100 | 0.371 | -0.304 | 0.078 |
| 42  | factor-irrelevant | 0.043 | 0.145 | 0.085 | 0.177 | -0.057 |

cumulative contributing rate: 0.780

Table 5. Correlation between Factor and Country-likeness

| Country-likeness | Japanese garden | Chinese garden |
|------------------|----------------|----------------|
| A: Harmony | 0.989 | -0.038 |
| B: Orderliness | 0.113 | 0.021 |
| C: Affinity | 0.329 | 0.284 |
| D: Liveliness | 0.055 | 0.299 |
| E: Variety | 0.521 | -0.593 |

Fig.3. Object in Order of Japan-likeness and China-likeness

Fig.4. Result of Comparison Concerning Average Score (Japanese subjects)

Fig.5. Indication Frequency of Elements and Featuresure

Table 6. Result of Sensation

| Element | Feature | Sensation | Ratio |
|---------|---------|-----------|-------|
| A | Color/Brightness | shape/layout/texture | simple/plain | (stone, wood) orderly, cautious | 16.0% |
| B | Size/Position | shape/layout/color | ordinary, etc. | 3.0% |
| C | Shape/Texture | shape/layout/color | regular/plain, simple, delicate | 15.4% |
| D | Color/Texture | shape/layout/color | harmonious, pretty, generous, tidy, pleasant | 25.4% |
| E | Material/Texture | shape/layout/color | harmonious, pretty, generous, tidy, pleasant | 25.4% |

Fig.2. Comparison Concerning Average Score (Japanese subjects)
Therefore, the following conclusion was arrived at based on the above result. For Japanese, the image of Japan-likeness was almost formed by water, plant and bridge (elements) and layout, shape (features), such as layout of water/plant, etc.; while, the image of China-likeness was formed by house, corridor/bridge and stone/sand (elements) and shape, color (features), such as shape of house/corridor/bridge, etc.

3.5 Analysis of Reasons Concerning the Country-likeness
According to the results of 3.4, by giving special attention to the elements indicated with high scores (more than 15%), the following can be found (Table 6). First, depending on the percentage scores of the elements, harmonious water, trim plant and simple bridge have an effect in forming Japan-likeness; whereas, varied colorful (red, yellow) house, curved corridor/bridge and solid stone have an effect in forming China-likeness. Second, these typical adjectives representing Country-likeness could be considered as supplementary in supporting the viewpoint in 3.3.

4. Result and Analysis of Chinese Subjects
4.1 Factor Analysis
Using data gathered from the experiments, factor analysis was performed. As the first group gathered bipolar adjectives relating to sensibility, such as familiar-unfamiliar, cheerful-gloomy, and comfortable-uncomfortable, the factor was labeled as sense of “Affinity”. The top three bipolar adjectives in the second group were open-closed, high-low and wide-narrow. These words relate to spatial capacity which described the “Openness” of the space. The third factor was occupied by bipolar adjectives such as harmonious-disharmonious, orderly-disorderly and stable-unstable, so it was considered appropriate to label the factor as sense of “Harmony”. As the fourth group consisted of interesting-boring and monotonous-varied, the factor was labeled as sense of “Variety”, and the fifth factor was labeled as sense of “Loneliness” (Table 7). Because the contribution rate of factor A account for 46% of total rate, “Affinity” is important in explaining the image.

4.2 Country-likeness Order
The Chinese thought that number 6,2,27, etc. of Japanese photos and number 12, 6, 27, etc. of Chinese photos could well represent the typical image of Country-likeness in both countries (Fig. 6). Additionally, the correlation was shown between the factor and the Country-likeness, such as factor A(Affinity) and factor E(Loneliness) show negative correlation (-0.745 and -0.467) and positive correlation (0.734 and 0.588) with Japan-likeness and China-likeness, separately. Therefore, the factor A(Affinity) and factor E(Loneliness) were important in explaining the image of Country-likeness (Table 8).

4.3 Analysis of Country-likeness with Average Scores
In order to distinguish between the images of the two Country-likenesses, a comparison was made between the two groups of objects selected based on the Country-likeness scores (more than 5) in 4.2., in terms of 6,2,27,29 of Japanese photos and 12,6,27,21 of Chinese ones. Adopting the same method used in 3.3, the special bipolar adjectives were observed in the factor A(Affinity) and E(Loneliness) (Fig. 7). These adjectives for Japanese garden landscapes are: unfamiliar, restrictive, natural, still, plain, etc.; whereas the adjectives for Chinese landscapes are: familiar, free, artificial, dynamic, and gorgeous, etc.

Therefore, the following conclusions can be drawn: the Chinese subjects based the Japan-likeness impression on such evaluation comments as; “lower affinity, restrained layout, natural form, and plain colors”, representing a simple and natural spectacle - an image of “natural and simple(‘寂’ in Chinese) views”; they based China-likeness impression on such comments as “higher affinity, free layout, artificial form, and vivid colors”, representing an imitated and complex spectacle - an image of “artificial and complex(‘風’in Chinese) views”.

4.4 Elements and Features
Figure 8 shows the result of the indication frequencies of elements and features concerning Country-likeness. Regarding the Japanese landscape, the Japan-likeness image is influenced sequentially by the stone/sand, plant, house, etc.; the indication frequencies of natural elements are twice as many as the artificial ones; and such features as layout, color, shape and texture account for 37.3%, 35.4%, 18.3% and 9.0%, respectively. While, regarding the Chinese landscape, the China-likeness image is obviously influenced by the bower/pavilion, stone/sand, corridor/bridge, etc. The indication frequencies of artificial and natural elements are almost equally balanced; and such features as shape, layout, color and texture account for 39.3%, 33.9%, 19.1% and 7.8%, respectively.

Therefore, for Chinese, the image of Japan-likeness was almost influenced by stone/sand, plant and house (elements) and layout, color (features), such as layout of stone/sand, etc.; while, the image of China-likeness was influenced by bower/pavilion, stone/sand (elements) and shape, layout (features), such as the shape of bower/pavilion and the layout of stone, etc.

4.5 Analysis of Reason Concerning the Country-likeness
By paying attention to the elements which were indicated with high scores (more than 15%), the following can be found (Table 9). In Japanese gardens, orderly stone/sand, trim plant and lonely house have an effect in forming Japan-likeness; while, nervous stone/sand have an effect in forming China-likeness. Moreover, these typical adjectives representing Country-likeness
Table 7. Result of Factor Analysis

| No. | Image terms                        | A     | B     | C     | D     | E     | Variance |
|-----|------------------------------------|-------|-------|-------|-------|-------|-----------|
| 4   | familiar-unfamiliar                | 0.046 | 0.142 | 0.233 | 0.060 | 0.153 | 0.519     |
| 10  | fixed-static                        | 0.084 | -0.157| 0.321 | -0.173| -0.057| 0.395     |
| 29  | free-restrictive                    | 0.360 | 0.131 | 0.036 | -0.173| -0.397| 0.362     |
| 31  | related-tense                       | 0.272 | -0.358| 0.251 | 0.300 | 0.061 | 0.279     |
| 14  | bright-dark                         | 0.087 | 0.481 | 0.191 | -0.063| -0.217| 0.097     |
| 12  | cheerful-gloomy                     | 0.055 | 0.269 | 0.334 | -0.776| -0.365| 0.061     |
| 7   | wildly-agitated                     | 0.064 | 0.273 | 0.432 | -0.281| -0.681| 0.065     |
| 11  | natural-artificial                  | -0.585| -0.432| 0.415 | -0.281| -0.192| 0.586     |
| 10  | comfortable-uncomfortable           | -0.501| -0.244| -0.189| 0.111 | 0.322 | 0.501     |
| 6   | still-dynamic                       | -0.535| 0.300 | -0.088| -0.186| 0.033 | 0.535     |
| 25  | beautiful-ugly                      | 0.539 | 0.149 | 0.028 | 0.128 | 0.040 | 0.539     |
| 1   | open-closed                         | 0.513 | 0.089 | -0.170| 0.294 | 0.027 | 0.513     |
| 5   | high-low                            | 0.213 | 0.786 | 0.413 | 0.024 | -0.072| 0.213     |
| 28  | wide-narrow                         | 0.160 | 0.738 | -0.062| 0.197 | -0.006| 0.160     |
| 23  | far-near                            | -0.008| 0.725 | -0.023| 0.130 | 0.361 | 0.008     |
| 32  | deep-shallow                        | 0.032 | 0.814 | -0.291| -0.233| 0.134 | 0.032     |
| 19  | wet-dry                             | 0.028 | 0.014 | 0.099 | -0.139| -0.070| 0.028     |
| 30  | hard-soft                           | -0.136| 0.538 | -0.131| 0.296 | 0.040 | -0.136    |
| 13  | delicate-rough                      | 0.085 | 0.374 | 0.394 | -0.172| -0.108| 0.085     |
| 16  | plane-solid                         | 0.175 | 0.000 | 0.172 | 0.140 | 0.092 | 0.175     |
| 8   | harmony-chaotic-chaotic             | -0.140| 0.171 | 0.738 | 0.027 | -0.072| 0.140     |
| 20  | unified-clannish                    | -0.071| 0.508 | 0.065 | -0.134| -0.064| 0.071     |
| 9   | orderly-disorderly                  | 0.077 | 0.014 | 0.095 | 0.025 | 0.126 | 0.077     |
| 27  | stable-unstable                     | 0.465 | 0.234 | 0.295 | 0.048 | 0.152 | 0.465     |
| 24  | elegant-vogue                       | 0.410 | 0.066 | 0.508 | -0.237| -0.179| 0.410     |
| 3   | discontinuous-continuous            | 0.027 | -0.221| 0.019 | 0.079 | 0.204| 0.027     |
| 18  | interesting-boring                  | -0.372| 0.008 | -0.251| 0.165 | 0.160| -0.372    |
| 17  | monotonous-varied                   | -0.277| 0.168 | 0.237 | 0.039 | 0.153 | 0.277     |
| 26  | active-passive                      | -0.067| 0.003 | -0.087| 0.060 | -0.117| 0.067     |
| 21  | lonely-unlimitted                   | 0.376 | 0.255 | 0.304 | -0.257| -0.051| 0.376     |
| 15  | fluid-unlimitted                    | 0.112 | -0.221| 0.015 | 0.344 | -0.062| 0.112     |
| 22  | plain-gorgeous                      | -0.772| -0.342| 0.413 | -0.004| 0.515| 0.772     |

Table 8. Correlation between Factor and Country-likeness

| Country-likeness | Factor | Japanese garden | Chinese garden |
|------------------|--------|-----------------|----------------|
| A                | Allity | -0.735          | 0.734          |
| B                | Openness | -0.294         | 0.141          |
| C                | Harmony | 0.45            | 0.228          |
| D                | Variety | 0.41            | 0.179          |
| E                | Loneliness | 0.476       | 0.588          |

Table 9. Result of Sensation

| Element | Feature | Sensation | Ratio |
|---------|---------|-----------|-------|
| A       | Condition Bridge shape, color, layout, | low, simple, small | 9.0%   |
|         | Bowen Pavilion | abbr. | quite design, shadow, easy. | 1.1%   |
| E       | House | shape, color, layout, texture, color unified | (gray), straight, inactive | 20.9%  |
| N       | Stone Sand | layout, shape, texture, color | orderly line, natural, shape, smooth | 31.1%  |
| G       | Water | shape, color | quite, comfortable, calm | 6.4%   |
| E       | Plant | layout, color, shape, layout, texture, | surrounding, smooth, | 27.5%  |
|         | abbr. | | | | | |
| A       | Condition Bridge shape, color, layout, | curved, faceted, convergent, | 15.0%  |
|         | Bowen Pavilion | abbr. | complex, straight, varied, decor | 24.5%  |
| E       | House | color, layout, shape, | abbr. | 9.8%   |
| N       | Stone Sand | layout, shape, | curved | 17.8%  |
| G       | Water | shape, layout, texture, color | surrounding, natural | 10.2%  |
| E       | Plant | color, layout, shape, layout, texture, | smooth, varied, | 13.9%  |
|         | abbr. | | | | | |

Fig. 6. Indication Frequency of Elements and features

Fig. 7. Result of Comparison Concerning Average Score (Chinese subjects)

Fig. 8. Indication Frequency of Elements and features
could be regarded as supplementary in supporting the viewpoint in 4.3 also.

5. Comparative Elements and Features Concerning Country-likeness

According to the results above, the elements and features concerning Country-likeness was organized separately based on the landscape of Japanese and Chinese gardens for carrying out a comparison (Table 10). Regarding the landscape of Japanese gardens, both countries’ subjects thought that the images of Japan-likeness were influenced by sand, water (elements) and layout (features); whereas, in the case of the landscape of Chinese gardens, they thought that the images of China-likeness were influenced by house, bower, stone (elements) and shape (features).

Table 10. Comparative Analysis

| Object | Image          | Feature          |
|--------|----------------|------------------|
| J.L    | water, plant, bridge | Layout, shape, color |
| C.L    | house, corridor, stone/sand | Shape, color, layout |

1) Japanese, C: Chinese, J.L: Japanese landscape, J.L: Japan-likeness.

6. Conclusions

The study leads to the following conclusions8 within the range of this study:

1) For Japanese subjects, Japan-likeness is 'purity and stillness (純、静 in Japanese)’; while China-likeness is “mixture and dynamic (雑、動 in Japanese)”. These images were formed by the layout of water and plant (harmonious quiet water, limited plant shape) in Japanese gardens; and the shape of house and corridor (various colorful house, curved corridor) in Chinese gardens, separately.

2) For Chinese subjects, the Japan-likeness is ‘nature and simplicity (寂 in Chinese)’; while the China-likeness is ‘artificialness and complex (異 in Chinese)’. These images were formed by the layout of stone/sand and plant (regular stone/sand, unified plant shape) in Japanese gardens; and the shape of bower and stone (complicated shape bower/pavilion, solid stone) in Chinese gardens, separately.

Acknowledgments

The authors would like to express their appreciation to photographer Mr. Haruzo Ohashi whose five photographs of Japanese gardens were used. The authors are also grateful to the students in both countries, who cooperated in this study.

Notes

1) Reference 1, P19. The author writes that this kind of ideology of landscaping gardens was very famous in the period of Asuka period, and this was noted four times in <<Nihon Shoki>>.
2) Reference 2.
3) Reference 3.
4) Reference 4, P9. The author pointed out that Chinese garden composition consisted of three kinds of elements such as plant/pond, building, and rock. On the other hand, in reference 5, the author divided Japanese garden elements into building, plant, water, and rock/sand, etc. Considering the element commonality of both country’s gardens, and referencing opinions above, it was decided that garden composition mainly consisted of natural elements (such as water, plant, rock/sand, etc.) and artificial elements (such as house, bower/pavilion, corridor/bridge, etc.) in our study, while at the same time also it was decided that the element features consisted of color, shape, layout and texture.
5) Objects were selected for the questionnaire survey based on the criteria, such as representation, seasonality, region characteristics and conservation.
6) The preliminary experiment was carried out between the 10 Japanese and 8 Chinese students in the lecture room of NIT from July 8th—9th 2001. Adopting the SD method, the subjects were asked to give a seven-point scale rating to 40 photographs with 45 adjective pairs. Based on the result we selected research objects and image terms.
7) The Semantic Differential (SD) was developed by Charles E. Osgood in 1957 and has since been applied as a measure of attitude in a wide variety of projects The main applications of factor analysis are to detect structures in the relationships between variables.
8) In Japan, the researchers (reference 5, 6 and 7) presented their opinions to Japanese garden from their own viewpoint; while, the researchers (reference 4 and 8) introduced characteristic of Chinese garden in their own study fields. According to such previous researches, we understand that how they evaluate their own landscape of garden, in terms of ‘sabi/wabi/shibui (寂寥, 靜), symbolism, coexistence, etc.’ which were indicated as common evaluation of Japanese garden. Whereas ‘loneliness, tianrenheiyi (天人合一), harmony, etc.’ were considered as impression of Chinese garden. There were no clear statements concerning the image of country-likeness, in spite of the fact that parts of the information included in our conclusions were mentioned separately in previous research. According to these previous researches, it could be considered that the conclusion is a development of the previous researches based on quantitative underpinning and is therefore different from previous ones. However, due to the limitation of study accuracy, we plan to conduct a field survey in our further study in order to verify the result of evaluation.

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