ASSESSMENT OF LANDSCAPE PREFERENCE IN THE BOTANICAL GARDEN OF CURITIBA, PARANÁ, BRAZIL

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ABSTRACT

The analysis of landscape preferences for plant individuals constitutes an important tool to evaluate and improve the tourism sector. The objective of this research was to assess the landscape in the Botanical Garden, the most visited tourist attraction in the city of Curitiba, Paraná State, Brazil. We used postcards that portrayed the garden from the users’ perspective of the landscape. The purpose was to add qualitative data to this tourist attraction and provide subsidies for its management. For the analysis, we used the method of typology and landscape composition of ten postcards with the theme “The Botanical Garden of Curitiba” by landscape breakdown and quantification of elements previously defined as natural, cultural and anthropic. We selected the post cards with the highest percentage of natural, cultural and anthropic elements and presented them to users to respond a questionnaire. We examined the preference for the landscape in terms of the attractiveness. The results showed that users had greater preference for the postcards containing more cultural elements. Factors such as gender, age, educational formation and geographic origin of respondents influence their landscape preference.

Keywords: Landscape; Tourism; Perspective.

AVALIAÇÃO DA PREFERÊNCIA PAISAGÍSTICA NO JARDIM BOTÂNICO DE CURITIBA, PARANÁ, BRASIL

RESUMO

A análise das preferências paisagísticas dos indivíduos constitui-se em uma importante ferramenta para avaliação e aprimoramento da experiência turística. O objetivo desta pesquisa foi realizar uma avaliação paisagística no atrativo mais visitado da cidade de Curitiba, o Jardim Botânico, através dos cartões postais que retratam sua imagem, considerando a percepção de seus usuários em relação à paisagem dos cartões postais, para assim agregar dados qualitativos sobre o uso deste atrativo e fornecer subsídios a sua gestão. O método utilizado foi análise da tipologia e da composição paisagística dos dez cartões postais com a temática “Jardim Botânico de Curitiba”, por meio da desagregação da paisagem e quantificação dos elementos previamente definidos como naturais, antrópicos e culturais. Em seguida, selecionaram-se aqueles que obtiveram a maior porcentagem de elementos naturais, antrópicos e culturais em sua composição para serem apresentados aos usuários que responderiam ao questionário e assim analisar a preferência paisagística destes em relação ao atrativo em estudo. Os resultados encontrados quanto à paisagem retratada nos cartões postais, o que apresentou a maior quantidade de elementos culturais foi o que mais agradou aos usuários. Ao se considerar os fatores gênero, faixa etária, escolaridade e origem geográfica do entrevistado encontraram-se variações na preferência paisagística.

Palavras-chaves: Paisagem; Turismo; Percepção.

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INTRODUCTION

Currently, the term “landscape” has numerous definitions, which differ depending on the academic background, experience and line study of the researcher.

In this study, we will consider landscape as “a set of natural or artificial scenarios where a person is, besides an observer, one of the many elements that compose the landscape” (Biondi, 1990).

We observe that landscape plays the most significant role in tourism. Also, the relationship between tourism and the landscape is marked by inconsistency and can produce both positive and negative effects to the environment and community (MENESES, 2004).

Cruz (2002) states that in tourism, the landscape is the first contact an individual has the site visited; therefore, it is the main attractiveness of these places.

Because they are the main attractiveness, landscapes can be considered a visual evidence of aesthetic and symbolic elements constructed over time (SILVA, 2004). When landscape elements are appropriate for individuals, they arouse singular interest to the place visited and contribute to its qualitative valuation.

In a context, where landscape plays a key role in tourism, its composition and harmony of shapes and colors are essential (SILVA, 2004). The analysis of individuals’ preferences for a landscape is a tool to evaluate and improve quality of tourist sites.

Some landscape features are responsible for preference or rejection of the observer and these features can be concrete or abstract. Gonzáles Bernáldes (1981) apud Bolós (1992) compiles several authors and shows that concrete features comprise the presence of water, vegetation and minerals, while the abstract perspective is defined by its appearance, complexity, consistency, mystery, diversity and variety.

The combination of some of these elements makes a landscape attractive to the observer; on the other hand, their absence may cause detachment.

Thus, when analyzing the preference for landscapes, the knowledge of the landscape type is a useful tool, as this information may provide insights to understanding and discussions about the reasons that make a landscape pleasant or unpleasant in the eyes of the beholder.

Biondi (1990) attributes the following typology to landscapes: panoramic, focused, closed, centralized, limited and detailed (temporary).

In panoramic landscape, horizontal elements predominate, the image remains in the foreground and there are no limits to the vision. Focused landscape, however, has aligned parallel lines or objects that seem to converge to a predominant focal point.

A closed landscape is defined by the presence of visual barriers. Likewise, a limited landscape has its space surrounded by visual barriers or enclosed spaces.

In a centralized landscape, there is predominance of a single component that center the viewer's attention. Detailed or temporary landscape, on the other hand, provides a temporary observation of a landscape element and produces an unusual impact due to influences of unstable elements of nature.
Bolös (1992) classifies landscapes in terms of geographic characteristics and element dominance and can be distinguished as natural, artificial or anthropic. We observe, therefore, a wide range of methods to classify and to evaluate landscapes. The choice for the classification and method will depend exclusively on the objectives proposed by the researcher.

This study aimed to evaluate the attractiveness of the landscape of the Botanical Garden of Curitiba City, Paraná State, Brazil. We used postcards to conduct a survey on users’ perspective to obtain qualitative data of its attractiveness and provide subsidies for its management.

**MATERIALS AND METHODS**

The Botanical Garden is in Curitiba, capital city of Paraná State, Brazil, in the Jardim Botânico neighborhood, between Avenida Lothário Meissner and Rua Ostojá Roguski (Figure 1).

The garden covers 17.8 ha, between 25°26’S and 49°14’W (RBJB, 2004).

Figure 1 – Botanical Garden of Curitiba.

![Jardim Botânico map](image)

Source: Google Earth (2009).

The Botanical Garden of Curitiba was opened on October 5th, 1991, and provides several activities for local residents and visitors. The name of the garden honors the urbanist Maria Francisca Garfunkel Rischbieter for her pioneer...
work in urban planning in Curitiba (IPPUC, 2007).

The garden is used as a research center of the flora of Paraná State, besides contributing to nature preservation and conservation through activities developed in the environmental education center.

Besides the environmental and educational aspects, the Botanical Garden of Curitiba has significant importance as a tourist attraction, which is served by the bus lines: Expresso Centenário, Capão da Imbuia and Linha Turismo.

According to the State Secretariat for Tourism, the Botanical Garden of Curitiba was ranked as the most visited site in the city in 2007 (IPPUC, 2007).

In 2009, according to the Municipal Institute for Tourism, the Botanical Garden of Curitiba was among the most visited sites in the city (CURITIBA, 2009).

METHODS

To assess the user's landscape preference for the Botanical Garden of Curitiba, we used the psychophysical method, previously used in studies of Kischlat (2004).

The ten postcards for the Botanical Garden of Curitiba (Figure 2) were analyzed in terms of typology and landscape components as follows:

a) Square division 0.4 X 0.4 cm;
b) Definition of landscape typology in the ten postcards;
c) Definition of elements to be analyzed: natural, cultural and anthropic;
d) Quantification of squares for the elements;
e) Percentage of element occurrence in each landscape;
f) Selection of postcards to be evaluated by users.

Figure 2 – Postcards of Botanical Garden of Curitiba.
We use landscape classification criteria for landscape developed by Biondi (1990). The ten postcards were classified according to the landscape type and were later quantified according to their elements.

We considered as natural landscape elements: vegetation, the sky, water and relief. Vegetation was subdivided into arboreal, grassland and ornamental vegetation. For the analysis of anthropogenic landscape elements, we subdivided “construction” into physical infrastructure and urbanization. The cultural landscape elements were subdivided into “monuments” and “people”.

The standard postcards measured 10.5 X 15 cm. Therefore, after tests to identify the ideal size of the cards to ensure good visualization, we divided the card into 798 grid squares of 0.4 X 0.4 cm (Figure 3).
The postcards used in the survey were selected according to the percentage of elements that they displayed in the landscape. Thus, we selected cards with a higher percentage of natural, cultural and anthropic features. In the questionnaire for landscape assessment, respondents were asked to indicate their preference in an order from 1 to 3. This allowed to verify what components and landscape types were more attractive to the respondents. In addition, the results provided basis for a discussion about landscape preference according to its type and composition.

RESULTS AND DISCUSSION

After defining the typology and analysis of landscape elements in the ten postcards of the Botanical Garden of Curitiba, we selected three for the survey, considering the cards with the highest percentage of natural, cultural and anthropic elements. The use of only three cards in the survey was efficient in terms of time and space to obtain responses, because tourists are not willing to spend time with activities other than enjoying their time at the attraction. Moreover, it was practical for the researcher to handle the three cards during the interviews. Table 1 shows the general quantification of the elements identified in the postcards assessed in the study.
Table 1 – Landscape elements quantification in the postcards.

<table>
<thead>
<tr>
<th>Panoramic - postal</th>
<th>Natural element</th>
<th>Anthropic element</th>
<th>Cultural element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>82.8</td>
<td>16.7</td>
<td>0.5</td>
</tr>
<tr>
<td>2</td>
<td>70.3</td>
<td>29.7</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>89.3</td>
<td>9.8</td>
<td>0.9</td>
</tr>
<tr>
<td>4</td>
<td>69.2</td>
<td>20.5</td>
<td>10.3</td>
</tr>
<tr>
<td>5</td>
<td>82.3</td>
<td>17.0</td>
<td>0.7</td>
</tr>
<tr>
<td>6</td>
<td>92.6</td>
<td>7.4</td>
<td>0.0</td>
</tr>
<tr>
<td>7</td>
<td>83.6</td>
<td>10.4</td>
<td>6.0</td>
</tr>
<tr>
<td>8</td>
<td>95.2</td>
<td>4.8</td>
<td>0.0</td>
</tr>
<tr>
<td>9</td>
<td>77.5</td>
<td>14.5</td>
<td>8.0</td>
</tr>
<tr>
<td>10</td>
<td>88.5</td>
<td>10.4</td>
<td>1.1</td>
</tr>
</tbody>
</table>


We observed that the landscape in postcard 14 showed a higher percentage of anthropic elements, postcard 43 showed a higher percentage of cultural elements and postcard 89 showed a higher percentage of natural elements. Figure 4 shows the three cards selected for the survey.

The landscapes of postcards 14 and 89 did not have the cultural element in their landscape composition. Therefore, we questioned the respondents whether or not the landscape preference was influenced by the presence or absence of some of the elements defined for this analysis.

Among the three cards presented to 985 respondents, 35% elected postcards 14 and 43 as their first preference, 41% chose postcard 14 as their second preference and 52% chose postcard 89 as their third preference.

When we consider the gender factor, 31% of the 524 respondents were women and chose postcard 43 as the first preference; 43% chose...
postcard 14 as the second preference and 51% chose postcard 89 as the third preference. The female preference for postcard 43, which features green and blue as dominant colors in the landscape, also corroborates the results found by Ficek and Ellis (2000). In the ranking of color preferences among women, green and blue figured in first and second places, respectively.

In the opinion of 461 men, postcard 14 was ranked first with 41% preference, postcard 43, with 42% was elected second and postcard 89 was elected third with 54% of preference.

The preference of men for postcard 14, which has a darker landscape and predominantly shades of red, corroborates findings by Ficek and Ellis (2000). The authors found that men showed color preference for red over other colors, while women were less favorable to dark shades of red.

Our results confirm the hypothesis that landscape preference is influenced by the observer’s gender. According to Tuan (1980), the gender factor when compared to other categories, such as personality, congenital influences and mood changes, is a safe variable to explain human behaviors.

When considering the age factor, we observed noticeable differentiation in landscape preference between the different age groups.

Respondents at ages until 18 years old and between 19-30 years old were the only ones to rank postcard 14 first and postcard 89 last. Respondents between 31-45 years old ranked postcard 43 first, 14 second and postcard 89 remained in the last place.

However, the most significant result was obtained in groups between 46-60 years old and older, who ranked postcard 89 first and postcard 14 last.

We observed that the predominant preference the respondents in the age group from 46 to 60 and over for postcard 89, which has the cold colors blue and green as dominant in their landscape, coincides with the statement Tuan (1980) that preference for warm colors decreases with increasing age.

The change in preferences according to age, found in this study, is consistent with the study of Zube, et al. (1983), who assessed landscape preference considering the age range of children, adults and seniors and found that the correlation of results for adults over 65 years of age and other adults showed significant variations in landscape preference.

When considering the educational factor, postcard 14 was ranked first for respondents with a high school and college degree. Postcards 14 and 43 were tied for first and second places for respondents with post-graduation education. Only users with high school education ranked postcard 43 in first place. Many respondents who reported having completed high school were adults, not young students.

We observed that, in general, the results considering the level of schooling coincided with landscape preference by age, because respondents of a certain age range have the same education level.

Respondents of all schooling levels ranked postcard 89 in last place.

YU (1995), in his study with a group of Chinese and Western experts in landscape, found influence of education levels on landscape preference. The author also reported that a general education level coupled with experience in the studied environment influenced respondents’ preference more than the expertise level in the subject.
In our study, the variable education also influenced landscape preference, even without considering the expertise level of respondents in relation to the elements considered in the landscape study.

When considering the geographical origin factor, only residents of Curitiba ranked postcard 14 in first place. Although postcard 14 has as one of its negative aspects the absence of representation, for residents in Curitiba, this landscape is not strange and among the other postcards for the Botanical Garden, postcard 14 was considered the most attractive.

Respondents coming from other metropolitan cities from other states and countries ranked postcard 43 in first place. This postcard showed the greatest diversity of elements and was ranked first in the overall landscape preference, thus justifying the respondents’ choice for three elements.

Only respondents from other cities of Paraná ranked postcard 89 in first, while all other respondents ranked it in last.

Some studies support the claim that landscape preference is influenced by cultural factors (YANG; BROWN, 1992, YU, 1994, GOVER, GO, 2009). These studies report that the socio-demographic characteristics have an impact on the perception that people have of places.

In our research, the variable geographical origin also influenced landscape preference. However, the absence of studies on the relationship between landscape preference and geographical origin in Brazil does not allow further discussion on the subject.

Explanations for electing preference for first and last postcard indicated that respondents’ overall perception of landscape regarding the images selected for this study were repeated, regardless of the variables used.

We opted to show the results highlighting the strengths and weaknesses of each of the three cards from the respondents’ perspective (Table 1).

Table 1 – Landscape perception of postcards of the Botanical Garden of Curitiba.

<table>
<thead>
<tr>
<th>1st place postcard 43</th>
<th>2nd place postcard 14</th>
<th>3rd place postcard 89</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Postcard 43" /></td>
<td><img src="image2" alt="Postcard 14" /></td>
<td><img src="image3" alt="Postcard 89" /></td>
</tr>
</tbody>
</table>
Positive aspect
Elements diversity: 49%
Negative aspect
Cultural element monument: 46%
Natural element water: 5%
Positive aspect
Natural element sky: 37%
Natural lighting: 48%
Negative aspect
Representativeness: 15%
Positive aspect
Natural element vegetation: 35%
Negative aspect
Panoramic landscape – distance: 41%
Representativeness of the element sky: 15%
Color tone: 11%

Source: Curitiba (2011).

a) Postcard 43: positive and negative aspects
The positive aspect for this postcard mentioned by 49% of respondents was the combination of the cultural, natural and anthropic elements in the same scenario, resulting, according to Biondi and Leal (2002), in a combination of representativeness of the maximum intensity of a landscape for having a set of attractive landscape in its totality.
Bastarz (2009) conducted a study on landscape preference in the city of Morretes, Paraná State, Brazil, and found the diversity of landscapes and tourist components as positive aspect in landscapes.
Diversity expresses landscape variety and has greater value than homogeneous landscape, due to the presence of distinct visual elements and absence of monotony (CANTERAS, 1992).
Regarding the negative aspects, the presence of the water element in the landscape of this postcard was mentioned by 5% of respondents as something they would remove from the landscape at the expense of making it more attractive.
This result differs from statements about the positive influence of water as well as the visual attraction it exerts on observers of landscapes (TUAN, 1980, ZUBE, et al., 1983, YU, 1995, GONZAGA, et al., 2004, FYHRI, et al. 2009).
The small amount of water in the postcard evaluated might justify the negative valuation given by respondents.
Another negative aspect mentioned about the landscape in postcard 43 was the cultural element, represented by the monument, which receives greater emphasis in scenery and contrasts sharply with the other elements. This aspect was considered by 46% of respondents as a landscape detractor. Respondents also highlighted that they would remove it from the postcard to make it more attractive visually.
Biondi and Leal (2002) state that the presence of contrasting elements in the landscape increases or decreases its visual quality. Thus, for the respondents, the visual quality of this postcard decreased due to the contrast of elements in the landscape.

b) Postcard 14 – positive and negative aspects
The positive aspects mentioned by 37% of respondents was the type of temporary landscape, represented by sunset and the varying shades of colors that make the sky (natural element) more attractive at the end of the day. The sunset inside the greenhouse of the Botanical Garden of Curitiba was mentioned by 48% of respondents as positive factor of postcard 14.

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The presence of natural elements is a positive factor for landscapes in tourism (LEMES; NEVES, 2007). Thus, although postcard 14 has predominance of anthropic elements in its landscape composition, its temporary typology confirms the existence of a close connection between tourism and preference for natural landscapes.

On the other hand, artificial lighting, which is a major architectural element and can be scenic or effect, depending on the objectives of the projects developed (BRONDANI, 2006), plays an important role in the urban landscape. The presence of a scenic artificial luminosity emphasizes points of interest, besides enhancing public and tourist sites.

Barbosa (2007) states that artificial lighting greatly influences human reactions to the environment, which can range from the simple vision of the obvious to the perception of dramatic beauty of an illuminated landscape. The nocturnal representation of the Crystal Palace of the Botanical Garden of Curitiba in postcard 14 gathered all these features.

Regarding the negative aspect of postcard 14, 15% of respondents mentioned the lack of representativeness. They claim that only the image of the Crystal Palace is not enough to identify the Botanical Garden of Curitiba and to demonstrate its total scenic beauty.

For Gândara (2008), the image of a tourist site should correspond to reality, be credible, easy to understand and capable of arousing a desire to visit. In postcard 14, these requirements were not fully addressed, because the understanding of the elements on site and the signs of the Botanical Garden of Curitiba are not observable for the viewer.

c) Postcard 89 – positive and negative aspects

The presence of the natural element vegetation, represented by flowers and gardens that compose most landscape in this postcard was valued positively by 33% of respondents. This result is in line with previous studies, which showed that the presence of vegetation is a factor that enhances the landscape quality (GONZAGA, et al., 2004) and (CORRAZZA, 2008).

As negative aspect of this postcard, 15% of respondents cited the proportion of sky in the natural landscape, which received a negative valuation. Bobrowski et al. (2010) also found a negative correlation between the visual quality of the landscape and the sky component, stating that the largest proportion of the sky component affected the heterogeneity of landscapes used in landscape assessment.

However, other studies show that this component did not influence positively or negatively results on respondents’ preference for landscape and is considered a landscape element of neutral valuation (BASTARZ, 2009) and (KISCHALAT, 2004).

We observed that the preference for the element sky in the landscape is very subjective and can be positive or negative according to the observer. The balance of elements in a landscape is essential to enhance its visual quality, and postcard 89 does not meet this requirement.

Another negative aspect, mentioned by 11% of respondents, regarding this postcard was the unattractive color tone, making the picture look dull and old-looking.

This result confirms the statements of Litton (1972), Gonzales (1981) and Canteras (1992) that the primary visual property of a surface is its color, and the main aesthetic properties of a landscape largely determined by its color.
combination. Gama (2009) further states that the visual contrasts are the color combination, which accounts for giving life to the landscape. The absence of color tones visually attractive was definitely one of the aspects that corroborate negative valuation for this postcard. The last negative aspect mentioned by 41% of respondents was the panoramic landscape typology in this postcard, which, despite allowing a wide view of the Botanical Garden, was not attractive due to the distance in the perspective and the small size of the main attraction, i.e., the Crystal Palace.

Griffith (1983) found different results in his study on the visual resources of a national park, in which a visitor is attracted by the scope and magnitude of the panoramic views.

This postcard had more negative than positive aspects, thus justifying its overall rank in last place in the respondents’ preference. These results highlight the lack of consistency for substitute landscape displayed in the postcards, and real scenic beauty existing in the tourist site. Meneses (2002) underscores that although postcards are powerful catalysts of landscaped landmarks, the portrayal of landmarks does not always correspond to reality.

Moreover, postcards are listed as the few promotional products from a location that tourists to influence tourists even after the return journey. They are tools used to share memories (GOVERS, GO, 2009) and serve as sort of demonstration of ongoing experience during the trip.

Considering contributions to landscape management of the Botanical Garden of Curitiba, we highlight that tourism uses the resources of the “view”, “place” and “images” closely related to the landscape through postcards, which are important tools for the dissemination of tourist attractions (SOBRINHO, 2004).

CONCLUSION

Our findings on landscape portrayed on postcards show that the presence of cultural elements in the picture of postcard 43 was more visually attractive to respondents; however, we found variations for this landscape preference when considering the factors of gender, age, educational background and geographic origin.

Therefore, as basis for landscape management of the Botanical Garden of Curitiba, we recommend improvements in the images disseminated through postcards, because of the lack of visual attractiveness in some of the postcards, according to the respondents’ opinion, as well as the discrepancy between the real beauty of the place and the images portrayed in postcards.
REFERENCES


