

RECREATION ATTACHMENT TOWARDS TEHRAN NATIONAL BOTANICAL GARDEN: A Q-METHOD INQUIRY

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Abstract: *The Tehran National Botanical Garden has provided a considerable range of recreation benefits for urban communities over the past 100 years. Local communities are attached to the garden as a recreation place mainly due to environmental benefits and psychological attachment. The theory of place attachment and Q-method have been used to investigate visitors' perception, feeling, and attachment to this place. The three factors emerging from the Q-sort data were identified as educational factor, emotional factor, and functional factor. These factors represented visitors' point of view about the "place meaning" of the Tehran National Botanical Garden. The results can aid decision makers in reformulating the planning and management process to improve the recreation place role of the botanical gardens in the city for the benefit of the communities.*

Keywords: *Botanical Garden, Place Attachment, Q-Method.*

Introduction

Emotional bonding creates psychological attachment and trust. This attachment creates a personal identity which blends in the culture that creates meaning and values in a person (Silva, Kastenholz, Elisabeth, & José Luís, 2018). It provides positive affection and sensitivity through environmental knowledge towards specific places (Cheng & Wu, 2015). Further, individuals feel, favour, appreciate and are concerned about the environment that creates a sense of responsibility towards the place. Botanical gardens that provide shared green spaces have been widely recognised for delivering a source of social space, peace, and revitalisation for positive psychological healing mainly among urban communities (Anton & Lawrence, 2014). Botanical gardens, in particular, are traditionally associated with and well-kept for environmental conservation of natural resources and environmental education. At present, it is a tangible resource that improves human quality of life in the areas of environment, education, cultural,

aesthetic, and recreational opportunities (Kuzevaov & Sizykh, 2006) in many ways. Understanding the perception of visitors of the meaning of a botanical garden may help decision makers to learn about new features that would be attractive for future recreational activities (Azlizam, Syed Alias, Jamaludin, Idris, & Manohar, 2018). Visitors' image perception of a place may have different cognitive, motivational, and psychological consequences towards the visitors (Silva, Kastenholz, & Abrantes, 2018; Jamaludin, Mokhtar, & Azlizam, 2018). The place image has intense influences especially among the local visitors, and foreign visitors visit the botanical garden due to the multiple attractions and cultural values that they would gain from the visits (Jamaludin, Azlizam, & Mariapan, 2018). Over the years, the beauty of human-made recreation attraction in this botanical garden has attracted visitors through positive and trusted sources of information delivered by past visitors including through word of mouth, commercial advertisement, social media, and mainly user-generated contents. These multiple media sources have created a considerable impact on the number of repeat visits and have made a strong place image for the country to be honoured (Jamaludin, Azlizam, Yusof, & Idris, 2013; Jamaludin, Azlizam, Mariapan, & Evelyn, 2017).

Due to these reasons, the Tehran National Botanical Garden (TNBG) that was set up more than 100 years ago has played a remarkable role in 1) educating the society about the natural resources environment, 2) preserving plant species for human shelters, 3) providing an escape from the stresses of human society, and 4) creating peaceful settings in the community. Moreover, the TNBG has created a strong recreation attachment among the local communities due to the lack of open green space in the city centre around Tehran, Iran due to urbanisation.

At present, Tehran, the capital of Iran has a population of over 8.8 million residents, and the 17 major city parks do not provide sufficient space for residents to have recreation and outdoor activities due to economic development in the city. This has created problems involving environmental pollution, social disintegration, communication barriers, health, education, mental-illness, and many other issues among the city dwellers. Due to these problems, the objective of this study has been formulated to understand the waves of attachment among the local student visitors towards the recreation site at the National Botanical Garden in Karaj, Tehran as an educational visit. It is hoped that this study would provide insights for town planners and administrators to provide benefits to local communities and create social recreational attachment to improve quality of life using the theory of place attachment.

Literature Review

The attachment theory (Bowlby, 1969, 1973, 1980) focuses on individual affection which offers an innate psychological system that regulates proximity to an attachment such as attachment to the botanical garden. This theory defines that attachment possesses trust that is nurtured during childhood and continues to grow, which creates psychological bonding. Consequently, the theory was extended and the theory of place attachment was built upon this concept. Place attachment in individuals creates greater satisfaction in one's life and improves the quality of life which could reduce mental illness and other health problems (Anton & Lawrence, 2014).

The place attachment theory describes the idea, feelings, values, meaning, and perception of place-individual links which create affection towards the place (Su, Huang, Hsu, 2018). Place attachment involves individuals who stay at a particular location for a period of time with positive, memorable history. They have the atmosphere of positive feeling, sense of belongingness, feeling of distinctiveness, continuity, self-esteem, and self-efficacy (Anton & Lawrence, 2014). Previous studies investigated the concept of place attachment using multiple

dimensions of people–place mediated by emotion and cognition (Ramkissoon et al., 2013; Williams & Vaske, 2003). The research on place attachment was modelled as a multi-concept involving 1) place identity, 2) place dependence, 3) affective attachment, and 4) social bonding (Ramkissoon, Smith, & Weiler, 2013; Ramkissoon, Weiler, & Smith, 2012, 2013). On the other hand, some researchers have modelled it as a unified variable (Prayag & Ryan, 2012).

Recently, researchers have found but are still uncertain that place attachment has evolved separately between knowledge and interpersonal attachment. Thus, a gap exists on the relationship between interpersonal attachment and place attachment (Scannell & Gifford, 2014). For these reasons, this research would like to explore further on the idea of university students' attachment towards this botanical garden.

Q-Research Method

The Q-methodology developed by William Stephenson was employed in this research. This method was chosen because it can elicit response from the operant subjects and can directly measure the response (Wilson, 2005) regarding the subjective opinions of respondents. This method allows the participants to determine what is meaningful, valuable, and significant statements from their perspectives (Ward, 2009) regardless of the agreeable or disagreeable statements or a mixture of both. The Q statements are more likely to contain accessible meanings and relevance to the respondents. The statements are more likely to reflect salient issues to the respondents. Also known as the Q-sort analysis, it is a systematic study which is best able to inquire about respondents' real viewpoints and attitude on the TNBG as an educational recreational area. This method investigates the perspectives of respondents who represent different sections on educational issues.

Instrument

The respondents expressed their agreements or disagreements with these statements through a bipolar scale 'Yes' or 'No'. The statements representing the respondents' viewpoints were selected as the instrument for measuring the variables of this study. The statements (Table 1) were adopted from Sarookhani (2014). Fifty-two statements were given to the respondents to provide a variety of views about 1) place attachment and 2) recreational experience preferences at the 'National Botanical Garden, Tehran'. The validity of the Q-study was evaluated using content validity, face validity, and Q-sorting validity (Akhtar-Danesh, Baumann, & Cordingley, 2008). A structured statement reflecting the categories were designed according to the variables (Table 1).

Table 1. Instruments

Dimensions	Variables (Q sorts)	Items
Recreation experience preference scale	Enjoy Nature	9 items
	Physical activities	4 items
	Outdoor learning	8 items
	Social relationships	6 items
	Spiritual	11 items
Place attachment scale	Place identity	5 items
	Place dependence	3 items
	Feeling attachment	6 items

Sampling

Respondents with potentially different viewpoints were non-randomly selected using purposive sampling technique. Twenty-five volunteer university student visitors who had visited the

garden at least five times in a year were selected for this study conducted in March 2018. To ensure different opinions were obtained, 25 respondents from different and multiple education groups of visitors were selected. The respondents were screened based on their student identification card. They consisted of 12 male and 13 female respondents with age ranging from 18 to 30 years old who were studying at any education institution around Karaj, Tehran.

Procedure

Respondents were asked to create a model for their viewpoints by ranking the numbered statements according to the condition of instructions on a Q-sort table based on their priorities. The Q-table has a quasi-normal distribution, and contains a rating scale ranging from -4 to +4 with nine degrees of agreements valued from '1' = '*least agree*' to '9' = '*most agree*'.

The participants were asked to read through the statements and sort them into two piles according to their agreement, namely:

- 1) The most agreeable statements regarding their recreation experience preferences at the TNBG and their attachment to the place.
- 2) The least agreeable statements regarding their recreation experience preferences at the TNBG and their attachment to the place.

Respondents were probed to read through the *first pile* of statements and select the first and the second statements that they agreed to the most, and place the corresponding numbers in the *Q-sort table*. Respondents were required to continue doing so until all the statements in this pile had been ranked. The same procedures were repeated for the *second pile* of statements until the Q-sorting was completed. In the end, all the cells of the Q-sort table were filled by the numbers of the Q-sample statements given. The Q-sort represented a record of their subjective perceptions.

The Q-sorting of the data collection was administered in the TNBG library. The participants sorted the cards containing the statements and placed the number in the Q-tables. This process took between 30 and 45 minutes for each respondent. After the respondents had completed the sorting procedure, each Q-sort would represent a record of their subjective perceptions.

The statements, which are the data filled in by the participants in the Q-sort tables, were then entered in the programme of the Q-method software, namely the PQ method 2.11 software. The data were then checked for duplication and missing values by the researchers.

Result and Discussion

Three factors emerged from the Q-analysis. The data were categorised through the *z*-scores calculation which emerged from the statements. The statements were arranged according to their array positions accomplished by converting the *z*-scores to whole numbers on a -4 to 4 scale. Each factor represented a unique point of view of the participants in relation to their perception of the TNBG in the context of place meaning of this site as a recreational area. The three factors were defined as (1) Educational group factor, 2) Emotional group factor, and 3) Functional group factor.

Factor 1: Educational Group

Factor 1 consisted of nine high Q-sorts loaders. The first factor was named "*Educational*" based on the overall feeling of learning, that is, education expectation of this place. The perceptions and viewpoints of this group towards recreation in the TNBG are presented by the most positively and negatively ranked statements based on the *z*-scores. The following statements

(Table 2) are the most agreed statements and least agreed statements ranked based on the z-scores.

The education group focused more on outdoor learning but did not express functional attachment to the TNBG, and their emotional attachment was found to be low. These participants found place meaning through learning in personal enrichment classes about home gardening and medicine plants, learning the name of flora, and obtaining education through attending the exhibitions. They liked to spend more time at the place and finding out what were available there. Encountering God and being in touch with their surrounding were also important in defining place meanings for those who subscribed to this perspective.

Meanwhile, they had no feeling of connection to their sense of selves to the place, and neither were they attached to the particularities of the landscape at the TNBG. Those who subscribed to this viewpoint did not show any social tendency for meeting new people or being with their family and friends. The TNBG is not the place that they liked to do activities such as jogging, cycling, or boating. The Educational group of visitors did not feel safe there and did not have any desire to sit there to watch the clouds go by. Visiting the place was not the way that they wanted others to see them, and it was not their favourite place. Thus, they might substitute any other area for doing the type of things they can do at the TNBG.

Table 2. Educational Factor

No.	Statement	Z-SCORE
(most agreed statements)		
5	In TNBG, I like to learn by personal enrichment classes about home gardening, medicine plants, and etc.	1.641
23	In TNBG, I like to learn the name of flora	1.599
28	I prefer to spend more time here if I can	1.569
1	I like to explore in TNBG to find out what's there	1.418
32	In TNBG, I like to have experience and education through the exhibition	1.350
27	When I'm in TNBG, I encounter God	1.200
24	In TNBG, I like to practice activities allow me to be in touch with my surrounding	1.142
22	In TNBG, I feel I can have deep thoughts.	0.942
4	It's fun to watch for signs of plant life out there in TNBG.	0.921
(least agreed statements)		
42	In TNBG, I like to practice activities that me feel physically exhausted such as jogging, cycling, etc.	-1.071
35	I like to meet new people while at TNBG	-1.212
31	TNBG is my favourite place to be.	-1.438
52	In TNBG, I feel safe.	-1.619
17	I like to experience time with my family while at TNBG.	-1.623
36	When I visit TNBG, others see me the way I want them to see me.	-1.764
21	When I visit TNBG, I like to sit and enjoy the open sky.	-1.812
26	I like to be with my friends while at TNBG.	-1.905
3	I wouldn't substitute any other area for doing the types of things I do at TNBG.	-2.189

Factor 2: Emotional Group

The second factor comprised four participants, and none of them were students. They were a program designer, an employee, a businessman, and an architect. The perceptions and viewpoints of group Two towards recreation at the TNBG are presented by the most positively and negatively ranked statements based on the z-scores (Table 3).

The ‘*Emotional*’ view is defined by emotional interaction with the TNBG as a recreational site. This group revealed that their recreation experience preference was mostly through ‘*spirituality*’ and ‘*enjoyment of nature*’ that had led them to their emotional attachment to the TNBG. This group of visitors had no interest in doing physical activities or being engaged in ‘*social and family relationship*’ and they did not express any functional attachment to the TNBG.

They had feelings of safety, deep thinking, and relaxation there. The group of visitors preferred to spend more time at that place and learn the name of flora. The diversity of landscape and vegetation was enjoyable for them. Thus, they were fond of the TNBG, and it was special to them.

However, they were not keen to have a social relationship or participate in activities that made them exhausted, rested, or let them be in touch with their surrounding at the TNBG. They were also not interested in exploring the place. The visitors did not feel that they were in another world or having a peaceful spirit.

Table 3. Emotional Factor

No.	Statement	Z-SCORE
(most agreed statements)		
52	In, TNBG, I feel safe.	1.799
23	In TNBG, I like to learn the name of flora.	1.607
28	I prefer spending more time here if I can.	1.577
37	I feel relaxed when I am at TNBG.	1.529
29	TNBG is very special to me.	1.272
11	I am fond of TNBG.	1.225
22	In TNBG, I feel I can have deep thoughts.	1.186
38	I enjoy the diversity of the landscape and vegetation in TNBG.	1.083
49	In TNBG I like to practice activities that allow me to see the sight.	0.991
(least agreed statements)		
24	In TNBG, I like to practice activities that allow me to be in touch.	-0.084
16	In TNBG I feel attached to a place that I have never been to.	-1.084
1	I like to explore in TNBG to find out what's there.	-1.123
26	I like to be with my friends while at TNBG.	-1.218
44	TNBG gives me a peaceful spirit.	-1.373
18	My time in TNBG is better than when I am alone.	-1.700
19	When I'm in TNBG I feel like I am in another world.	-1.889
41	In TNBG I like to practice activities make me feel physically rested.	-2.112
42	In TNBG I like to practice activities make me feel physically exhausted (such as juggling, cycling, and etc.)	-2.439

Factor 3, Functional Group

The third factor represented the acceptance of the functional use of the place for recreational activities and was named “Functional” to reflect the place dependence viewpoints. The perceptions and viewpoints of group Three towards recreation at the TNBG were represented by the most positively and negatively ranked statements based on the z-scores (Table 4).

This group preferred ‘*spirituality*’, ‘*outdoor learning*’, and ‘*enjoyment of nature*’ in their recreation experience. Those in this group felt more place dependent on the TNBG as a recreational site, although they did not feel an emotional attachment to it at all.

Visitors who subscribed to this view encountered God when they visited the TNBG. They liked to spend more time there and explore what were available there. Functional perspective visitors enjoyed their sit there watching clouds go by; they got more satisfaction out of visiting the TNBG than any other place and felt the attachment to particularities of the landscape. Even though the Functional group liked to learn about home gardening and medicine plants through classes in the TNBG, they had no desire to learn the landscape feature and the name of flora at the TNBG.

Meanwhile, the Functional group did not feel to have deep thinking at the TNBG, and it did not make them nor did they see themselves as a part of the ecosystem, although they were reminded of positive memories of the place during their visit. The visitors did not like the way others saw them while they were at the TMBG. They were not interested in teaching/leading others and seeing new people. Therefore, this place did not mean a great deal to them and did not make them feel attached to the nature and particularities of the plants at the TNBG.

Respondents made a conclusion that place attachment in these three groups was not strong enough to prevent them from substituting the TNBG with other places to do their recreational activities. The respondents noted that they needed to spend more time at the TNBG and just visiting the place could not create place identification for them. Recreational activities gave them an opportunity to spend more time at the TNBG to feel attached to the place and hence, make a well-developed link with the place.

Table 4. Functional Factor

No.	Statement	Z-SCORE
(most agreed statements)		
27	When I'm in TNBG, I encounter God.	2.333
28	I prefer spending more time here if I can.	1.766
1	I like to explore TNBG to find out what's there.	1.629
34	In TNBG, I feel attached to the particularities of landscape.	1.301
47	In TNBG, I feel positive memories coming forth.	1.257
45	I get more satisfaction out of visiting TNBG than any other places.	1.255
5	In TNBG, I like to learn through personal enrichment classes about home gardening, medical plants, etc.	1.062
21	When I'm in TNBG, I like to sit and enjoy the open sky.	1.008
6	In TNBG, I like to practice activities that allow me to hear the sound of nature.	0.962
(least agreed statements)		
43	TNBG, means a great deal to me.	-1.041
22	In TNBG, I feel I can have deep thoughts.	-1.042
8	In TNBG, I feel attached to the nature.	-1.134
25	In TNBG, I feel attached to the particularities of plants.	-1.224
36	When I visit TNBG, others see me the way I want them to see me.	-1.699
14	In TNBG, I like to learn landscape features.	-1.801
50	In TNBG, I learn how to teach and lead others.	-1.880
2	Being in TNBG, makes me see myself as part of the ecosystem.	-1.936
35	I like to meet new people while at TNBG.	-2.026

Limitations and Future Research

This research revealed valuable contributions to the body of knowledge. However, there are several limitations to this research. First, this research was limited to '*student oriented group*' samples using purposive sampling which would give a different result if it was tested among '*community resident-individual*' using different sampling techniques. Second, the variables

tested were limited to ‘*recreation experience*’, namely nature, physical activities, outdoor learning, social and spiritual, and place identity. Thus, the results were circulated around those items only. It is suggested that new variables should be added such as the availability of open green space, local food, and cross-culture comparison in relation to a memorable experience. Research by Tsai (2016) proved local food conveys visitors’ place attachment and delivers memorable and intense experience among visitors. Third, future researchers should use multiple instruments such as ‘*personal in-depth interviews*’ or ‘*focus group interview*’ to complement the lack of information in the Q-method survey. Fourth, the researcher should look into different theories such as theory of social change, theory of space and place, theory of social cognitive learning which looks more into social learning interaction impact among respondents.

Conclusion

This article provides a basic understanding of recreation attachment at the botanical garden using the Q-method among students as the sampling group. The Q-method is a technique to explore how people think and to look for patterns in their thinking. The Q-method helps individuals understand their own thinking on specific issues given and the overall mind-set, as well as reflect on points where recreational learning might be helpful. Further, this method provides insights for stakeholders to see the issues by revealing the rationality behind their position and putting the most important issues in context. Consensus statements from the Q-method point to areas where all participants agree to forward some solutions.

The results of this study suggest that student visitors form an entirely different set of feelings towards the TNBG as compared to local visitors who visit the site regularly. The students visitors lacked educational place attachment value towards the plants. Administrators and town planners must improve the roles and functions of the TNBG by introducing new activities and creating new outlets at the TNBG to increase satisfaction among both regular and irregular visitors. It is hoped that new activities offered at the TNBG would be more relevant for the new generations and are more functional for the use of all generations. Additionally, the results of this study show that recreations at the TNBG remain a prominent role that must be inspired deeper. The TNBG could implement the ‘*Friends of TNBG*’ programme, similar to the successful implementation in Malaysia by the Taman Lembah Kiara’s “*Friends of Kiara*” community group (Malek, Mariapan, Rahman, 2015).

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