



UNIVERSITI PUTRA MALAYSIA

***USERS' SATISFACTION WITH USABILITY OF PUTRAJAYA PARKS IN
RELATION TO POST-OCCUPANCY EVALUATION***

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By

NOR'AINI BT TALIB

**Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in
Fulfilment of the Requirement for the Degree of Master of Science**

April 2017

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Master of Science

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April 2017

Chairman : Mohd Kher bin Hussein, PhD
Faculty : Design and Architecture

Public parks are designed for people to experience nature; hence, these places need to provide various facilities for human activities. As public parks are important to people of all levels in the society, conducting research on Post Occupancy Evaluation (POE) of public parks in Putrajaya is viewed as the first step towards evaluating the success of public parks in Malaysia. Despite the huge amount of money spent in developing and maintaining these parks and gardens, there seems to be a lack of research on POE of the parks and gardens in the country. Therefore, this study was carried out to analyse the status of three public parks in Putrajaya by observing the activities in each park and mapping the activity patterns onto an Activity Map. Observations and surveys were conducted involving visitors to these three parks: Botanical Park (BP), Pancarona Park (PP) and Putra Perdana Park (PPP). The POE was carried out based on the criteria set for successful public spaces and important factors in analysing the performance of a park such as design criteria, operations and maintenance work. Questionnaires distributed yielded a total of 447 responses obtained from park visitors at BP (220), PPP (152) and PP (71). The questionnaire contained closed and open-ended items and was divided into the following sections: demographics of visitors, information on park usage, user needs, user satisfaction, park setting arrangement, operations and maintenance. The results revealed that the visitors were satisfied with the accessibility, park safety, design pattern and facilities provided in each park. The results also indicated that as far as safety is concerned, visitors felt comfortable to use the parks as these parks were well-maintained. Observation also showed that visitors used the parks according to their activities. PPP was used mostly for jogging while BP was used for cycling, and PP was used for sports activities. The activity mapping done showed the details of each activity and the areas usually occupied by the visitors. However, not all of the spaces or areas in each park were utilised by the visitors. Activity mapping showed that most of the activities took place only in certain concentrated areas. There were a total of 13 parks in Putrajaya at the time the study was conducted; however, the three case studies were sufficient to show that visitors used the parks only for recreational purposes. The findings of this study will

be useful for those involved in the development of public parks such as landscape architects, maintenance managers and planners, regardless of whether they are directly involved or not. It is hoped that the findings of this research have managed to convince relevant parties on the importance of carrying out the POE in the future. The POE provides guidance on how to upgrade existing parks in Malaysia so that the number of visitors will increase in the future.



Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

**KEPUASAN PENGUNJUNG DENGAN KEBERGUNAAN TAMAN
PUTRAJAYA MELALUI PENILAIAN LEPAS BANGUN**

Oleh

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Taman awam ialah tempat masyarakat menghayati keindahan alam semulajadi; oleh yang demikian, pelbagai kemudahan disediakan di tempat sebegini untuk orang awam menjalankan aktiviti harian. Oleh kerana ia penting untuk semua lapisan masyarakat, maka penyelidikan tentang Penilaian Selepas Bangun (PSB) taman awam di Putrajaya menjadi langkah permulaan untuk menilai kejayaan taman awam di Malaysia. Meskipun jumlah perbelanjaan yang besar digunakan bagi pembangunan dan penyelenggaraan sesebuah taman, kajian tentang taman awam menggunakan kaedah Penilaian Selepas Bangun (PSB) sangatlah kurang dijalankan, khususnya di Malaysia. Justeru, kajian telah dijalankan untuk menganalisis kriteria seperti akses, keselamatan, penyelenggaraan, kemudahan, rekabentuk dan aktiviti yang terdapat di dalam taman awam di Putrajaya dengan melakukan pemerhatian terhadap aktiviti dan mendokumentasikan corak aktiviti ke dalam pemetaan aktiviti. Pemerhatian dan tinjauan telah dijalankan di tiga taman awam terpilih di Putrajaya iaitu Taman Botani, Taman Pancarona dan Taman Putra Perdana. Kajian PSB dilakukan berdasarkan kriteria ruang awam yang berjaya dan faktor penting bagi analisis prestasi sesebuah taman seperti ciri reka bentuk, operasi dan kerja penyelenggaraan. Borang soal selidik telah diedarkan dan dikembalikan oleh sejumlah 447 pengunjung taman awam di Taman Botani (220), Taman Putra Perdana (152) dan Taman Pancarona (71). Borang soal selidik mengandungi item-item tertutup dan terbuka yang terbahagi kepada: demografi pelawat, maklumat penggunaan taman, keperluan pengguna, kepuasan pengguna, susunan reka bentuk taman, operasi dan penyelenggaraan. Hasil kajian menunjukkan bahawa pengunjung berpuas hati dengan kebolehcapaian, keselamatan, corak reka bentuk dan kemudahan yang terdapat di ketiga-tiga taman. Hasil kajian juga menunjukkan bahawa, dari aspek keselamatan, para pengunjung berasa selesa menggunakan taman-taman tersebut yang telah dijaga dengan baik. Walau bagaimanapun, tidak semua ruang atau kawasan di setiap taman digunakan oleh mereka. Hasil daripada pemerhatian mendapati pengunjung menggunakan taman mengikut jenis aktiviti yang dijalankan oleh mereka. Taman Putra Perdana digunakan kebanyakannya untuk berjoging, sementara di Taman Botani dan Taman Pancarona

pula, aktiviti berbasikal dan bersukan masing-masing menjadi pilihan. Pemetaan aktiviti telah berupaya menunjukkan setiap aktiviti yang biasanya dijalankan oleh pengunjung dan kawasannya secara terperinci. Hal ini telah dibuktikan menerusi pemetaan yang menunjukkan kebanyakan aktiviti bertumpu di kawasan-kawasan yang tertentu di dalam taman. Sungguhpun terdapat 13 taman awam di seluruh Putrajaya, tiga kajian kes didapati memadai untuk menunjukkan bahawa pengunjung benar-benar menggunakan taman bagi tujuan rekreasi. Dapatan kajian ini akan memberi manfaat kepada mereka yang terlibat di dalam pembangunan taman awam seperti arkitek landskap, pengurus penyelenggaraan, perancang dan semua pihak yang terlibat secara langsung mahupun tidak langsung. Pandangan penyelidikan ini telah memberi gambaran kepada pihak-pihak berkaitan terutamanya akan kepentingan menjalankan PSB pada masa akan datang. Ia memberi panduan untuk bagaimana menaiktaraf keadaan taman sedia ada di Malaysia kepada tahap yang lebih baik agar jumlah pengunjung dapat ditingkatkan dan penambahbaikan dari segi reka bentuk dapat diperbaiki pada masa akan datang.

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I certify that a Thesis Examination Committee has met on 28 April 2017 to conduct the final examination of Nor'aini binti Talib on her thesis entitled "Users' Satisfaction with Usability of Putrajaya Parks in Relation to Post-Occupancy Evaluation" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Science.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

An urban park is a park located in a city which offers recreation and green space to city residents or the public who wish to enjoy a natural environment. Therefore, the design of an urban park should include operational and maintenance needs into consideration to sustain the neatness and beauty of each park. In addition, landscape architects should ensure all aspects of the design to meet the demands, needs and well-being of human activities. It should contain common features of a urban park such as playgrounds, outdoor space seating areas, lawns, walkways, fitness trails, sports fields, public restrooms as well as plantings and trees that provide habitats for urban wildlife. This means that a urban park must be carefully planned so that it is “designed for people” and “unique” at the same time so that it can encourage interactions, discussions, relaxation and enjoyment of the surroundings (Molnar, 2015). Furthermore, urban parks should focus on being of high quality planned with good opportunities and amenities for a variety of activities so it can be used by people of all ages (Konijnendijk, 2013). This will encourage physical activities, enjoyment of nature and provide a sense of escapism which will further lead to health, social, environmental and economic benefits.

Urban parks refer to green open spaces which offer a space for both passive and active activities (Malek, Mariapan & Ab. Rahman, 2015) that can be grouped into three categories (Rodrigues et al., 2013): i) necessary activities (shopping, waiting for a bus or a person, and going to school or work); ii) optional activities (walking to get fresh air, standing around, enjoying life, or sitting); and iii) social activities (playing with children, greeting friends and having conversations, various kinds of communal activities, and seeing and hearing other people). These activities become livable with the different categories of people with all walks of lives who visit the parks.

Apart from these activities, there are several other factors that attract people to urban parks. According to Rodrigues et al. (2013), the factors include location, facilities, the character of the space, optional activities offered, landscape, connection between humans and the surroundings, relationship between society and culture, and accessibility. Mohamed Ali and Nawawi (2006) added that accessibility, a sense of territory, activities in the park, the natural environment and park maintenance also play a role in influencing people’s decision to visit these parks. Therefore, in developing an urban park, it is important to consider factors that lead to users’ satisfaction such as landscape pattern into the design, the maintenance and management of a park and its safety. As Mohamed and Othman (2012) pointed out, an unsafe and improper maintenance of a park could give a negative impact on visitors’ satisfaction.

Post Occupancy Evaluation (POE) can be used to gauge users' satisfaction of a park that consists of accessibility, design, maintenance, safety and facilities. According to Syafriny (2010) POE is a systematic process that evaluates built environments from users' perspective to improve quality, raise comfort and reduce design and maintenance cost. According to Salama (2011), architects and environment designers use POE to determine how the environment is being used by their occupants and assess the degree to which that use has satisfied specific design objectives. Preiser (2013) states both short-term and long term benefits of POE. The short-term benefits include solutions to problems that need recommendations for improvement of quality while the long-term benefits take into accounts the feedback and update of database, standards and design criteria for building and the environment.

In summary, factors contributing to user satisfaction towards urban parks include accessibility, design, maintenance, safety and facilities. As such, these factors were used as the basis for POE in this study which hoped to help determine and evaluate users' satisfaction of urban parks so that recommendations for improvement can be made.

1.2 Problem Statement

The developments of parks in Malaysia specifically in Putrajaya indicate that these public parks have been built equipped with good facilities, activities and services. This is because parks that provide good facilities and services and offer various activities will encourage and influence visitors to use the park. In addition, activities that can be used by users of different age groups also will increase user satisfaction.

However, the management of the Putrajaya needs to ensure that the provision of the facilities activities and services fulfil the preferences and requirements of the public. Thus, this study that sought to determine the satisfaction of visitors frequenting parks at Putrajaya is viewed as an effective way in understanding how the visitors utilise the parks and ensuring that they are satisfied with the facilities developed and the maintenance of these public parks.

Studies have been carried out to identify factors that influence users to visit public parks and their satisfaction level. However, Post Occupancy Evaluation (POE) on public parks has never been carried out in Malaysia despite the large sums of capital incurred to develop and maintain these parks. The Free and Independent (FMT), an independent, bilingual news portal with a focus on Malaysian current affairs, dated 1st October 2012 reported that "*RM744.93 million was spent to develop ten parks into "education, research and tourism centers" which were to be equipped with "suitable facilities."* However, little action has been taken to evaluate these parks after they were opened to the public. Therefore, this study was important in ensuring that these parks have been fully utilized and are able to provide satisfaction to the users.

POE study is important as it involves a systematic investigation of opinions, perceptions and views of public parks from the perspectives of those who use them. Therefore, as this study focuses on user satisfaction in using public parks, the POE method is expected to be able to evaluate whether these parks are interesting and satisfy the visitors.

A review of existing literature reviews shows that most POEs were used mainly for building and architectural works; therefore, most of the previous POE studies were conducted at hospitals and public spaces. In Malaysia, however, a study on the POE of public parks in the country has never been conducted. The present study would be the first of its kind in the country.

A study by Gold (1997) stated that current economic scenario, people and politicians were prompt to rationalize the worth of public investment in terms of park usage. A report entitled "*Poor Maintenance Spoils it for Many of the City's Parks*" published on 15 May 2014 in *The Star*, a local newspaper, highlighted the importance of maintaining public parks. According to the report, a total of 15 public parks managed by Kuala Lumpur City Hall (DBKL) were experiencing problems in landscape maintenance. Among the problems faced were vandalism which includes missing drain covers, damaged rubbish bins and insufficient shady trees to provide shade for visitors. This raised the question as to whether these are the factors that discourage users from visiting these parks. In addition, as vandalism can create fear among park users, aspect with regard to safety was also examined in this study.

The maintenance work carried out by appointed contractors includes maintenance of the hard and softcape materials. Hardscape materials refer to built materials such as garden seats, gazebo, walkway, playground, exercise equipment while softcape materials refer to the plants. These materials need to be maintained on a regular basis to ensure the cleanliness, safety and usability of the parks. However, DBKL's failure to conduct POE on these parks is believed to be the cause for the problems. As other aspects, maintenance too plays an important role in encouraging users to visit these parks. If these parks are not well-maintained, users may stop visiting them, and users' satisfaction level will also drop. Thus, maintenance is also one of the aspects that will be investigated in determining factors that are responsible for the lack of park users.

The implementation of POE on public parks is to evaluate the effectiveness of the design in ensuring comfort for all users as this may help to resolve several issues faced by public parks in the country such as the under-utilised parks in Putrajaya. Were the unattractive activities responsible for the poor number of visitors? Or, could it be that these activities do not cater for the different age group? As stated by Zainol (2016), youths are more attracted to low-cost activities that are well-maintained. In addition, as active participants, youths want enjoyable outdoor activities in the parks. Do these parks provide activities that are suitable for all age groups and consider factors other than just age and activities?

POE can help determine the reasons behind the poor number of visitors to the 13 metropolitan parks in Putrajaya; the reasons why they were not used by the public; and factors that influence the public to visit and use public parks. For example, with POE, the park management will be able to determine whether these parks were used less due to the existence of the many parks in the area. To solve issues related to parks in Malaysia, particularly Putrajaya, all aspects need to be scrutinized. Most studies focus mainly on the user satisfaction factor of public parks. POE, on the other hand, is a method that will investigate the strengths and weaknesses of parks in Putrajaya and further improve them.

Post Occupancy Evaluation (POE) research for urban parks is important as it identifies the needs of the people. In the year 2000, the Seremban Municipal Council appointed a team of landscape architects to upgrade the Seremban Urban Park. The architects were asked to develop a proposal on how to upgrade the park according to the public's needs. However, the team lacked technical expertise to conduct a study on the people's attitudes towards the park. As a result, the National Landscape Department (NLD) awarded a grant to the Seremban City Council and provided outside technical expertise to help develop the park. At that time, NLD had little experience in evaluating people's needs for urban parks even though it had built urban parks around the country (Ujang, Salim & Maulan, 2012). NLD also had little knowledge in assessing people's needs for public parks. This shows that the time has come for public parks in the country to be assessed with POE since this method is carried out by trained professionals such as landscape architects.

A study by Maulan (2002) on public parks in Seremban, Malaysia that needed to be renovated due to the deterioration and lack of maintenance indicated that the potential factors influencing the public's intention to visit these parks are accessibility, sense of territory, activities provided, natural environment and park maintenance. This finding clearly shows the five factors that park designers need to recognise and include in their park design.

To build parks in Putrajaya, the administrative center for the Malaysian government, the council planned the land use with minimal loss to environmental qualities according to their standard set of guidelines. Thus, a research on POE would be fundamental to measure users' satisfaction on the public parks in Putrajaya and the success of the guidelines of the city council in building the public parks.

The problems mentioned earlier reflect the typical problems faced by many public parks in Malaysia. In general, the maintenance departments of these parks do not have a framework in place to assess or evaluate the performance of these parks and users' satisfaction thus, causing a huge backlog of maintenance issues over the years. POE study is important as it involves a systematic investigation of opinions, perceptions and views of public parks from the perspectives of those who use them. Therefore, as this study focuses on user satisfaction in using public parks, the POE method is expected to be able to evaluate whether these parks are interesting and satisfy the visitors.

1.3 Research Questions

The following research questions were addressed in this study:

Q1: What are the factors that influence users to visit the parks?

Q2: What is the satisfaction level of the visitors who use the parks?

1.4 Research Objectives

The main objective of this study was to analyse the performance of public parks in Putrajaya. The specific objectives of this study were as follows:

1. To determine the factors that influence users to use the parks so that the success of these parks can be measured.
2. To identify the users' satisfaction level on the parks.
3. To propose a checklist that comprises the criteria of management and operational public parks for future use.

1.5 Significance of the study

Public parks in Malaysia provide recreation areas for physical activities that benefit health, society, education and wildlife. As the development and maintenance of new public parks require substantial financial support, POE was chosen for this study to justify the usage of the fund that has been used to build these parks in the first place.

POE is the method selected for this study to determine the success of these public parks from the point of view of a landscape architect. Though POE is less favored as improvements will incur additional cost, it is vital in assessing the success of these parks and in identifying factors that encourage users to visit the parks and increase their satisfaction level. POE will help improve the performance of these parks.

The study of doing POE in Public parks is a way to understand the performance of built environment which refers to any interior spacing, building or urban space built for human activities. As such, the development of public parks is considered as a branch of architecture in which its performance needs to be evaluated. The performance of a built environment is assessed using POE through users' continuous feedback and from the perspective of those who use the facility. Parks with good performance will encourage users to use these parks frequently as users will be influenced to use public parks for different purposes.

Furthermore, in applying POE through user satisfaction it will highlight the difference between a good and a less satisfactory public park judged based on users' satisfaction. The user satisfaction it will highlight the aspect of successful Public Park which is accessibility, safety, facilities, design and maintenance.

Result of factor of influence user and satisfaction base from the successful public park will highlight the weaknesses in the designs of the parks and help landscape architects to improve their practice. At the same time, it would also guide the city council, developers, consultants, planners and landscape architects in making new directions when developing a new park. This study is significance as it highlights the satisfaction of visitors using public parks with regard to their management and operations.

The findings of this study will identify factors for the modification of the landscape design and enhancement of performance of the parks to improve usage, user comfort and safety. It is hoped that the recommendations made at the end of the study would help improve the operation guidelines for the facilities and resources of the parks.

1.6 Scope and Limitation

This study focused only on the public parks in Putrajaya, Malaysia. Out of the 12 parks in Putrajaya, only three parks were selected for evaluation, namely, the Botanical Park (BP), the Putra Perdana Park (PPP) and the Pancarona Park (PP). These parks were chosen based on their completion dates (which vary from five to 15 years ago), the different landscape designs and the activities offered by each park to the users. In addition, these three public parks have never undergone any POE by any service agency or the Ministry itself to analyse their performance and sustainability.

The first limitation of the study was the limited POE information for public parks as most POE studies are related to building and architectural works. The existing POE methods are mostly used in evaluating gardens in hospitals, open spaces and small gardens (Heath et al., 2001; LaFargue, 2004; Hernandez, 2007; & Davis, 2011), and in some countries, POE studies are sometimes conducted by certain agencies or consultants to examine the performance of a project after its completion. Several past POE studies have even included children with special needs in their research. Studies on the performance of public parks in Malaysia is limited as the concept is still new to the country.

The second limitation was in obtaining the updated plans from the three parks. According to the POE method, POE starts with the construction, followed by the design, the products and the materials. This means that POE starts from the beginning of the construction period. However, obtaining the updated plans from Perbadanan Putrajaya was difficult.

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