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Procedia - Social and Behavioral Sciences 170 (2015) 422 – 432

Procedia
Social and Behavioral Sciences

AcE-Bs2014Seoul
Asian Conference on Environment-Behaviour Studies
Chung-Ang University, Seoul, S. Korea, 25-27 August 2014
" Environmental Settings in the Era of Urban Regeneration"

Determinant Factors of Successful Public Parks in Malaysia

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Abstract

The main factors that contribute in successful of the park are good of access and linkage (GAL), degree of comfort and image (DCI), user and activities (UAC) and sociability (SOC). Six public park in Malaysia involved in this study conducted through a survey using a questionnaire. The validation and reliability of four constructs were done using Cronbach's Alpha. The result found that all construct achieved Cronbach's Alpha coefficient level exceeding 0.60 (GAL=0.89, DCI=0.82, UAC=0.82, SOC=0.82). These results explain all items in GAL, DCI, UAC and SOC construct have good internal consistency, indicating that all dimensions have a good reliability value.

Peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.

Keywords: Public park; perception; accessibility; lingkages

1. Introduction

Park is an important space in the relationship of man and nature to promote and provide space for physical activity, health behavior, and can reduce some diseases such as diabetes and certain cancer. Previous researches note that has parks not only provide a healthy contribution in the physical but also it provides the benefits the community interrelationship, as well as increase the value of the property. Public parks have always been an important component in an urban area. The public park in Malaysia seems to be developed for recreation and relaxation for city or town community. The category of public parks based on Malaysia Town and Country Planning Department (TCPD) Planning Guideline for Open Space and Recreation (2000); they are national park, regional park, town park, local park, neighbourhood park,

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Peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.
doi:10.1016/j.sbspro.2015.01.003

children playground and play lot area. Urban community needs the good service of public park for their longevity, mobility and leisure time to grow in complex and hassle town area. Consequently, the six public parks, namely Taman Botani Negara Shah Alam (TBNSA)- national park, Taman Metropolitan Kepong (TMK)- a regional park, Taman Tasik Titiwangsa (TTT)- local park, Taman KLCC (TK)- urban park, Taman Tasik Shah Alam (TTSA)- neighbourhood park and Taman Tasik Perdana (TTP)- regional park will be studied the factors that contributed to the successful public park (refer to Figure 1). Hence, the main objective of this paper is to examine the main factors that contribute for successful public park in Malaysia.

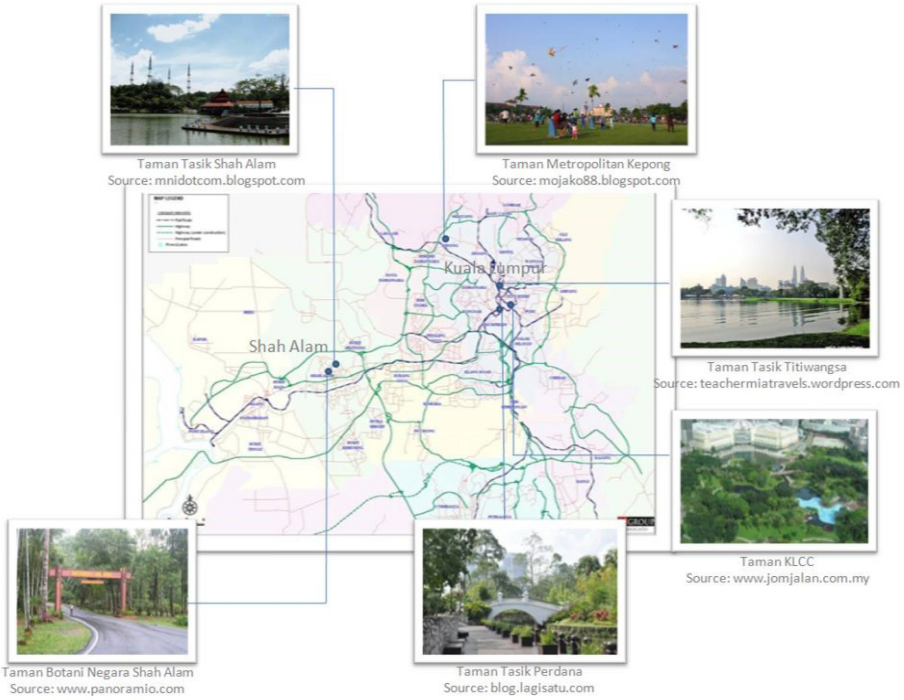

Fig. 1. Map of six public parks in Klang Valley.
Source: Regroup Associates

2. Literature Review

Public space is considered as a place for social encounter and interactions which reflect the problems and challenges of its users (Mennat-Allah El-Husseiny and Karim Kesseiba, 2012). Sustainable community is a safe and healthy environment with well-designed public and green space (Dempsey, 2008). Parks and green spaces should not only provide places to recreate, but create an opportunity for psychological revitalization of daily life. (Rabiatul Adawiyah Nasir et al, 2013). In Malaysia public park are designed and provided to attract all races and cultures especially in an urban area to socialize. According to Kuala Lumpur Master Plan 2002, open space consists of public parks, existing private land (agriculture land, forest reserves and residential, institutional, etc.), cemeteries and undeveloped land. The

definition of open space in Section 2 of Malaysia's Town and Country Planning Act 1976, means any land whether enclosed or not which is laid out or reserved for laying out wholly or partly as a public garden, park, sports and recreation ground, pleasure ground, walk or as a public place. Table 1 shown the types of open space based on (TCPD) Planning Guideline for Open Space and Recreation (2000). However, in this study two types of open space in TCPD are not be measured namely play lot and children playground. This happens because of the size of those two parks are less than 1.0 hectares.

Table 1. Types of Open Space According to TCPD of Malaysia

Type of Open Space	Minimum Required Area
Play lot	0.2 hectares
Children Playground	0.6 hectares
Neighbourhood Park	2 hectares
Local Park	8 hectares
Town Park	40 hectares
Regional Park	100 hectares
National Park	No limit

Source: National Landscape Guidelines 2008 & Planning Guidelines, TCPD

Parks and open spaces if properly more accessible can improve social cohesion and interaction as more people patronize them (Tabassum, S. & Sharmin, F., 2013). Parks are integral to a favorably built environment and provide places for physical activity (Kaczynski & Henderson, 2008) health behavior that protects against cardiovascular disease, type 2 diabetes, and certain cancers. Some researchers note that parks contribute not only to physical activity but also to the social well-being of their community, enhance property values, and contribute to health (Kaczynski & Henderson, 2008). However, in spite of the potential benefits, some studies indicate that some parks lack visitors while others are used quite extensively (Cohen et al., 2007). It seems likely that the amount and quality of green spaces will affect citizens' activity patterns, frequencies of everyday recreation, opportunities to relax from daily stress as well as the way knowledge about the environment is acquired (Nurhayati Abdul Malek et al., 2012). According to Nurhayati Abdul Malek et al. (2012) who studies on the making of a quality neighborhood park, the planning and design criteria of a good neighbourhood park is still has not been formed.

These factors in this study originated from four key attributes (Access & Linkage, Comfort & Image, Uses & Activities and Sociability) of Placemaking by Project For Public Spaces that became the base of this research. The same key attributes have been selected to be the four determinant factors of successful public parks and supported by the principles laid out by Bernie Dahl and Donald J. Molnar (2003). The principles laid out in Anatomy of a Park constitutes of three principles of umbrella/general considerations, two principles of functional considerations and two principles of aesthetic considerations. Then, these principles are merged under the four key attributes of Placemaking by Project for Public Places based on its suitability.

The circulation system of the park forms the infrastructure of framework that links all the activity and support areas together (Abu Bakar, J., 2002). That strongly support from Lynch (1975) by means, that the circulation system must be considered not only for the way in which it handles the assigned flows but also for its influence on surrounding activities. Circulation is the potential channel of people movement from outside to inside of a park. According to Lynch (1960) for many people, paths are the predominant

elements in the image of a site. Paths may be streets, walkways, transit lines, canals and railroads. Reffering to Abu Bakar, J. (2002) the secret of successful circulation system is the establishment of a clear hierarchy of road that is evident to the user. Abu Bakar, J. (2002) has cited from Baljon, (1992) that GAL includes aspects such as the ease of visiting the park by various means of transport, as well as the creation of functional coherence between the inside of the park and the immediate surroundings (Diyanah Inani Azmi & Hafazah Abdul Karim ,2012).

In studying about the user and activities that contribute to the success of a public park, one could not deny the fact that it is closely related to the user perceptions and needs. Despite the fact that the majority of the world's urban population is found within developing countries, there has been very little research regarding the use and perception of green space in such rapidly urbanizing cities (Willemse, 2010). Makinen, K and Tyrvainen, L (2008) cited that Bell et al. (2003) mentioned, teenagers and adults have a different interest in activities in a park. The teenagers often like to explore the environment and to find a territory of their own and they may avoid the adults spaces where the teenagers may feel themselves controlled, criticized or excluded (Lieberg, 1995, Massey, 1998, Bell et al. 2003) as cited by Makinen, K and Tyrvainen, L (2008). Accessible places, or those within close proximity, were valued, as were aesthetically pleasing and beautiful places for relaxation, thinking, and reflection, beneficial for healthy, active and balanced lifestyles, for learning about the natural world and for providing a connection with the recent and historic past (Mayo, 2010).

This study is related to user perception on accessibility of public park. Generally, perceptions are very complex and have different views related to age, races, religions, gender, and experiences. Makinen, K and Tyrvainen, L (2008) cited that Bell et al. (2003) mentioned, in previous studies of green space, teenagers attitude toward public park and woods range from having a good time to getting bored. The teenagers often like to explore the environment and to find a territory of their own and they may avoid the adults spaces where the teenagers may feel themselves controlled, criticized or excluded (Lieberg, 1995, Massey, 1998, Bell et al. 2003) as cited by Makinen, K and Tyrvainen, L (2008). Accessible places, or those within close proximity, were valued, as were aesthetically pleasing and beautiful places for relaxation, thinking, and reflection, beneficial for healthy, active and balanced lifestyles, for learning about the natural world and for providing a connection with the recent and historic past (Mayo, 2010).

3. Methodology

3.1. Respondents

This study was done in six public parks in Malaysia, which are Taman Botani Negara Shah Alam (TBNSA), Taman Metropolitan Kepong (TMK), Taman Tasik Titiwangsa (TTT), Taman KLCC (TK), Taman Tasik Shah Alam (TTSA) and Taman Tasik Perdana (TTP). The selection of these case studies is because of well-known public park in Malaysia. The respondents that involved in this study are second year students of Diploma in Landscape Architecture from Higher Education Institution (IPTA) in Malaysia. The respondent have been exposing with the knowledge about factors that create successful park and open space and the relationship between park design and human behavior. In this study, 60 respondents were involved in each park. A part from that 57 questionnaire was returned from the Taman Botani Negara Shah Alam (TBNSA), 56 from Metropolitan Kepong park (TMK), 58 from Tasik Titiwangsa park (TTT), 60 from KLCC Park (TK), 49 from Tasik Shah Alam park (TTSA) and 55 questionnaires were returned from Tasik Perdana park (TTP). So the total number of questionnaire that has been returned is 335 (100%).

3.2. Procedure

This study is quantitative in nature using a questionnaire. The survey involved asking residents to answer a questionnaire that was administered using face to face interviews. Before to answering the questionnaire, the respondent going to visit six sites at TBNSA, TMK, TTT, TK, TTSA and TTP park. A TBNSA park is the first park that is visited by respondent and followed by TMK, TTT, TK, TTSA and TTP park. The purpose of the site visit is respondent can make their own observation, exploration and that enable them to understand the linkages, activities, images and sociability in a park. The time taken for each park is approximately 1 hour and 30 minutes. This period is considered adequate and sufficient for understanding the environment of the park. After completing the visit to each of the park, the respondents need to answer the questionnaire. In the questionnaire, it contained five parts: Part 1- background information, Part 2- the construct of good accessibility and linkages (GAL), Part 3- the construct of degree of comfort and image (DCI), Part 4 – the construct of user and activities and Part 5- the construct of sociability (SOC).

3.3. Variables and measure

The construct of good accessibility and linkages (GAL) employed three dimensions, namely: vehicular circulation (VC), pedestrian system (PS) and public transport system (PTS). Meanwhile, the construct of comfort and image (DCI) also employed three dimensions, namely: placing of sitting area (PSA), Maintenance (MAI) and safety of park (SOP). For the construct of user and activities (UAC), it's employed four dimensions, which are users (USE), social activities (SAC), physical activities (PHY) and special attraction (SAT). For the construct of sociability (SOC) employed two dimensions, namely: opportunity to socialize (OPS) and environment (ENV). Each dimension has their own items to measure the construct. The measurement of constructs or main variable was rated using a Likert scale ranging from 1 to 6 ranging from "Highly Disagree" to "Highly Agree." The high score will indicate that the conduct is good and vice versa if the score obtained is low. The reason for using a 6-point Likert scale without a neutral answer was to induce the respondent to take a stance. Furthermore, the technique of providing the scales "Highly Disagree" to "Highly Agree" will give the result intensity from respondents, thus impacting the distribution of the respondents' score.

4. Findings

The validation on the construct is important to verify the items of each construct are valid to measure the dimension using the exploratory factor analysis. EFA is used in the early stages to gather information about the interrelationships among variables. According to Nunnally (1978) the ratio of subjects to items recommends a 10 to 1 ratio in EFA. In this research at least 50 samples required to answer for each variable. And this research the sample size is consider adequate since the 60 respondents was participated. The Cronbach's Alpha (?) value was used to determine the level of reliability through the internal consistency for each factor. An item-to-scale value of 0.3 and above was used as the minimum value for a unidimensional scale (de Vaus, 1986), while the scale was considered reliable if the alpha value was 0.6 and above, based on the De Vellis (1991) criteria.

The results of the analysis demonstrated the good accessibility and linkages (GAL) dimensions achieved Alpha(?) value level exceeding 0.60 (VC= 0.83, PS= 0.90 and PTS= 0.87). For the construct of comfort and image (DCI) there are three dimensions namely placing of sitting area (PSA), Maintenance (MAI) and safety of park (SOP). However, the dimension of PSA and MAI was merged to accumulate the Alpha (?) value level exceeding 0.60. Therefore, the name of new dimension is sitting and maintenance

(SMA) with the numbers of item is 9. From the 9 items listed and used, two items were omitted as they recorded a corrected item-to-total correlation value of below 0.3, while the total alpha value of the 9 items was ?= 0.62. Those two items were; (i) "most of benches placing in shaded are" and (ii) "easy to get the sitting area". After these two items were eliminated and analysis was redone, the resulting ? value = 0.72. Meanwhile the dimension of safety of park (SOP) included 11 items and the alpha value ?= 0.81 with the item-to-total correlation value 3.0 and above. The result shows that all items in SOP are valid to measure the SOP.

The construct of user and activities (UAC), it's employed four dimensions namely - users (USE), social activities (SAC), physical activities (PHY) and special attraction (SAT). However, the dimension of USE and SAC was combined similar as a dimension of SMA that was mentioned before. So, the name of this dimension is user and social activities (USA) with 12 items. It is also similar happen with PHY and SAT dimension to merge to be a new dimension with name activities and special attraction (ASA) with 14 items. From the 12 items listed and used in USA dimension, two items were omitted as they recorded a corrected item-to-total correlation value of below 0.3, while the total alpha value of the 9 items was ?= 0.62. Those two items were; (i) "user- community" and (ii) "space for meeting a friend". After these two items were eliminated and analysis was redone, the resulting ? value = 0.72. It is similar with ASA dimension, there are two items were eliminated as they recorded a corrected item-to-total correlation value of below 0.3. Those two items were; (i) "jogging area are provided" and (ii) "place for playing roller blade is provided". After these two items were eliminated and analysis was redone, the resulting ? value = 0.76.

For the measurement of sociability (SOC) there are two main dimensions, namely; opportunity to socialize (OPS) and environment (ENV). There are 3 items contribute in OPS dimension and the total alpha value is 0.91 with corrected item-to-total correlation more than 0.3. Meanwhile in ENV dimension, employed 7 items and cronbach's alpha (?) value is 0.70 with corrected item-to-total correlation 0.3 and above. The Cronbach's Alpha value for all construct as shown in Table 2.

Table 2. Results of the reliability of good accessibility and linkages, comfort and images, user and activities, and socialibility dimensions

Constructs	Dimension	Items	Description of Items	Corrected Item-Total Correlation	Reliability
Good accessibility and linkages (GAL)	Vehicular circulation (VC)	1	The condition are good	0.619	
		2	Entrance statement very clear	0.703	
		3	Route- clear from entrance to exit	0.692	
		4	Parking space visible outer route	0.672	0.836
		5	The size of parking space are good	0.512	
	pedestrian system (PS)	1	Pedestrian entrance are good	0.810	
		2	Road crossing are good	0.773	
		3	Connected to main route are good	0.762	
		4	Size of walkway are good	0.624	0.902
		5	Condition of walkway are good	0.751	
		6	Signage to facilities are clear explained	0.692	
	public transport system (PTS)	1	Proximity to bus stop	0.785	
		2	The public transport within transit route	0.785	0.879
Comfort and Image (DCI)	Sitting and maintenance (SMA)	1	Most of benches placing in shaded area placing in area with high activities	-	0.72
		2	Easy to get the sitting area	0.601	
		3	50% benches or sitting area under shelter	0.549	
		4	50% benches or sitting area in open area	0.513	
		5	The area shows a good maintenance	0.361	
		6	All facilities that provided in a good conditions	0.631	

		7	50% of facilities in a good condition	0.595	
		8	50% of facilities in a bad condition	0.381	
	Safety of park (SOP)	1	Near the road	0.367	
		2	Near to residential area	0.463	
		3	Near to commercial area	0.349	
		4	Near to natural area	0.385	0.81
		5	Presence of security such as police, security	0.458	
		6	park		
		7	Safety of signboard such as community surveillance	0.521	
		8	The existence of CCTV	0.428	
		9	Vehicles are allowed into the park	0.628	
		10	Bicycles are allowed into the park	0.520	
		11	Motorcycles are allowed into the park	0.569	
			Car are allowed into the park	0.540	
User and Activities (UAC)	User and social activities (USA)	1	Family	0.514	
		2	Teenagers	0.495	
		3	Less abled/ disabled people (Handicaped/ senior citizen/ pregnancy woman)	0.331	
		4	Toddlers	0.60	
		5	Community	-	
		6	Space for fly a kite	0.278	
		7	Space for boating	0.301	0.72
		8	Space for picnic	0.523	
		9	Space for meeting friend	-	
		10	Space for eating	0.486	
		11	Scenic view for capture the photo	0.521	
		12	Playing at playground	0.501	
	Activities and special attraction (ASA)	1	Jogging area are provided	-	
		2	Walking area are good	0.403	
		3	Place for playing roller blade is provided	-	
		4	Skating area is provided	0.376	
		5	Cycling area is provided	0.416	
		6	Relaxing area is provided	0.349	
		7	Area purposely for reading are provided	0.642	
		8	Water fountain is very attractive	0.432	
		9	Playground is very attractive	0.453	
		10	Statues/ sculpture are very attractive	0.529	0.76
		11	Park layout design is very attractive	0.597	
		12	Hardscape elements are very attractive	0.603	
		13	Softscape in planting design are very attractive	0.552	
		14	Plant material selection is very attractive	0.514	
Sociablity (SOC)	Opportunity to socialize (OPS)	1	Attractive design of park layout make user attracted to socialize	0.832	
		2	Facilities that provided enhance the social activities	0.877	0.91
		3	Signage explanation is vary clear make user attracted to socialize	0.781	
	Environment (ENV)	1	Cleanliness of environment makes user enjoy the park	0.321	
		2	Good maintenance make users enjoy the park	0.647	
		3	The overall view of the park makes user enjoy th park	0.658	
		4	Borrowed surrounding view make users enjoy th park	0.670	0.70
		5	The park is near to residential area, hence make user enjoy the park	0.538	
		6	The park is near commercial area, hence making user enjoy the park	0.498	
		7	The park is near natural area, hence making user enjoy the park	0.413	

4.1. Relationship between variables

Additionally, this study investigated the relationship between four main variables or construct between good accessibility and linkages (GAL), degree of comfort and image (DCI), users and activities (UAC) and sociability (SOC). The relationship between four variables was investigated using Pearson product-moment correlation coefficient. Preliminary analysis was performed to ensure no violation of the assumption or normality, linearity and homoscedasticity. The result shows those variables have strong, positive correlation between GAL with SOC (r= .63, p= .00), GAL with DCI (r= .69, p= .00), DCI with SOC (r= .67, p= .00), GAL with UAC (r= .58, p= .00), SOC with UAC (r= .66, p= .00), and DCI with UAC (r= .62, p= .00). These findings show that when the good access and linkage is high there is also the demand of sociability, the degree of comfort and image, user and activities also increase. This output is shown in Table 3.

Table 3. Pearson product-moment correlation between measures of good accessibility and linkages, sociability, degree of comfort and image, and users activities

Measures	**1**	**2**	**3**
GAL			
(2) SOC	.63**		
(3) DCI	.69**	.66**	
(4) UAC	.58**	.66**	.62**

N=330, GAL= good accessibility and linkages, SOC=sociability, DCI=degree of comfort and image, and UAC= users activities.
**p>.001

4.2. Relationship between demography and variables

Results of t-test analysis on gender with a construct found that a sociability (SOC) (t(330)=-3.66; p=0.00), degree comfort and image (DCI) (t(326)=-3.03; p=0.00) and users and activities (UAC) are significant with gender (t(328)=-2.31; p=0.02). However, the result found that gender is not significant with good accessibility and linkages (GAL) (t(329)=-1.50; p=0.13) as shown in Table 4.

Table. 4. T-test analysis on gender with variable of good accessibility and linkages, sociability, degree comfort and image and users and activities

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Good Access & Linkage	Equal variances assumed	.583	.446	-1.505	329	.133	-1.63071	1.08339	-3.76195	.50052
	Equal variances not assumed			-1.504	327.404	.133	-1.63071	1.08389	-3.76299	.50156
Sociability	Equal variances assumed	.395	.530	-3.660	330	.000	-3.79457	1.03679	-5.83413	-1.75501
	Equal variances not assumed			-3.662	329.950	.000	-3.79457	1.03634	-5.83323	-1.75591
Degree of comfort & Image	Equal variances assumed	.768	.382	-3.039	326	.003	-4.43902	1.46074	-7.31268	-1.56535
	Equal variances not assumed			-3.039	325.765	.003	-4.43902	1.46078	-7.31277	-1.56526
User & social activities	Equal variances assumed	.056	.812	-2.310	328	.022	-2.06305	.89322	-3.82022	-.30588
	Equal variances not assumed			-2.315	325.430	.021	-2.06305	.89119	-3.81627	-.30983

In reference to Figure 1, it was found that the female gender is higher to all variables of sociability (SOC), degree comfort and image (DCI) and users and activities (UAC) compare to male gender. These findings refer to mean score of SOC (Female; M=44.9, Male=41.1), DCI (Female; M=73.9, Male=69.5) and UAC (Female; M=45.8, Male=43.7) with gender. This finding indicates that female respondents are more concern on those three main variables or construct compare to male respondents. These results may be associated with a woman's ability to ensure security affairs and facilities for mobile.

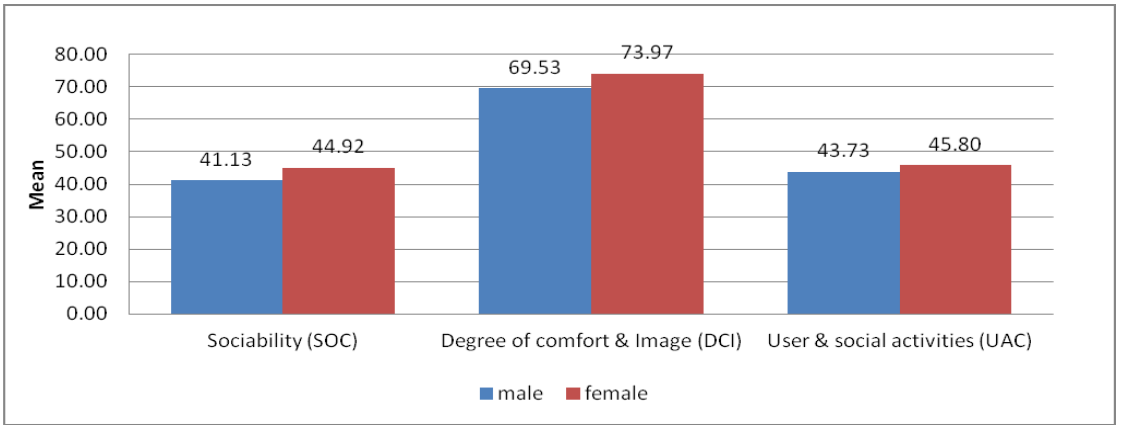

Fig. 2. Comparison between genders with sociability, degree of comfort and image and users and activities

5. Discussion

Public parks with proper accessibility and well connected with its surrounding area can improve the value of park environment and can enhance community development and social bondage. This research found that when the good access and linkage, there is also the demand on sociability, the degree of comfort and image and the increasing user and activities. From the analysis, pedestrian system is the most significant factor in determining GAL. Overall mean GAL for all surveyed public parks is high and the most significant GAL dimension is PS as mentioned by Lynch (1960) that the paths as predominant elements in the image of site.

In addition the GAL factor contributes to make user attracted to socialize in public park. It means, with good design layout, clear signage for direction and good facilities provided will enhance the social activities. Even user and activities (UAC) factor also related to be increased in public park. When more users come to the park, they will create more activities and opportunity to create new identity or image of public park. The next factor is degree of comfort and image (DCI) which also contribute to success park. Usually users will feel comfortable when they feel the place is safe. For this case, the safety factor result is higher than the maintenance or condition of site facilities. Users are more comfort when the park has clear GAL and next to their place. However the condition of site facilities also be counted in DCI to improve the image of park and useful for user.

6. Conclusion

In conclusion, to achieve successful public park, GAL should be the main factor in designing a park follow by SOC, UAC and DCI factors. Besides that, the image of public parks in Malaysia also can be improved and the situation of becoming an abandoned park can be avoided. As a conclusion, all four

factors are important in determining the successful of a public park. For future research, it is recommended that different categories of public parks users (according to age, economic background) should be studied in order to get a holistic view of successful public parks design and to cater for larger demographics in future planning of public parks in Malaysia.

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