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ScienceDirect

Procedia - Social and Behavioral Sciences 153 (2014) 585 – 594

Procedia
Social and Behavioral Sciences

AicQoL2014Kota Kinabalu
AMER International Conference on Quality of Life
The Pacific Sutera Hotel, Sutera Harbour, Kota Kinabalu, Sabah, Malaysia
4-5 January 2014
“Quality of Life in the Built & Natural Environment”

Community Perception on Public Open Space and Quality of Life in Medan, Indonesia

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Abstract

Among many urban environment problems in a developing country which affects the decreasing of public open space quality and quantity, the research means to identify the relationship between public open space (POS) and quality of life (QOL) in Medan, Indonesia. By using 1-5 Likert scale, the perception of community was collected through the level of satisfaction with the factors of POS and QOL. This research found that the most significant factor that affects people's perception of POS was the 'function' factor. The 'health' factor was the most significant factor that affects people's physical QOL. The study shows that there is a significant relationship between POS and the physical QOL.

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Peer-review under responsibility of the Association of Malaysian Environment-Behavior Researchers, AMER (ABRA malaysia).

Keywords: Urban environment; public open space; quality of life; Medan; developing country

1. Introduction

Public open space is a free place for people to be accessed. Everybody is free to do many various activities at the place. The physical elements and activities at public open space offer many benefits to quality of life: health, social interaction and economic value. With such significant benefits to quality of life, now public open space in urban space over the world has to face some problems, such as the increasing of urban environments changing and the decreasing of public open space's function. Typical

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with others, one of the cities characters in Indonesia is the fast growing shopping malls and gated communities. As an illustration, there were 20 malls built in 2002 in Jakarta, the capital city of Indonesia. Although some of them were social-friendly, but only a little contributed to public space (Douglas, 2006). As a contrast, during this 30 years, public open space, primarily green space, in Indonesian cities - such as Jakarta, Bandung, Medan, Surabaya and Semarang - tends to decline, from 35% in 1970's to only less than 10 % in 2006 (Departemen Pekerjaan Umum, 2006).

Generally, there is no special concern in Indonesian cities to enhance public open space quality among many other development programs priority. By this situation, it is interesting to study whether the 'poor' public open space relate to community quality of life. Is there any similarity or difference between 'quality standard' of public open space from the users perception compare to those are in the developed country? How intensive do people use the public open space? What is the dominant factor of public open space that people perceived? Does public open space still relate to their quality of life?

Medan, the 3rd biggest city in Indonesia, is a city of more than 2.5 million citizens but has just 5% public open space compared to the whole city area. In the other side, the malls, cafes and theme parks grow fast as well as the gated communities (Nasution and Zahrah, 2010). According to Siu (2008), there are some changes of how people in developing countries view their needs. In many Asian cities people more prefer the privatized public space – malls, theme parks, many other consumptive amusement centres – as a more comfortable public space. By the trend, the aim of the study is to investigate whether people still need public open space to maintain their quality of life. The result of the study can contribute to formulate a suitable policy in urban planning, especially in public open space concern, as a part of development in achieving quality of life of urban people.

2. Literature Review

2.1. High quality public open space

The high quality public open space can make people stay longer with a wider range of activities (Gehl, 1996). The quality relates to the usability with some criteria depends on people needs and perception (Kallus, 2001). If not, public open space becomes useless and unsuccessful (Carr *et al*, 1992). The quality of public open space can be viewed from two aspects: the function and the physical features. The function relates to people's background and their activities in public open space. The open space must be accessible for all class of people, democratic and reflect the local culture and tradition (Carr *et al*, 1992). Some of the physical criteria of high quality open space are the availability of clear pedestrian linkage and integration with public transportation (Project for Public Space, 2000; Gehl 2002; CABE and DETR, 2001). Some researches about the relationship between usability and the quality of public open space were conducted in a developed country, where the public open spaces are well designed. There is a lack of similar studies in a developing country, which has to face the degradation of the urban environment and the decreasing of public open spaces quantity and quality.

2.2. Public open space and quality of life

The urban quality of life is the outcome of the interaction of man and urban environment (Das, 2008). The satisfaction level with the urban environment is one of the indicators of quality of life (Sirgy dan Cornwell, 2002). One of the urban environment's elements is public open space. Thus, the satisfaction level with public open space can be an indicator of satisfaction with the urban environment and next can affect people's quality of life. Public open space, both as a physical structure and a place for many kinds

of activities has a significant benefit to quality of life, especially in fulfilling people needs to health, recreation and a good quality urban environment.

Trees and garden as one of public open space features may give relaxation and restoration effect, just by seeing it (Ulrich, 1984). As a place for many kinds of activities, public open space gives some advantages for quality of life, such as psychological and physical health, recreation's benefits and the fulfillment of the need for a pleasant urban environment (Maller *et al*, 2009; Kaplan and Kaplan, 2009). Thus, a good perception to public open space can give impact to a good quality of life.

The gap of knowledge concerning to the relationship between public open space and quality of life consists of some factors, such as the research subject, public open space's scale and urban characteristic where public open space research is carried out. Some studies which analysed the relationship between one or more open space factors with one or more quality of life factors (Chiesura, 2003; Sugiyama *et al*, 2010). The other studies analysed the relationship between public open space and quality of life by using secondary data base and objective quality of life data (Lynch, 2007; Beck, 2009; Quintas and Curado, 2009). Above all, many scholars conducted the study in a developed country, which have a clear public space structure as a part of the whole urban space structure. There is a lack of similar research in a developing country, where there is lack of well design public open space. It is important to carry out the research among many problems of the urban environment degradation, so we can formulate a more suitable policy according to local people needs.

3. Methodology

We conducted the survey of four active public spaces in Medan, in 2011 (figure 1). We started the study by conducting a pre survey in 21 Kecamatan (an administrative area under the city government) to get the most favourites urban scale public open space in Medan based on people perception. Beside it, we conducted a pre observation to adjudge the active public open space based on the intensity of activity, the range of visitors and the availability of supporting facilities. The result of the pre survey showed that there are four active public open spaces in Medan, e.g. Lapangan Merdeka, Taman Ahmad Yani, Taman Beringin and Taman Stadion Teladan. We collected two kinds of data collected. The first, the physical and activity aspects of public open space, collected through a field survey and observation. The data gives information about the quality of public open space, and how intensive people used it. The second, the people's perception of public open space, collected through an interview based on a questionnaire. There were 384 respondents, which were distributed proportionally in four public open spaces. The respondents were people which were doing their activities in public open space. The surveyors choose them randomly in every activity zones in four active public open spaces. The questionnaire consists of several sections as follows: (1) the respondents' profile; (2) the perception about the relationship between public open space and several quality of life factors; (3) the characteristic of activities done in the public open space (4) the level of satisfaction with some factors of public open space (5) the level of satisfaction with some factors of quality of life. The measuring of the level of satisfaction of public open space used a five-point Likert scale ranging from "1" for very unsatisfied, "2" for unsatisfied, "3" for neutral, "4" for satisfied and "5" for very satisfied. Using the mean values of the scale, "3" is considered to be the midpoint. Thus, any value above 3 is considered somewhat satisfied but of higher level. Similarly, any value below 3 is considered to unsatisfied but of lower level. We started the analysis with the identification of usability of public open space. The study described the people's socio-economic background, the duration, the frequency and the variation of the activities. The analysis used descriptive statistics analysis. The identification of the dominant factors of public open space from people's perception used the central tendency test and factors analysis. Finally, the analysis of the relationship between perception about public open space and quality of life used Spearman correlation.

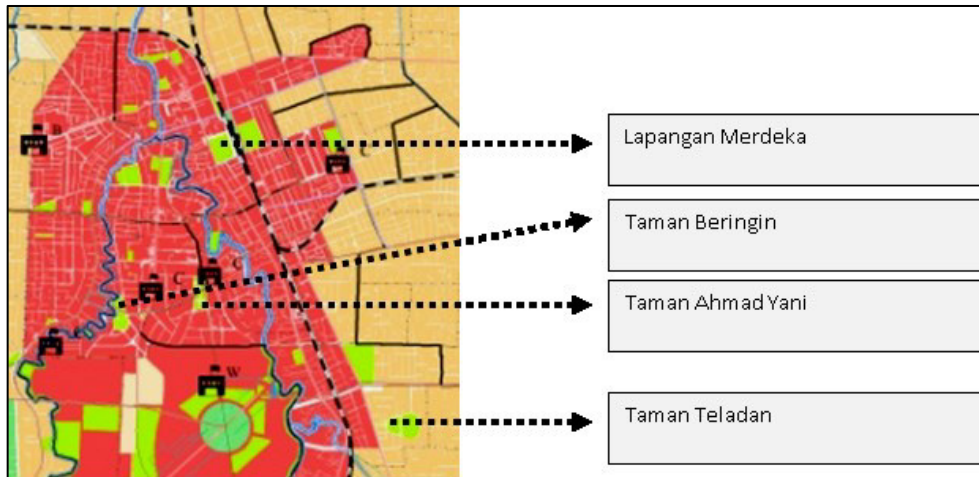


Fig. 1. The map of study area; four public open space in Medan

4. Findings and Discussion

The quality of public open space

The indicators of the quality of public open space are the accessibility, natural elements and facility. The indicators of accessibility are the distance, the approachability and the ability to be entered. The locations of public open spaces are far from community housing, because of their urban-scale type. The open spaces take place in a district of commercial and the other urban-scale public facility. The open spaces are also not easy to be approached, because of the absence of a continuing pedestrian linkage or an integrative public transport. Most of the visitors come to the open spaces by motorcycle. All of these accessibility facts indicate that the public open spaces in Medan do not have a good quality according the quality proposed by PPS (2000), Gehl, (2002) and CABE and DETR (2001). The other features gave a good character of public open space, such as, natural elements and activity. The natural element is one of the central features in the public open spaces in Medan. The trees and garden make the open spaces green and shady; make it a comfortable place for recreation and relaxation. The public open spaces in Medan have many facilities to support community activities, such as sport facility (jogging track, multi-purpose field, exercise instrument, wall-climbing), kids playground and grass field for various recreation activity. There are some facilities with a low quality, such as car park, public toilet, and street vendor.



Fig. 2. Some of activities in public open space in Medan

4.1. The usability of public open space

There are two indicators used to identify the usability of public open space: (1) users and (2) activity. The indicators of “users” aspects are the demographic and economic status, age group and gender. All economic status of people visited the public open spaces in Medan, but most of them were low income people (67.4%). Most of them are Medan’s residence (79.9 %). All age groups did their activities in public open space, from kids to the elderly. The survey showed that most of them were teenagers (56.8 %) with age bracket of fewer than 20 years. The proportion of males and females were 51.6 % and 48.4%.

The indicators of the activity aspect of public open spaces are the range and the intensity of visitor’s activities. There were various activities done by community, both the active and passive activities (figure2). The visitors came to the public open spaces and doing various types of sports (jogging, wall climbing, football, badminton, volleyball, fitness, gym, tai-chi or just walking), playing, picnicking, making a conversation with friends and family members, or just sitting while enjoying the public open space features and environment. The visitors took their activities in public open space frequently. Most of them came to the public open space at least 1-4 times a month and stayed there for 1-3 hours. The peak hour of visitor’s activities occurred at 05.00 – 06.00 in the morning and at 04.00 to 06.00 in the afternoon. Most people which doing their activities in public open space were those who spent their holiday and weekend in the public open space (53.9 %). The facts indicate that the public open spaces had a high usability, although not reach ‘24 hours usage a day’ criteria.

4.2. The people perception

The community has perceived seven factors of public open space, such as the accessibility, facility, natural environment’s elements, activity, management and the intensity of usage. Different with the past studies that the accessibility is one of significant factors of public open space quality, this study found that the accessibility was the most insignificant factor with loading factors less than 0.4 (see table 1). The indicators of accessibility perceived showed the mean score less than 3 (unsatisfied) (see table 2) while the other indicator showed the higher mean score. With the absence of a clear pedestrian linkage and an integrative public transport, the study indicated that the accessibility of public open space more perceived as ‘how easy it could be accessed by vehicle’ since most of the people came to the open space by motorcycle. This finding was very contrast with the accessibility factors suggested by PPS (2000), Gehl, (2002), CABE and DETR (2001) which hardly suggested the present of pedestrian linkage.

Except the accessibility, people perceived public open space factors as high as ‘neutral’ (mean score average 3), but the respondents who asserted ‘satisfied’ (score 4) were larger than those who asserted ‘unsatisfied’ (score 2). The factor analysis result showed that the factors were significant in shaping people perception of public open space (see table 1). Above this level of satisfaction, in fact, people kept doing their activities in public open space and making it an active public space.

4.3. People perception with quality of life factors

As the concept of quality of life is complex and multi-variable, this research more concerned with factors of quality of life in relation with people activities in public open space. So that the quality of life factors analysed were health, recreation and urban environment. This study found that most people asserted that they were satisfied with health, recreation and urban environment. In the developing countries, people’s wellbeing do not always fit with the objective condition of the economic environment

(Hoorweg *et al*, 2007), so that, the measuring of quality of life is lead to the subjective measurement. The base of the measurement is the individual personal perception. The research highlighted that the majority of respondents were low income people. The people's subjective statements, which they were satisfied with their quality of life, show that there is a difference between the objective and subjective quality of life. Among the three factors, the factor analysis showed that 'health' was the most significant factor in determining the quality of life. This factor could explain total variance (quality of life) of 63.138% (table 3 and table 4).

Table 1. Factor analysis for the public open spaces factors

Factor name and items	Factor loadings	Eigenvalue	% Of variance	Cum %
Factor : public open space		9.647	6.398	75.24
Accessibility	0.33			
Facility	0.64			
Activity	0.67			
Management	0.58			
Natural environment	0.66			
Intensity	0.63			

Table 2. Satisfaction with public open space's factors

	Number	Factor of POS	Mean Score
1		Accessibility	
		Distance	2.7
		How easy to enter in	2.82
		How easy to access it from home	2.92
2		Facility	
		Dimension	3.05
		Parking lot	3.05
		Public toilet	3.06
		Playing area	3.15
		Sport area	3.23
		Sitting area	3.28
		Praying area	3.18
		Eating area	3.28
		Street vendor	3.27
3		Management	
		Safety	3.12
		Cleanliness	3.22
		Attractiveness	3.30
		Orderliness	3.36
4		Management	3.36
		Natural elements	
		Trees	3.72
5		Garden	3.53
		Function/activity	
		Recreation	3.21

	Sport	3.23
	Social interaction	3.27
	Politic/democracy activity	3.23
6	Intensity	
	Duration	3.08
	Frequency	3.38
	Variation of Activity	3.52

Source: Data analysis (2012)

Table 3. Factor analysis result of quality of life factors (Total variance explained)

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	1.894	63.138	63.138
2	.618	20.595	83.732
3	.488	16.268	100.000

Table 4. Factor analysis result of quality of life factors (Extraction method: Principal component analysis)

Factor	Code	Variable	Factor Loading	Explained Variance
Factor 1 (Quality of life)	Y1	Health	.822	63.138
	Y2	Recreation	.755	20.590
	Y3	Urban environment	.805	16.268

4.4. The Relationship between people perception with public open space and the quality of life

In relation with an urban environment, there are three aspects of quality of life factors, i.e. physical environment, economic environment and social environment (Das, 2008). Public open space is one of the urban physical environment elements. So the satisfaction with public open space relates to the level of satisfaction with the overall quality of life. The research builds a concept that people’s perception of public open space has a relationship with quality of life via three factors: health, recreation and urban environment (see figure 3).

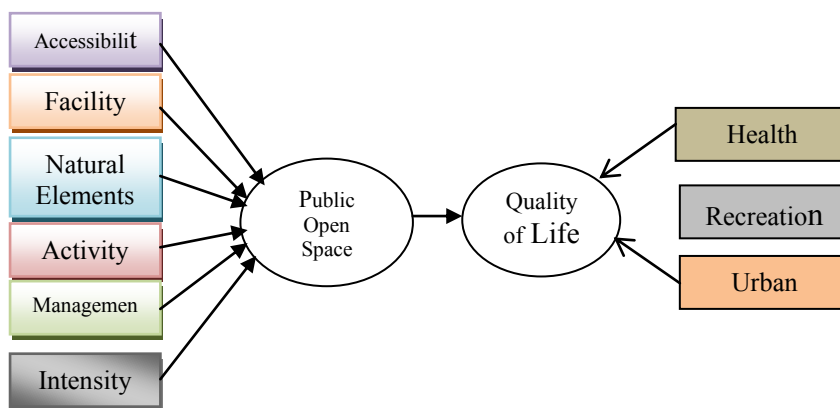


Fig. 3. The diagram of the relationship between public open space and quality of life

4.5. Public open space and health

The activities in the public open space, and the present of natural elements can affect physical and psychological health (Maller *et al.*, 2009). In this research, the health-benefit was delivered through physical activities, recreational activities, and restorative effect of the natural elements and the social interaction. The public open spaces in Medan were successful in accommodating many kinds of physical activity, such as various sports and play. The community perceived 'activity' aspect well with the mean score of the satisfaction level was between 'neutral' (score 3) and 'satisfied' (score 4) (see Table 2). Although the mean score did not reach 4 (satisfied), but the sum of people who said 'satisfied' (score 4) and 'very satisfied' (score 5) is larger than those who said 'unsatisfied' (score 2) or 'very unsatisfied' (score 1).

The research found that people did most activities in a group, both family or friends group. Most people said that they ever engaged in a social interaction, such as saying hello to or making a conversation with the stranger or other people they met in the public open space. The fact indicated that public open space could have accommodated social interaction well. The completion of this need would relate to the psychological health of people.

The natural elements of public open space, such as trees, garden and the other vegetation, can give the health benefit. Since the open space in Medan had a high usability, there was a significant opportunity to them to contact with the natural environment. This condition would give a restoration and relaxation effect (Kaplan and Kaplan 1989, 1990; Ulrich, 1979) which, afterward, would affect their mental and psychological health. The result of the study showed that the majority of people (86.2%) believed that public open space affected positively to their physical and psychological health. The people's satisfaction level also supported the fact. Most people said 'neutral' (41.4%) and 'satisfied' (38.7%), with the percentage of these levels of satisfaction were larger than the 'unsatisfied' and 'very unsatisfied' level. It means that people were satisfied with their health, but have not reached an ideal condition yet.

4.6. Public open space and recreation

The fulfilment of recreation need is one of the quality of life indicators (Boyer and Savagean, 1981, 2000; Marlin, 1982). The level of people satisfaction with recreation activities in public open space shows mean score 3.21, or lower than 'satisfied' (mean score 4). The other side, the public open spaces in Medan was active and liveable. People have done many recreation activities, such as playing, picnicking, or just sitting. It means people have a significant opportunity in gaining the benefits of recreation, such as a relaxation and restoration.

4.7. Public open space and urban environment

The quality of life in urban space is the outcome of the interaction between human and the urban environment (Das, 2008). The public open space is one of the essential urban environment elements. The study showed that the level of people satisfaction with the urban environment was 'neutral' (44.3 %) and 'satisfied', with the percentage of these levels of satisfaction larger than 'unsatisfied' and 'very unsatisfied' level. It means that people were satisfied with the urban environment, but have not reached an ideal condition yet.

Table 5 and table 6 show the result of the correlation test between public open space and the quality of life. According to the table, it can be seen that the correlation coefficient between public open space and the quality of life is 0.231 or 23.1%. It means public open space can explain the quality of life as high

as 23.1%, and the rest explained by the other factors. It is because the quality of life factors of the study only those that relate to the activities in public open space; meanwhile there is many others quality of life factors. The positive direction of the relationship indicates that the increasing of satisfaction with the public open space will increase the satisfaction with the quality of life.

The research confirms many earlier studies that the public open space has a strong relationship with the citizen's quality of life, such as studies conducted by Quintas and Curado (2009), CABA Space (2010) and Lynch (2007), but there is a difference about the dominant factors while this study found that 'accessibility' was not significant in constructing people perception about public open space.

Table 5. The correlation test result between quality of life and public open space (Descriptive Statistics)

	Mean	Std. Deviation	N
Quality of life	3.4080	.65675	384
Public Open Space	3.2649	.51527	384

Table 6. The correlation test result between quality of life and public open space (Correlations)

			Quality Of Life	Public Open Space
Spearman's rho	Quality Of Life	Correlation Coefficient	1.000	.231
		Sig. (2-tailed)	.	.000
		N	384	384
	Public Open Space	Correlation Coefficient	.231	1.000
		Sig. (2-tailed)	.000	.
		N	384	384

** Correlation is significant at the .01 level (2-tailed)

5. Conclusion

With low physical quality of public open space and fast growing high quality privatized public space in Medan, community perceived public open space well and kept using it in an intensive way. It showed that people hardly needed the public open space no matter how bad the quality was. After all, the study found that some factors of public open space have a strong correlation with the public open space perception. Thus, in a city of a developing country like Medan, Indonesia, the enhancement of public open space factors will make a better perception of public open space and next to quality of life. The urban planning policy has to place the public open as one of the development priorities, by increasing the quantity and quality of public open space, both in urban and neighbourhood scale. It has to be highlighted that people have to face the changing of the lifestyle (Siu, 2008), the community and the way of recreation (Freestone and Nichols, 2004). Since most visitors of public open space in Medan were those of low income people, it is necessary to continue this research by investigating about how the middle up income people perceived both public and privatized open space; so it will make a clearer and more comprehensive description about the perception of all economic status. Beside it, Medan as a case study has a limitation to generalise public open space in Indonesia. The further research have to study the open space in the other capital cities to get the similarity and difference of how people in a developing country perceived public open space and the relationship to quality of life.

Acknowledgement

The authors gratefully acknowledge the financial support of University of Sumatera Utara through Theses-Research Grant to undertake the study; to Urban Planning and Design Class 2011 Department of Architecture University Sumatra Utara and to all participants of the study.

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