Evaluating Variation in Attributes of Public Parks in Makurdi

Irene Doosuur Mngutyo
Department Of Urban And Regional Planning,
Benue State University, Makurdi
Imngutyo@bsum.edu.ng
Orcid No.: 0000-0002-2662-0449

Alaci, Davidson Sundayashemi2
Department Of Urban And Regional Planning
University Of Jos, Plateau State
Dralacidsa@gmail.com

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ABSTRACT

Studies indicate that spatial organisation of park features and their condition are some of the major factors which drive the use of public spaces like parks, gardens, squares and sports arena. Understanding the drivers of public space utilisation within the local context in cities as well as the trend in use over time will facilitate the design of effective and efficient public spaces and aid in forecasting future use. Given the mandate for provision of public spaces in the sustainable development goals, such understanding is critical baseline data in evaluating the performance of goal 11 and target 7 of the goals. This study seeks to investigate the spatial organisation and condition of parks in Makurdi from 1976-2018. It used observation, measurement and questionnaires in parks as well as households in park neighbourhoods. Data was disaggregated based on current users of parks (<60 years) and respondents aged > 60 years old provided information on how public space was used in the past. The data obtained was subjected to statistical tests using factor analysis and two-way ANOVA. The study revealed that there was no variation in the spatial organisation and condition of parks in Makurdi. It therefore recommended a revitalisation of existing parks.

Keywords: Public space, utilisation, spatial organisation, conditions, urban design

1.1 INTRODUCTION AND PROBLEM ANALYSIS

A city's public spaces such as its streets, parks, plazas and squares provide a structure for the ebb and flow of human exchange and interaction (Carr, Francis, Rivlin & Stone 1992). It is a shared resource whose utilisation serves to enhance the experience of public life and social interaction (Kohn, 2004). Contemporary research has recognised the crucial advantage public spaces contribute to cities. An important outcome of such research is the inclusion of public space provision as a goal in the sustainable development goals. The sustainable development goals (SDGs) are a set of 17 benchmarks set up by the United Nations in global partnership with nations of the world to redefine and evaluate development. Specifically, SDGs goal 11 is focused on making cities sustainable by many ways among which is creating green public spaces.

Sadly, despite the advantages of public spaces to cities studies also confirm that globally, cities are experiencing a reduction in the quality and quantity of public spaces like parks (Nemeth, 2012; World Cities Report, 2016). The state of affairs on public space utilisation though worrisome is however, not so clear in the cities of many developing countries especially in Africa, which lack baseline data on the use patterns of public spaces. Such data is crucial both for evaluation of the performance of SDGs; for the development of policy, as well as the design of effective public spaces. There is therefore a crucial need for evaluative studies on the use of public spaces in such countries. Specific objectives in meeting this need include an examination of the spatial and experiential attributes of public spaces as well as an interrogation of planning implications

Evaluative studies on use of public space, on one hand, situate public space within the broader environmental framework of society. These ethical /demographic approaches stress the context of the space by focusing on normative principles of democracy, freedom of access and perception (Habermas, 1989; Mitchell, 2003) Using observation, questionnaires and perceptual audits, they highlight individual characteristics and factors such as age, gender, socioeconomic status, ethnicity, management, equity and freedom of access among others in the use of public space (Sennet, 1977; Loukaitou-Sideris, 2005; Byrne and Wolch, 2009; Mehta, 2007; Cohen, Han, Derose, Williamson, Marsh, Ruick and McKenzie, 2012). The major limitation of this approach is that the unit of evaluation of public space is the subjective individual in exclusion of the spatial dimension of public space.

On the other hand, the design-led approach to public space research majors on the objective spatial elements of public space and production standards as criteria for the ideal public space (Whyte, 1980; Gehl, 1987 and Carr et al., 1992). The approach measures human activity in public space, using the instrument of observation, measurements and tool kits. It relates spatial characteristics of the space such as presence and condition of features, location, area, aesthetics and diverse activity to use of public space. This approach is also limited because it is objective and does not factor in individual indices in the use of public space.

Apart from the fact that both approaches are mutually exclusive and do not address an all-inclusive picture of the relationship between public space and its context, they are based on studies concentrated in developed countries. They do not take into consideration the diverse urban contexts, historical, social and cultural trajectories of cities of developing countries. They also do not take into consideration the less than ideal state of public space in these developing countries. Besides, they are static and do not trace the trend over time of public space use and so are not useful for purposes of forecasting aimed at remedial action. Generally, globally, there is a dearth in literature of evaluative studies on public space use that integrate under one umbrella the components of physical public space and demographics (society). This study addresses this paucity by attempting an integration of the spatial and ethical elements in evaluating the use of public space in Makurdi.

STUDY AREA

Makurdi town, in Benue state, is the study area; the town is the capital of Benue state and the headquarters of Makurdi Local Government Area. The study focuses on the built-up area of Makurdi Local Government Area which covers an area of 804.2 square kilometers (16 km radius). The following sections discuss Makurdi town as contiguous with Makurdi Local Government area. Figure 1.1 shows the location of Benue state within the context of Nigeria while Figure 1.2 shows the location of Makurdi within the context of Benue state.

Figure 1.1: Map of Nigeria showing Benue state highlighted

Source: Ministry of Lands and Survey, Makurdi, 2018

Figure 1.2: Map of Benue State Showing Makurdi Local Government Area (LGA)

Source: Ministry of Lands and Survey, Makurdi, 2018

Makurdi Local Government Area is located between latitudes $7^0$41'and $7^0$47' North and longitudes $8^0$29' and $8^0$36' East. It lies within the Benue valley along the banks of River Benue. Eleven (11) wards namely Fiidi, Central Mission, Bar, Ankpa-Wadata, North bank 1 and 2, Agan, Mbalagh, Modern Market, Wailomayo and Clerks Quarters make up the Local Government Area (Geri, 2010). As at the last census

exercise in 2006, Makurdi LGA had a population of 300,377 and a density of over 400 persons per square kilometre (National Population Commission NPC, 2007; Shabu and Tyonum, 2013).

2.1 LITERATURE REVIEW: SPATIAL ELEMENTS OF PUBLIC SPACE

Spatial elements of public space refer to the individual tangible elements of a public space that contribute to catching the attention of users. Studies show that spatial factors that influence the use of urban public spaces like parks include; the spatial organisation (e.g., park size, walking path, and lawns), facilities (e.g., seats and fitness), and aesthetic features (e.g., water and sculptures) Jacobs, (1961); Gobster, 2002; Amin, 2008; Varna & Tiesdell, 2010;Schipperijn , Bentsen , Troelsen , Toftager , Stigsdotter, 2012; Nemeth, 2012; Sherman (1988) in Jalaladdini and Oktay, 2012;Koohsari, Mavoa , Villanueva, Sugiyama , Badland , Kaczynski , Owen , Giles-Corti,2015).

This study evaluates spatial elements of parks such as park facilities commonly observed in local parks like trails and paths, children playground, and green areas; supporting amenities including; the presence of soft landscape elements like flowers and hedges, the presence of artistic features like sculpture pieces and fountains and presence of shops for food and drinks as well as utilities such as public power supply, safety equipment like first aid boxes and telephone and water supply which contribute to the quality of service delivery.

2.2 ETHICAL ELEMENTS OF PUBLIC SPACE

Ethical issues such as responsiveness, democracy and meaningfulness (Carr et al., 1992; Lofland, 1998; Madanipour, 2003; Kohn, 2004; Mitchell and Staeheli, 2005a; Stevens, 2009; Project for Public Space PPS, 2016) are significant in evaluation of public space use. Mehta, (2007) suggests additional qualities of safety, physical and environmental comfort and convenience, a sense of control and sensory pleasure. While Varna & Tiesdell, (2010) suggest five core factors of ownership, control, civility, physical organisation and animation. Ethical elements have been collapsed broadly in this study into classes of ownership, management, access and perception. However, only accessibility in Public space is addressed as an ethical issue in this study.

2.2.1 Accessibility in Public Space: Accessibility is the most important factor that influences the use of public space (Barbosa, Tratalos, Armsworth, Davies, Fuller, Johnson, Gaston, 2007; Schipperijn, Bentsen, Troelsen, Toftager, Stigsdotter, 2013). From literature, indicators of accessibility are demonstrated in public space in four ways; spatial distribution, temporal supply, physical access and equitable use. Space that is reachable by different modes of transport like pedestrian, bicycles, mass transit and located in such a way as is close to the users is effectively spatially distributed. Spatial access is also achieved by aggregating the area of the public space in comparison to the total area of the city. In Nigeria, the minimum land to be devoted to outdoor recreation areas like parks for a city of between 100,000-500,000 people is 7.5-10% of urban land (Obateru, 2003).

Temporal access implies the time it takes to get to the park space from home; literature suggests a maximum of 400 meters' distance leisurely walk from homes to parks is significant (Hua Bai, Stanis, Kaczynski, Besenyi, 2013; Badland, Hickey, Bull, Giles-Corti, 2014). Walking speed varies based on age, health, height, weight, culture and effort. Hence this study evaluates temporal access for parks as the time it takes to achieve a maximum of 400meters within 12 minutes.

Similarly, physical barriers to access in parks include gates, fences and guards while, psychological barriers include fees, subtle barriers like uncomfortable sits and rough-faced furniture to keep out wanderers and homeless people. Visual barriers such as a lack of directional signs are considered as psychological and physical barriers. Hence physical access is evaluated in this study using the presence of fences and gate fees.

Equity in public space connotes space that accommodates any and every human being to perform any activity within the confines of society's rules such that one person's use should not infringe on another's. Equitably accessible space is characterised by people of all ages, gender and socioeconomic status carrying out a variety of activities (Bertolini, 1999). Especially, vulnerable groups like women, children and handicapped people. Equity in parks is measured by the presence of various vulnerable groups in parks and provision of ramps and rails for the disabled.

2.3 Evaluating Conditions of Spatial Features of Parks

In addition to assessing the presence of spatial elements this study also evaluates the condition of those elements because literature shows a positive correlation between use and the condition of public space features (NPRA, 2015). Several direct observation tools have been developed or adapted from existing studies to objectively assess park conditions. They include among others; Recreation Facilities Assessment Tool (Cavnar, Kirtland, Evans, Wilson, Williams, Mixon , 2004); Public Open Space Tool (POST) (Giles-Corti, Broomhall, Knuiman, Collins, Douglas, Ng, Lange and Donovan,2005) ; Environmental Assessment of Public Recreation Spaces (EARPS) (Saelens, Frank, Auffrey, Whitaker, Burdette and Colabianchi,2006) and Bedimo-Rung Assessment Tool - Direct Observation (BRAT-DO) (Bedimo-rung, Gustat, Tompkins, Rice and Thomson,2006).

These tools have been used extensively in developed

countries which have very good and well-maintained parks and street conditions. There is a dearth of studies using these tools in developing countries especially in Africa. This is more so, especially because conditions of public facilities in most African Countries are usually less than ideal. It is important to develop and assess the reliability and validity of park using measurement tools in a variety of contexts to enable better comparisons of result and reduce measurement errors. This study attempts a single harmonised tool kit (see Appendix I) which adapts variables from all the reviewed tool kits as it relates to public spaces in the local context.

3.1 Methodology

Data required for this study was obtained from three sources viz; the public spaces, current users of public spaces and users who used the spaces in the past. Current users are respondents aged< 60 years old found within the public space premises for a period of seven days during which the parks were surveyed, while respondents who used public spaces in the past are residents of Makurdi who are at least 60 years old and above and who have lived, worked and used public spaces in Makurdi, and living within 2 kilometre radius of parks. Consequently, an 85:15% ratio of the total sample was determined for current and past users of public spaces. This percentage (15%) of respondents who are aged 60 years and above was determined from the 2006 population census.

Maps, harmonised tool kits for observations and measurements, and questionnaires were used to collect data. Map analysis involved the use of geographical coordinates to locate parks on separate layout maps of Makurdi prepared by the ministry of Lands and Survey from 1976- 2016. On location of parks, ground truthing involved observation and measurement to document current features and their conditions. Three trained research assistants observed and rated each park for one week using the harmonised tool kit to measure current park features as well as their conditions. To determine interrater reliability for the condition of features, an average rate was determined by adding the scores from the three research assistants and dividing by three.

Park conditions are assessed in three categories of poor, fair and good. Poor represents conditions that can only be remedied by removal and replacement while fair are conditions that can be used with remedial efforts while good represents facilities, which are in working order. Three research assistants were used for each park, their observations were rated on a scale of 1-100, 1-30=poor, 30-60= fair and 60-100=good. The same scores were used to determine the condition of parks in the past, they were administered to residents above 60 years old living around parks and divided by the total number of respondents in the age cohort to get an average score. Structured questionnaire was used to elicit information from respondents. The questionnaires were administered to both respondents found using public spaces and respondents living around the spaces in age cohorts (above 60 years) as specified earlier. The questionnaire addressed personal traits of respondents, spatial organisation elements such as accessibility while the third aspect covered the conditions of public space features.

4.1 Findings

Findings are presented in three sections the first section shows results of personal traits, the second shows findings on spatial organisation while the third shows finding on condition of parks

4.1 Respondents Personal Traits

Respondent's traits were deemed important mainly because part of the information required for this study is retrospective in nature. The age category of sampled respondents thus becomes very significant as respondents aged over 60 years can revisit the past and reconstruct the experience of years before. Apart from age, variables, such as; gender and marital status among others are factors in the use of parks from literature. Therefore, the emerging information on respondents' traits will help to situate data collected in a frame for validity check. The summary of respondents' personal traits such as age, gender and marital status, is presented in Table 1.1

Table 1.1 Summary of Sample Respondents Personal Traits

Source: Author's Field Survey, 2018

Averagely, more males than females (60.7% / 39.3%) current use parks. In the past, respondents also reported more males than females by (60% / 40%) using parks demonstrating that during the study period (1976 to 2018) there has been consistently more males than females using parks in Makurdi. Whyte (1980) proposed the male-female ratio as an indicator of the public usability of New York's privately owned public plazas. Adapting findings of that study implies that public usability of parks in Makurdi can be inferred to be low. Thus, it becomes important to consider both women and men as key user groups when designing public space.

The average age for current park users was 41-50 years (33%) while for the older cohort was 51-60(13%). During the study period more older people than younger people are found in Parks in Makurdi. According to literature, this should improve the use of parks because; the presence of younger people in parks is often a sign of insecurity especially for the older age groups and females. Consequently, that there is a need to provide in public spaces activities that will serve as pull factors for all age groups thereby ensuring that there are activities for all age groups.

Respondents currently using parks were more likely to be married (52%) than the older cohort respondents (23%). The findings show a variation in the marital status of park users from 1976-2018. This finding could be an indication of a society that is moving from a more traditional, reclusive society to a more open

one. On the basis of personal traits of the respondents, the study proceeded to examine the main objectives of the study.

4.2 Spatial Organisation and Condition of Public Spaces in Makurdi

Information on spatial organisation was divided into two parts, the first part focused on key spatial and ethical elements such as; location, spatial distribution, size, micro land uses and access. The second part addressed the conditions of the features of parks,

4.2.1 Key Elements of Spatial Organisation:

A summary of location, distribution and size of parks is shown in Table 1.2. Other elements describing spatial organisation are presented in the following sections.

Table 1.2: Location and Area of Public spaces in Makurdi

Source: Ministry of Lands and Survey, 2018

As the Table 1.2 and Figure 1.3 shows, there are seven (7) parks located in Makurdi three of the parks can be found within the old G.R.A residential neighbourhood which is within clerks' quarters ward of Makurdi. Two parks are located within Bar ward; while two parks are located within Ankpa ward.

Figure 1.3: Map of Makurdi showing the Location of Parks

Source: Ministry of Lands and Survey Makurdi, 2018

Parks are provided to serve threshold population hence; provision of parks is to match increase in population of cities (Obateru 2003)

Table 1.3 and Figure 1.4 shows the growth of parks in Makurdi as correlated with the growth of the town in terms of population

Table 1.3 Growth of Parks correlated with population growth from 1900-2006 in Makurdi.

Source: Ministry of Culture and Tourism 2018 and Geri 2010

Figure 1.4: Line graph showing the population growth and park growth from 1900- 2006 in Makurdi

b Spatial Distribution of Parks in Makurdi; In terms of spatial distribution, findings presented in Figure 1.3 indicate a total of 7 parks in existence from the recorded stock of 43 areas that are designated as parks and gardens in layouts showing land uses in Makurdi. The seven parks are located within three out of eleven wards that make up Makurdi town. This is about only 27% of wards in Makurdi that is served by parks. The spatial spread of parks is limited to the older wards; there are no parks in the newer wards and neighbourhoods. As a result, majority of the residents have to move over a long distance to access parks. This is likely to negatively affect the level of use of public spaces as studies have shown that proximity to residential neighbourhoods is a strong correlate and driver in the level in use of public spaces like parks, gardens and grand squares. Similarly, studies have demonstrated that higher park acreage within a community is associated with increased participation in park activities (Kaczynski and Henderson, 2007). The findings on the area of the parks in the following section

c Area of Parks in Makurdi; The 7 parks ranged in size from 4979.9 $m^2$to 40622.7907m^2; their mean size was 17998.6m^2. All the parks in Makurdi can be regarded as meeting the standard requirement size (8000m^2) allowed for neighbourhood parks. With the exception of Union Bank park which has an area of 4979.8m^2

When compared to the total built up area of Makurdi which is 804.2km^2, the total area of parks is 125989.1m^2 or 126 km^2. The figures are then simplified into percentages viz;

126/804.2*100= 15.66%

The standard area designated for parks in a city of Makurdi's population should be 7-10% of total land area (Obateru 2003). Therefore, the total area of the existing parks in Makurdi (15.7%) is considered adequate in terms of size. What is challenging is the spatial distribution as certain neighbourhoods/wards appears to be over supplied while others remain without parks. The implication of this pattern of distribution is that the variable of distance may become an important factor of accessibility among others. Accordingly, a growing body of literature on public space use has identified in addition to spatial supply, the factors of design (Micro land uses), accessibility and conditions of public space as important determinants of public space use.

d Micro land uses

Micro land uses refer to the individual spatial elements of a public space which may influence use of public space (Giles-Corti, Broomhall, Knuiman, Collins, Douglas, Ng, Lange and Donovan, 2007). In this study they include; green areas, trails and paths, buildings and huts, features of local identity, children play areas, landscaping, artistic features and provision for food and drinks. Also included are toilet, first aid equipment, public water and electricity supply. Table 1. 4 shows data on micro landuses or spatial elements in parks

Table 1.4 Spatial Elements of Parks in Makurdi

Source: Author's Field Survey, 2018

The number of features (out of 13) within the parks ranged from 3 to 8, with a mean of 5 facilities (out of 35) and 5.8 amenities (out of 40.8) and 0.6 utilities (out of 21) for an average of 6.99 total features. Across the 7 parks, green space was the most common facility (in 7 parks), followed by trails and path (in 6 out of 7), buildings and huts (in 5 out of 7 parks), children playground (in 4 out of 7 parks), features of local identity (in 3 out of 7parks). The most common amenities were soft landscaping elements like trees in

all the parks (average of 40/park) and artistic features like sculpture (4 out of 7 respectively). Public electricity supply is the most common utility (7 out of 7 parks).

e Factors of Accessibility

Findings on observed time to get to parks showed that it takes a 53% majority of current park users to get from their homes to the parks was 6-10 minutes of leisurely walk. This time frame was also reported by an 81.1% majority of sampled respondents in the older age cohort (>60 years) living around parks. During the study period most of the respondent in both cohorts reported the same time frame indicating that parks are being used mainly by people living in its neighbourhoods. A further combined percentage of 18.9 % of sampled respondents visiting parks noted a time period of 11-20 minutes from their homes to the parks. This means that during the study period (1976-2018), people who live further away from parks than the threshold neighbourhood still visited parks. This is also indicative that even in the past people residing far away from parks used its facilities. Eight percent (8%) of sampled respondents presently using parks live even further away as it takes them over 16 minutes of walk time to get to parks. It is interesting to note that there is no record of this time range in the older age cohort. This means that presently, people are visiting parks from even greater distances than it was in the past. This is not surprising as the city has expanded from 1976-2018 while the provision of parks has not kept pace with the city's expansion.

For respondents living in localities further away from parks, the presence of a public transit stop near parks improves the time it takes to get to a park. Observation of park premises indicates that there is the presence of a public transit bus stop near all the parks except Woodland, Kwararafa and Union bank parks. The respondents aged above sixty years living near the parks also indicate the presence of public transit stop near all parks (66.7%) except Woodland, Kwararafa and Union bank parks in the past. Access to parks increase where there are public transit bus stops, this presupposes that there is reduced access to Woodland, Kwararafa and Union bank parks because of lack of public transit stops near the parks. This factor could lead to neglect of parks by residents living far away from the parks. Apart from temporal access, the physical accessibility of open spaces is usually assumed to be the most important factor that influences their use (Schipperijn, Bentsen, Troelsen, Toftager, Stigsdotter, 2013; Barbosa, Tratalos, Armsworth, Davies, Fuller, Johnson, Gaston, 2007).

Observations of parks show the presence of fences around all the parks except Kwararafa Park. The older cohort respondents living around parks also gave a 100% majority report of the presence of fences around parks in Makurdi. There are fences around parks as indicated by majority of sampled respondents both in the past and in the present. This factor portends a restriction of access to parks and could contribute to neglect of parks. This is in agreement with studies which state that physical barriers and distance are some of the most common obstacles to use of parks as people who have easy physical access to parks are 47 percent more likely to use park than those who do not have easy access (NRPA, undated and Blanck, Allen, Bashir, Gordon, Goodman, Merriam, Rutt, 2012).

On the other hand, fences and kerbs are critical in establishing pedestrian safety (NPRA, Undated) because they reinforce a safer environment for pedestrians. Therefore, the presence of fences though restrictive could engender feelings of security which studies have shown contribute to increased use of public spaces in Makurdi.

Economic barriers like gate fees have also been shown in studies to hinder access to parks. Observation of park premises showed that there were no entrance fees charged before entry into any of the parks in Makurdi. Sampled respondent in areas surrounding parks also all agreed (100%) that no fee was paid to access parks in the past. The inference from this is that money has never been a barrier to accessing parks in Makurdi both in recent times and in the past. This should positively impact on the use of parks.

Where physical access to parks is guaranteed, it influences positively equitable use which studies show affects the use of parks. Equitable use of park is shown in two ways; by the presence of vulnerable groups, and provisions made for the disabled and handicapped in public spaces. Vulnerable groups described in literature are; children, women, the homeless, the aged and disabled (Day, 1999; Schipperijn, Stigsdotter, Randrup and Troelsen, 2010). In Figure 1.5, a majority of respondents found within park premises were of the view that all the vulnerable groups are represented within parks currently, although within Union bank, Kwararafa, Macafa, Rocore and Cool off parks, the sampled respondents are of the opinion that this presence is minimal. This finding is a pointer to a lack of equitable access in these parks.

Findings from the older cohort respondents living around parks also opine that there was an absence of vulnerable groups in Cool off, Macafa and Rocore parks in the past. On the whole there seems to be more vulnerable groups found in parks in recent times than in the past. This finding is indicative that segregation as a changing park use is likely to have occurred overtime as more vulnerable groups are present in recent times than in the past.

Figure 1.5: Perception of Sampled Respondents on Park Use by Vulnerable Groups

Source: Author's Field survey, 2018

Apart from physical presence of vulnerable populations, provisions for the comfortable use of parks by these vulnerable groups such as ramps and hand rails enhance equity in the use of parks. Observation of park premises shows an absence of

hand rails and ramps in all the parks. The older age cohort living around parks also report a 100% absence of hand rails and ramps in parks in the past as shown in Figure 1.5. Consequently, there has been no provision for the disabled from 1976-2018 in all the parks, which should negatively impact the use of parks as has been reported in literature.

4.2.2 Conditions of Public Spaces in Makurdi

The condition of park features is proportionally associated with park utilisation. Therefore, there is a need to understand the condition of park features from1976-2018 so as to trace a possible link between park conditions and park use. Observation of the condition of park features presently and recollections of respondents aged above 60 years is presented in Table 1.5

Table 1.5: Condition of Parks Features in Makurdi as Viewed by Respondents

Source: Author's Field Survey, 2018

The result presented in Table 1.5 shows that the conditions of park features are not consistent from 1976-2018. For instance, green grass observed presently is good (51.75%) while in the past it was judged fair (13.9%). There was an absence of trails and paths in the past as recorded by respondents; however, this feature is in fair condition presently. Buildings and hut, features of local identity, children's play areas, artistic features and provision of food and drinks are in good condition both presently and in the past. This means that, the condition of green grass and trails and paths has improved within the study period of 1976-2018, while the condition of other features has been consistently good during the same time. The inconsistencies recorded in park feature condition could be as a result of no provision of some features at the early stages of the parks.

4.3.4 Testing for Variation in The Spatial Organisation and Conditions of Parks

Two-way ANOVA test was applied to explore two way between-groups analysis of variance. This technique was used to test for a variation in the spatial organisation and condition of parks overtime; the technique allowed for the exploration of the individual and joint effect of two time categories current park user and >60 years on variables describing spatial organisation and condition of the parks. The information presented in Table 1.6 is derived from mean score on variables shown in Appendix I disaggregated on the basis of current users and users aged over 60 as well as for the individual parks.

Table 1.6: Showing Mean Scores (M) and Standard Deviation (SD) of the groups of respondents in Makurdi on spatial organisation and conditions of public parks

Source: Author's Analysis, 2018

The results presented in Table 1.6 revealed almost the same mean scores on spatial organisation and conditions of parks from current users of parks (M=2.00, SD=1.41) as well as the older users (>60 years) with scores (M= 2.10, SD=2.14). This test shows no significant variation in the mean scores for both current users and respondents aged above 60 years. This means that the variation in spatial organisation and condition of parks in Makurdi is not significant from 1976-2018.

In terms of the individual parks woodland park had the highest scores (M=2.39, SD=2.67) indicating that it is the best in terms of spatial organisation and conditions. This was followed by Macafa and Rocore parks (M=2.09, SD=1.67). On the other hand, Kwararafa park had the least scores(M=1.93, SD=1.61),followed by Union bank park (M=1.96, SD=1.53),Cool off park(M=1.96,SD=1.40) and Kenville park(M=1.97,SD=1.64).Tests of significant difference in the mean scores on spatial organisation and condition of parks is presented in Table 1.7

Table 1.7: Two-way ANOVA summary table showing the main and interactive effects of time (in years) and spatial organisation and conditions of public parks in Makurdi

Source: Author's Analysis, 2018

A summary of the results on main and interactive effect of time on spatial organisation and condition of parks revealed in Table 1.7 shows that there is no significant difference in the mean score of current users and older users (>60 years). (F (1,996) =.673, P>0.05). Since the p value is greater than 0.05; it then means that the variables are not significantly related. Based on this finding, it can be inferred that spatial organisation and conditions of parks did not change or vary significantly from 1976-2018. Results clearly show that time has the weakest effect of 0.1 %(*Eta sq* =0.001).

When an improvement in the spatial organisation and condition of a park can be traced from 1976-2018, it then should translate to increased patronage within the time period. But, if no improvement can be traced, it should lead to reduced patronage. The implication on parks signifies reduced patronage which leads further to deterioration of park features.

Also, the results in Table 1.7 indicates that there is no significant difference in the spatial organisation and condition of all the parks covered in this study (F (5,996) =1.610, p>0.05). Here again a P value which is greater than 0.05 indicates that jointly, the spatial organisation and condition of all parks are similar. This is demonstrated in the results showing that jointly the public parks have a weakest effect size of 0.8% (Eta sq= 0.08). The presence of diversity in terms of spatial organisation and conditions provides variety and affords users choices to choose from which stimulates increased patronage. This is not a likely scenario in the case where the spatial organisation and conditions of all the parks are similar. Hence there is a likelihood of reduced

patronage of parks in Makurdi.

Similarly, results of statistical test showing the joint influence of time on the spatial organisation and conditions of the separate parks, showed that there was no significant interactive effect of time on the spatial organisation and condition of different public parks in the study area (F (5,996) = 1.264, p>.05). This means that the interplay of time (in years) and types of public parks does not determine the spatial organisation of public parks in Makurdi town. This further implies that time (in years) and types of public parks are not likely co-determinants for utilisation of public parks in the study area going by a weaker influence of 0.6% (*Eta sq* = .006). The summary of the results in Table 1.7 is captured in the line graph shown in Figure 1.6

Figure 1.6: A Line Graph Showing Differences in Spatial Organisation of Public Space Considering Time and Types of Public Space.

Source: Authors Analysis, 2018

5.0 CONCLUSION AND RECOMMENDATION

The study found no variation in the spatial organisation and condition of parks in Makurdi from 1976-2018 this means that the existing parks have not improved during the study period. Even though the management of parks has shifted from government agencies to private companies, a situation which ordinarily should improve the condition and spatial organisation of parks. Sadly, this is not the case, as parks conditions have not shown any improvement during the study period. Therefore, the study recommends revitalisation of the existing parks and a re-evaluation of the lease arrangements.

Spatial organisation of public spaces as defined by this study entailed a multifaceted evaluation of both objective and subjective aspects of public space. This signifies that a holistic approach must be embarked on in the planning and re planning of new and existing public spaces respectively. Spaces such as parks should be planned with contemporary public life in focus and so should involve; professional input from Planners, Architects, Landscape engineers, Sociologists, Political scientists, Psychologists and Geographers in bringing up multifaceted initiatives and planning schemes.

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Appendix I

APPENDIX I

Tool Kits Used in Evaluating Park Conditions and Adjustment Criteria for the Study Harmonised Tool Kit

Park Features	Recreation Facilities Assessment Tool	EAPRS	POST	BRAT-DO	Makurdi's context	Adopted study tool
	No. of items accessing each park feature					
Children play areas	3	8	7	6		1
Fields/Courts e.g , soccer fields, baseball or softball fields, football fields, and cricket fields	5	4	3	2	NA	NA
open green spaces		4	4	2	1	1
Artistic features(fountains,Sculpture,Gazebo)						1
Golf courses	-	3	-	1	NA	NA
Running and walking trails and paths	3	1	3	1		1
Water activity areas e.g Swimming and wading pools, splash pad, beach or river, ponds and lakes, streams and creek	10	3	3	4	NA	NA
Sitting and resting	-	4	2	2		1
Landscaping	8	9	6	5		1
Facilities/conveniences	6	3	4	3		3
Eating and drinking	-	4	3	3		1
Park access	-	6	4	8	PC	
neighbourhood characteristics	-	6	4	8	PC	
Signage	-	3	1	7		1
Safety-related features e.g Presence of telephones and emergency call boxes, park staff on site, lighting, and threatening persons or behaviour		4	1	2	PC	
Incivilities e.g Offensive behavior (eg, litter, graffiti, loud noise).		1	3	4	PC	
Total number of variables used in evaluating the condition of parks						20

Source: Author's Field Survey,2018