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STREETS FOR PEOPLE:

Sustaining accessible and sociable streets in Pasir Gudang city centre

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Abstract

This study provides guidelines on some design measures and implementations through relating the social, socio-physical and spatial (syntactical) factors to the way people behave and use streets in Pasir Gudang City Centre (PGCC). In giving people the priority of use of the streets, their dynamic and static activities are observed and analysed. People behave dynamically when they walk and they are static when stopping, sitting, standing, waiting, watching, eating, etc. The impact of these behaviours are examined in relation to the inter-related function of streets with the affordance of the socio-physical factors which are the architectural topography (i.e. physical designs such as building indents, ledges, windowsills). Accordingly, the scientific aspect of Space Syntax technique or axial line analysis is applied onto the streets in order to obtain their integration (syntactical) value to represent the level of spatial connectivity (configuration) within the streets' local and global network. Static activities are asserted as the predominant social variable in the framework to measure the success of streets in their social and spatial functions i.e. sociability and accessibility. The sociability is measured through the capacity of the street to accommodate static activities. The accessibility relates to the ability of the street to accommodate and distribute static activities within its local and global network. Streets in the twelve zones of areas within a 3 km radius of distance from the city centre were analysed. Interestingly, some primary streets which are highly accessible (or highly-integrated) have been observed with high usage of vehicular traffic but low in use and rather in conducive to the pedestrians and other soft modes of traffic, i.e. the cyclists. On the contrary, the less accessible streets i.e the secondary and tertiary streets with the lower integration values have been more actively used by people. The study concludes by putting forward some recommendations, which include aspects on pedestrian safety and the improvement of the hard and soft scapes in the streets' layout.

Keywords: *walkability, pedestrian safety, streets design configuration, sociability, accessibility*

Theme: *Urban Space and Social, Economic and Cultural Phenomena*

1.0 Introduction

Pedestrians do not only walk. Throughout the day, more often than walking, people in streets sit or stand and chat, smoke cigarettes, wait, distribute leaflets, sell, entertain or simply watch other people. Patterns of these static activities and the general movement of people form only integral parts of the daily activities of people. However, problems to integrate such routine of people are still common in cities (Syed Mahdzar, 2008; Whyte, 1980).

Since the rise of postmodern movement in architecture, urban design and planning in the early 1970s, the conventions used to design streets for people have constantly been challenged (Institute of Engineering, 2002; DOPM, 2002). Many of the architectural, urban design and planning solutions established priorities for people and their activities in streets. Their intentions were to ensure that streets would be successfully functioning or lively as places of interaction, i.e. living spaces (Gehl, 1987; Tibbalds, 1992). An analysis of such activities can offer insights into the processes of interaction between people and their environment. However, the solutions arrived at for integrating people sitting, standing, chatting and browsing compared with their dynamic movements were theoretically and empirically limited. In particular, an operational solution for balancing the use of streets for both static and dynamic activities has been unattainable (Appleyard, 1981).

While many streets have been commonly used for static activities and are conducive to people sitting, waiting and meeting other people, others are less considered. Even in a highly dense shopping or commercial area, some streets have still failed to attract such activities. This is still a problem pertinent to urban design practice (Gehl, 1987, 1987; Elkington et al., 1976; Whyte, 1980; Anderson et al., 1986; Appleyard, 1981, 1991; Tibbalds, 1992; Fyfe et al., 1998; Haas Klau, 1990; Living Streets, 2000).

This study develops a theoretical and practical framework for analysing the distribution of social, socio-physical and spatial syntactical variable in relation to its sociability and accessibility aspects of streets. The sociability of the street is addressed as a setting or a place where the dual processes of interactions between people and the environment, is expressed. Subsequently, the accessibility of streets considers the street as the conduit through which processes of interaction occur simultaneously.

1.1. Pedestrian Route Network in Pasir Gudang

Pasir Gudang is the most important industrial centre in the southern part of Peninsular Malaysia. Apart from being the largest centre for palm oil refining and downstream processing in Malaysia, Pasir Gudang is also the main focus for several other industries such as oil and gas, ship repairs and offshore fabrication, small and medium industries as well as high-tech industries. Reaching almost 50,000 population and having more than 300 factories employing over 30,000 workers, Pasir Gudang Local Authority (Majlis Perbandaran Pasir Gudang, MPPG) has continued to be the main catalyst in increasing the pace of growth of the country’s economy especially in the industrial and tourism sector.

The excellent performances of the district continued with its achievement of the ISO 14001 - Environmental Management System certification in December 2001. This effort is consistent with the recognition of Pasir Gudang as a "Healthy Industrial City" by the World Health Organization (WHO).

Despite the above recognitions, problems in the use of streets by the pedestrians still exist due to the reasons below:

- Lack of studies on the everyday streets activities (inclusive of the pedestrians, traffic) in the general urban design concept of public streets and open spaces in Malaysia.

- Rapid urbanisation causing chaotic traffic growth that cause local authorities to panic and become unable to cope with much ad-hoc developments in city centres. Local authorities are not fully equipped with appropriate measuring tools for monitoring the development process of urban centres.

- Most studies have focused mainly on accidents in major roads and highways and there has been very little focus on static activities (MIROS, 1999; JKKR, 2008).

- Studies for the sustainable integration of pedestrian street network and open urban spaces within the spatial configuration of PGCC have not been conducted. There is still insufficient guidance which relates the sustainable development indicator to the need to design streets which prioritises pedestrians activities for the area (see Table 1).

Table 1 List of urban extensive indicators for monitoring human settlement (UNCHS, 1996)

Socio-economic development	**Infrastructure**	**Transport**	**Environmental Management**	**Local Government**
Illiteracy of poor	Cost to household income ratios	Transport fatalities	Air pollution concentration	Change in real per capita total revenue
Daily kilojoules supply of poor	Sources of water	Fuel price	Emission per capita	Change in real per capita own-source revenues
Malnourished children under five	Piped water supply reliability	Transport household budget shares	Acute respiratory deaths	Elected and nominated councillors
Social safety net	Water leakage	Transport fuel consumption	Percent of BOD removed	Voter participation rates, by sex
Unemployment rates by sex	Sewage disposal	Length of road per vehicles	Cost of wastewater treatment	Number of associations
Employment growth Child labour	Public latrines	Road congestion	Lowering ground table	Citizen involvement in major planning decisions
Minimum wage coverage	Electricity price	Vehicles failing emission standards	Waste water recycled	Decentralized district units
City investment	Line losses Capacity to load ratio	Automobile fuel consumption	Level of treatment	
Airport activity	Call completion rate	Pedestrians killed	Biodegradable waste Recycling rate	
Expenditure on social services	Operating to staff ratios	Public and mass transport seat	Average cost of waste disposal	
Life expectancy at birth	New connection to staff ratios	Cost recovery from fares	Cost recovery	
Infectious disease mortality	Revenue to operating cost ratios		Industrial waste generation	
Adult literacy rate			Energy usage per person	
Tertiary graduate			Renewable energy usage	
Refugees			Food consumption	
Death due violence			Disaster mortality Fatal industry accidents	
			Green space	

1.2 Objectives of Research

The 'Natural Movement' theory of Space Syntax claims that the pattern of people's movement is affected by the spatial configuration of the urban space (Hillier et. al, 1996). Stemming from this issue, the study seeks to answer the following questions:

1. Why are the streets with high integration values, which are highly accessible for traffic not actively used by people?

2. Why are the secondary streets with lower integration values used more extensively by the pedestrians?

The objectives of the research as follows:

- To help understand the relationship between the social, socio-physical and spatial syntactical variables and the sociability and accessibility of streets
- To understand how the integration of pedestrian and traffic in streets and open urban spaces could be designed whilst achieving a balance of use between static and dynamic activities.
- To examine the behavioural pattern of users in the pedestrian walkway in the tropical climate of Pasir Gudang.

2.0. Quality of Public and Street Spaces

A good public space is crucial and the key to establishing lively and safe public spaces is pedestrian traffic and pedestrian activities. Good conditions for walking and for life on foot, along with a possibility for staying, for pauses and experiences are the key to attractive and lively public spaces.

2.1 Street Uses and Activities

According to Gehl (1987), when the quality of outdoor areas is good, optional activities occur with increasing frequency. When the level of optional activity rises, the number of social activities usually increases substantially.

Gehl's observation also brings out the importance of some formal and informal static activities in the everyday life of people on streets (Whyte, 1980). It emphasizes the similarity of the particular interaction and the way people react to the physical environment of streets.

A few types of user groups that are found in public places include the everyday users, visitors/customers, recreational visitors and the visitors to events. Planning public spaces could then become important in order to respond to those people who use and visit the area. Within this user group, the focus can be on children, teenagers, adults or the elderly. Public spaces should be designed to meet the different needs of different groups of people.

3.0 Methodology

The method of analysis combines the empirical observation of pedestrian activities, the physical locations and the empirical axial line (integration) value of the street obtained from Space Syntax technique of analysis. The observations were carried out during the weekends and on weekdays in order to compare and understand the differences of pedestrian flow and usability frequency of the street spaces. Given at certain time intervals in a day, the observation was carried out to determine the frequency of the usability of the pedestrian walkway in the twelve different zones.

The observation focuses on investigating the condition of the physical spaces occupied by static activities in primary, secondary and tertiary streets, leading to a better understanding of the conditions of such hierarchies of streets as an input into the process of analyzing.

Empirical Observation of Pedestrian Activities or Social variables

Three types of observations on pedestrian activities were carried out and they included the Gate, People Following and Snap Shot of 'activity mapping' technique. The study also observed these categories of people, which are the Local, the Suit local (local people who work in the area), the suit foreign (foreign workers), teenagers and the cyclists.

- Gate Observation – The frequency of the flow of the pedestrians was tabulated within 5 minutes on each gate on the respective streets within the particular zone. The frequency of data was then tabulated in a statistical manner and the respective graphs were then plotted.

- People Following – People walking from an origin to another were observed and followed continuously within 5 minutes. The walking pattern of the particular movement of the individual was then traced onto the respective locations on the map.

- Snap Shot of 'activity mapping' technique – The dependant variables consist of the aggregation of the Necessary (N), Optional (O), and Resultant (R) activities. 'N' activities include browsing and waiting (these being the activities of pedestrians who act individually or collectively as a group), smoking cigarettes and using mobile phones. 'O' activities are when people are eating, drinking, taking pictures and reading (the occurrence of these activities depends on the physical environment). Lastly, 'R' activities consider people chatting, watching, entertaining, street vendors selling goods and people distributing and advertising leaflets (these activities occur because of the presence of other people).

Each aspect of static activities was then mapped into the selected streets. The key pedestrian activities, the Necessary, Optional and Resultant behaviors in the streets were then identified. Next, the locations where static activities occur were mapped into the layout of the streets.

Empirical Observation of Physical Designs or Socio-physical variables

Physical designs are the activity setting - the actual physical locations on which static activities occur. Three main categories of social-physical variables are described in Table 2 below:

Table 2 List of physical attributes supporting the existence of static activities, which are categorized in Building Elements, Street Elements and Land use Elements

(Source: Syed Mahdzar, 2008)

CATEGORIES OF PHYSICAL ELEMENTS		
Division of Physical Elements	**Category of Physical Elements**	**Detail Physical Elements - Topographical Properties**
Building Elements	Pavement Edge	• street edge • street barriers • street fence • street wall
	Building Facades	• indent of building • ledges/sills • sitting wall/ plinth • flower box • pillar base • basement/building fences
Street Elements	Public/Private Entrance/ End of Street	• entrance steps • vestibule/porch
		• intersection • junction
	Public Furniture	• lamp post • bin/ post box • bollards • phone booth
Land use Elements	Window	• window display
	News	• news agents
	Cash	• cash points
	Eatery	• eatery/pub

Space Syntax Local Integration Value or Syntactical (Spatial) variable

Space Syntax technique of axial line analyses the density of movement. The technique is to help explain and clarify why some areas, streets and open spaces are more accessible to people and traffic than others within the city context.

The technique gives the local integration value, r_3 of the street. The street is a syntactical measure of the local spatial configuration of the streets in accordance with axial line analysis according to Space Syntax methodology (see Figure 1) on overview of Axial Map analysis within a 3km radius the distance from the PGCC area).

4.0. Findings and Discussion

This section presents and discusses the data on Gate, People Following and Snap Shot static activities observations and axial map analysis of the twelve zones that have been identified within a 3km radius of distance from PGCC (see maps in Figures 1, 2, 3 and 4). The section focused extensively on Zones A and B whilst later a general comparison was made between them and other zones in the interest of the study.

A 3 km radius is chosen as a sample of analysis on the pedestrian route network due to the

normal behavior of the movement pattern of people. Various studies have proven that the 3km radius is a comfortable travelling distance when people would walk within 15 minutes (Space Syntax Manual, 1993; Living Streets, 2004; Jacobs 1993; Southworth & Ben-Joseph, 1997).

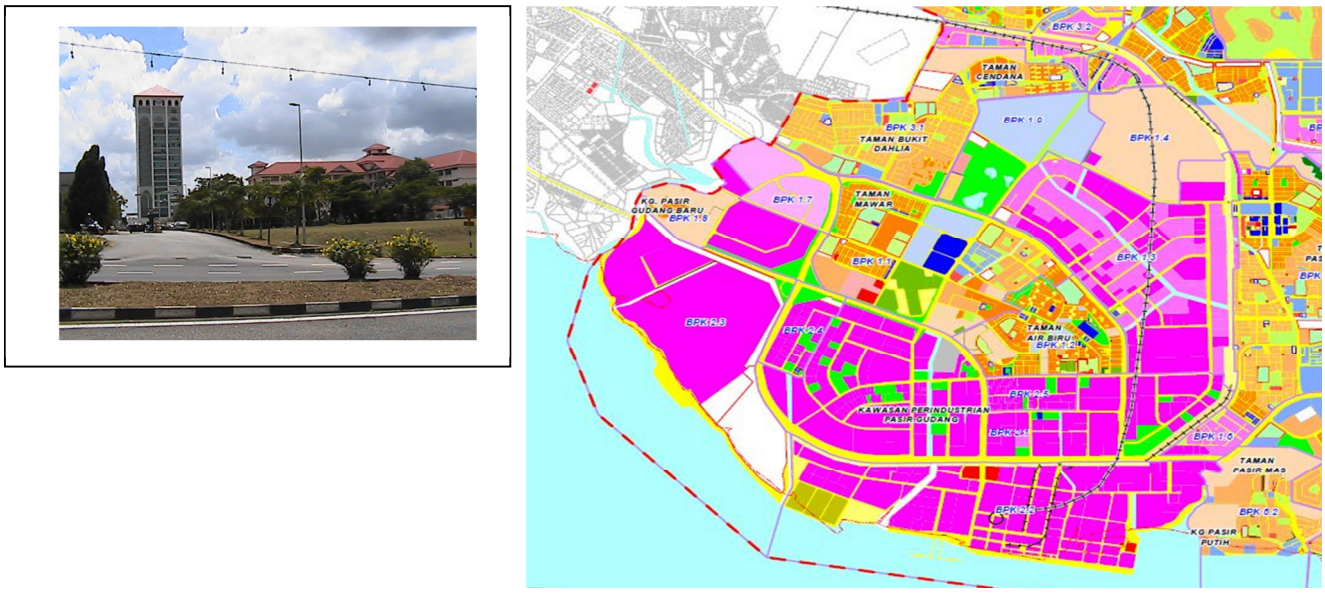


Figure 1 Case study of Pasir Gudang City Centre (PGCC)

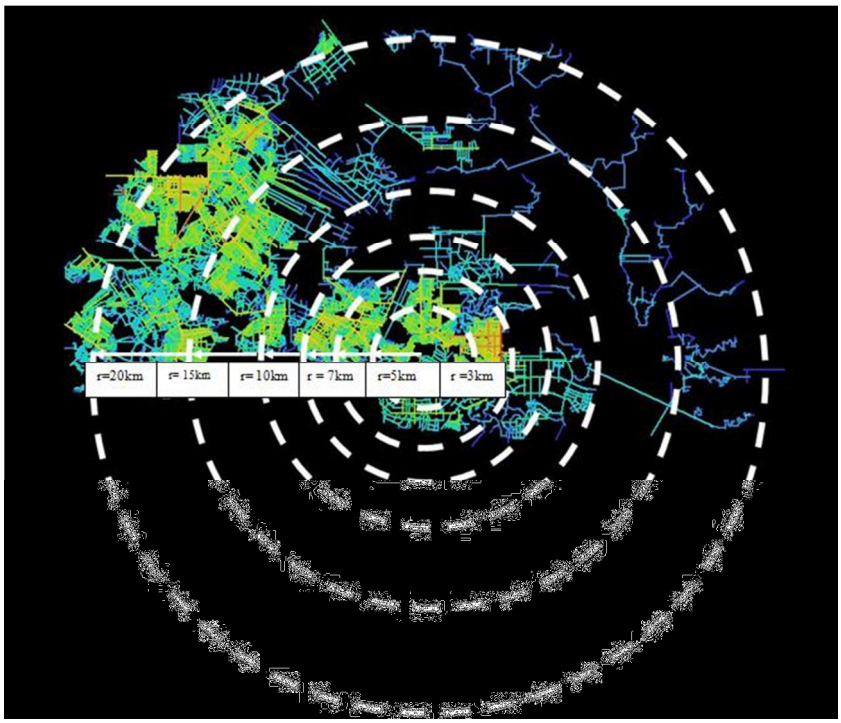


Figure 2 Overall view of Axial Map according to Space Syntax technique of analysis within 3, 5, 7, 10, 20m radius from MPP Pasir Gudang City Centre

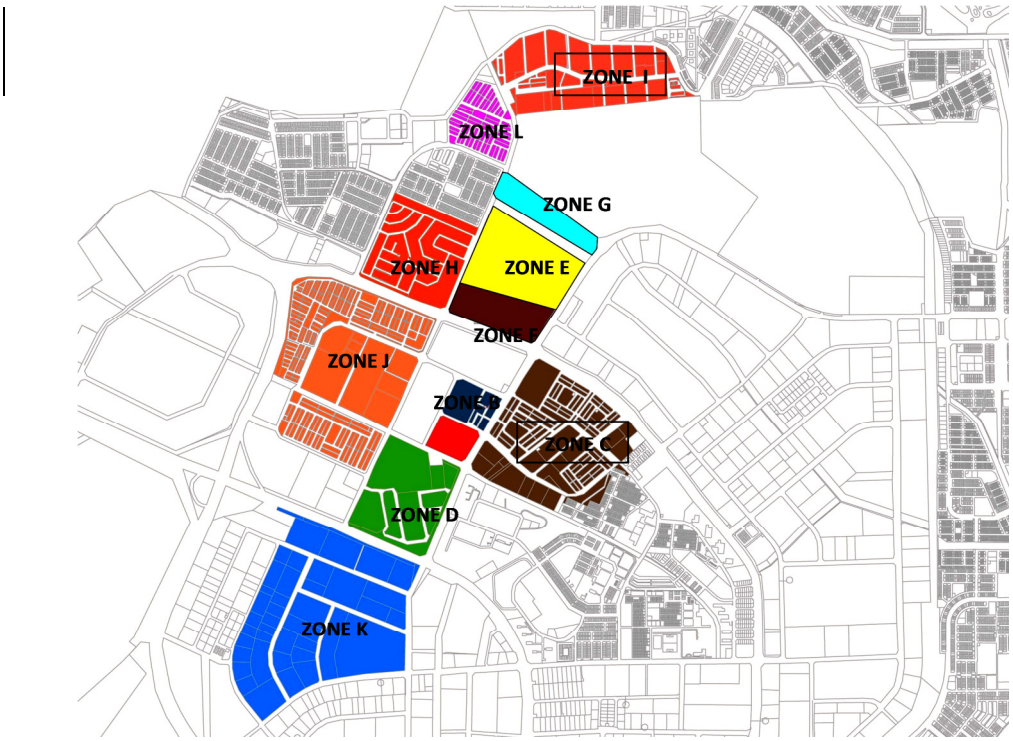


Figure 3 Closer view of map for zones A, B, C, D, E, F, G, H, I J, K, L studied

Zone A Route in between City Centre and car park.

Zone B Route in between Hotel Selesa and CIMB Building

Zone C Route around Taman Air Biru

Zone D Route around Stadium

Zone E Route around Muzium Layang-layang.

Zone F Route in between the Lake and mosque.

Zone G Route around Jalan Litar

Zone H Route around Taman Bukit Dahlia.

Zone I Route around Taman Cendana

Zone J Route around Taman Mawar.

Zone K Route in between MMHE and Stadium.

Zone L Route around Jalan Masai

Figure 4 Images of each of the twelve zones in the area studied

4.1. Gate Observations

Below are the findings and brief discussion based on the data collected on Gate observation in weekdays and weekends of Zones A and B. The respective figures and tables in this section show the density (total number) and thus frequency of pedestrian movement pattern in the area.

Zone A

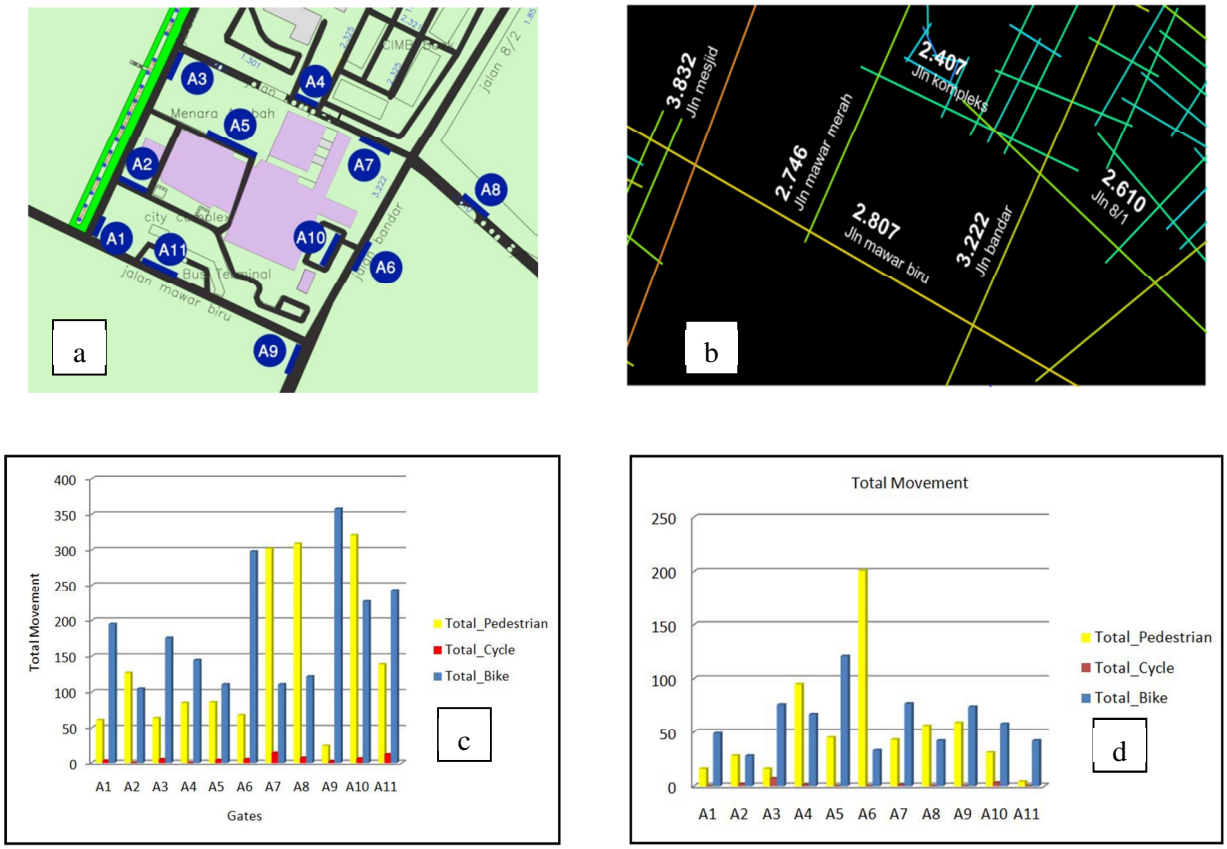


Figure 5 a. Gate Observation Map of Zone A; b. Axial Map of Zone A; c. Total Movement Weekend; d. Total Movement Weekday.

With reference to the axial map (Figure 5b), in the high-integrated streets such as Jalan Kompleks, there is opportunity for both pedestrian and vehicles to have easy movement. However, it is observed resident are using those secondary streets, which are low integrated.

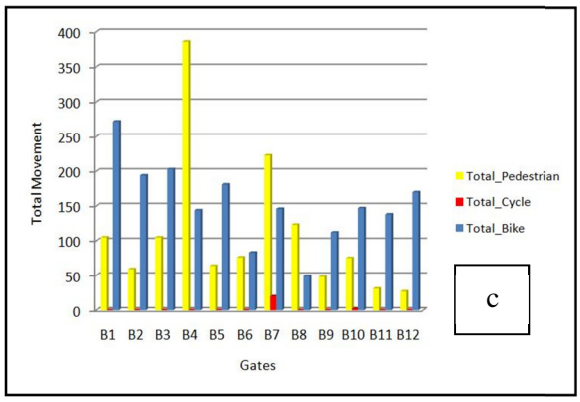
Table 4 Content Weekday (WD) and Weekend (WE)

G	Street	PEDESTRIAN	CYCLE	BIKE	ALL MOVEMENT	I.V

			Total WD	Total WE	Total WD	Total WE	Total WD	Total WE	Total WD	Total WE	
	A1	Jln Mawar Biru	61	16	3	0	195	49	259	65	2.807
	A2	Jln Mawar Biru (P1)	127	28	0	2	105	28	232	58	2.807
	A3	Jln Mawar Merah	64	16	5	7	176	76	245	99	2.746
	A4	Jln Mawar Merah (P1)	85	95	0	1	145	67	230	163	2.407
	A5	Jln Kompleks	86	45	4	0	111	121	201	166	2.407
	A6	Jln Bandar	68	201	5	0	298	33	371	234	3.222
	A7	Jln Kompleks (P1)	302	43	14	1	111	77	427	121	2.407
	A8	Jln Bandar (P1)	309	56	7	0	122	42	438	98	3.222
	A9	Jln Bandar (CP1)	24	59	2	0	358	74	384	133	3.222
	A10	Taxi Stand	321	31	6	3	227	58	554	92	3.222
	A11	Jln Bandar (CP2)	139	4	12	0	243	42	394	46	3.222

As illustrated above, the highest pedestrian rate is at Gate A10, which is the main entrance of the shopping complex to the main road (321 pedestrians), the lowest pedestrian rate is at Gate A9 (24 pedestrians). According to the observation, streets are highly used for traffic but not for pedestrians, such as Jalan Mawar in Zone A. As it was observed, the infrastructure of some streets is in poor condition; hence, to encourage pedestrians to walk, the following recommendation should be considered: streets should be physically accessible and well connected for both cars and pedestrians, Moreover, provision of visual connectivity in the streets will result in more attractiveness and will promote walkability within 500-meter distances.

Zone B



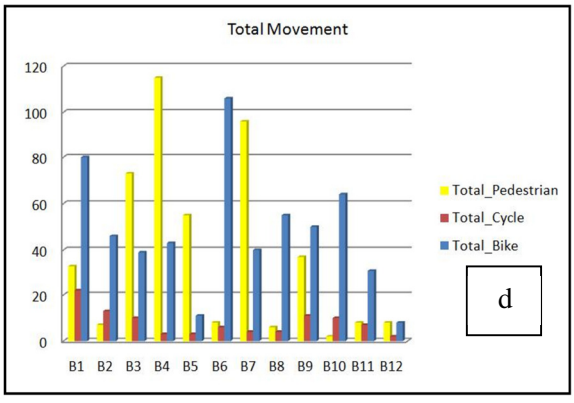


Figure 6 a. Gate Observation Map of Zone B; b. Axial Map of Zone B; c. Total Movement Weekday; d. Total Movement Weekend.

As shown in Table 5 below, the highest frequency is at Gate B4 (386 pedestrians), especially where people leave work in the evening rush hour. Some people may gather at the main zone to wait for their transport service, while the lowest frequency is at Gate B11 (31 pedestrians). According to the analysis, urban streets have been insufficiently used by pedestrians' static activities, within which a key to the ongoing challenge of designing and giving people priority in street is provided. The environment should always be in the most protected situation; hence, residents are constantly in the most secure and comfortable condition. This is the dependent variable, which leads pedestrians to walk in the streets.

Table 5: Content Weekday (WD) and Weekend (WE)

G	Street	PEDESTRIAN		CYCLE		BIKE		ALL MOVEMENT		I.V
		Total WD	Total WE	Total WD	Total WE	Total WD	Total WE	Total WD	Total WE	
B1	Jln Bandar (Shell 01)	105	33	0	22	272	80	377	135	3.222
B2	Jln Mawar (Shell 02)	59	7	0	13	194	46	253	66	3.109
B3	Jln Bandar (CP1)	105	73	0	10	203	39	308	122	3.222
B4	Hosp.Penawar (P1)	386	115	0	3	144	43	530	161	1.438
B5	Jln Bandar	64	55	0	3	181	11	245	69	3.222
B6	Jln Bandar (CP2)	76	8	0	6	83	106	159	120	3.222
B7	Jln Kompleks	223	96	20	4	146	40	389	140	2.407
B8	Hotel Selesa (P1)	123	6	0	4	49	55	172	65	2.325
B9	Jln Mawar Merah(CP1)	48	37	0	11	112	50	160	98	2.746
B10	Jln Mawar Merah(CP2)	75	2	2	10	147	64	224	76	2.746
B11	Hotel Selesa	31	8	0	7	138	31	169	46	2.325
B12	Hotel Selesa (P2)	27	8	0	2	170	8	197	78	2.325

Comparison on Gate observation between zones

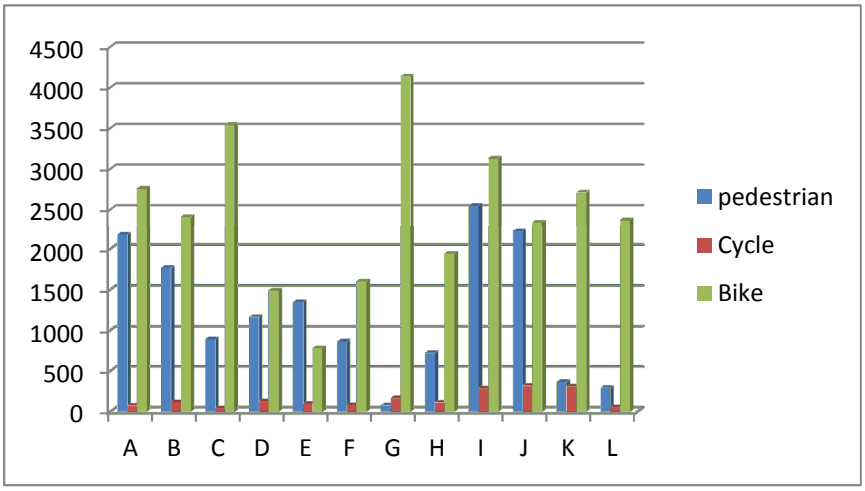


Figure 7 Total density of movement for Gate Observation during weekdays and weekends between 12 Zones (A to L).

The graph above reflects the frequency of use of the pedestrian zone in the twelve zones: A to L. Zone J has the highest pedestrian zone, followed by Zone I; while Zone C has the lowest frequency of use among pedestrians.

It is clear from the above graph that bike users are more than the pedestrians and cyclists. Zone G is located in the factories. It shows that this zone is used more often by motorcycles than bicycles. Zone A is located in the town centre. Generally, the peak hour is during the lunch hour at 1pm. Although the use of motorcycles is still the highest, it is almost equal to pedestrians. According to the data collected, many immigrants, in particular the workers in Pasir Gudang, have occupied the city center and areas near the hostel. Zone A which is located in Taman Mawar shows the highest pedestrian data surpassing the motorcycles. This is because the downtown area of the city centre is close to the immigrants' accommodation in Taman Mawar. Zone I is located in Taman Cendana meanwhile Zone C in Taman Air Biru has recorded the lowest pedestrians.

4.2. People Following Observation

The study has found the most people following activities happen during the lunchtime peak hour, especially in Zone A and B. Following that, a general comparison is made on this hour between Zone A and B and the other zones (D, J and I) as identified for the people following observation.

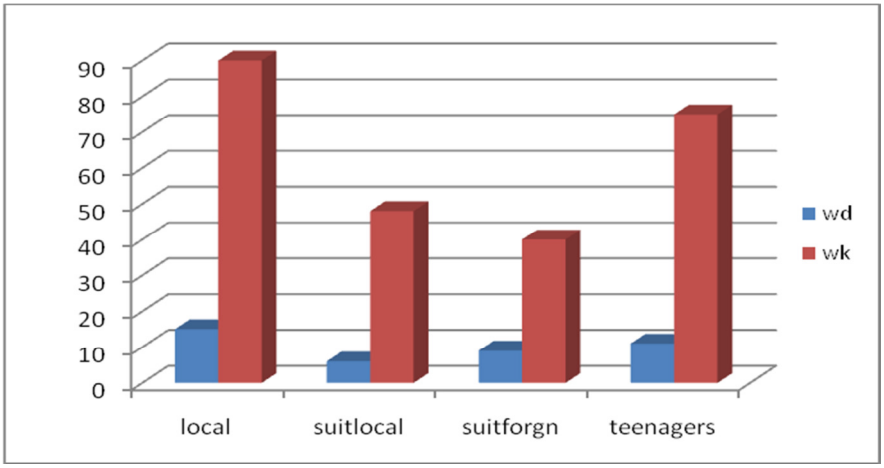


Figure 8 Total of people following movement activities observed in Zones A and B at 1300-1400

Generally, through this method, the maximum distance for people to walk is 500 meters, which takes between 2-5 minutes.

Zone A has the highest pedestrian flow followed by another zone while Zone F is the gate point that less people use. There is a huge gap of difference on the frequency of pedestrian walking flow amongst the observed area on weekends and weekdays. The total number of pedestrians during weekends is lesser compared to weekdays due to the lack of bus services during the weekend. High percentages of people live at residences that are located far away from the specified area. It is very inconvenient for them to go out without their own transportation.

Overall, the gates surrounding Zones A and B have shown high density of pedestrian flows as compared to other gates in other zones due to the active adjacent spaces along the route (active uses in the presence of shopping facilities, food court, Automated Teller Machines at banks). The peak hour is 1pm, which is the lunch hour and it scored the highest number of pedestrians.

4.3. Static Activities Observation

This section presents data collected for the observation on static pattern of activities. This type of observation was carried out in Zones A, B, D, F and I.

Zone Aand B – Static Activities (Weekday and Weekend)

Figure 9 Static activity weekday and weekend. Symbols used for static activities of observation are: for N activities; , O activities and , R activities.

Table 6 Static Activities (Weekday and Weekend)

Zone	Street	People type	Activity	Land use	Axial	Total number	symbol
A	City complex	teenagers	sit/eat	restaurant sasa	2.408	6	
A	car park	suit local	stand/wait	parking	2.325	3	
A	car park	suit local	stand/wait	station	2.325	2	
A	City complex	teenagers	sit/eat	terminal bus	2.408	3	
A	City complex	suit local	sit/eat	terminal bus	2.408	7	
B	jln kompleks	suit local	stand/wait/talk	car park	2.407	4	
B	jln kompleks	local	stand/wait/talk	car park	2.407	3	
A	City complex	teenagers	stand/wait	kopitiam	2.408	5	
A	jln bandar	local	sit/wait	car park	3.222	3	
B	jln mawar merah	teenagers	stand/talk	taxi stand	2.746	3	
B	jln mawar merah	suit foreign	stand/talk	open space	2.746	3	

As illustrated in Figure 9 above, in particular, the peak hour (which is the lunchtime in Zones A and B) has shown the highest scores when many static activities are happening. Hence, static activities of this zone are compared with the other three zones during lunchtime.

Comparison between static patterns of activities between Zones A, B, D, F and I

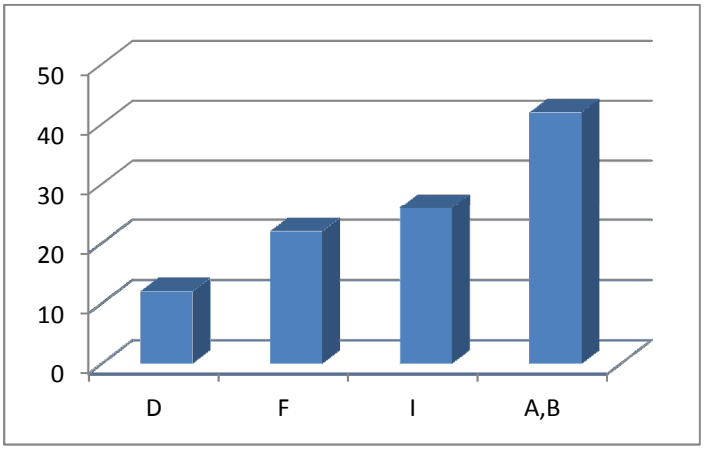


Figure 10 Comparison between static pattern activities of observation

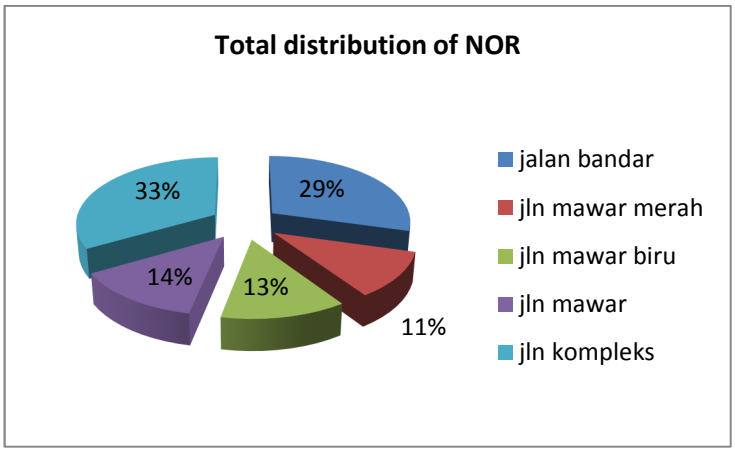


Figure 11 Overall tabulation of static pattern of activities

The bar chart above shows the overall tabulation of static pattern of activities of Zones A, B, D, F and I. Clearly, Zones A and B have the highest occupancy of static activities in the area. This make both Zones A and B good sample areas where in the provision of streets to be accommodated by static activities could be extended to other zones within the MPPG area.

It is shown in many zones in the analysis throughout, some highly-integrated streets have not only been observed with high distribution of NOR, but also with low distribution of NOR. For this reason, this study argues that the highly integrated streets analyzed according to space syntax axial line analysis do not necessarily mean that the particular street is also accessible for static activities of people.

4.4. Pattern of Distributions of the Variables

Distribution of N, O, R Activities

The implications that could be derived from the observation and analyses of static activities in

the earlier section raise the need to understand the impact of the social psychological behavior of people in streets. Studies by social psychologists on the effect of crowds on people have found that people exist in a certain space or environment because of other people. Whyte (1980) observed that people like to watch people and thus concludes that people attract people.

Gazing, waiting and reading, which are the behavioral activities manifested by people standing and sitting especially on their own and not interacting with other people, may describe the unfocused interaction between people in the space. Such aspects of interaction between people in their behavioral activities therefore could help explain how a group of static activities of the locals, suits or teenagers could in reality exist in some small streets instead of the large ones.

Distribution of Socio-physical Variables

As mentioned earlier, the primary streets were found to have recorded the highest distribution of NOR activities on all physical elements, followed by the secondary and tertiary streets. However, not all primary streets sustained a high occupancy of static activities in them. Some types of physical designs like commercial land use on the secondary and tertiary streets have also been as highly occupied as those on primary streets. Seemingly, most pedestrian flows could be found high on the commercial streets, which are normally functioning as strong destinations for an urban centre.

Syntatical variables of the streets

The way static activities are distributed in the spatial environments of streets is normally dealt with by transport engineers, urban scientists and geographers who study the activities of people within the local and global context of cities (Golledge and Stimpson, 2000). Due to observations, the high-integrated streets belong to the primary streets with high levels of connectivity to other streets within the configuration of the studied area. However, some primary streets with high movements of activities were not equally highly occupied by static activities.

5.0 Conclusion

The research has shown that the pedestrians that use pathways in Pasir Gudang are not satisfied with the existing ones. They are not covered, are uneven and are not proper pavements. Moreover, it was found that there is a huge difference in the number of pedestrians observed during weekends and weekdays. This indicates that the pedestrian walkway is used more frequently when there is an activity happening around it.

According to the mapping technique with a combination of Axial Line ,table 8 below outlines the overall outcome of this research:

Table 8 The research framework showing the synthesis of the interrelation between the variables in measuring the sociability and accessibility of streets.

	Social	**Socio-physical**	**Syntactical**
Issue	People less High integrated	Some are better used than the other	High integrated High traffic
Analysis	effect of crowd unfocused interaction between people in the space	Some physical design like commercial land uses lead some streets to be more occupied by pedestrians	primary streets with high levels of connectivity to other streets bring more traffic

Objective	To understand the relationship between sociability and accessibility of streets	To understand the distribution of socio-physical Variables	To understand how the integration of pedestrian and traffic in streets and open urban spaces
Strategy	To consider static activities as the predominant urban activities that have an impact on the physical design and spatial aspects of streets.	To address the physical design and the physical locations on the street as place for staying against the provision of the street as a space for the walking pedestrian.	To apply space syntax methodology in measuring the topology of the individual street in relation to other networks of streets.

This study provided vital information about the efficiency mechanism aiming at the conducive use of the existing pedestrian walkways in Pasir Gudang City Centre (PGCC). It may create awareness among people and contribute to policy and facilities upgrading. The framework showed that it is crucial to understand the capacity and conduciveness of street spaces whilst designing scientific calculated connectivity throughout the pedestrian network circulation.

In the overall, evidences showed that although some streets in Pasir Gudang have good accessibility (high integration), but their sociability is poor. Meanwhile, Gate A and Gate B have the highest density of pedestrians as compared to other gates due to the active adjacent spaces along the route. It can be seen, the peak hour which scores the highest number of pedestrians is during 1pm, which is the lunch hour.

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