

The Accessibility Level of Urban Village Inhabitants in the Northern Region of Malaysia

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Abstract

Transport infrastructure facilities in urban areas in Malaysia, which are becoming increasingly sophisticated, modernised, systematic and user-friendly, have enhanced the accessibility level of urban village (UV) inhabitants. This study argues that an effective accessibility level for UV inhabitants is created by the choice of transportation, time taken to walk to the place of work and the accessible distance to local council facilities. The main aim of this study is to elucidate on an effective level of accessibility for the UV population by applying the quantitative approach. 509 heads of households among the UV population were selected as respondents. The study found that overall the respondent's accessibility level was high. It also found that the evaluation of respondents in Kangar, Alor Setar and George Town regarding the distance did defer and was determined by factors such as the pace of town development, the area of the town, time taken to arrive at a destination and convenience of road infrastructure in the town. In addition, a majority of the respondents were comfortable using their own vehicles. The level of accessibility to the respondent's workplace was good, which was less than 20 minutes. There were several local council facilities that had low levels of accessibility (far distances) such as government hospitals, postal and banking facilities, recreational parks, police beat stations, fire stations and wholesale markets. However, the inhabitants did not consider this low level of accessibility as the main hindrance that jeopardises their quality of accessibility. Transportation infrastructure around the town was found to be essential in assuring the quality of life and wellbeing of the UV population.

Keywords: Transportation, infrastructure, Accessibility, Urban village, Quality of life

1. Introduction

The transportation infrastructure is presumed to have a profound influence on the urban village (UV) inhabitant's quality of life. UV inhabitants are a part of the urban population and live in villages that are enclosed or surrounded by an urban development environment. Moreover, the quality of life of urban village and urban surrounding inhabitants has a significantly interacts and mutually influences one another (Yan Song & Yves Zenou, 2011; Yuting Liu et al., 2010). According to Stradling et al., (2007), the urban transportation infrastructure has made the physical structural elements around the city look modern, sophisticated and contemporary. Transportation service facilities such as the monorail, commuter trains, buses and taxis are often evaluated as a basic urban development feature (Stradling et al., 2007; Yanliu & Bruno, 2012). This situation has made the quality of life of the urban population look better compared to the rural population. This presumption only exist when the quality of life of urbanites are often portrayed based on various infrastructure facilities and local council services offered (Azahan Awang et al., 2008, 2009). Hence, this study alleges that the effective level of accessibility of urban village inhabitants is manifested through the choice of transportation to town, the time taken to reach the work place and the accessible distance to local council facilities.

The city is the centre for all forms of administration, business and development. These functions have become the focus that demands a good level of accessibility be created in the urban setting (Mattias, 2007). Following this, the urban setting landscape often changes and becomes increasing complex, which consequently has an effect on the quality of life of urban village inhabitants when adapting to the changes of the urban setting landscape. The level of accessibility is an important component that measures the status of the urbanite's overall quality of life. The urban village inhabitant's ability to access is presumed to have a big influence on their daily activities (Malaysia, 2012).

According to Abou-Zeid and Ben-Akiva (2011), the evaluation of distance reflects the inhabitant's level of accessibility in a particular setting and their well-being. An environment or setting that has a high accessibility often becomes the choice of most of the daily activities. The ability to carry out daily activities without any hindrances is part of a prosperous life that is wished upon by the population. According to Anable dan Gatersleben (2005) as well as Beirao and Cabral (2007), people's accessibility to places of work and daily activities such as government offices, supermarkets or service counters have varying values of interest. The evaluation also influences the form and type of transportation that needs to be used, such as private or public transportation (Beirao & Cabral, 2007). Thus, among the factors that influence the inhabitant's evaluation of the distance of accessibility are the rapid urban development, the town's surrounding area, the access time and the road infrastructure facilities in the town (Stradling et al., 2007; Tyrinopoulos & Aifadopoulou, 2008).

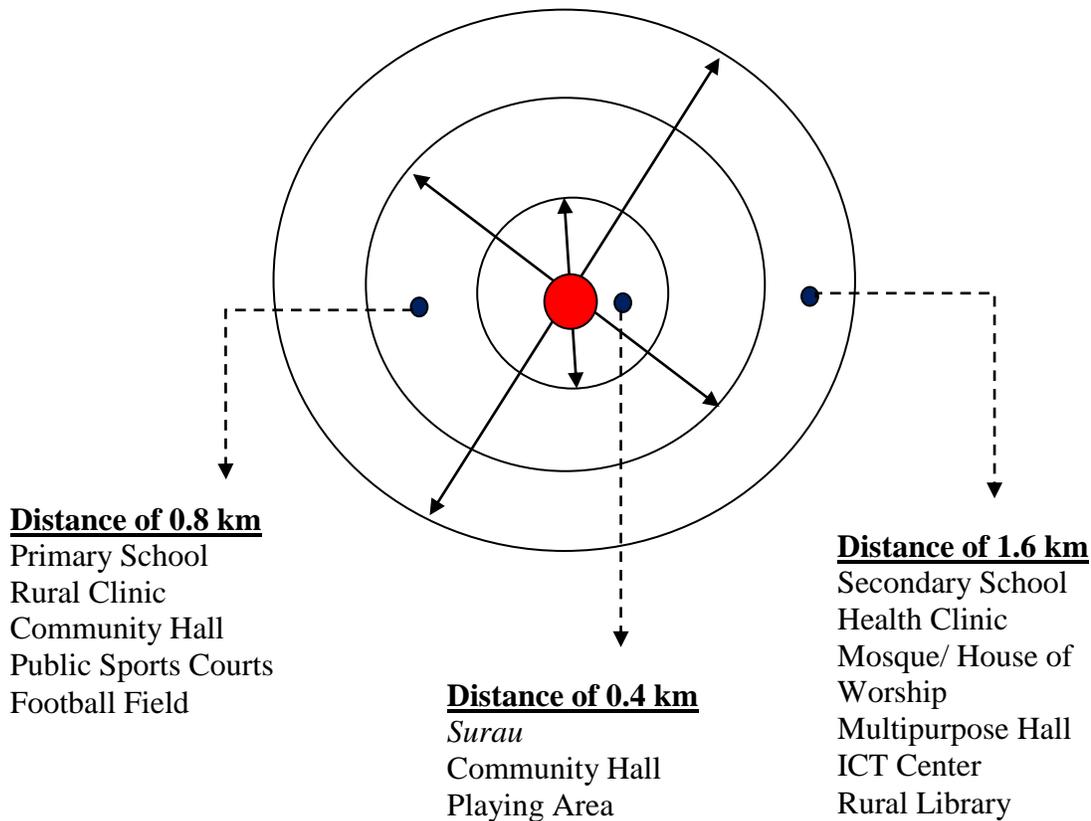


Diagram 1: Effective accessibility distance and the location of the village
 Sumber: Malaysia (2012)

The inhabitant's evaluation of accessibility often becomes the predictor in determining the quality of life and well-being of the inhabitant in a particular environment (Abou-Zeid & Ben-Akiva, 2011). For example, the study on the well-being of traditional and *Tersusun* villages carried out by the Ministry of Housing and Local Government of Malaysia had emphasised the aspect of accessibility (distance) and areas of density (population) in determining the inhabitant's effective distance around the traditional and *Tersusun* villages. According to the guidelines by the Department of Town and Rural Planning, the effective distance between the village and the public facilities should be 0.4 km – 1.6 km (5 minutes – 20 minutes walking time). Diagram 1 shows the effective accessibility distance against the location of the village.

2. Methodology of the Study

A total of 509 urban village inhabitants from 21 villages located around the city centre of Kangar, Alor Setar and George Town were selected as respondents. This study took four months (November 2012 to March 2013) to collect the primary data via field observations and interviews. Besides distributing survey questionnaires to the respondents (to heads of the family households) by using the random numbering method, this study also measured the distance between the urban village area and local council facilities, which is found within the city boundaries, by using maps and the GPS. The descriptive analysis and inferences were applied to answer the survey questions.

3. Accessibility of Urban Village Inhabitants

The capability of urban village inhabitants to reach the facilities offered by the city was evaluated according to the distance between the location of the urban village and the facilities offered within the city's boundaries. Figure 1 shows the urban village respondent's evaluation of the distance as being between "Very Far", "Far", "Near" and "Very Near". Figure 2 shows the types of local council facilities found around the urban village area in Kangar, Alor Setar and George Town. Evaluation of the distance reflects on the respondent's level of accessibility to the city's surroundings.

Thus, among the factors that influence the respondent's evaluation of accessibility distance are rapid urban development, area of the city surroundings, time taken to access facilities and road infrastructure facilities. A high level of accessibility contributes towards the inhabitants quality of life. This study found that the respondent's evaluation in Kangar, Alor Setar and George Town regarding the distance were varied and based on factors such as rapid urban development, area of the city surroundings, time taken to access facilities and convenient road infrastructure facilities in the city.

Figure 1: Respondent's evaluation of distance according to the city

| City | Average Evaluation of Distance | | | |
|---------------------------|--------------------------------|-------------------|------------------|-----------|
| | Very Far | Far | Near | Very Near |
| Kangar, Perlis | >36.5 km | 12.3km - 36.4 km | 5.3km - 12.2km | <5.2km |
| Alor Setar, Kedah | >15.3 km | 7.7 km - 15.2 km | 3.9 km - 7.6 km | <7.5 km |
| George Town, Pulau Pinang | >23.8km | 14.2 km - 23.7 km | 5.7 km - 14.1 km | <14 km |

Research in Kangar found that the evaluation of the distance was based on the area surrounding the city, effective time taken to access facilities and convenient road infrastructure facilities. Good road infrastructure facilities and the lesser number of congestions had shortened the respondent's time taken to access facilities and had put the distance evaluation of "very far" to be 36.5 km. Meanwhile, respondents in Alor Setar had placed the evaluation of "very far" as more than 15.3 km because of factors such as rapid development and a longer time taken to access the facilities. Moreover, the evaluation by respondents in George Town was different with respondents in Kangar and Alor Setar because of the area surrounding the city. Respondents in George Town had placed the distance evaluation of "very far" to be 23.8 km and the "very near" distance to be less than 14 km because the respondent's level of accessibility was measured according to the area surrounding the island.

The research findings show that the distance of accessibility of urban village inhabitants from the three cities has a level of accessibility, which is averagely high or effective. The level of accessibility of urban village inhabitants and the local council facilities (refer to Figure 2) was found to be in accordance with the guidelines on community facilities by the DTRP. Field observations had also found that several local council facilities had low levels of accessibility (distance) such as government hospitals, postal and banking services, recreational parks, police beat centres, fire stations and wholesale markets. This level of accessibility is not an impediment to the inhabitants as the interviews have indicated that the distance is still near according to the urban village respondent's evaluation. The location of the facility is relevant and centralised thus making the accessibility distance accessible to all the inhabitants from the city and the urban village.

The study found that the urban village inhabitant's level of accessibility to local council facilities in Alor Setar was high and satisfactory. This was followed by urban village inhabitants in Kangar and George Town. A high level of accessibility was towards services such as food outlets, grocery shops, vehicle repair garages, places of worship, night market sites, bus and taxi facilities as well as health clinic services. All these facilities were in the range of 800 meters surrounding the urban village. Whereas postal services, hospitals, police beat stations and banking facilities had a low level of accessibility or rather were farther away with an average distance of 1 km – 5 km from the urban village surroundings.

Figure 2: Average Estimated Distance of Accessibility of Urban Village Inhabitants

| Num | Facility | Average Estimated Distance of Accessibility (km) | | |
|-----|---|--|------------|-------------|
| | | Kangar | Alor Setar | George Town |
| 1 | Bas/Taxi stand facilities | 0.3 | 0.3 | 0.2 |
| 2 | Farmer's Market/ Wet Market | 0.6 | 0.3 | 0.8 |
| 3 | Wholesale maket | 4 | 2 | - |
| 4 | Night Market location | 0.4 | 0.4 | 0.7 |
| 5 | Community Hall | 1.5 | 2 | 7 |
| 6 | Internet access facility | 1 | 1 | 1 |
| 7 | Government/Private Hospital | 4 | 3 | 5 |
| 8 | Health Clinics/Private | 0.4 | 0.3 | 0.5 |
| 9 | Pre-school facilities | 1 | 1 | 3 |
| 10 | Primary school facilities | 1 | 1 | 3 |
| 11 | Secondary school facilities | 1 | 1 | 3 |
| 12 | Police/Police beat stations | 2 | 3.5 | 1.5 |
| 13 | Fire station/ Fire Volunteers | 2 | 2 | 2 |
| 14 | Food stalls/ Restaurants | 0.1 | 0.1 | 0.1 |
| 15 | Grocery shop/Mini market | 0.1 | 0.1 | 0.1 |
| 16 | Services outlet (repairing bicycles/motocycles/cars/ electronic equipment | 0.3 | 0.1 | 0.5 |
| 17 | Mosque/House of Worship | 0.3 | 0.1 | 0.1 |
| 18 | Postal services | 3 | 4 | 4 |
| 19 | Banking facilities | 3 | 3 | 2 |
| 20 | Playing field/ Recreation Park | 3 | 4 | - |
| 21 | Burial ground | 1.5 | 2 | 0.1 |

Note: Mark (-) means that the facility is not found at the study site

4. The Current Status of Transportation Infrastructure Facilities

The transportation infrastructure facilities around the city are good. Figure 3 shows that the majority of the inhabitants admit that the transportation infrastructure facilities around the urban village are getting better. Eighty percent (80%) of the urban village inhabitants in George Town indicated "agree" and "strongly agree" regarding "transportation infrastructure facilities are getting better", followed by urban village inhabitants from Alor Setar and Kangar, with 71.2% and 70.4% respectively. The Chi Square test showed that there were no significant relations based on the respondent's evaluation between Kangar, Alor Setar and George Town regarding "transportation infrastructure facilities getting better" at levels $p < 0.05$ ($p = 0.086$) and value of $\chi^2 = 11.084$. This analysis indicates that respondent's evaluations defer according to the city. Respondents in George Town gave a higher evaluation regarding the statement compared to respondents from Kangar and Alor Setar.

This study found that respondents in Alor Setar had a low access level to public transport services compared to urban village inhabitants from Kangar and George Town. The study also found that the 'size of the city' and the 're-structuring of the public transport system' had enhanced the access to public transport services in Kangar and George Town. Figure 3 shows that 58.1% of respondents in Alor Setar expressed difficulty in getting public transport services. Whereas a majority of respondents in George Town and Kangar gave a high evaluation regarding public transport service facilities, each with 82.9% and 59.6% respectively. The Chi Square test showed that there are significant relations based on the respondent's evaluation between Kangar, Alor Setar and George Town regarding "public transport service facilities" around the city, which was near the level of $p < 0.05$ ($p = 0.000$) and a value of $\chi^2 = 62.571$. The analysis showed that respondents in Kangar and George Town gave a higher evaluation towards 'public transport facilities around the city' compared to respondents in Alor Setar.

5. The Need for an own vehicle

An own vehicle has become a priority for respondents when carrying out daily activities such as going to the city, obtaining daily necessities and going out with the family.

Figure 3 shows that 95.2% of respondents in Kangar, Alor Setar and George Town gave high evaluations for “convenience of using own vehicle when going to the city”. Whereas, 83.7% of respondents from Kangar, Alor Setar and George Town preferred to use motorcycles to the city. The findings also showed that 78.8% of respondents from Kangar, Alor Setar and George Town were more comfortable using their own vehicles for family outings. The Chi Square test showed that there were no significant relations based on the respondent’s evaluation between Kangar, Alor Setar and George Town regarding “convenience of using own vehicle for daily activities” and “family outings”, which was at a level of $p < 0.05$ with each having $p = 0.547$ and $p = 0.111$; and with values of $\chi^2 = 4.977$ and $\chi^2 = 10.344$. The analysis shows that a majority of respondents were more convenient when using their own vehicles for daily activities. Respondents in Alor Setar highly evaluated the “convenient to use own vehicle to the city”, followed by respondents in George Town and Kangar.

Figure 3: The relations between urban village inhabitant’s perception in Kangar, Alor Setar and George Town towards transportation

| Num. | Evaluating the Urban Village Inhabitant’s Perception | Kangar, Perlis (%) | | | | Alor Setar City, Kedah (%) | | | | George Town City, Pulau Pinang (%) | | | | Results of the Chi Square test (χ^2) | |
|-----------|---|--------------------|------|------|------|----------------------------|------|------|------|------------------------------------|------|------|------|---|---------------|
| | | STS | TS | S | SS | STS | TS | S | SS | STS | TS | S | SS | Value χ^2 | Sig. |
| i | Evaluation of transportation facilities and infrastructure | | | | | | | | | | | | | | |
| 1 | Transportation infrastructure facilities around the village is getting better | 10.8 | 18.8 | 59.1 | 11.3 | 13.7 | 15.0 | 58.8 | 12.4 | 11.2 | 8.8 | 61.2 | 18.8 | 11.084 | 0.086 |
| 2 | Easy to obtain public bus services | 14.0 | 26.3 | 47.8 | 11.8 | 22.2 | 35.9 | 29.4 | 12.4 | 6.5 | 10.6 | 58.2 | 24.7 | 62.571 | 0.000* |
| ii | Evaluation of the need for using own vehicles | | | | | | | | | | | | | | |
| 3 | Prefer using own vehicle to the city | 1.1 | 4.3 | 50.0 | 44.6 | 0.7 | 5.2 | 53.6 | 40.5 | 1.2 | 1.8 | 56.5 | 40.6 | None** | |
| 4 | Prefer to ride the motorcycle to the city | 4.3 | 9.1 | 48.4 | 38.2 | 1.3 | 10.5 | 47.7 | 40.5 | 4.7 | 8.2 | 42.9 | 44.1 | 4.977 | 0.547 |

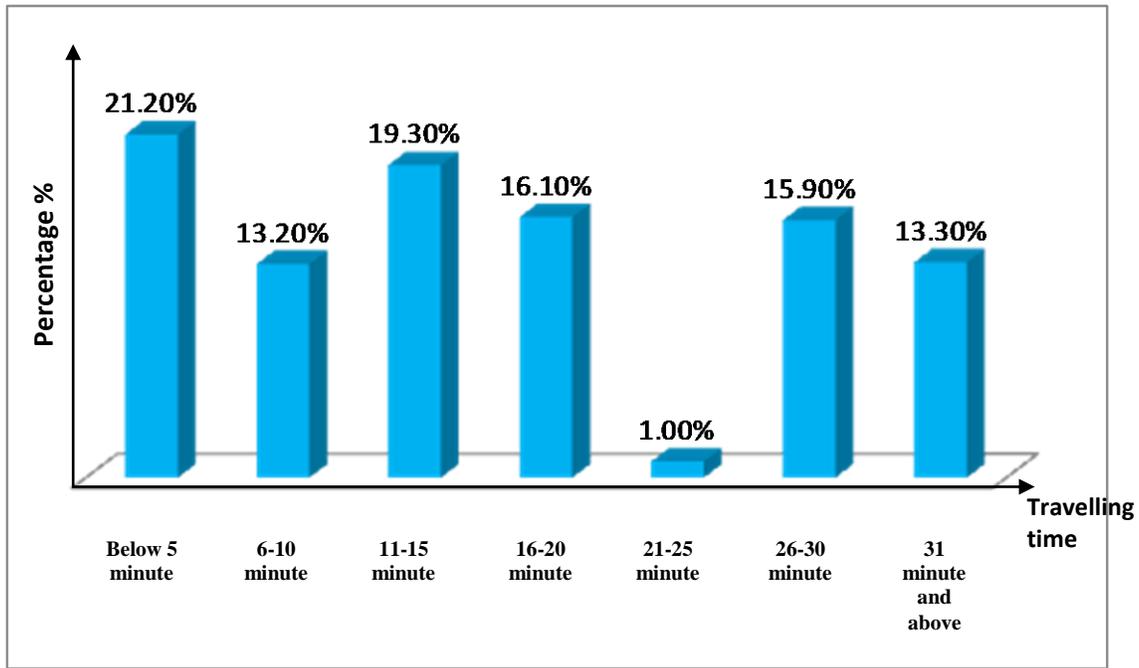
SD- Strongly Disagree; D- Disagree; A- Agree; SA- Strongly Agree;

*Significance $p < 0.05$

**The Chi Square test could not be performed because the expected frequency value was less than 5 in the contingency schedule cell.

6. Travel time to the work place

The travel time to the respondent’s place of work in all the three cities is almost similar, which is less than 20 minutes. The min travel time to the place of work was 21.34 minutes with a standard deviation of 23.66 minutes. Respondents in Kangar, Alor Setar and George Town had a min travel time to their work place measuring 21.49 minutes, 20.54 minutes and 21.89 minutes respectively. The min distance to the respondent’s work place in Alor Setar was the shortest, which was 7.22 km, followed by the min distance to the respondent’s work place in George Town and Kangar, with a distance of 11.48 km and 14.73 km respectively. Overall, the min distance to the respondent’s work place was 11.39 km with a standard deviation of 35.53 km. The maximum distance to a work place was 500 km, which involved a respondent who was a lorry driver from Kangar. This was followed by the maximum distance for respondents from George Town (175 km) and Alor Setar (150 km). Both the respondents were employed as express bus drivers



Graph 1: Travel time to the work place

Figure 4: Respondent’s mode of transport to the work place

| Mode of Transport to the Work Place | City (%) | | |
|---|----------|------------|-------------|
| | Kangar | Alor Setar | George Town |
| Bus | - | 1.3 | 1.2 |
| Taxi | 0.5 | - | - |
| Hitching a ride with a friend | 1.6 | - | 2.4 |
| Own car | 29.0 | 14.4 | 15.3 |
| Own Motorcycle | 46.8 | 51.0 | 58.8 |
| Bicycle | 2.2 | 2.6 | 0.6 |
| Pedestrian | 2.7 | 2.6 | 4.7 |
| Rotation between using the car and the motorcycle | 17.2 | 28.1 | 17.1 |

A majority of respondents in urban villages preferred to use the motorcycle to their work place. Figure 4 shows that 58.8% of respondents in George Town used motorcycles to their work place, followed by respondents in Alor Setar and Kangar, each with 51.0% and 46.8%, respectively. Observations and interviews with the respondents found that using the motorcycle to work in cities is more suitable when trying to avoid traffic congestions in the city. The majority of respondents who use motorcycles to their work place consisted of employees from the public and private sectors. Whereas 20% of the respondents had used cars to their work place. The majority of urban village respondents (29%) from Kangar had used cars to their work place followed by George Town and Alor Setar, each with 15.3% and 14.4% respectively. Field observations had found that factors such as traffic congestion and vehicle density around the city influenced the respondent’s state of comfort towards using the car to work. Traffic congestion and vehicle density, especially during peak hours in Alor Setar and George Town, were more serious compared to similar conditions in Kangar.

There were respondents who used both the motorcycle and car in a rotation format when going to work and respondents from Alor Setar (28.1%) were the majority who used this format, followed by respondents from Kangar and George Town, with 17.2% and 17.1% respectively. Interviews with the respondents found that factors such as weather, official duties and the comfort of driving on particular days had encouraged respondents to use the motorcycle and car in rotation.

Overall, this study had found that a majority of respondents travel to their work place on motorcycles (52%). Whereas 20% of respondents travel to their work place by car and 20.4% use either their motorcycles or cars on a rotational basis. The remainder 7.6% travel to their work place by bus, taxi, hitching a ride with friends, bicycle or walking.

1.7 Conclusion

The sophisticated and effective transportation infrastructure in cities contributes towards the overall quality of life of urban village and city inhabitants. A good transportation infrastructure is capable of enhancing the inhabitant's accessibility, in which the inhabitants have the opportunity to choose a suitable and comfortable form of transportation. A high level of accessibility affords the urban village inhabitants the ability to adapt with the city surroundings that are ever changing. The transportation infrastructure around a city is essential in assuring the quality of life and well-being of urban village inhabitants.

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