SAFER MODE CHOICE TO SCHOOL

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SAFER MODE CHOICE TO SCHOOL

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A thesis submitted in fulfilment of the

requirements for the award of the degree of

Master in Science (Transport Planning)

Faculty of Built Environment

Universiti Teknologi Malaysia

DECEMBER 2013

ACKNOWLEDGEMENT

ABSTRACT

Nowadays, the rapid development and growth in transport infrastructure and residential areas have increased the number of people population and the use of private vehicle that couple with poor traffic management flow. Those factors cause the major problem like congestion, vehicular collisions, environment disaster and human health threats. Therefore, a safety issues should not be neglected especially for a school children when they travelling to school. The objectives of the study to identify the factors of mode choice, to improve safety and accessibility and to recommend a proper alternatives for the road user. This study was done in order to know a safer mode choices for a school children to school which a sample of 105 was selected by systematic random sampling technique for a questionnaire survey to solicit information about the mode choices for school travellers. The results was constructed using SPSS through frequency distribution and cross tabulation. Most respondents used private vehicle which is a car and motorcycle and most of them think that by using a car to school really provide safe environment for their children to school. However, some of the preferred mode for safety concern was a tied between a car and a school bus. This shows that people still depend on the use of public transport as long as the service offered are reliable and meet the user satisfaction especially concerning on time, convenience and safety.

ABSTRAK

Pada masa kini, perkembangan pesat dan pertumbuhan dalam infrastruktur pengangkutan dan kawasan perumahan telah meningkat selaras dengan pertambahan penduduk dan penggunaan kenderaan persendirian yang selari dengan kesesakan aliran pengurusan lalu lintas. Faktor-faktor ini menyumbang kepada masalah utama seperti kesesakan, kemalangan, perlanggaran kenderaan, bencana alam dan ancaman kesihatan manusia. Oleh itu, isu-isu keselamatan tidak boleh diabaikan terutamanya bagi kanak-kanak sekolah apabila mereka dalam perjalanan ke sekolah. Satu kajian telah dilakukan untuk mengetahui pilihan pengangkutan yang tepat dan selamat untuk kanak-kanak ke sekolah. Tujuan kajian ini dijalankan adalah untuk mengenal pasti penggunaan kenderaan ke sekolah, sejauh manakah keselamatan pelajar tersebut menggunakannya serta cadangan penambahbaikan terhadap kemudahan pengangkutan darat. Seramai 105 responden telah dipilih secara sistematik teknik persampelan rawak untuk kajian soal selidik untuk mendapatkan maklumat mengenai pilihan mod untuk pelajar ke sekolah. Dapatan data kemudian dianalisi melalui SPSS dengan kaedah pengagihan kekerapan serta "crosstabulation". Kebanyakan daripada responden menggunakan kenderaan persendirian yang merupakan kereta dan motosikal dan kebanyakan mereka berfikir bahawa dengan menggunakan kereta ke sekolah benar-benar menyediakan persekitaran yang selamat untuk anak-anak mereka ke sekolah. Walau bagaimanapun, beberapa mod pilihan yang menitikberatkan soal keselamatan adalah terikat di antara pilihan menaiki kereta dan menggunakan bas sekolah. Ini menunjukkan bahawa orang awam masih bergantung harap kepada penggunaan pengangkutan awam selagi perkhidmatan yang ditawarkan itu boleh dipercayai dan memenuhi kepuasan pengguna terutama sekiranya ainya menepati masa, kemudahan dan keselamatan penggunaanya.

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INTRODUCTION

1.1   Background of the Study

Travel defined as a trip that a movement from one place to another by given mode of travel for a specific purpose. In other words, travel is viewed as the means by which individual or groups move about the urban space in order to participate in activities at different locations. Meanwhile, the concept of trip is defined as the one way vehicular movement via a single travel mode by an individual who is 5 years of age or over.

Travel results from the needs of people to move from place to place for the myriad activities that we engage in, therefore travel being a derive demand. Meanwhile travel can be defined by wide characteristics including the purpose of the trip, the time trip was made, the mode that was used and the length of the trip. Thus, the travel characteristic is defined as a series of travel decisions and activities that people undertake in order to satisfy the individual or groups given purpose.

Travel to school could be categorized in a variety ways including their location and direction of travel. Such categories of typical urban travel trip patterns are radial trips, circumferential trips, through trips, CBD travel and suburban activity centers (Edwards, 1992). The crucial factors that influencing those mode choices and travel patterns are the travel characteristics of people within an urban area for each trips move to the school. Likewise, the socio economic characteristics of the traveler have significant correlation with the travel trip make up to the school.

Fundamentally, modal choices being a derived demand and thus, people make their own choices for trip to school is directly determined by the trip purposes. So each trip is made for one or more given purposes and it will influences the mode that is used, the time the trip is made, the length of the trip and the trip generation rates. Eventually, each individual will display a different pattern of movements motivated by a unique combination of purposes.

In term of time at which trip take place is essential information because trip making by different modal choice varies by hour of the day, by the day of the week as well as by the month or season of the year. Each of this periodicity is related to temporal rhythm of the population activities. So temporal variation of the trip was represented the tendency of travelers to choose the best and safer mode to school on the given period. Therefore, the trips information of temporal variation is crucial for the transport planner when dealing with traffic data, especially important for the design and efficiency of urban transport system.

Another attribute of modal choices to school is the trip length. People logically try to minimize their trip length in order to reduce total travel time and total travel costs. Trip length is considerably influences the choices of mode to school. Besides, the travel characteristics attributes of people modal choices are regarding the selection of the preferable mode of transport as a travel instrument. The choices are normally between private vehicles and a public transport. It is closely related in the real situation with transport policy decisions. Frequently, additional trip occurs when private vehicles are available and if the use of private vehicle is restricted then

it is likely that the number of trips generated will decrease rather than be made by an alternative travel mode.

There have three factors those affecting the mode choices to school, however household socio-economic characteristics is a significant one, which including the variables of household income, car ownership and family size. The household income is a direct determinant of the household expenses to prepare to incur on a journey. Meanwhile, both income and car ownership is interrelated in their effect on individual or households travel characteristics especially in term of mode choices of travel to school.

For instant, the higher income of household is allowing them to own one or more private vehicles thus the trip generation rates increases as the income increase. In term of the family size and composition would profoundly influence the household daily trip to school. If the number of children is large in the family, hence this family has higher daily trip rate for educational purposes and the major travel for them is school buses.

Besides that, the zonal characteristics also play a vital role in term of the travelers' modal choices to school. The elements of zone characteristics are the residential density, concentration of workers and distance CBD or local center and the location of the activities take place.

In fact, high density areas tend to be occupied by lower income group, thus, the demand of public transport as a travel mode to school is greater than the high density areas because lower levels of private vehicles ownerships. Additionally, high density areas can be economically and adequately served by public transport because higher level of public transport services and demand compared to the low-density areas.

Finally, the network characteristics also influence the travel modal choices to school considerably in term of the trips generations rates, trip length and travel

characteristics. This includes three major elements, which are the accessibility ratio, the travel time ratio and the travel cost ratio. The good network characteristics represented by means of the comprehensive transit network and highway network or the availability of the nature of the transport system which would increase the accessibility ratio and directly reduce the travel time ratio and travel cost ratio.

As acknowledge in Sarawak, the highway network is very poor and the most important travel modes are by air or by river. Thus, the preferable mode for the school travelers due to matter of time ratio is lower than travel by express buses. So it is, inconvenient for the people to make trip because long of travel time which more than 3 hours (Abdul Rahim Md. Nor, 1992).

Ensuring safe and efficient travel to school is important for the delivery of national integrated transport policies. Taking a more integrated approach to planning school transport implies that the practical first choice for more trips should be by walking, cycling and public transport, decisions on transport provision should be made in partnership between local communities and professionals; and solutions should treat all people fairly.

1.2 Statement of the Problem

In the late 20th century, Malaysia particularly in urban areas has experience most significant changes in the context of modal choices to school because of the development in demographic shifts. The normal population growth and a migration of persons from rural to urban areas have led to substantially larger demands for urban transportation. Such effect is particularly refers to increase of the person trip generation rates, travel demand likely to increase in modal choices to school. Increased travel demands cope with inadequate adjustment in especially transportation infrastructure supplies have often led to overcrowding, congestion and

delay in urban transports systems. Eventually, neither private vehicles nor public transport the time cost travel increase significantly.

The Seventh Malaysian Plan reports that the average annual growth rate of population in Malaysia from years 1996 to 1998 is 2.3%. At the same time, the urbanization growth rate at the year 1995 is 54.7% and at the year 2000 is 58.8%. The mobility growth could be identified significantly by the indication of the increase of new registration private vehicles and public transports in whole Malaysia (7th Malaysian Plan, 1996).

In Malaysia from 1994 to 1997, the Siaran Perangkaan Bulanan Malaysia, September 2000 has shown that the average annual growth rate of new registration of private vehicles is 15% and the average car ownership rate is 1.5 units per household. The rapid growth of human population effect is the increase of the person trip generation rate or the vehicle trip generation rate. This would lead to the issues of traffic congestion, pollution, and vibration, parking deficiency, accidents, safety, environment disaster and human health threat (Jabatan Perangkaan Malaysia, 2000).

Additionally, traffic congestions have resulted in reduced the traffic speeds and the problem of delays will occurs consequently. It is also led to fuel consumption subsequently higher percentage of pollutants like Carbon Monoxide, Nitrogen Oxides, Lead Compounds and Hydrocarbon will be emitted to atmosphere which is significant contribution the degradation of urban air quality.

Besides that, large number of car commuter towards school or local centers has resulted in demand of large number of parking space. Frequently, the provision of parking space is not enough to support with the growth of car population, thus, inadequacy of parking space is a common issues in school areas.

Furthermore, the issues of increased affluences also affect the travel characteristics of the people on the mode choices to school. The trip rate, modal

choices, trip purpose, travel patterns differed considerably between economic groups even though the location from the centre business district was similar.

Generally, the timing and duration of the peaks and lulls of movement vary with size of the city and the location. The travel rhythm of this movement could be classified as diurnal pattern and weekly pattern, which are related to the temporal rhythms of the population activities. The variation of temporal rhythm of the population resulted in the different of hourly or weekly distribution of trips for different trip purposes by different modes.

The transport facilities never been utilized at the maximum level, so synchronization of activity to school in urban areas is necessary to optimize the usage of transport facilities and to alleviate traffic problems. The patterns of social behaviors also can influence the travel mode choices. Such as the school hours, the travel distance and the costs related to the modal choices of school travelers. Besides that, the use of private vehicle as a travel mode also due to reasons of safety purposes especially at the early morning and night times.

1.3   Aim and Objectives of the Study

The purpose of the study is to find a solutions to the problem or finding relationships that exist between the problem and other problems by breaking the problem into its component parts through exploration or analysis.
The study will be carried out with these objectives:

i)   To identify the factors influences community's choices of safer modes for school trip in Pasir Gudang, Johor.

ii)   To improve safety and accessibility for road users whether using private vehicles, public transport, cycling or walking.

iii)   To recommend the proper alternatives and safer modes in order to cater the urban transport problem in the areas.

Hence, the Figure 1.3 below shows the theoretical framework and the results will be used to analyze the travel demand pattern in urban areas and the relationship with the urban transport problem.

Theoretical Framework
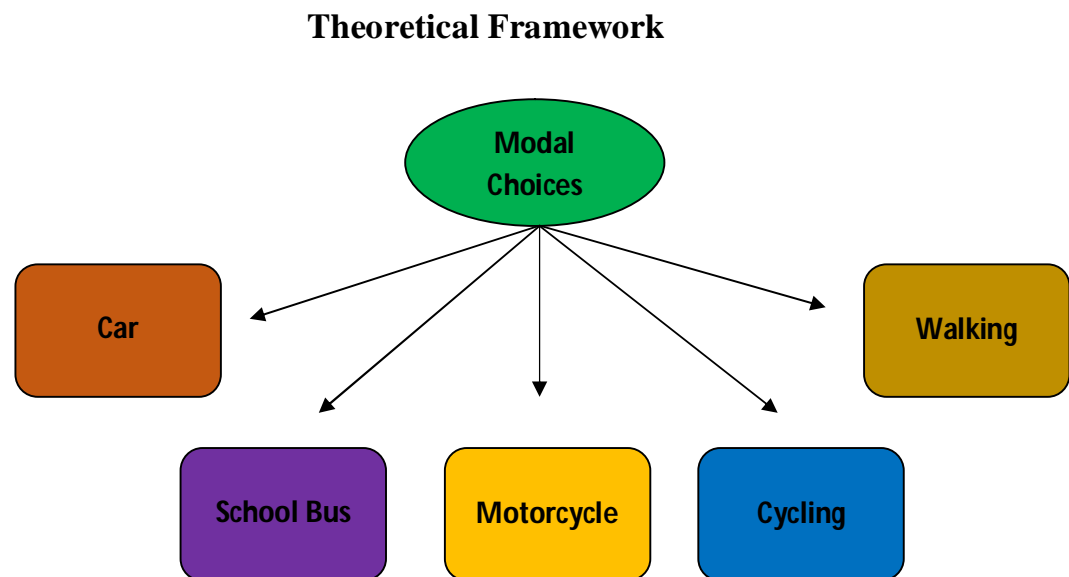
Figure 1.3: Theoretical framework

1.4   Research Questions

The need for a better understanding of modal choices that provide safety among school travelers in urban areas is real and urgent. Due to these cities expanding at a rapid pace, some are doubling their population in decade, people and car population. The necessary study is designed to explore the systematic components of travel mode choices and to gather more solid knowledge of the urban resident's movement to school in a safer way. In respond to this, the study hopes to answer the following questions:

i)   What are the current school traveler modal choices that contributed to the urban transport problem?

ii)   How good the modal choices of current community been practiced to school?

iii) What are the impacts regarding the issues on safety when using private vehicle, public transport, walking or cycling?

iv)   What are the appropriate strategies and solutions need to be set-up in order to handle the problem of urban transport especially safety issues?

1.5   Significance of the Study

The development of road infrastructure and schools have contributed to the increase in the number of vehicles and trips in Pasir Gudang, Johor. As the economy improves, personal income increases, the number car ownership will also be on the rise and thus, more people will make more trips by private vehicles rather than public transport. This is due to relative comfort, convenience and ease in transporting people from one place to another. This also led to major safety issues that happen among road users.

The findings in this study is essential in examining the modal split or mode choices for school trips in Pasir Gudang, Johor Council administration areas and also to examine the factors influence the school travelers to choose such mode when they make a trip to school.

Therefore, the findings hopefully will be able to support transport policy making and also in transportation planning in order to develop a better transport systems and infrastructure on top of reducing transport problems such as traffic congestion and safety of the road users in urban areas. Hopefully it will help to

improve the urban environment by the consequent reduction of air pollution and traffic accidents in order to provide a good public transport service desired by school travelers.

The identification of the factors inhibiting school travelers from utilizing the public transport will help generate policies and decisions in order to reduce the congestion and safety problem more quickly. Hopefully, this study will be able to make some form of contribution to research knowledge and academic awareness regarding the issues on safety when using public transport, walking or cycling to school. It also to hope, encourage students to walk or cycling to school which bring a positive impacts on health and environmental issues.

1.6   Scope of the Study

The study scope will emphasized only on the current school travelers modal choices in Pasir Gudang, Johor. The basic choices of travel mode to school for this study were private vehicle, para-transit, and public transport, cycling and walking. The socio-economic characteristics, which is most significant in influencing the demand for transports are stated as below:

a)   Traveler by age and gender

b)   Household size, structure and formation rate

c)   Income level which such as number car owned

d)   The socio-economic status

This study would be insisted on the people that occupying in the residential areas at Pasir Gudang, Johor. The Table 1.6 shows on the Pasir Gudang population statistics and these selection were based on the criteria of the population size and the uniquely of socio-economic status of the people in that area. The Senarai Taman Perumahan Majlis Bandaraya Johor Bharu report shown that approximately 50% of

the people in that areas were occupying in the low cost residential areas and medium cost residential areas that surrounded with educational centers (Pasir Gudang Local Authority, 2001).

Table 1.6: Pasir Gudang population statistics

Population of Pasir Gudang:	**145 739 people**
Latitude of Pasir Gudang:	1,4667 (128'0.012"N)
Longitude of Pasir Gudang:	103,8830 (10352'58.800"E)
Altitude of Pasir Gudang:	5 m

Source: Pasir Gudang Local Authority 2001

There will be two schools that the research will carried out in Pasir Gudang which is SMK Pasir Gudang and SK Pasir Gudang 1. This is due to both school located at the center of residential areas and mass modal choices been practiced by the school travelers to school. The Figure 1.6(1) and Figure 1.6(2) below are the primary data of the schools:

1) SMK Pasir Gudang

School Statistics:

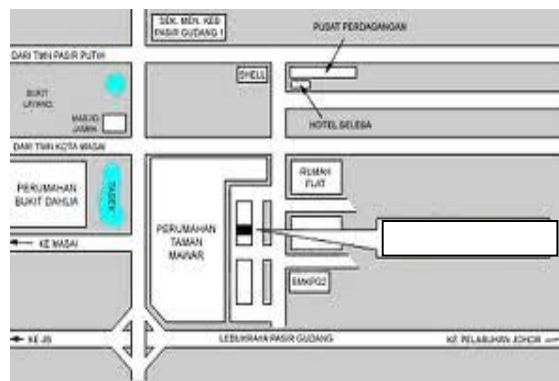|		
Teachers	= 127 people
Staff	= 16 people
Students	= 1928 people
Class	= 62 classes (session AM/PM)
Location	= SMK Pasir Gudang, City Road

Figure 1.6 (1): SMK. Pasir Gudang

2) SK Pasir Gudang 1

School Statistics: Teachers   = 57 people

Staff   = 12 people

Students   = 1024 people

Location   = SK Pasir Gudang 1, Jln 10/19, Tmn Air

Biru, 81700 Pasir Gudang, Johor.

Figure 1.6 (2): SK. Pasir Gudang 1

1.7 Limitation of the Study

There are several limitations in the study that are mainly concerned the data of the primary sources:

a) In this study, only two schools have been selected as a survey location because of constraint in time and cost of doing the survey.

b) This study on the percentage of modal choice for safer school trips through the traveler's behavior does not involve an analytical process in creating a model of modal choice for school trips.

As the limitation of time and manpower, therefore, the study only concentrates on the people that living in the Pasir Gudang residential areas that mostly low cost and medium cost residential area. Furthermore, the findings may not represent the views of the whole population because the people did not volunteer to provide the information or provide the inaccurate information.

1.8 Summary

Urban transport problems are alarming and gradually becoming major issues in Malaysia. The appearance of urban transport problems is significantly due to increase of people and car population, coupled with inadequate of transport infrastructure and traffic management. The others contributed factors are the increase of net income, car ownership rates, trip generation rates and human habits. Those problems have been caused the problem of environment disasters, human health threats, resources depletion, vehicular collisions and congestion. Thus, this study was carried out in urban areas in order to identify the intra urban travel mode choices,

hopefully, to provide the broad picture that describes the safer mode choices to school.

Fundamentally, the most important part of the study is the result of the findings, which eventually to make some contribution to the resent search for the better understanding of the mechanism of safer travel mode choices among school travelers. A good understanding of the safer travel mode choices of the urban residents were crucial to set-up the most significant strategies and policies in response to the transport problem in urban areas. The information like preferable travel mode, total travel time and safer trips were useable in the land use planning and transport system planning. It is important to investigate the nature travel demands in urban areas. The definable would be significantly used in the help to define the factors that contributed to the transport problems. Thus, its result must in future be given serious consideration in the transportation system development of model and policy in urban areas especially in school centers. Finally, this can be approached by organizing systematically our impression and more solid knowledge of the motivations for movement within urban school areas.

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