

Survey on Parking Satisfaction at Universiti Tun Hussein Onn Malaysia Campus

Mustaffa Anjang Ahmad^{1,*}, Muhammad Syazwi Shafie²

^{1,2}Department Of Civil Engineering, Faculty Of Civil Engineering and Built Environment, Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, Johor, 86400, MALAYSIA

*Corresponding Author

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Abstract: Use of the transportation system in university is a major pulse in the daily activities for students and university staff. This is because by having a good traffic system allows traveling plans effectively. Rapid progress in the production of vehicles provides opportunities for students, especially to have their own vehicle. For this study, the scope of research done is focused on areas of campus parking on Tun Hussein Onn University involving a total of fourteen thousand students and three thousand staff. Although the road networking is designed effectively but the parking problems continue to arise. As a result the students and staff showed dissatisfaction with the parking space of Tun Hussein Onn University, especially in faculties and library parking area. The parking area in these building is not enough for students and staff especially at class hour. The university authorities have attempted to solve the parking problem. However, the dissatisfaction among the campus resident still arises every semester. The campus inflow and outflow of vehicles, the location and use of parking lots as well as the drivers' parking behavior are surveyed and analyzed. The study found that the available parking areas at Universiti Tun Hussein Onn Malaysia experiencing a shortage of parking spaces and this causes staff and students to express dissatisfaction with the amount of parking on campus.

Keywords: Parking Lots, Peak Hour, Parking Problems

1. Introduction

In a world of highly developed, modern, people desire a better standard of living. The vehicle is a facility that everyone needs nowadays. It is not surprising if the demand for vehicle increased from year to year [1]. The number of university lecturers and students who utilize private vehicles as a main transport to drive to the university is also increasing year by year[2]. This rapid expansion has placed a significant burden on parking facilities on campus.

Parking are one of the important component of the transportation system and it is one of the important tasks for a design engineer to ensure that parking is in a comfortable and adequate to

accommodate the number of visitors who visit the area [3]. Parking facilities is the main key in planning the preparation and control of traffic and it is also an important base in providing perfect transport policy in the area [4].

Density parking space can often give trouble to the user as the vehicle would be scratch or broken when its collide or touch against each other and other than that its difficult to park their cars when there are many cars. In addition, it can also create problems of traffic congestion and travel time delay [5]. In a study of parking, the real problem needs to be known for example as existing facilities appropriate or not, the impact on traffic and the impact on the environment must be considered to ensure efficient design. Some survey methods for the study of parking can be carried out according to the type and size of a study area. As a result of this research method can directly reflect the actual system conditions existing parking and the use of design preparation of new parking.

With the huge expansion in the number of private vehicles in university, the relative shortage of parking spaces on campus has gotten progressively genuine. As a location that provides all staff and students with a place for their working, studying and even living, the facilities of parking comprise one of the most irksome transportation issues at numerous university campuses, all over the world [6,7]. This is true too for the Universiti Tun Hussein Onn Malaysia (UTHM) Campus.

UTHM is situated between the two main towns of Parit Raja and Air Hitam. Distance from Parit Raja is 5 km, while the Air Hitam is 13 km. The nearest town with Universiti Tun Hussein Onn is Batu Pahat City. The total main campus area is 2438750.002m² or 602.628 acres and total parking area in campus is 14,990.5 m²[8]. According to Assistant of Security Officer, UTHM there are 4,868 applications for motorcycles and 5,873 applications for stickers by UTHM staff and students by 2017. In addition, the total average number of motorcycles and cars entering the campus daily is 7,446 [8]. There are several locations that have been identified as the main areas that have serious parking problem through the field observations, especially at peak hours. Among them are Arcade, G3 Lecture Hall, Faculty and Library. Arcade is the focal point for students and lecturers, especially during the peak hour to search for the food source. Lecture hall G3 is the buildings constructed to provide room and lecture hall for students Universiti Tun Hussein Onn Malaysia. At certain times, the situation in this building became crowded due to be implemented in the event of the building as well as exams being held here. Faculty is the main building for students and lecturers reference intended to manage all matters relating to the administration. University library is one of the main focus areas for university students, especially in exams week.

The main problem faced by Universiti Tun Hussein Onn Malaysia was due to lack of parking spaces in the main areas such as faculty and library. If referring to statistics the number of vehicles, there was an improvement quantity of vehicles from year to year. Parking areas marginally will impact on vehicles available on the road. This can be seen in the placement of parking on the street "on-street-parking" will reduce the capacity of the vehicles on the road. In addition, the amount, type and extent of space on the road or street side will affect the number of vehicles. Without proper control, the placement of parking in the street will cause harmful effects on a moving vehicle due to lack of road width. Any area which is the focus of the public shall be made perfect control of the parking lot. In this way, they will be able to provide comfort to the driver and it can also save you time. If proper control is possible, parking in the affected areas can accommodate the number of cars a lot in a short time. Thus, the objective of this study is to investigate the effectiveness of the existing parking area within UTHM campus.

2. Materials and Methods

There were two parts of this study which are field observation and the second part is survey questionnaire that was distributed to the campus staff and students.

2.1 Observation Study

The main aim of the observation field is to obtain more clearer problem that lies on the parking facilities and space in the campus. In addition, the inflow and outflow of vehicle at the campus was also obtained through the observation field. Through field observation, it is found that the parking spaces in main areas not, at this point meet the parking needs of staff and students, not to mention the increasing demand for parking each year. This problem makes it reasonable to researcher to conducted study on the parking problem in the campus.

2.2 Questionnaire survey

A questionnaire survey was conducted on staff and students. A total of 240 questionnaires were distributed and all of them are retrieved. In this study, the questionnaire was made to get the facts as well as a clearer view of the respondents which are includes the academic staff, support staff and students. The questionnaire contained questions that are arranged in an orderly manner to be administered on the respondents by the researcher. Researchers have requested respondents to fill in answers to questions. Therefore, the quality and standard of the questionnaire is very important because it will determine the value of such research. There are five sections in the questionnaire, Section A (demographic), Part B (Subject Review), Part C (Evaluation), Part D (Problems) and Part E (Suggestion). These sections were divided into five sections designed to isolate the scope of information to be obtained and simplify the process of data analysis conducted.

3. Results and Discussion

This section describes in detail the analysis and findings of the study were collected by the researcher needs a parking space at the main campus UTHM. The data is based on primary data collection using questionnaires and observation. Data from the questionnaires was analyzed and presented in tabular form for ease of understanding. In this study, the data from the questionnaires was analyzed using the Statistical Package for Social Sciences (SPSS).

3.1 Analysis of demographic factors

To complete this study, researchers distributed questionnaires to 240 respondents consisted of 27 lecturers, 32 support staff and 181 students in five faculties at Universiti Tun Hussein Onn, namely Faculty Of Civil Engineering And Built Environment (FKAAB), Faculty of Mechanical Manufacturing (FKMP), Faculty of Technical and Vocational Education (FPTV), Faculty of Computer Science and Information Technology (FSKTM) and the Faculty of Electrical and Electronic Engineering (FKEE). Demographic information is important because it can classify respondents according to their background.

Based on the analysis performed, it was found that from 240 of total respondents, 27 people (11.3%) are lecturers, 32 people (13.3%) of support staff and 181 people (75.4%) are students. Further analysis of the demographics of the respondents are describing the type of vehicle owns by respondents. Figure 1 shows the frequency distribution and percentage of respondents by type of vehicle they use. A total of 175 people (72.9%) of the respondents use a car / van, 57 people (23.8%) use motorcycles and 8 people (3.3%) on a bicycle.

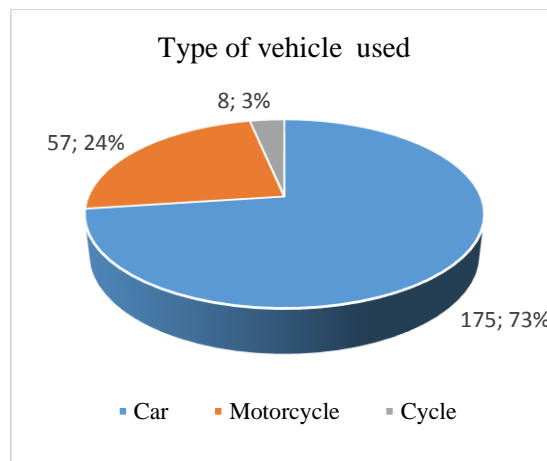


Figure 1: Frequency and percentage of respondents by type of vehicle

3.2 Description of study analysis

Information about parking which is the focus during peak hours guide data collected by questionnaires. This data to measure the level of parking needs whether they require improvements to the study area involved.

Analysis of the location of the study shown as Figure 2, concluded that parking is a major concern in the Lecture Hall of the G3 the 135 (56.3%), followed by the faculty of 46 people (19.2%), library of 45 people (18.8%) and Arcade (14%). From the analyzed result, most respondents choose Lecture hall G3 as a major concern due to the parking in the area has a small amount of parking and the use of the box is high. At the Faculty, the respondents agree that there is congestion especially at peak times during the presence of the students in the morning, afternoon and evening. For Arcade, respondents agree that its not a major concern as the citizens in UTHM are free to choose a place to eat breakfast or lunch either outside or in the parking area kampus. As for the library, the respondents agree that parking in the area are only congested when exam week start by the end of every semester.

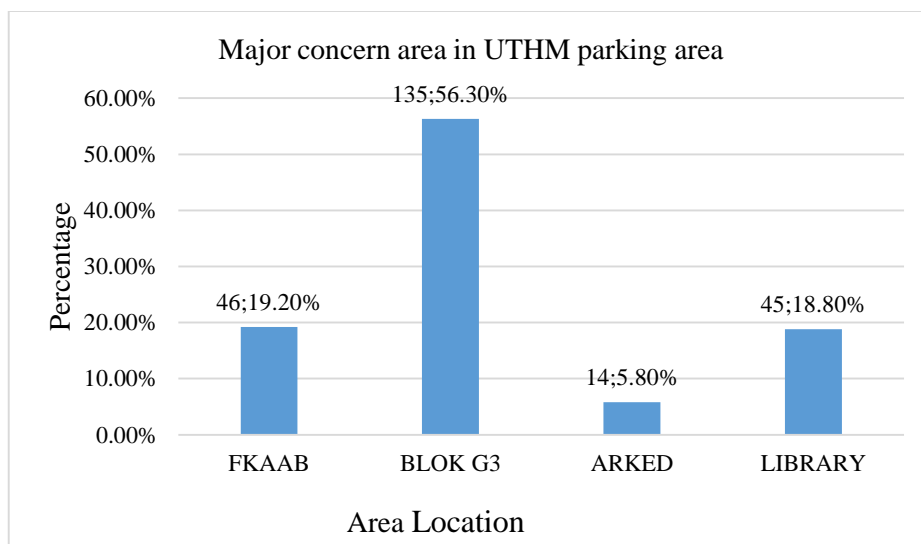


Figure 2: Frequency and percentage of major concern area in UTHM parking area

Form the analysis done on the survey data, a total of 185 people (77.1%) of the respondents visited the parking on campus more than 4 times a week, followed by 48 people (20%) of the respondents use 2 to 4 times a week and so only 7 people (2.9%) of the respondents use the park

vehicles once a week. Figure 3 presented the frequency and percentage of the respondents using the parking area in UTHM.

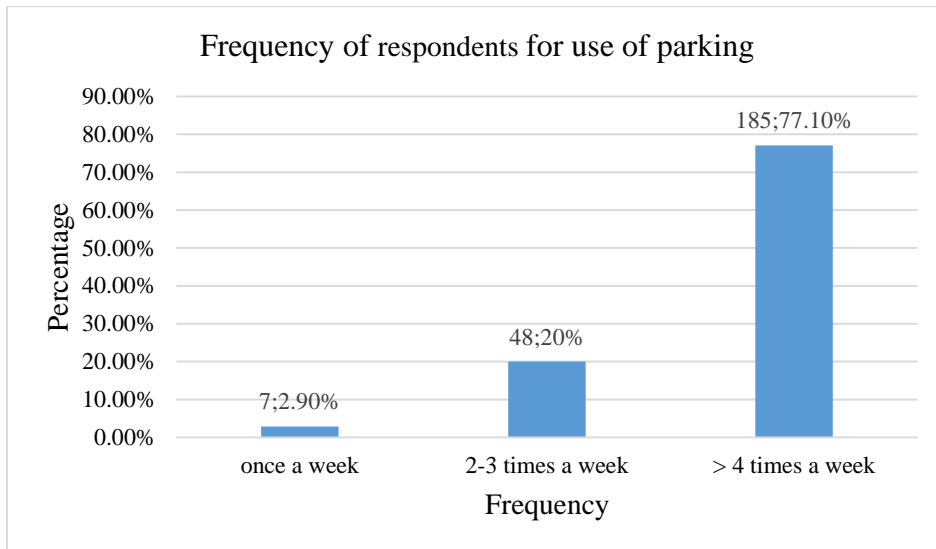


Figure 3: Frequency and percentage of respondents for use of parking

The frequency and percentage of the respondents park their vehicle in parking area within UTHM was presented in Figure 4. Most respondents use parking between 2-4 hours for each course. This is closely related to the factors that influence the respondents to choose parking. As the majority of respondents were from among the students, the parking utilization rate is premised on the time period for a course of lectures. This selection factor is directly proportional to the lecturer category. Most of them visit the location on the basis of teaching and learning session.

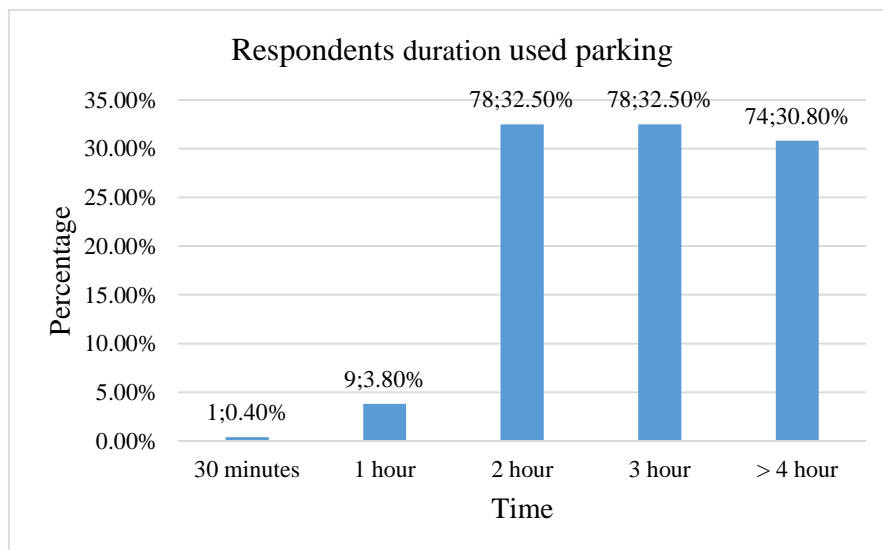


Figure 4: Frequency and percentage of respondents duration used parking

From the Figure 5, it was shown that the overall respondents are not satisfied with the existing parking facilities. The data showed a total of 193 people (80.4%) of the respondents expressed their dissatisfaction, while the remainder of the 47 people (19.6%) of the respondents consented to the comforts parking.

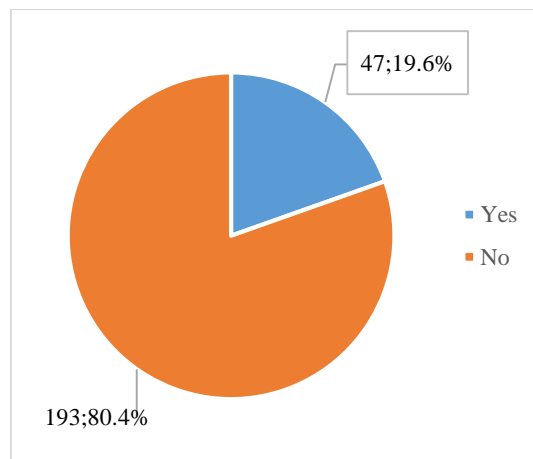


Figure 5: Percentage of Respondents Against Parking Satisfaction

3.3 Evaluation and problem analysis

The analysis conducted to see the frequency distribution of the variable scores with reference to the mean score. Frequency analysis used is based on respondents' perceptions-that there are items in the questionnaire that has been distributed as in Table 1 and 2.

Table 1: scale range of interpretations min

Min score	Description
1.0 – 2.3	Disagree/ negative
2.3 – 3.7	Not agree/ intermediate
3.8 – 5.0	Agree/ intermediate

Table 2: Mean score for descriptive analysis questionnaire

Item	N	Min	Max	Mean	Std. deviation
UTHM residents adhere to special parking for the disabled	240	1	5	2.84	1.269
UTHM residents comply with the existing parking signals and laws	240	1	5	2.75	1.085
Existing parking is fully functional	240	1	5	2.58	1.342
UTHM residents park their vehicles according to the designated place or area.	240	1	5	2.56	1.137
Parking visitors park their vehicles accordingly.	240	1	5	2.54	1.127
The layout of the existing parking space on the University campus area is orderly and provides comfort to the users.	240	1	5	2.40	1.209
The walking distance from the car park to the campus building you want to go to is close and convenient	240	1	5	2.38	1.222
Parking in the University area is sufficient for users.	240	1	5	2.21	.954
The amount of parking space on the University campus is still able to accommodate the increase in the number of vehicles	240	1	5	2.06	1.102
The increase in vehicles at one time does not make it difficult for users to park their vehicles from the parking lot.	240	1	5	1.99	1.131
Vehicle users do not have problems operating the vehicle if the parking space is full	240	1	5	1.96	0.972

$$\begin{aligned} \text{Total Mean} &= 27.62 / 12 \\ &= 2.3 \text{ (Low Satisfaction Level)} \end{aligned}$$

The table shows the distribution of parking user perception of the existing parking. From the analysis performed, it shows consumers are not satisfied with the facilities and design of parking. For questions does note the "standard deviation" is approaching a value of 0 indicates that the question is very relevant to the problems faced by the respondents. Even the question posed coincided with the actual situation of the study area. Users stated the existing parking is not enough and unable to accommodate the increasing number of vehicles on a daily basis.

From the overall evaluation data, it can be concluded that users or respondents evaluate all range questionnaire on low satisfaction levels. This was proven by the "standard deviation" between 0.8 to 1.35 (approaching 0). Generally, based on the analysis conducted clearly shows that the users not satisfied with the number of parking spaces available, especially for students. Mean scores of these facilities are at their low level of satisfaction with an average value of 2.3 (low satisfaction).

3.4 Observations field analysis

To get some data on the frequency of movement in and out of the campus, researchers have using the method of vehicle observation. Observations conducted using special observations that consider information or data vehicle, registration number and time in and out of the vehicle. The data was presented in Table 3.

Based on the observation data that was obtained, the number of vehicle come in from the campus especially during the peak hours is quite high compared to vehicle the exit from the campus. Hence, it can be concluded that the parking demand during this peak hours are greater. Although the amount of the parking demand is a hourly and daily changing, according to the observation, the amount of vehicles in and out is particularly high during the peak hours.

Table 3: Average number of vehicles in and out of three days of observation

Faculty of Civil Engineering and Built Environment				
Observation time	In		Out	
	Car/van	Motorcycles	Car/van	Motorcycles
7.30 to 9.30 am	110	130	62	56
12.30 to 2.30 pm	71	58	26	38
4.00 to 5.00 pm	92	21	20	54
Block G3 Lecture Hall				
Observation time	In		Out	
	Car/van	Motorcycles	Car/van	Motorcycles
7.30 to 9.30 am	117	121	62	47
12.30 to 2.30 pm	68	64	44	71
4.00 to 5.00 pm	28	24	73	59

4. Conclusion

From the overall study, it can be concluded that the number of existing parking spaces on campus are less when compared to the number of students, lecturers and support staff. The high demand for parking spaces, particularly at peak times where some vehicle users had to park their cars outside of the parking area provided. In addition, there are several aspects that need to be repaired at a facility including parking facilities aspects, design and safety. These aspects are very important to ensure the comfort and satisfying vehicles user demands in campus. Steps to be taken to overcome this problem so that it can be done immediately and not to worsen in the future. Other discourses, the amount of parking spaces based on the ideal that more specific guidelines should be provided so that they can

solve the problem of space shortage in turn can provide convenience for all and improve the quality of daily life.

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