

# Identifying Criteria Preferences of Car Purchasing Among Staff in Faculty of Mechanical Engineering and Manufacturing at Universiti Tun Hussein Onn Malaysia

Yunos Bin Ngadiman<sup>1\*</sup>, Chan Shiaw Wei<sup>2</sup>, NurShahrizatBinti Kamal<sup>3</sup>

Department of Production and Operation Management, Universiti Tun Hussein Onn Malaysia,  
Parit Raja, 86400 BatuPahat, Johor, Malaysia

\*Corresponding Author E-mail: [yunos@uthm.edu.my](mailto:yunos@uthm.edu.my)

## Abstract

An automotive industry play a vital role in economy nowadays in most of the country. It is driven to the growth of economy and development of country due to the involvement of many large company and manufacturers across the world that linked together to create diplomatic relationship across the world. The purpose of this study is to identify the level of car preferred by staff in Faculty of Mechanical Engineering and Manufacturing at Universiti Tun Hussein Onn Malaysia and to determine the whether there is a significant difference in criteria preferred for car purchasing between male and female staff. This study had used quantitative analysis and the sample size of this study are 59 out of 69 targeted respondents. The targeted respondents refer to the staff in Department of Manufacturing and Industrial Engineering in Faculty of Mechanical Engineering and Manufacturing (FKMP) at Universiti Tun Hussein Onn Malaysia (UTHM). The result shows that the criteria which are performance, safety and economy has high level of preferences among staff with 0.64 value and there is no significant difference in criteria preferred for car purchasing between male and female staff from performance aspect with significant value of 0.488, while, safety aspect significant value is 0.076 and economy aspect significant value is 0.528. This result show that there is no significant difference between male and female staff towards car purchasing and null hypothesis (H<sub>0</sub>) is accepted.

**Keywords:** Automotive industry, criteria preference, purchasing car, quantitative analysis.

## 1. Introduction

Criteria of car preferences are a vital role towards car's manufacturer company and potential buyers. Thus, in today's global view, Malaysia has been rise and develop in terms of economy positively. In this globally era perception, Malaysia have grown rapidly in positive and well developed in terms of economy, social, culture and education. In the present era of globalization that undergone tremendous changes to the world, particularly Malaysia in terms of economy and education. In today's industry, most of them are focusing on customer and satisfaction as the strategy to keep competitive market and to satisfy the customer are very important (Vishal & Lokhande, 2015). Besides, purchasing an automobiles in the market is very difficult to the customer as the time changes in various technical and operational parameter specifications like model, durability, eco-friendly and cost (Srikishna, 2014).

### 1.1. Problem Statement

The issue that has arisen regarding this study is decision making problem. Complex buying behavior can be initiated by motives that is play vital role to the individual self- concept (Gergoya & Kim, 2016) and all the decision making make by the consumer are differently from all the amount of efforts put on

the different decision making process, hence, the decision making process requires a lot of time spend and information searches as well (Tanja, 2015).

### 1.2. Research Questions

- i. What is the level of criteria preference for car purchasing?
- ii. Is there is a difference in criteria preference for car purchasing between male and female staff of FKMP?

### 1.3. Research Objectives

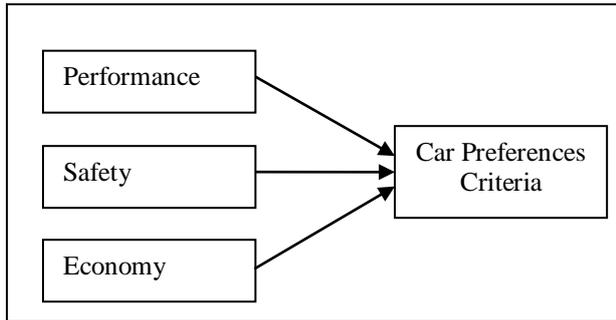
- i. To determine the level of criteria preferred by FKMP staff for car purchasing.
- ii. To determine whether there is a difference in criteria preferred for car purchasing between male and female staff of FKMP.

### 1.4. Conceptual Framework

The conceptual framework for this study is to explain in more detail about the storyline of the study survey. This study was conducted based on issues that arise which is the decision making problem by the consumer before make a car purchasing. From the issue discussed, it can be expand to three independent variable that is criteria that influences consumer which are car performance, economy aspect and safety features.

The dependent variable used in this study was criteria preferred by consumer for car purchasing.

### 1.5. Research Framework



H1: There is significant difference for performance aspect between male and female staff of FKMP towards car purchasing.

H2: There is no significant difference for safety aspect between male and female staff of FKMP towards car purchasing.

H3: There is significant difference for economy aspect between male and female staff of FKMP towards car purchasing

### 1.6. Significance of Study

The significance of this study are towards potential car purchaser which provide an evaluation rate from experienced consumer who have been involve in car purchasing, clarify uncertainty and provide a series of step to make a decision making before purchase product (John et al, 2015). Thus, for car manufacturer, within finding of this research will result the consumer preferences towards purchase car from local or international brand. Thus, the market survey from manufacturer could evaluate and considered the consumer behaviour and criteria preferred by them as to improve the company sales within current findings.

### 1.7. Scope of Study

The scope of this study is about identifying criteria preferences of car purchasing. The objectives of this study are focusing on to determine the level of criteria preferred by FKMP staff towards car purchasing and to determine whether there is a difference in criteria preferred towards car purchasing between male and female staff of FKMP. This study will be conduct in Faculty of Mechanical Engineering & Manufacturing (FKMP), University Tun Hussein Onn Malaysia (UTHM) Parit Raja, Batu Pahat, Johor, Malaysia. The respondent of the survey involves FKMP staff which focus to those who has a personal car vehicle.

The respondent has been valued based on three aspect:

- i. Preferences of performance aspect towards car purchasing by the FKMP staff.
- ii. Preferences of safety aspect towards car purchasing by the FKMP staff.
- iii. Preferences of economy aspect towards car purchasing by the FKMP staff.

In this study, the questionnaire that has been used is quantitative approach. The questionnaire were distributed to the FKMP staff who is a car purchaser.

## 2. Literature Review

### 2.1. Automobile Industry

The automobile industry plays a vital role in overall business cycle innovation (OECD, 2011). Automobile industry provide a variety of models invarious price range and meeting the expectation and needs of customers of all the segments and producing vehicles as per international standards (Gautam, 2014). Automobile manufacturing is thus an integrated industry because

it relies on many supporting industries to produce the great diversity of materials and components it uses. Trends in the automobile industry, which makes huge investments in equipment and research-and- development activities are considered a barometer of the economy (Guerrero et al., 2017).

### 2.2. Consumer Behaviour

A consumer behaviour model can contribute available information about the market, identify the need for additional information determine the targets for marketing effort and specify the information needed by various purchasing decision makers and the criteria to make a decision to the marketer for analyse available information (Dev, 2016). The concept of consumer behaviour is the most importance in marketing and has evolved over the past years. It is significance to understand consumer purchase behaviour as it plays the main role in getting an impact on purchase of products (Nikhil, 2012). The evaluation process of a car is complicated. The consumer wants to make a reasonable purchase decision and will take consideration on several car features when making decision.

### 2.3. Fuel Efficiency

Fuel economy is a significant factor in a consumer's choice of vehicle as are safety and reliability (Tan & Santhi, 2014). The consumer across all the markets are expecting to see greater emphasis on fuel efficiency and significance shift to alternative fuel vehicle in future. The consumer really value the lifetime fuel savings when they consider regarding the fuel economy of their vehicles (Tan & Santhi, 2014).

### 2.4. Prices

Price is frequently be observe as the dominant or the most significance factor that influence consumer when make a purchasing of product or services (Lee & Govindan, 2014). When a consumer facing a purchasing decision in a product category, it is assumed the consumer observe a price to take into account on their current inventory position in the category (Lee & Govindan, 2014). Vehicle price has become even more important than before due to the global recession.

### 2.5. Safety

The vehicle safety performances are ranked before purchasing a vehicle (Lee & Govindan, 2014). In addition, consumers are increasingly looking for a safety features in their vehicles (Deloitte, 2010) and are willing to pay more for a vehicle to obtain better safety features (Lee & Govindan, 2014). Furthermore, car's safety issue has raised concern about Malaysia's driver and passenger due to the high accident rate. A road safety institute is pushing for the manufacturer of cars to have higher safety standards to reduce crash fatalities. Unfortunately, in recent years, the minimize accidents and injury company call for an active and consistency the concept of safety device (Kyong et al, 2012).

## 3. Methodology

### 3.1. Research Design

The design of this study is a survey design. This study is conducted in the form of quantitative study which is descriptive survey design. Quantitative research design is set to maximize the objectives of the study, reliability and generalizability the outcomes, and likely to prediction. The aim of the descriptive survey is for describing the phenomenon and its features (Hossein, 2015). This study focus more on what rather than how or why something had happened.

The descriptive survey of this research is by using questionnaires as a tool of collecting and measure the data obtained.

### 3.2. Research Population

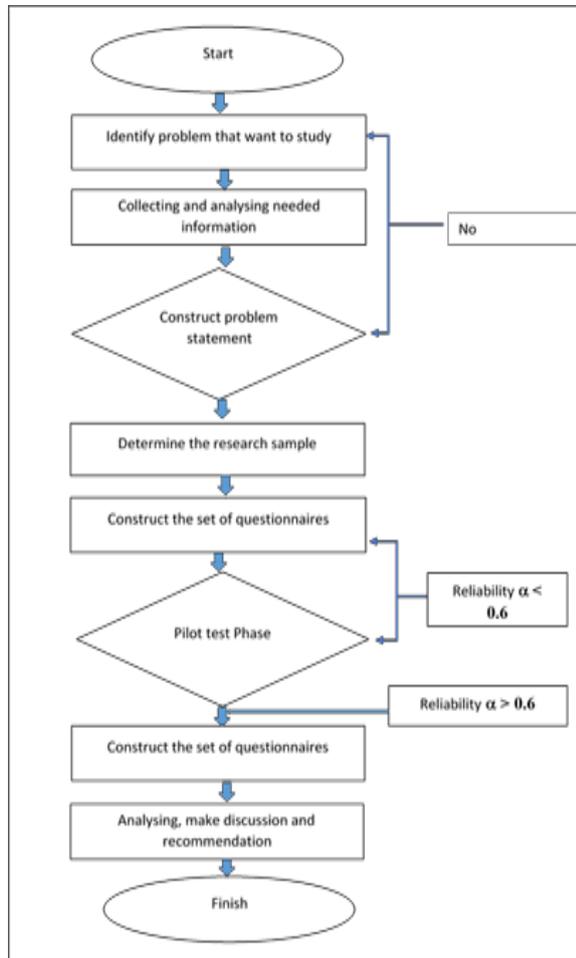
A research population is a large number of individuals or object which is the main focus for a scientific query hence it's also give advantages to the population when research are done (Mohamed, 2016). Research population also well describe as collection of individual or objects known to have similar characteristic (Yunos, 2017). The population determined by this study is among FKMP staff in Department of Manufacturing and Industrial Engineering.

### 3.3. Research Sample and Technique

A sample population is referred as a sub of population and the sample size also must be drawn from representative of the population and have a suitable size to ensure the statistical analysis (Mohamed, 2016). Technique of Krejcie & Morgan has been used as a sample technique in this study. Techniques that has been used in this study is quantitative approach. The total number of the population is 69, thus the sample population is 59 staff. However, after 69 questionnaires has been distributed, there are only 51 questionnaires that was returned back and can be used for analysis because another 8 questionnaires were rejected and not answered by leave it blank.

### 3.4. Research Instruments

The research instrument being use in this study is by distributing questionnaires. These instruments will be distribute to the respondents to gain information on the purpose of the study conducted. Fifty nine questionnaires has been distributed to the FKMP staff and it takes 3 weeks to finish the collecting data.



## 4. Research Design

### 4.1. Pilot Test

Reliability test was conducted to ensure that consistency and stability of the set of questionnaires that has been distributed.

**Table 3.2:** General rules for average Alpha Cronbach (Resources: George & Mallery, 2003)

Alpha range value	Reliability Level
0.00 - 0.59	Not Accepted
0.60 - 0.69	Questionable
0.70 - 0.79	Accepted
0.80 - 0.89	Good
0.90 - 1.00	Very Good

**Table 3.3:** Analysis result of reliability of each part

No	Component	No. of Item	Alpha Cronbach	Accepted
1	Part A: Performance	7	0.705	Accepted
2	Part B: Safety	5	0.759	Accepted
3	Part C: Economy Economy	6	0.758	Accepted
4	Part D: Preferences of car purchasing	6	0.814	Good

Table 3.4: Analysis result overall part

The reliability of part A, part B and part C which is performance aspect of car showed that this item can be accepted based on its Alpha Cronbach value. While the item of part D show that it is good. Overall reliability of this questionnaires this set of questionnaires is can be accepted based on its Alpha Cronbach value.

## 5. Results and Discussions

### 5.1. Data Analysis: Performance Aspect

From table 4.1 above shows the average mean score and standard deviation from performance aspects is 4.01 which is in high level. This indicate that the criteria preference by the respondents from performance aspects is high. While the average standard deviation value in this finding from performance aspects is 0.658.

**Table 4.1:** The average score mean and standard deviation of performance aspect

Average Mean Score	Average Standard Deviation	Level
4.01	0.658	High

### 5.2. Data Analysis: Safety Aspect

The average mean score of all item in Section C is 4.42 which is in high level. This shows that safety feature aspects preferred by the FKMP staff is high for car purchasing. Hence, average standard deviation value of safety features preferred by the respondents for car purchasing is 0.559.

**Table 4.2:** The average mean score and standard deviation of safety feature aspects

Average Mean Score	Average Standard Deviation	Level
4.42	0.559	High

### 5.3. Data Analysis: Economy Aspect

The average mean score of all items in Section C is 3.92 which indicates high level of preference of criteria in economy aspects for car purchasing purpose. Besides, the average standard deviation of criteria preferred by respondents to purchase car vehicles in all items of section C is 0.696.

**Table 4.3:** The average mean score and average standard deviation for economy aspects

Average MeanScore	Average SandardDeviation	Level
3.92	0.696	High

#### 5.4. Data Analysis: Preferences of Car Purchasing by FKMP Staff

Table 4.4 above shows the result for average mean score of preferences of car purchasing based on the aspects provided previously is 4.12 which indicate high level of preferences. Hence, the average standard deviation shows 0.645 which is small value and close to the average mean.

**Table 4.4:** The average mean score and average standard deviation of preferences of car purchasing

AverageMean Score	Average StandardDeviation	Level
4.12	0.645	High

#### 5.5. Normality Test

Based on the table 4.9 above the result of Normality Test showed the data distribution was normal for performance aspect and economy aspect from Kolmogorov-Smirnov while the data distribution was not normal for safety and preferences of car purchasing.

**Table 4.5:** The result of normality test for each aspect

Item	Kolmogorov- Smirnov <sup>a</sup>		
	Statistic	df	Sig.
PERFORMANCE	.101	51	.200 <sup>*</sup>
SAFETY	.138	51	.017
ECONOMY	.122	51	.057
PREFERENCES OF CARRCHASING	.161	51	.002

Hence, data analysis T-Test was chosen to answer the second research questions for performance and economy aspects. However, data distribution for safety and preferences of car purchasing was not normal due to its Sig. value obtained from Kolmogorov-Smirnov was 0.017 and 0.002 which is smaller than 0.05 ( $p > 0.05$ ) hence, Mann Whitney-U was chosen to answer the research questions.

#### 5.6. Data Analysis of Study for T-Test (Performance & Economy)

The T-Test showed that there is no significant difference from performance aspect between male and female staff toward criteria preferences for car purchasing. When  $p = 0.488$  ( $p > 0.05$ ). Hence, the null hypothesis ( $H_0$ ) is accepted.

**Table 4.6:** T-Test result for performance aspect

Aspect	Significant Value
Performance	0.488

The T-Test showed that there is no significant difference from performance and economy aspect between male and female staff towards criteria preferences for car purchasing when  $p = 0.528$  ( $p > 0.05$ ). hence, the null hypothesis ( $H_0$ ) is accepted.

**Table 4.7:** T-Test result for economy aspect

Aspect	Significant Value
Economy	0.528

#### 5.7. Data analysis for Mann Whitney-U test (Safety & preferences of criteria for purchasing by FKMP staff)

From the result obtain, its show that there is no significant difference for safety aspect between male and female staff because the significant value is bigger than the value fixed ( $p > 0.05$ ). The following is the result for safety aspect,  $p = 0.076$  ( $p > 0.05$ ). This show that there is no significant differences for safety aspect between male and female staff towards car purchasing hence the null hypothesis ( $H_0$ ) is accepted.

**Table 4.8:** Mann Whitney-U test result for safety aspect

Item	Significant Value
Safety	0.076

From the result obtain, its show that there is no significant differences for preferences of criteria for car purchasing between male and female staff because the significant value is bigger than the fixed value  $p = 0.977$  ( $p > 0.05$ ). This show that there is no significant of differences for items preferences of car purchasing between male and female staff hence the null hypothesis ( $H_0$ ) is accepted.

**Table 4.9:** Mann Whitney-U test result for preferences of criteria for car purchasing by FKMP staff

Item	Significant Value
Preferences of criteria for car purchasing by FKMP staff	0.977

## 6. Discussion

#### 6.1. Level of Performance Aspect Preferred By FKMP Staff from for Car Purchasing

The finding obtained state that the level of criteria preferred by FKMP staff from performance aspect for car purchasing was in high level which is the mean score value is 4.01. This show that preferences by FKMP staff from performance aspect is in high level of preferences towards car purchasing. It can be state that the FKMP staff highly prefer performance aspect as the criteria preferred for car purchasing.

#### 6.2. Level of Safety Aspect Preferred by FKMP Staff for Car Purchasing

From the finding result obtained state that preferences of criteria towards car purchasing by FKMP staff from safety aspect show that it has high level of preference which is the mean score value is 4.42. This show that perception of FKMP staff is high for safety aspect towards car purchasing. Car safety level also has been increased through regulation and consumer based approach (Khairil et al, 2015).

#### 6.3. Level of Criteria Preferred By FKMP Staff from Economy Aspect for Car Purchasing

From the finding result obtained state that preferences of criteria towards car purchasing by FKMP staff from economy aspect show that it has high level of preference which is the mean score value is 3.2. This show that perception of FKMP staff is high for economy aspect towards car purchasing. Furthermore, vehicle price is one of the most considerations that effectively impact consumers' vehicle purchasing decisions (Tan & Santhi, 2014).

#### 6.4. The Performance Aspect Preferred By Male and Female Staff of FKMP for Towards Car Purchasing

From the finding obtained, it state that there is no significant of differences from performance aspect which is its significant value is bigger than its fixed value  $p=0.488$  ( $P>0.05$ ). This show that from the perception of male and female staff of FKMP has no significant of differences from performance aspect where the mean value for male staff is 4.0345 and for female is 3.9675 that has mean difference 0.06695. Both male and female staff has no significant difference in prefer performance aspect for car purchasing.

#### 6.5. The Safety Aspect Preferred By Male and Female Staff of FKMP towards Car Purchasing

From the finding result for safety aspect it is no significant of differences between male and female staff towards car purchasing. Significant value obtained is bigger than value that is fixed which is  $p=0.076$  ( $p>0.05$ ). Hence, there is no significant of differences between male and female preferences from safety aspect because both of them alert and aware of the type of car safety provided nowadays besides they are all from educated background that must be aware of this aspect as their importance preferences when purchase car.

#### 6.6. The Criteria Preferred By Male and Female Staff of FKMP for Economy Aspect Towards Car Purchasing

From the result obtained, it show that there is no significant of differences between male and female staff for economy aspect since the significant value is  $p=0.528$  ( $p>0.05$ ) which is bigger than its fix value. Hence, there is not so much difference between both of male and female staff since they are still working and have monthly salary which enable them to consider economy as their preference towards car purchasing.

### 7. Conclusion

Based on the finding result obtained, the researcher may conclude overall conclusion based on the research questions that was provided. The preference of criteria for car purchasing are very important to improve from performance aspect, safety aspect and economy aspect to ensure the car criteria meet satisfaction of consumer and manufacturer as well to enable them to produce car that are more preferred by consumer nowadays and as guideline for manufacturer of car to consider all this criteria.

The researcher found out that this study has been successfully answer the research questions provided. All statement that include in this chapter also had attached with evidence and result from chapter of data analysis. The result also show that level of performance, safety and economy also in high level of criteria preference by FKMP staff for car purchasing.

### 8. Recommendation

#### Searching Information Regarding Criteria of Car Preferred By Consumer

The consumer may do some search information to gather information and opinion for criteria of car preferred by most of people today especially in Malaysia to ensure that they make good decision making and satisfied with the product for a numbers of years. Besides, the consumer should know the car features and car details as well before purchase.

#### Suggestions for Continued Study

- i. Use qualitative (interview) to value the criteria preferred by respondents.
- ii. Multiply the rubric value for each preference criteria.
- iii. The study can be narrow down on other field that associated with this study forexample automotive field industry.
- iv. Increasing the sample size of the study to strengthening the result of the study.

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