SERVICE QUALITY EVALUATION OF UNIVERSITY FACILITY BY USING KANO METHOD

Submitted in accordance with the requirement of the Universiti Teknikal Malaysia Melaka (UTeM) for the Bachelor Degree of Manufacturing Engineering (Hons.)

by

NORILANI BINTI MD.NOR HAYATI
B051520019
950409-01-5240

FACULTY OF MANUFACTURING ENGINEERING

2019

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

BORANG PENGESAHAN STATUS LAPORAN PROJEK SARJANA MUDA

Tajuk: **SERVICE QUALITY EVALUATION OF UNIVERSITY FACILITY BY USING KANO METHOD**

Sesi Pengajian: **2018/2019 Semester 1**

Saya **NORILANI BINTI MD.NOR HAYATI (950409-01-5240)**

mengaku membenarkan Laporan Projek Sarjana Muda (PSM) ini disimpan di Perpustakaan Universiti Teknikal Malaysia Melaka (UTeM) dengan syarat-syarat kegunaan seperti berikut:

1. Laporan PSM adalah hak milik Universiti Teknikal Malaysia Melaka dan penulis.
2. Perpustakaan Universiti Teknikal Malaysia Melaka dibenarkan membuat salinan untuk tujuan pengajian sahaja dengan izin penulis.
3. Perpustakaan dibenarkan membuat salinan laporan PSM ini sebagai bahan pertukaran antara institusi pengajian tinggi.
4. *Sila tandakan (√)

☐ SULIT (Mengandungi maklumat yang berdarjah keselamatan atau kepentingan Malaysiasebagaimana yang termaktub dalam AKTA RAHSIA RASMI 1972)

☐ TERHAD (Mengandungi maklumat TERHAD yang telah ditentukan oleh organisasi/ badan di mana penyelidikan dijalankan)

☐ TIDAK TERHAD

Disahkan oleh:

_____   _____
Alamat Tetap: Cop Rasmi:
_____
_____
_____

Tarikh: _____   Tarikh: _____

*Jika Laporan PSM ini SULIT atau TERHAD, sila lampirkan surat daripada pihak berkuasa/organisasi berkenaan dengan menyatakan sekali sebab dan tempoh laporan PSM ini perlu dikelaskan sebagai SULIT atau TERHAD.

DECLARATION

I hereby, declared this report entitled "Service Quality Evaluation of University Facility by Using Kano Method" is the results of my own research excepts as cited in reference.

Signature   : ....

Author's Name   : NORILANI BINTI MD.NOR HAYATI

Date   : 9 JANUARY 2019

APPROVAL

This report is submitted to the Faculty of Manufacturing Engineering of Universiti Teknikal Malaysia Melaka as a partial fulfilment of the requirements for the degree of Bachelor of Manufacturing Engineering (Hons.).
The members of the supervisory committee are as follow:

....

DR. SURIATI BINTI AKMAL

ABSTRAK

Tujuan kajian ini adalah untuk menentukan faktor-faktor yang mempengaruhi kualiti perkhidmatan dan menilai prestasi perkhidmatan di institusi pengajian tinggi yang mempunyai kemudahan yang berkaitan dengan industri perkhidmatan. Kemudahan universiti harus dikenal pasti dan dianalisis dari segi kualiti perkhidmatan yang mereka berikan. Misalnya, kantin, perpustakaan, dan kompleks sukan. Dalam kajian ini, pelajar dikehendaki mengenal pasti unsur-unsur untuk sifat / keperluan perkhidmatan. Salah satu unsur penting yang harus dipertimbangkan adalah sifat / kehendak kepercayaan. Untuk tujuan ini, soal selidik membahagikan kepada para pelajar untuk mendapatkan sifat / keperluan perkhidmatan, emosi terhadap kualiti perkhidmatan, dan sifat teknikal yang berkaitan dengan kualiti perkhidmatan. Dua soal selidik dibuat di mana salah satu daripadanya adalah untuk mengenal pasti kriteria kualiti terhadap kafeteria, dan yang lain adalah untuk mengenal pasti sifat kriteria kualiti berdasarkan kriteria. Kedua-dua soal selidik ini akan digunakan dalam analisis yang dibuat dengan menggunakan Proses Rangkaian Analitikal (ANP) dan Kaedah Kano masing-masing. ANP digunakan untuk menentukan dimensi kualiti perkhidmatan. Seterusnya, atribut perkhidmatan kriteria terpilih dinilai menggunakan kaedah Kano. Sebagai kesan, kriteria dan sifat yang mempengaruhi pemilihan pelanggan terhadap kafeteria boleh ditentukan dan akhirnya, peningkatan boleh dibuat.

ABSTRACT

The purpose of this study is to determine the factors affecting service quality and evaluate service performance at higher learning institutions that has facilities which related to the service industry. The university's facility should be identified and analyzed in terms of the quality of service they provided. For example, the cafeteria, library, and sports complex. In the study, student is required to identify the elements for service attributes/requirements. One of the essential elements that should be taken into consideration is the trust attributes/requirements. For this purpose, questionnaire is distributing to the students in order to elicit the service attributes/requirements, emotional toward service quality, and technical attributes related to service quality. Two questionnaires are constructed which one of it is to identify the quality criteria, and the other one is to identify the quality criteria attributes based on the criteria. Both of these questionnaires will be used in the analysis which is made by using Analytical Network Process (ANP) and Kano Method respectively. ANP is used to determine the dimension of service quality. Subsequently, the service attributes of the selected criteria were evaluated using the Kano method. As an impact, the criteria and attributes that affecting customer selection on cafeteria can be determined and eventually an improvement can be made.

DEDICATION

In the name of Allah, the Most Gracious, the Most Merciful.

To my beloved baba, Md. Nor Hayati Bin Tahir,
To my lovely mummy, Salome Binti Ahmad,
To my sisters, Bella and Zetty,
Thank you for being very supportive and helpful, it means the world to me.

Thank you to my dearest supervisor, Dr. Suriati binti Akmal,
Without her, I will never get through this project by myself.
I appreciate her time for every meet up, for every advice and guidance throughout the study.

Finally, I would like to thank every single heart that beats around me.
They are one of the important person in this journey.
They always know I can go far and give my very best, every single time.

ACKNOWLEDGMENT

First and foremost, I would like to pay my gratitude to the highest, Alhamdulillah. To my intelligent supervisor, Dr. Suriati Binti Akmal thank you so much for all the knowledge that you have taught me. Not to forget for your kind heart and deeds for guiding me to the right path to achieve the goals of our final year project. Thank you to Mr. Hasoloan for every single guidance you gave in order for me to success in this project. To my beloved parents, Md. Nor Hayati Bin Tahir and Salome Binti Ahmad, I can never stop thanking both of you for all the moral support and inspirational motivation you have spoken out to me since I was born until today. In remembrance of my friends from SDE, who have been together since my day one in UTeM until we are now at the end of degree. For those who have helped directly or indirectly, I thank each everyone of you for everything. I am blessed to be surrounded by positive and cheerful people like you.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

UTeM	-	Universiti Teknikal Malaysia Melaka
FKEKK	-	Fakulti Kejuruteraan Elektikal dan Electronik
FKE	-	Fakulti Kejuruteraan Elektrikal
PPP	-	Pusat Persatuan Pelajar
MCDM	-	Multi-Criteria Decision Making
SERVQUAL	-	Service Quality
SERVPERF	-	Service Performance
MCDA	-	Multiple-Criteria Decision Analysis
WSM	-	Weighted Sum Model
WPM	-	Weighted Product Model
AHP	-	Analytical Hierarchy Process
ANP	-	Analytical Network Process
GP	-	Goal Programming
BWM	-	Best Worst Method
TOPSIS	-	Technique for the Order of Prioritisation by Similarity to Ideal Solution
SSQFFR	-	Scale of Service Quality in Fast-Food Restaurant
GDP	-	Gross Domestic Product
PFI	-	Priorities for Improvement
PSM I	-	Projek Sarjana Muda 1
PSM II	-	Projek Sarjana Muda 2
SPSS	-	Statistical Package for the Social Sciences
M	-	Must-be
O	-	One-dimensional
I	-	Indifferent
A	-	Attractive
R	-	Reverse
Q	-	Questionable
T1	-	Weightage 1

T2	-	Weightage 2
CS	-	Satisfaction Coefficient
DS	-	Dissatisfaction Coefficient
K	-	Kano Attributes
F	-	Functional
DF	-	Dysfunctional

CHAPTER 1
INTRODUCTION

This chapter describes the introduction of the project. In this project, study about the service quality evaluation is conducted. This chapter provides the research background, problem statement, objectives and scopes.

1.1   Research Background

Today's world of highly intense competitiveness in the business environment, driving companies to strengthening the customer-focused strategy. Moreover, the dynamic business environment and the use of technology have pushed company to implement strategy which raise their relationship with the customer such as customer loyalty, customer satisfaction and service quality (Ngo and Nguyen, 2016).

Customer satisfaction is a customer's personal evaluation or impressions of their experience with the actual performance of particular services or products. Satisfaction is achieved when the performance of services or products provided is higher than customer expectation. While dissatisfaction is the condition occurs when the performa nce of services or products provided is lower than customer expectation.

According to Boulding (1993), there are two different concepts of customer satisfaction which are specifics of transaction and cumulative. The cumulative specific perspective is defined as customer satisfaction as an overall evaluation that is based on the good or service that had been consume and purchase over time (Anderson et al., 1994; Fornell, 1992). While, the transaction specific perspective is represented as a purpose of expectation from pre-purchase with the real performance of the product or service when

post-purchase (Anderson et al., 1994; Churchill and Surprenant, 1982; Tse and Wilton, 1988).

Kotler (2006) asserts that the key to maintain the number of customer is their satisfaction that makes customer wants to stays a longer. Moreover, a company can gain more profit and reduce the operating cost and total expenses by having a loyal customer (Copacino, 1997). Therefore, the company build sustainable competitiveness and maintaining the customer loyalty for a long-term is a must (Ngo and Nguyen, 2016). Many kinds of literature agree that loyalty is the basis for customer satisfaction and determine the business success. A word of mouth of the loyal customers is crucial to business success. However, the loyalty cannot be separated from the service quality from the provider. Some studies indicate that service quality is one of antecedent to the customer loyalty and customer satisfaction (Almohaimmeed, 2017; Mosahab, 2010; Unindha, 2017; Waldt et al., 2014).

Service quality is often conceptualized as a difference of estimated service with the real service (Bloemer et al., 1998; Slack and Ambidexterity, 2016; Parasuraman, 1988). Quality starts with customers' requirements and end in customer opinion (Kotler, 2006). This means that perception of customers' who consume and enjoy the services of the company will give a positive quality. The customer's thoughts of the quality can be assessing by the services provided of one service.

1.2   Problem Statement

The literature studies show that service quality and customer satisfaction are critical for business success due to their positive impact on customer retention and company profitability (Caru and Cugini, 1999; Fournier and Mick, 1999; Anderson and Mittal, 2000; Meuter et al., 2000; Adil, 2012; Adil and Khan, 2012). Service quality is the difference perception between perceived service level and customer expectation (Parasuraman et al., 1985).

In food industry specifically in the restaurant industry, customer's perception of service experiences is usually measured by service quality (Wu and Mohi, 2015). However, for customer themselves, service quality is difficult to evaluate as the nature of service is

2

ambiguous. Thus, in the restaurant industry, the nature of service quality is categorized into tangible service and intangible service (Wu and Mohi, 2015). The attribute of tangible service includes facilities, equipment, and personnel provided by the service provider are existed at a customer in order to evaluate quality. In the absence of tangible attributes on which to measure the service quality, customers must look up for intangible service attributes such as price, reliability, empathy, loyalty, and trust. Further, they agree that in some situation, appropriate evaluation on a combination of both tangible and intangible service quality is required as it may affect customer perceive in the restaurant industry.

In literature, there are many types of research have been conducted to evaluate the service quality in the restaurant industry. Some of the studies, evaluate all necessary service quality attribute to measure the connection between service quality and customer satisfaction.

In a recent study by Almohaimmeed (2017) in Islamic country which is Saudi Arabia, it shows that customer satisfaction have a positive relationship with service quality. A survey was conducted to identify the service quality performance in 100 restaurants. They define 11 service quality attributes include halal quality as one of the unquestionable quality for all restaurants in Saudi Arabia. Other attributes of service quality are food quality, hygiene, responsiveness interior design, accuracy, assurance, external environment, atmospheric quality, price, and menu.

Similarly, another study of assessing the evaluation the fast-food restaurant's service quality (Wu and Mohi, 2015). model interaction quality, physical environment quality, and outcome quality are represented as service quality attribute. Based on these service quality attribute, a conceptual Scale of Service Quality in the Fast-Food Restaurants (SSQFFR) model was developed to facilitates manager of fast-food restaurants in formulating and measuring the service quality.

Also, there are some researchers that studied only certain service quality attributes that that is highly important. Of all the customer satisfaction, there are some of the intangible service attribute that triggers and lead to their evaluation such as loyalty and trust. In business literature, loyalty has been synonyms as important for business survival (Cacares et al., 2007). Loyalty is defined as connecting emotionally to a firm and desire to continue relations

3

which also addressed from an individual opinion, being evaluated as a repetitive purchase is done and by the proportion of shopping expenses dedicated to the product (Homburg and Giering, 2001; Slack and Ambidexterity, 2016). Bowen et al., (2001) stated that there are few approaches to measure loyalty which are behavioral measurements, attitudinal measurements, and composite measurements. Behavioral measurements can be seen by the behaviour of customers that will change once better value are offered in another service. Attitudinal measurements can mirror to the emotional while psychological attachment is the essential in loyalty. Composite measurement is the combination or mixture of both behavioral measurement and attitudinal measurement, which can be applied to analysing the loyalty in few fields such as retailing and airlines. Customers satisfaction is not enough in order to get the customer loyalty. Therefore, industry should realize that they have to keep their customer extremely satisfied to gain their loyalty.

Apart from that, trust has a positive relationship on customer loyalty (Akbar and Parvez, 2009). Trust is essential to build and maintain a long-term service in the industry. In Trif (2013) studies, it results that there are possibilities of customer did not makes a clear difference between cognitive and affective attributes of trust. These result has showed by two parties. The greater the level of customer satisfaction, it will increase the level of customer trust. This will have a strong relation to customer loyalty. The company must provide a high level of customer trust in order to get customer loyalty.

In the study of Oh (1999), the customer will have a thought the evaluate their perceptions of the actual service with "worse than/ better than expected" scale. However, this qualitative evaluation is insufficient to help the managers of the restaurant industry in measuring their performance. Thus, in evaluating the service quality, several tools of multiple-criteria decision making (MCDM) or multiple-criteria decision-analysis (MCDA) are used. MCDM is a powerful method to help decision makers choose among a discrete set of alternative decisions. Each of MCDM methods uses numeric techniques which give different accuracy or value towards the best decision. Some of the MCDM methods are Analytic Network Process (ANP), Analytic Hierarchy Process (AHP), Best Worst Method (BWM), Outranking (ELECTRE), Goal Programming (GP), Technique for the Order of Prioritisation by Similarity to Ideal Solution (TOPSIS), and Weighted Sum Model (WSM).

As mentioned previously, Almohaimmeed (2017) investigated service quality in the restaurant industry. A regression analysis was applied to obtain attributes of service quality. Marković et al., (2011) used bivariate (t-test) and multivariate (exploratory factor analysis and reliability analysis) statistical analyses to identify the factor of service quality in a city restaurant. As a result, the most important criteria is tangibles, that including cleanliness and comfort of the cabin, taking off and landing of the plane, food and beverages quality and external appearance of cabin crews. Sihombing et al., (2012) used integration of Kano model in SERVQUAL to measure the service quality of a bank service.

A number of previous studies have been made on restaurant industry which shows a relationship between service quality and customer satisfaction. However, small number of awareness had been given on this matter especially in university's cafeteria. Also, it is found that none of the literature discusses in detail on the tangible service attributes such as facility layout. Customers are highly concerned about store's layout as it eases the movement of customer and helps to ease finding what they want. It also increases the feel of comfortable and can reduce a pressure on a customer's (Dabholkar et al., 1996). Similarly, the facility layout of a university café is more on the process flow of service quality which to ease the customer to take food, eat food, put the plate and cutlery after eating and communicate with colleagues. Visible facilities quality is important to service provider especially when there is competitive service (Dabholkar et al., 1996). Therefore, this project intends to study the service quality within university café and to represent the relationship between service quality attributes with facility layout. The integration method between ANP and Kano method are used to evaluate service quality criteria.

1.3 Objectives

The purpose of this study is to determine the factors affecting service quality and to evaluate service performance at higher learning institutions that have facilities which related to the service industry by using Analytical Network Process (ANP) and Kano methods. The university's facility should be identified and analyzed in terms of the service quality that they provided. The objectives of this study are as follow:

    i.   To identify the service quality criteria UTeM's cafeteria

    ii.   To analyse the service quality criteria using ANP and Kano method

   iii.   To validate the service quality criteria for the study of different cafeterias

1.4   Scope

In our daily life, there is always service system in any of the industry. This includes restaurants, carwash, supermarket and also college. Service quality is must meet or exceed customer expectations in order to gain their satisfaction. From a customer perspective, they are dealing with service quality evaluation to rate their satisfaction towards service provided by an activity.

The scope of this study focuses on customer satisfaction and its service quality evaluation of cafeterias in Universiti Teknikal Malaysia Melaka (UTeM). Questionnaires are distributed to the students and staffs in order to get the criteria and attributes that related to the study. For this case, students and staffs in UTeM are the customers for the study. The date collected are then analysed and interpreted by one of the multi-criteria decision making (MCDM) methods which is Analytical Network Process (ANP), and Kano method to evaluate the service quality.

ANP is the basic way of Analytical Hierarchy Process (AHP) which able to solve the complications of complex interrelationships. Compared to AHP, ANP does make the structures as a network. It uses the pairwise comparison to get the weight and the value of each element. Kano method is a tool that is used to get the understanding of customers and to classify their priorities of customer needs based on the customer's satisfaction.

1.5   Summary

As a conclusion to this chapter, research of service quality which related to trust and loyalty to meet customer satisfaction are discussed. ANP and Kano method are proposed to be focused in this study. Proposed methods will be developed to evaluate the service quality

of cafeteria in university. Customer which are students and staffs of UTeM is the medium to collect the data in terms of parameters of service quality. These parameters will then be calculated and investigated using the methods proposed. By knowing the parameters, we can compare all of the criteria and get the most critical parameter.

CHAPTER 2
LITERATURE REVIEW

This chapter will explain the literature review with respect to this study. All the findings and collection of information regarding the topics which include the service quality will explain in this chapter. A literature review is the phase of finding the previous research and related technical papers that are related to the project. It defines the process of searching related study, collects the information, analyze the information to related scope and determines the conclusion. In addition to that, literature review evaluates other people studies to find the related works and methodology with the current study.

For this chapter, in the study that was made on several related topics. Past studies were made for service quality evaluation on the food industry, the airline industry, and bank industry by applying MCDM methods. Most of the studies were made by using a different approach of MCDM such as SERVQUAL, weighted sum model (WSM), weighted product model (WPM), Technique of Order Preference by Similarity to Ideal Solution (TOPSIS), Analytic Network Process (ANP) and Kano method.

2.1   Service Quality

The service sector has become one of the key contributors to Malaysia's gross domestic product (GDP). For example, GDP from Services in Malaysia has increased from 162482 MYR Million in the third quarter of 2017 to 168736 MYR Million in the fourth quarter of 2017 (Trading Economics, 2018). In the Eleventh Malaysia Plan in the year 2016 to year 2020, economic growth will always have affected by the service sector. Service sector is expected to develop for 6.8% per annum and contribute 56.5% to the GDP in year 2020, while offer 9.3 million vacancies in occupations (Malaysian Investment Development Authority, 2018).

A service is an act of doing work or activity which able the world to communicate with each other. Some of the activities that can relate to service are customer service, military service, community service, public service, and volunteering. Besides, there are few more approach other than activities which are arts and entertainment, economics and business and technology.

In any of the service provided, there must have a quality. It is important to have a great organization operating in the industry. Service quality can be expressed as "the difference between the perceived service and expected service" (Parasuraman et al., 1985). Service quality is the contrast of expected outcomes with actual performance by service providers. It begins with the customer needs and ends with the customer perception (Unindha, 2017). Service quality is hard to measure as it has tangible and intangible criteria. Therefore, criteria that want to be evaluated will be identified (Singh, 2016).

2.1.1 Service quality in service industry

i. Food industry

The restaurant is a business which provides and serves foods and beverages to the customers. Fast food is a mass-produced food that is produced and it is fast-served. Fast food is usually provided with an ability to serve food via the drive-through. However, the foods are less nutritionally valuable compared to foods at the restaurant. Hamburgers, French fries, soft drinks are some of the menus that can be found in much fast food stalls. Both of restaurant and fast food are categorized in food industry which there is always service that relates to the customers.

Customer service is one of the most important criteria in order to be successful in the food industry. Al-Tit (2015) study shows that service in the food industry have a positive influence on customer satisfaction and it would moderate the relationship between service quality and customer retention. This study is performed by using multiple regression analysis and simple regression analysis to test the relationship between predictor variables (tangible,

reliability, responsiveness, assurance, empathy and food quality) and response variable (customer satisfaction).

Yildiz and Yildiz (2016) made a study in service quality in a restaurant by using AHP and TOPSIS. They stated that food quality in restaurants was the most important criterion, which to is said that customer's expectation toward food quality is high. Besides that, trust and reliable was an outstanding criterion that will support meeting customer expectations.

Bojanic and Rosen (1994) discovered that the higher the customer level of expectation in service, the more likely for a customer will be disappointed. It is important that service provider understand the customer's evaluation process and manage to gain their expectations. Meanwhile, for the customer's side, they should be realistic in evaluating the service quality.

ii.   Airline

The airline industry is one of the industrial areas that is developing in all over the world. It is essential that airlines do everything that they can in order to provide the best experiences and services, to meet customer satisfaction. Three dimensions were said to be critical in relation to customer satisfaction and customer loyalty between Malaysia Airline and AirAsia in Malaysia which are service quality, price, and servicescapes (Case et al., 2014). In the study, two hypothesizes which examines the connection between customers' perceived service quality and customer satisfaction and customer loyalty in AirAsia Airline and the other hypothesis is for Malaysia Airline. As a result, one of the airlines which is AirAsia Airline was concluded to have a good efficiency service quality than Malaysia Airlines. Besides that, price strategy connection with customer satisfaction and customers' loyalty in AirAsia Airline with Malaysia Airline was made. As a result, AirAsia Airline has a greater number of customers looked forward to using their service. The study shows that airline industry has the most important criteria in service quality, price and service capes. To gain a high number of the customer, these criteria should be maintained or improve.

In a Journal of Air Transport Management by Saaty and Vargas, (2014), a study in service quality improvement criteria of Taiwanese airline industry based on DEMATEL and ANP method are conducted. They stated that service quality was the most important criteria

10