

東海大學會計學系碩士在職專班

碩士論文

產品滿意度、服務品質對顧客忠誠度之影響-以汽車產業為例



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謝詞

此時此刻，許多東海大學念書的往事，縈繞在我的腦中。「恭喜你！通過口試了。」聽到這句話時，我內心激動不已，回想一路走來，有開心，有艱辛，開心的是在班上認識了很多來自不同專業領域的同學，艱辛的是自己中文能力有限，在理解中文意義時比較辛苦，很感謝老師與同學們對我的包容、耐性與幫忙，我才能夠順利畢業。

我更感謝我的指導老師—劉俊儒教授，由於劉教授的耐心地指導，使我在理論或實務方面皆受益匪淺，尤其是寫論文的過程中，他讓我瞭解到能把一篇論文寫好，除了可將所學應用於管理實務外，也強化了個人系統性的思維邏輯。

我之所以有機緣完成在職專班碩士學位，完全是裕民汽車公司同仁給我的動力與協助，論文中所需的問卷調查，大都是透過工作同仁們的幫忙，方能將客戶意向資料蒐集完整，他們無私的熱忱令我感動，尤其是董事長高金豐先生的推薦與支持，更是讓我不敢懈怠的全力以赴，董事長對我的提攜，我永銘於心。

我的父母在我的進修過程中，就像是一座穩固的城池，讓我在面對各種困惑與阻礙時，都能有堅強的後盾與信念，對於他們我有說不完感激。我的爺爺，是我畢生難忘的人，老人家豐富的閱歷，從小到大對我諄諄教誨，即使我已出了社會，仍然告訴我做人做事要樂觀，要正向思考，我常在工作上或是寫論文時遇到瓶頸，爺爺總是操著濃濃的鄉音對我說：「怡人呀！再堅持，再忍耐一下就跨過去了！」因為這樣，我才能不斷地跨越障礙；當爺爺知道我即將面試，可以看出他內心的安慰與喜悅，可惜他老人家於不久前以 92 歲高齡往生，我謹以此論文告慰他老人家，我做到了。

如今，我已完成了人生另一個階段性任務—在職專班碩士學位，接下來要面對的不僅是工作上的挑戰，更要時時提醒自己，不斷的往前邁進，不斷地學習新事物，做人做事利他利己，讓未來的人生過得更加充實與精采。

方怡人謹謝 於 2017 年 2 月

產品滿意度、服務品質對顧客忠誠度之影響—以汽車產業為例

中文摘要

近年來台灣汽車產業蓬勃發展，車子對於大部分的民眾來說已經成為不可或缺的交通工具，加上台灣汽車市場規模較其他國家小，品牌種類也不盡其數，因此各大品牌為了吸引民眾購車，推出了低價優惠、買新車送好禮等多樣化的促銷活動，使得市場競爭激烈。然而現在消費者自我意識強烈，對於選擇汽車品牌不再只是考慮價格，更包含了完善的售後服務，對於企業而言，除了提供消費者滿意的產品與價格之外，更加強服務品質與服務流程，進一步降低顧客流失率，且提升品牌口碑形象，並增加顧客滿意度與忠誠度。

本研究以問卷調查的實證研究方式，探討裕隆日產汽車的產品滿意度和服務品質對顧客忠誠度的影響；並根據參考文獻，設計滿意度之調查問卷。問卷發放對象為裕隆日產回廠維修保養之車主，共發放問卷 200 份，回收問卷共 200 份，回收率 100%。本研究使用 SPSS 統計軟體進行統計分析，以迴歸分析探討產品滿意度、服務品質和顧客忠誠度是否相互影響，並得到以下結論：

1. 產品滿意度對顧客忠誠度有顯著影響
2. 服務品質對顧客忠誠度有顯著影響

根據研究結果發現，對於企業滿意度高與服務品質高的顧客，不一定擁有高忠誠度，但反之高忠誠度的顧客，就擁有高滿意度與高服務品質，因此在企業方面，為了增加顧客再購或介紹給他人，並留住顧客群，因此提升服務品質，進一步鞏固口碑，如此才能增加企業的獲利，擁有長期的競爭優勢。

關鍵詞：產品滿意度、服務品質、顧客忠誠度

The Impact of Product Satisfaction and Service Quality on Customer Loyalty: A Case Study from the Automobile Industry

ABSTRACT

Taiwan's vehicle market is smaller than other countries, but encompasses more brands and aggressive competition and marketing campaigns, leading to intense competition between manufacturers. To consolidate customer loyalty, the industry not only must provide quality products at a reasonable price, but also offer quality service that positively impacts consumer decisions. This study utilizes questionnaires to explore customer satisfaction and perceived service quality towards Yulon Nissan Motor and how it impacts customer loyalty. The questionnaire was designed with references to published academic papers. The questionnaire subjects were Nissan Motor owners who returned to the original manufacturer for car maintenance. A total of 200 questionnaires were given out, and 200 valid questionnaires were received back. Through statistical analysis, the findings show that product satisfaction and service quality have significant positive effects on customer loyalty. We also find that satisfied customers lead to loyal customers, who in turn grow the brand and can increase the customer base through word of mouth. This is one way for automobile corporations to increase profit and long-term competitiveness.

Keywords: *Product satisfaction, Service quality, Customer loyalty.*

TABLE OF CONTENTS

中文摘要	III
ABSTRACT	IV
TABLE OF CONTENTS.....	V
LIST OF FIGURES	VII
LIST OF TABLES	VIII
1. INTRODUCTION	9
1.1 STUDY BACKGROUND.....	9
1.2 RESEARCH PURPOSE.....	12
1.3 STUDY PROCESS.....	13
2. LITERATURE REVIEW	14
2.1 PRODUCT SATISFACTION.....	14
2.2 SERVICE QUALITY	19
2.3 CUSTOMER LOYALTY	29
3. RESEARCH METHODOLOGY	34
3.1 CONCEPTUAL FRAMEWORK.....	34
3.2 FIELD IMPERICAL STUDY.....	35
3.3 HYPOTHESES.....	36
3.4 QUESTIONNAIRE DESIGN.....	38
3.5 THE EMPERICAL MODEL.....	43
3.6 DATA ANALYSIS	44
4. THE INTRODUCTION OF AUTOMOBILE INDUSTRY AND THE CASE STUDY COMPANY.....	46
4.1 THE INTRODUCTION OF AUTOMOBILE INDUSTRY	46
4.2 THE INTRODUCTION OF THE CASE STUDY COMPANY	47
5. STATISTICAL ANALYSIS AND RESEARCH RESULT	48
5.1 DESCRIPTIVE STATISTICAL ANALYSIS	48
5.2 RELIABILITY ANALYSIS	51
5.3 FACTOR ANALYSIS.....	51
5.4 ONE-WAY ANOVA	56
5.5 CORRELATION ANALYSIS	64
5.6 REGRESSION ANALYSIS	67
6. CONCLUSION	70
6.1 CONCLUSION	70
6.2 IMPLICATION AND RECOMMENDATION	72
6.3 LIMITATIONS AND FUTURE RESEARCH	73

REFERENCES 74
APPENDIX 80



LIST OF FIGURES

Figure 1-1 Customer Satisfaction and the Effect on Customer Loyalty	10
Figure 1-2 Research Flow Chart	13
Figure 2-1 Model of Service Quality	26
Figure 2-2 The Service Triangle	27
Figure 2-3 Gap Model of Service Quality	28
Figure 2-4 Loyalty Triangle	31
Figure 3-1 Conceptual Framework	34



LIST OF TABLES

Table 2-1 Relevant Literature of Production Satisfaction	15
Table 2-2 Relevant Literature of Service Quality	20
Table 3-3 Service Quality Dimensions	22
Table 2-4 Relevant Literature of Customer Loyalty	30
Table 2-5 Customer Loyalty Dimensions	33
Table 3-1 Car owner information	38
Table 3-2 Product Satisfaction Measurement Criterion	39
Table 3-3 Service Quality Measurement Criterion	40
Table 3-4 Customer Loyalty Measurement Criterion	41
Table 5-1 Basic Information Analysis	48
Table 5-2 Car Ownership Data Analysis	50
Table 5-3 Reliability Analysis Results	51
Table 5-4 Product Satisfaction of Factor Analysis	52
Table 5-5 Service Quality of Factor Analysis	54
Table 5-6 Customer Loyalty of Factor Analysis	55
Table 5-7 Independent-Sample T Test of Sex	56
Table 5-8 Independent-Sample T Test of the Reason for Maintenance	57
Table 5-9 One-Way ANOVA of Product Satisfaction	58
Table 5-10 One-Way ANOVA of Service Quality	60
Table 5-11 One-Way ANOVA of Customer Loyalty	62
Table 5-12 The Correlation Table	66
Table 5-13 Regression Analysis of Product Satisfaction and Service Quality	69
Table 6-1 Hypothesis and Results	70

1. INTRODUCTION

1.1 STUDY BACKGROUND

The current business environment has turned to the era of low profit due to competitors' lower prices and increases in operating and marketing costs. Peter Druck (1954) once stated that there is only one valid definition of business purpose: to create a customer. The customer is the foundation of a business and helps maintain its existence. The customer alone gives employment, and it is to supply the customer that society entrusts wealth-producing resources to the business enterprise. Kotler (2009) claimed that attracting new customers may cost five times more than retaining old customers. Thus, it costs less to maintain loyal customers, who have larger contributions and are more beneficial to a business, compared to acquiring a new customer. Muller (1991) noted that consumer satisfaction is the main factor for business success, because satisfaction directly influences loyalty and re-purchase intention. In an article reporting on an interview with former 7-Eleven CEO, Mr. Toshifumi Suzuki, Mr. Suzuki (2004) reported that the "existence of [a] corporation is to satisfy the needs of the consumers. The upper hand a corporation has is to provide satisfactory services to consumers that other corporation[s] cannot, in order to create its own niche and uniqueness". Bhote (1996) believed that when customers are satisfied with a company's products or service, loyalty is then established, which in turn, generates more revenue through recommendations and promotion. Therefore, enterprises focus on reaching and going beyond customers' expectations and raise them in order to reap the benefit of the established loyalty through consolidating the relationships between customers.

In the auto industry, most customers expect more affordable vehicles. Therefore, manufacturers are forced to roll out economical cars. In order to expand market share, every corporation can only rely on offering unique services as well as the quality of those services. Under this kind of influence, car dealers are expected to raise customer satisfaction and loyalty, which directly impact repurchase intention or recommendation to others.

Where is the advantage of a corporation when competing corporations are able to provide consumers with similar resources and products? Marketing professionals Al Ries and Jack Trout (2001) famously stated that competition in marketing is not done in the open market. In reality, the decisive battle is fought in the consumer's mind. Acer CEO Stan Shih, in his retirement speech, prophesized that no matter the type of industry, all must transform into a service-based one. The services industry has become the leader in the job market; conversely, customer service has also become the most sought after skill in an employee. With the rise of consumerism, price and product are no longer the number one factor that influences consumer decisions; the quality of customer service is turning into the key factor. As the will of consumers increases, they demand higher quality customer service. The desire to purchase is no longer for the product; rather, it is through the experience. High quality customer service is a powerful weapon against competition and can prompt consumers to return as well as raise their satisfaction and loyalty.

In order to consolidate consumer loyalty, many businesses set key performance indicators to gauge consumer satisfaction. Bitner (1990) offered that consumer satisfaction directly and positively influences consumer loyalty. The relationship between consumer loyalty and satisfaction is illustrated in the figure below.

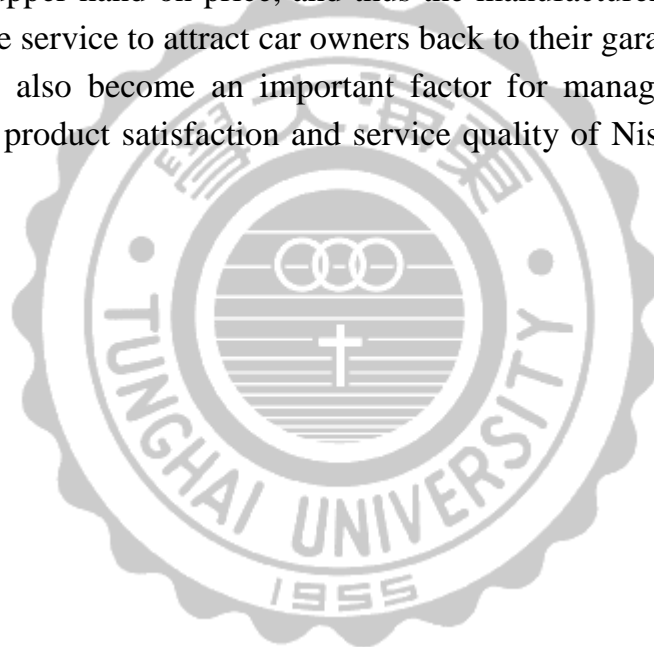


Source: (JL Heskett, 1997, *The Service Profit Chain*)

Figure 1-1 Customer Satisfaction and the Effect on Customer Loyalty

From the figure above, we see a positive relationship between customer satisfaction and customer loyalty; that is, when consumers are more satisfied with service, their loyalty increases. Frederick and Sasser (1996) pointed out that if a corporation can retain loyal consumers, then this can increase the profits of the business and retain the business' advantages over the competition.

In the automobile industry, product quality and service quality are both imperative for retaining loyal customers. Buying a car is easy, but keeping one is hard. Car maintenance is costly, especially after the warranty period, which makes many people think twice before purchasing. This fosters a competitive environment between a manufacturer and third-party service centers. These third-party service centers have the upper hand on price, and thus the manufacturer can only leverage unique and diverse service to attract car owners back to their garages. The quality of workmanship has also become an important factor for management. This thesis explores how the product satisfaction and service quality of Nissan vehicles affect customer loyalty.



1.2 RESEARCH PURPOSE

The automobile market competition in Taiwan is fierce, due to the varying automobile brand campaigns, purchase promotions, and government subsidies. It automobile industry is not a simple buy-and-sale business anymore, but has gradually turned more customer service oriented, in order to raise consumers' willingness to purchase vehicles. Service quality and product satisfaction provided by the industry are the main factors that influence consumer loyalty. Therefore, the study explores the following.

1. The relationship between product satisfaction and customer loyalty.
2. The relationship between service quality and customer loyalty.



1.3 STUDY PROCESS

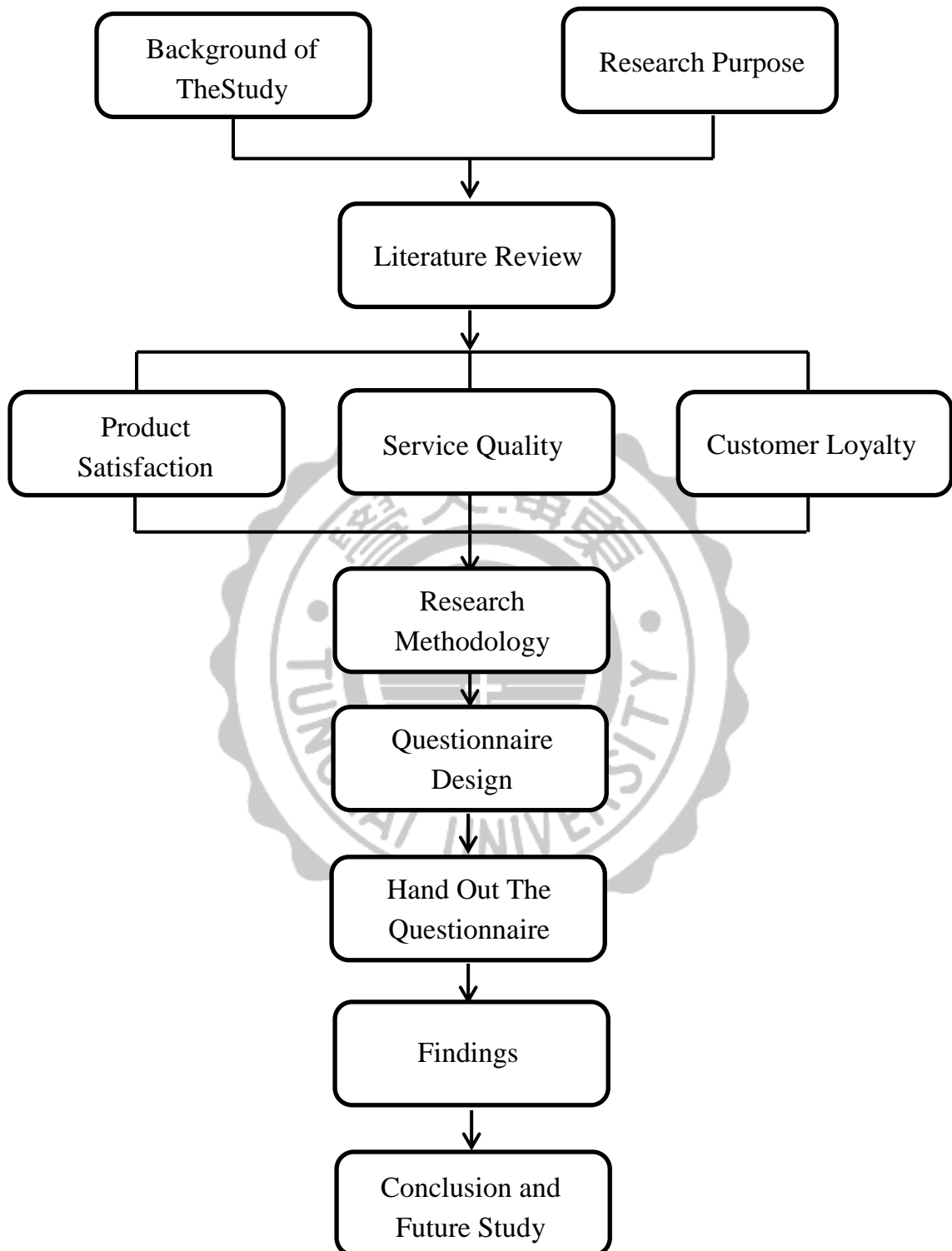


Figure 1-2 Research Flow Chart

2. LITERATURE REVIEW

2.1 PRODUCT SATISFACTION

The famous fast-food chain McDonalds calculated in the 1990s that, if all regular customers were to dine at their restaurant just once more over their usual frequency, then the company would see US\$10 billion more in revenue per year. Such a small increase in customer satisfaction can bring huge profits for a company. Thus, customer satisfaction has become an important goal for corporations across all industries.

The Definition of Product Satisfaction

The earliest literature regarding satisfaction dates back to 1965 when Cardozo presented “An Experimental Study of Customer Effort, Expectation, and Satisfaction”. Cardozo (1965) stated that increasing customer satisfaction tends to entice consumers to return and not defect to competitors. In 1969, Sheth and Howard brought the idea of customer satisfaction into the consumer theory. Czepil (1977) further deemed customer satisfaction as an overall evaluation, summing up a customer’s reactions to a product. Kotler (1994) pointed out that customer satisfaction is a tool used by different competitors, and that customer satisfaction is an evaluation after comparing pre-purchase expectations and post-purchase experience. Oliver (1981) offered that customer satisfaction is a temporal emotional response after experiencing and evaluating a product. In 1993, Oliver believed that customer satisfaction is a cognitive and emotional evaluation. Zeithamal and Binter (1996) noted that customer satisfaction is affected by quality, price, environment and other personal factors; service quality evaluation is more focused on the service quality facet and thus is a big factor affecting satisfaction. Zeithamal and Bitner (2000) believed that customer satisfaction factors include whether or not the product or service can meet expectations. Academics have varying opinions regarding satisfaction. The following is a summary of the definitions of product satisfaction from several authors.

Table 2-1 Relevant Literature of Product Satisfaction

Academic	Year	Definition
Howard and Sheth	1969	Satisfaction is a measure through which a customer weighs the cost and benefits of a purchase and judge whether the purchase was a wise investment.
Day	1977	Satisfaction is the difference of the state of mind before and after use of a product.
Hempele	1977	Satisfaction is decided by how closely the benefits provided by a product match the consumer's expectation.
Hunt	1977	Satisfaction is a process through which a consumer evaluates the experience.
Miller	1977	The expectation and ideality are the standards of product performance to measure the real product performance and cause satisfaction and dissatisfaction.
Oliver	1981	Satisfaction is an emotional response that a consumer expresses when using a product or service. The type and level of emotional response is related to the level of satisfaction from the product.
Westbrook	1981	Satisfaction is quantification of emotional state when a customer evaluates service from a corporation.
Churchill and Surprenant	1982	Satisfaction measures a customer's costs, such as time, money and physical efforts against the benefits gain from purchasing and consuming the product.
Smith and Houston	1982	Satisfaction is the fulfillment of expectations
Tse	1988	Satisfaction is an evaluation of cognitive difference prior and after consumption of a product.
Woodside and Daly	1989	Satisfaction level is an after-purchase-matrix that reflects consumer satisfaction following the experience of purchase; in other words, the customer satisfaction level is an emotional state based on experience.
Peter and Olson	1990	Satisfaction is an expectation prior to purchase that the customer expects the product to achieve or exceed.
Kolter	1991	Satisfaction is the difference between a consumer's

expectation and reality.

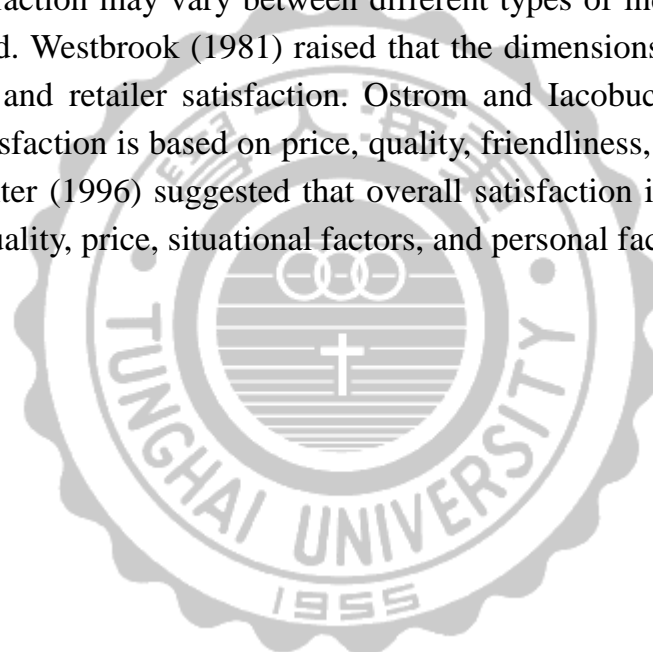


Academic	Year	Definition
Solomon	1991	Customer satisfaction is a consumer's overall attitude towards a purchase of a product
Fornell	1992	Satisfaction is the customer's overall evaluation after consuming a product or service. It is an emotional state based on experience.
Zeithaml and Bitner	2000	The extent of satisfaction consists more than just quality of service; it is subjected to other factors, such as product quality, price, situation and even personal factors.
Yeung	2002	Satisfaction is one kind of determination of customer's expectation which has been conceptualized as the customer satisfaction standard.
Jamal and Naser	2003	Satisfaction can be shared by customer and produce word-of-mouth communication.
Pappu and Quester	2006	Satisfaction is whether products or services could reach consumers' needs and expectation.
Lee et al.	2008	Customer satisfaction is the actual emotional reaction produced by consuming experiences.
Mittal and Frennea	2010	Satisfaction is the evaluation on customer's post-consumption of a product or service.
Arokiasamy	2013	Customer satisfaction is the principles to improve in enterprises.
Andreas, Eisingerich and Omar	2016	Satisfaction effects customer behavior.

Product Satisfaction Dimensions

Academia lacks a consensus on how to measure satisfaction. Czpiel (1974) believed satisfaction can be seen as an overall evaluation, representing consumers' different objective responses. Day and Ralph (1977) pointed out that through an overall evaluation of customer satisfaction of a product, one can understand the result of a consumer consuming a product. Thus, satisfaction also affects consumers' post-purchase actions.

There are other academics who feel satisfaction is an evaluation on multiple levels. Singh (1991) saw that customer satisfaction is a multi-object conceptualization of the satisfaction construct and also pointed out that evaluations of customer satisfaction may vary between different types of industry or groups of consumers studied. Westbrook (1981) raised that the dimensions of satisfaction are product, service, and retailer satisfaction. Ostrom and Iacobucci (1995) believed that customer satisfaction is based on price, quality, friendliness, and customization. Zeithaml and Binter (1996) suggested that overall satisfaction is based on product quality, service quality, price, situational factors, and personal factors.



2.2 SERVICE QUALITY

Customer service quality and satisfaction are two sides of the same coin; the customer initially realizes the high quality of the service, and this then creates satisfaction. In 1972, Levitt first established the relationship between service and quality, believing that service quality is a measure of how closely the service matches the customer's expectations, with service quality being emphasized through the delivery of the product. Parasuraman, Zeithaml and Berry (1985) noted that service quality is the result of a comparison between expected and received service. If a customer feels the service quality is lower than expectations, then the service quality will be taken as inferior. Parasuraman, Zeithaml and Berry (1988) modified the definition and offered that service quality is the level of superiority produced by the interaction and process between service provider and consumer. Moreover, service quality is defined and measured from consumers' point of view. When Cronin and Taylor (1992) explored the relationship between service quality and customer satisfaction, they found that customers' reorganization of quality service leads to their satisfaction. Etzel, Walker and Stanton (2001) pointed out that services are identifiable and intangible, and their main purpose is to meet and satisfy the needs of customers.

A provider of services can, through supplying better quality service than competitors, create a perception of a superior product to win more business. After receiving the service, consumer will compare expectations as to the reality of the service; if a customer feels the reality is lower than expectations, then the customer may be decreased. On the other hand, if the customer feels the service exceeded expectation, then it is very likely the customer will return for another purchase.

The Definition of Service Quality

Service is different from a physical product. Regan (1963) compared the differences between service and physical product and raised the observation that service has four factors of intangibility, heterogeneity, inseparability, and perishability. Below is an explanation of each factor.

(1) Intangibility

It is a where the characteristic of the product cannot be felt, and there is no physical product. It cannot be perceived before it is purchased and experienced. Thus, when a service cannot satisfy a customer, it often creates a difference between expected and actual service, and hence the customer will perceive a lack of quality.

(2) Heterogeneity

Service quality varies with different providers, time, and location; different customers may also feel differently about the same service.

(3) Inseparability

It is the consumption of service and delivery at the same time by the consumer. This reflects the unoactio principle. It also allows the consumer to hold sway over the performance and quality of the service.

(4) Perishability

Is where a service cannot be moved, stored, or inventoried. Thus, when there is an imbalance in supply and demand, the quality of service will be affected.

Crosby (1979) stated that service quality is the result of a comparison between a customer's expectations and the actual service received. Sasser, Olsen and Wyckoff (1978) and Gronroos (1982) presented a clear definition of customer service quality, summarized below.

- (1) A customer's evaluation of a service or product is a comparison between expected and actual performance.
- (2) Service quality is not only based on the final result of the service; the process is an important portion of the evaluation.

The following is a summary of the definitions of service quality from different academics.

Table 2-2 Relevant Literature of Service Quality

Academic	Year	Definition
Gronroos	1982	Perceived service quality is the outcome of a comparison between expected and actual service.
Churchill and Suprenaut	1982	Satisfaction is how much a product or service fulfilled a customer's expectation. Unfulfillment is often related to the customer's expectation before consuming the product.

Academic	Year	Definition
Lethinen and Lethinen	1982	Consumer judge the quality of service during and after a service is performed.
Garvin	1983	The quality of service is subjective, not objective.
Gronroos	1984	Customer often drawn on past experiences regarding service quality to judge a service or product.
Olshavsky	1985	Quality is the overall evaluation of a product, similar to attitude.
Parasuraman, Zeithaml and Berry	1985	Service quality is a form of attitude, related but not equivalent to satisfaction. It is result of comparing expected performance to actual performance
Parasuraman, Zeithaml and Berry	1988	Service quality is a customer's subjective judgment to a service's overall superiority
Lewis and Mitchell	1990	Service quality has to fulfill the need of the customers.
Lovelock	1991	Service quality is an experience obtained by the customer while enjoying the service.
Cronin and Taylor	1992	It is inadequate to conceptualize service quality only as a gap between expectations and actual performance.
Gronroos	2001	Services are to solve a customer's problem
Ghylin	2008	The better service quality, the better customer satisfaction
Kenzelmann	2008	Service quality is an achievement in customer service
Eshghi	2008	Service quality is defined as the overall assessment of a service by customers.
Geetika, ShefaliNandan	2010	Service quality is viewed as a determinant of customer satisfaction
Lovelock and Wirtz	2011	Service quality is the comparison of perceptions about service delivery process and actual outcome of service
GolderDebanjan Moorman	2012	Service quality not only includes the process of purchasing, but also the consuming behaviors before purchase.
Alotaibi	2015	Service quality has significant impact on repurchase intention

Service Quality Dimensions

Bitner and Boom (1981) developed a model that describes the service marketing mix. It is called the 7P model (product, price, promotion, place, people, physical evidence, process). These factors influence customer satisfaction, which in turn influences customers' purchase desire.

According to Parasuraman, Zeithaml and Berry (1985), service quality is not only based on the final result, but the delivery process is also a very important factor. Many academics offer different ways to measure satisfaction, organized as follows.

Table 3-3 Service Quality Dimensions

Academic	Dimension	Meaning
Juran (1974)	Internal Qualities	Quality the users couldn't perceive.
	Hardware Qualities	Users perceive the facility or tangible quality.
	Software Qualities	Users perceive the intangible quality.
	Time Promptness	Service time and rapidity.
Sasser, Olsen and Wyckoff (1978)	Security	Customers degree of trust on the security apparatus of the company.
	Consistency	Service should be consistent and not be influenced by variability in location, the and staff.
	Attitude	Staff is kind and polite.
	Completeness	Provide comprehensive facilities and service.
	Condition	Adjust services for different customer and needs.
	Availability	Ease of getting in contact
	Timing	Complete service on time within the customer's expectation

Academic	Dimension	Meaning
Gronroos (1982)	Technical Qualities	After a customer accepts a service, how the customer feel about the quality is related to what the service is. It is called the outcome qualities.
	Functional Qualities	Refers to during the experience of the service, how the customer feel about the quality. This is related to how the service is delivered, can be called process qualities.
Lehtinen and Lehtinen(1982)	Physical Quality	Regarding physical quality of service, such as equipment or environment.
	Corporate Quality	Public image of a corporation.
	Interactive Quality	Includes interaction between service provider and consumers.
Parasuram, Zeithaml and Berry(1985)	Reliability	Whether the service content is consistent, completed in a timely fashion and is the quality reaches the guarantee provided by the service provider.
	Responsiveness	Whether or not representatives are able to quickly respond to a customers' requests.
	Access	How accessible the service is and how easily the customer and receive the service.
	Courtesy	The attitude of the provider is kind, courteous, respectful and thoughtful towards the customer.
	Communication	Service provider must have patience to listen to the customers, while using the most appropriate avenues of communication to explain in detail to customer, creating ample understanding between provider and consumer.
	Credibility	Have to foster a trusting relationship with the consumer and put the consumer's interests first.

Academic	Dimension	Meaning
	Security	Letting a customer feel secure and free from risk and danger while receiving a service.
	Tangible	Whether parts of the service that require a physical object is presented as such.
	Competence	Whether or not the service providers are qualified with enough professional expertise and knowledge.
	Understanding	Service providers understand consumer's needs and provide services as needed.
	Reliability	Represents reliable service as well as properly executing services promised to the customer.
	Responsiveness	Ability to provide customer with speedy service. If a customer is kept waiting for service, it will cause unnecessary negative effects. When a service has deficiencies, the provider must provide remedies in a speedy and professional manner to prevent negative evaluations of the product.
Parasuram, Zeithaml and Berry (1988)	Assurance	The staff's knowledge, courtesy and the ability to convey trust and confidence. Other characteristics includes: ability to execute a service, courtesy and respect towards customer, effective communication with the customer and putting the customer's interest in the first place.
	Empathy	Pay attention and care about each individual customer as much as possible.
	Tangibles	Represents physical equipment, staff appearances and other communication data.

Academic	Dimension	Meaning
Mitra (1993)	Employee's attitude	Includes courtesy, demeanor, professional abilities and enthusiasm.
	Service speed	Providing service in a suitable and timely manner.
	Service content	Situation where actual service quality differs from customer expectations.
	Peripheral facilities	Any peripherals apart from staff that may influence customer satisfaction.
Dabholkar, Thorpe & Rentz (1996)	Physical aspects	Appearances, design and ease of use of physical equipment.
	Reliability	Correct service and promise to customer. Accessibility of merchandise.
	Personal Interaction	Courteousness of staff, attitude and willingness to assist customer, ability to win trust of customer.
	Problem Solving	Ability to process returns, exchange and dealing with customer complaints.
	Policy	Company's response to customer's needs and requirement.

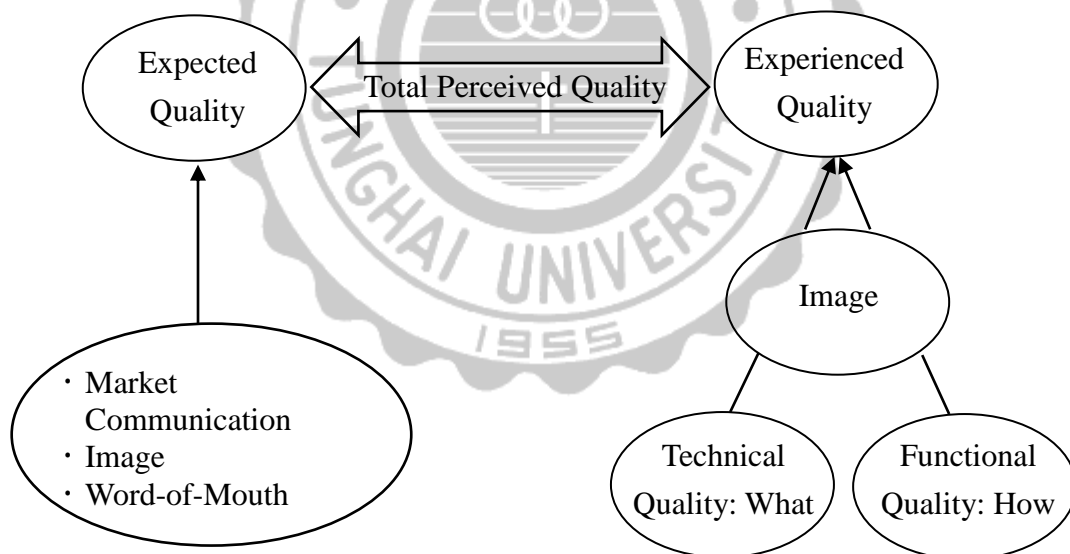
Service Quality Measurement

The model to measure service quality quantifies those factors that may affect service quality. Through this model, it is possible to have a better understanding on how to manage quality. The early concept of service quality comes from an exploration of customer satisfaction patterns; many academics as such have discussed models to measure customer satisfaction. Gronroos (1984) is the first to set up an overall quality model, and in 1985 Albrecht showed the golden triangle model. The most discussed model is from 1985, by Parasuram, Zeithaml and Berry, in which they built the service quality scale, or SERVQUAL, which describes the above service quality measurement models.

- The Model of Perceived Service Quality

Gronroos (1984) believed that through expectations of quality and experienced quality, an overall picture of quality of service can be obtained.

- (1) Expectations of quality: It is the expectation of a specific firm and is not influenced by other firms providing similar services.
- (2) Experienced quality: The delivery process of the service and how the service is delivered are both part of the experience for the consumer and influenced by technical quality service, functional quality service, and the image of the service provider.
 - (a) Technical quality service: Result of the interaction between consumer and service provider.
 - (b) Functional quality service: Apart from the outcome of the service, a customer's perceived quality is also influenced by the process as well as how the service is provided.
 - (c) Cooperate image: The public image moderates both technical and functional qualities to arrive at a perceived level of service.



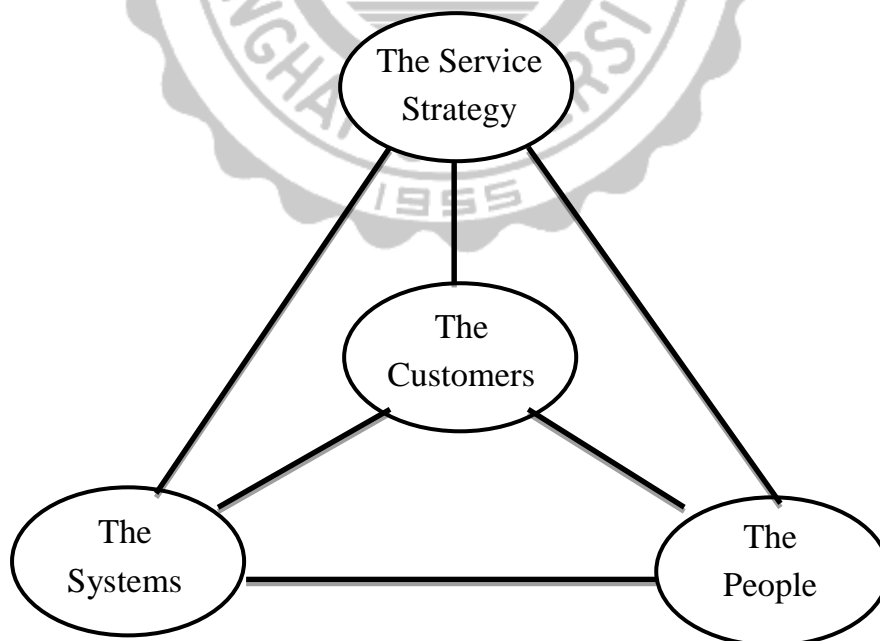
Source:(Gronroos,1984, *A Service Model and its Marketing Implications*)

Figure 2-1 Model of Service Quality

- Golden Triangle of Service

Albrecht (1985) raised the service triangle, in which there are 6 relationships.

- (1) The service strategy–customer: When superior service is what matters, then the customer must be made aware of the firm’s excellent services.
- (2) The service strategy–people (employee): Help staff realize the need for marketing their service. This may lead to a better understanding of the product by staff and can improve the external market.
- (3) The service strategy–the system: This is the intangible part of a service model and helps to enhance service expectations for both staff and customer.
- (4) The system (organizational system)–customer: A customer’s service experience is impacted by the organizational system.
- (5) The system (organizational system)–people (employee): The relationship shows how important the organizational system and staff efforts are. Company policies should not get in the way of staff attempting to provide quality service.
- (6) Customer–service strategy (service provide): How a customer interacts with staff can be a major factor in the evaluation of quality.



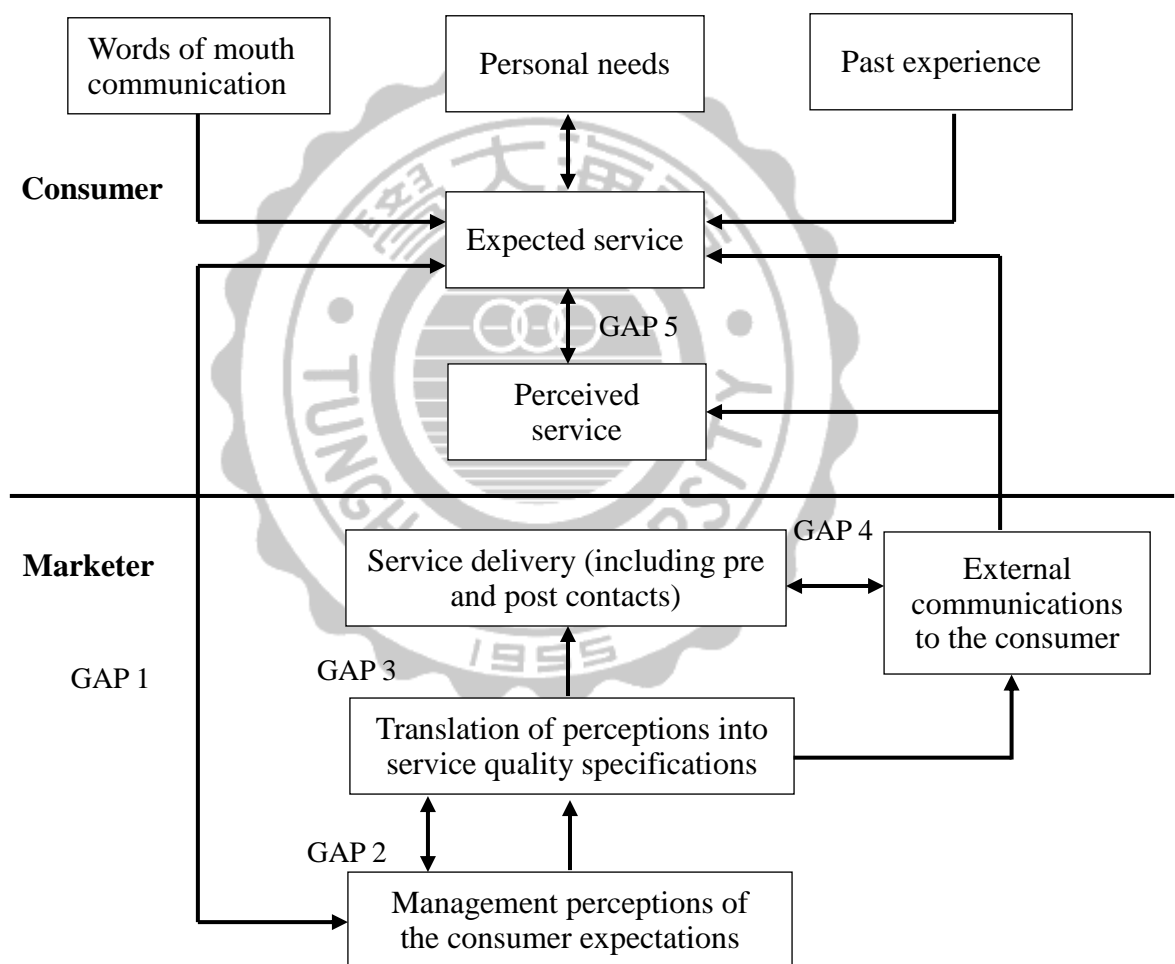
Source: (Albrecht 1985, *Achieving Excellence in Service*)

Figure 2-2 The Service Triangle

- Service Quality Scale, SERVQUAL

In 1985, Parasuraman, Zeithmal and Berry utilized interviews to have in depth discussions with management of retail banking, credit card, securities brokerage, and product repair and maintenance industries as well as customers. They came up with the Service Quality Scale, SERVQUAL model.

Parasuraman et al. felt the gap is generated, because of the difference between consumer expectations and actual experienced service, as well as gaps occurring throughout the delivery process.



Source: (Parasuraman et al. 1985, *A Conceptual Model of Service Quality And Its Implications for Future Research*)

Figure 2-3 Gap Model of Service Quality

To correctly satisfy a customer's needs, one needs to satisfy 5 service gaps. One of the gaps comes from the service provider, with the other 4 from the customer.

- (1) Gap 1: The first gap is knowledge gap. It is when management cannot accurately gauge consumers' expectations. It is the difference between what the customers expect and what the management assumes the customers expect.
- (2) Gap 2: The next gap is the design gap. It is created when the design of the product or service does not match the customer's needs.
- (3) Gap 3: This is the performance gap. It is the variation in service design and delivery. The extent of the gap is based on many variables involved in the provision of the service.
- (4) Gap 4: Communication gap is the difference between what the company promised and the actual product that is delivered.
- (5) Gap 5: Gap 5 is the total of gaps 1 to 4. It is the difference between expectation and actual service.

2.3 CUSTOMER LOYALTY

In today's competitive environment, the different products firms provide are becoming more and more similar. Thus, the differences between choosing one provider over the other are becoming negligible, highlighting the issue of customer loyalty. According to Heskett, Sasser and Hart, the cost of successfully recruiting a new customer is five times the cost of keeping a returning customer. Through related research, it is found that if a customer possesses high loyalty to a brand, then that customer is more likely to be willing to pay a higher price and speak positively about the brand. This can bring monetary value to the company as well as higher profits and lower operating costs. Reichland and Saspers (1990) found that when a corporation's customer loss is lower than 5%, the profit margin can increase by 25% to 85%, depending on the industry. From this we see the importance of customer loyalty and that a loyal customer is a source of income for cooperation. The following is an exploration on ways to measure customer loyalty.

Customer Loyalty Definition

The earliest concept of customer loyalty came from Tucker (1964) when he defined customer satisfaction as purchasing a product from the same brand 3 consecutive times. Day (1969) offered that customer loyalty is a customer's preference and repeated purchase of a brand. Reynolds, Darden and Martin (1974) defined customer loyalty as a customer returning over a certain period of time. Jacoby and Chestnut (1978) believed that loyalty should be explored from a consumer's attitude. Three displays of loyalty are put forward: (1) Belief - the consumer prefers a brand over its competitors and provides a superior review and feedback. (2) Attitude - the brand conforms to the consumer's emotional preference. (3) Behavioral - the consumer exhibits a stronger purchase desire to a certain brand. Oliver (1999) added to the proposal made by Jacoby and Chestnut (1978) and stated that customer loyalty forms in 4 stages. Oliver (1999) also considered customer loyalty is produced from consumers' attitude level, leading to purchase behavior. In 1999, Shoemaker and Lewis described the loyalty triangle concept, in which service organizations must execute these three functions in order to acquire customer loyalty.

Table 2-4 Relevant Literature of Customer Loyalty

Academic	Year	Definition
Jacoby and Kyner	1973	Customer loyalty is accumulated through time and positive experiences
Jacoby and Chestnut	1978	Loyalty is displayed in 3 stages; belief, attitude and intention
Dick and Basu	1994	Customer loyalty can be seen as strength of relationship between a customer's attitude and their repeated purchase.
Fornell and Lehmann	1994	Long – term loyalty can only be achieved by continuously satisfying customer.
Jones and Sasser	1995	Customer loyalty is a customer's affinity to a specific product or service.
Prus and Brandt	1995	Customer loyalty is repeat purchase of a product or service and spreading positive word about the company.
Parasuraman et al.	1996	Other from willingness to re-purchase, customer loyalty also allows the spread of positivity about the company.

Academic	Year	Definition
Olive	1999	A customer's purchase decisions can be influenced by the environment, but loyalty can lead a customer to repurchase the same product or service.
Mclloryand Barnett	2000	Loyalty should be explained as a customer commitment to do dealing with a particular firm, buying their products and services and referring it to colleagues.
Palmatier et al	2006	Customer loyalty refers to customer desire to ongoing relationship with a company.
Rauyruenand Miller	2007	Customer loyalty as a merged concept of behavioral loyalty and attitudinal loyalty.
RahaKhalafinezhad	2012	Customer relationship management and customer satisfaction influence customer loyalty.
ArjunChaudhuri	2014	Brand trust affects customer loyalty.
Shaon et al	2015	Customer loyalty is customer commitments to a firm and purchase their products and services.

In 1999, Shoemaker and Lewis described the loyalty triangle concept; service organizations must execute these three functions in order to acquire customer loyalty.

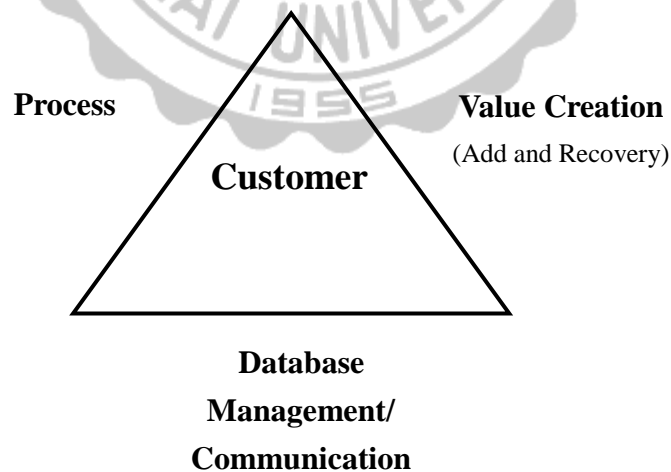


Figure 2-4 Loyalty Triangle

Source: (Shoemaker and Lewis1999, *Customer Loyalty: The Future Of Hospitality Marketing*.)

The process side of the triangle describes how the service works. For customers, it is the interaction between them and the service provider. Next is database management and communication, which emphasize communication between the provider and customers - for example, courtesy calls to notify the customer of special events.

The value creation side is divided into two parts: value added and value recovery

- (1) Value added are strategies that improve relationship between customer and provider in the long term.
- (2) Value recovery is to make-good a problem that occurred during the delivery of the service.

Oliver (1999) presented the Customer Loyalty Development Model and categorized it into four phases as follows.

- (1) Cognitive Loyalty
Customers choose a brand that they believe is superior over others.
- (2) Affective Loyalty
Customers base their preferences and attitude towards a brand on previous service experiences.
- (3) Conative Loyalty
Positive emotions towards a brand will produce strong purchase motivation and intentions.
- (4) Actions Loyalty
Customers have a strong motivation and desire to overcome obstacles to re-purchase.

Customer Loyalty Dimensions

Customer loyalty is often associated with repeat purchasing, however, as pointed out by Jacoby and Kyner (1973), although loyal customers tend to purchase repetitively, those who purchase repetitively do not necessarily do so out of loyalty. True consumer loyalty is more than a repeat purchasing behaviour for at least six month by given alternative products, brands, services, or stores. True consumer loyalty also includes an attitudinal component, which results in a dispositional commitment to the product, brand, service or store in question and associates a unique value to it. Therefore, it is important to consider both the behavioural component and the underlying attitudes (Jacoby and Kyner, 1973; Dick and Basu, 1994; Jones and Sasser, 1995)

Table 2-5 Customer Loyalty Dimensions

Academic	Year	Dimensions
Sirgy and Samli	1985	Use the frequency of purchase and repeat purchase to measure behavioral brand loyalty.
Stum and Thiry	1991	<ul style="list-style-type: none"> • Making repeated purchases • Buying other products and services • Spreading a positive word-of-mouth • Low susceptibility to competitors' activities
Bowen and Shoemaker	1998	Keep purchasing the same product or service even when there are other alternatives.
Hepworth and Mateus	1994	<ul style="list-style-type: none"> • Intention of purchasing the same product /service. • Purchasing the same product or service from the same company.
Jones and Sasser	1995	<ul style="list-style-type: none"> • Intention to purchase • Primary Behavior • Secondary Behavior
Fornell et al.	1996	<ul style="list-style-type: none"> • Repurchase likelihood • Price tolerance
Gronholdt et al.	2000	<ul style="list-style-type: none"> • Repurchase intention • Willingness to recommending the company to others • Price tolerance • Cross-buying

3. RESEARCH METHODOLOGY

3.1 CONCEPTUAL FRAMEWORK

This study takes as an example the car sales industry and based on the discussion in the second chapter, which explores the relationship between product satisfaction, service quality, and customer loyalty, we develop the following conceptual framework.

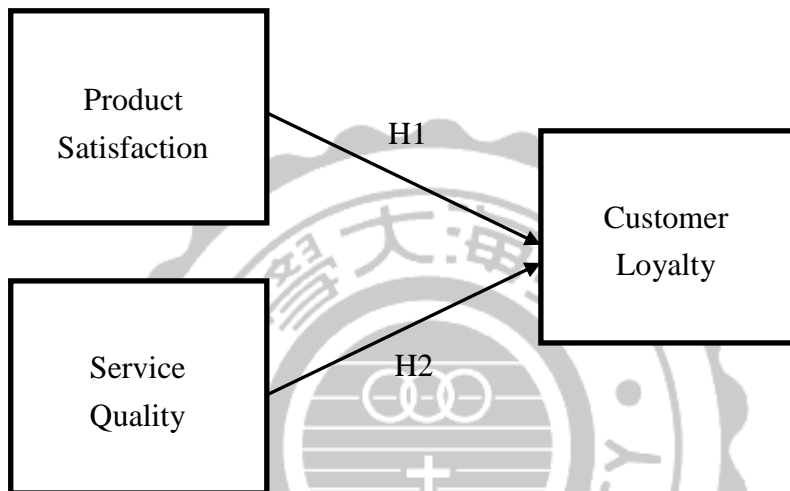


Figure 3-1 Conceptual Framework

3.2 FIELD IMPERICAL STUDY

Field studies are observing, recording, and collecting data outside of an experimental setting. The data collection of a field study can be done in many different ways for various practices. This research method is considered as an initial form of investigation, because the collected data are for a specific purpose. Meyer (2001) emphasized that a field study is for understanding real life phenomena. Willis (2007) described that a field study is an umbrella term for interviewing, and other means of gathering data in authentic (e.g., real-world) environments put the researcher in settings that he or she wants to study. There are three research methods for a field study as follows.

1. **Participant Observation:** The researcher participates in the subject of the research and becomes a participant. For example, to evaluate a taxi driver's skills and experience, a driver's license must be obtained to drive a taxi. To evaluate a professional dancer, then the researcher has to start with researching on different dance moves.
2. **In-depth Interview:** An in-depth interview is participating in the main axis of observation and is useful to both researchers directly and indirectly involved with the research.
3. **Case Study :** A case study is an examination directed toward a singular entity, such as a person, a group, or a community. Although its main function is to describe, it can also be used in an attempt to provide explanations. For example, a case study can be used to describe a certain pre-historic human tribe or an organizational structure of a modern corporation.

This study is directed at Empower Motor car dealer, and through the study of related academic papers as well as collected data and company information, an analysis is completed and recommendations made.

3.3 HYPOTHESES

The Relationship between Product Satisfaction and Customer Loyalty

A satisfied customer is not always a loyal customer, but a loyal customer is always a satisfied customer. In today's competitive environment, the biggest challenge corporations face is not to compete for customer satisfaction, but to create happy and loyal customers. Customer loyalty is the most important indicator of a firm's advantage over a competitor.

Day (1977) pointed out that since customer loyalty is the same customer's persistent purchasing behavior of a brand of the company's products, he felt that brand loyalty is affected by customer satisfaction and a positive correlation exists between them. Kasper (1988) reported that brand loyalty and customer satisfaction towards a product have a positive relationship. Customer loyalty is the most important indicator of a firm's advantage over a competitor. Companies that satisfy customers and maintain them as loyal customers will have an edge over their competitors and achieve better financial performance (Almossawi, 2012). Based on the product satisfaction definition by Fornell (1992), satisfaction is the overall evaluation after consuming a product or service. It is an emotional state based on experience. Prus and Brandt (1995) stated customer satisfaction drives customer loyalty, which causes the intention of repurchase or the willingness to recommend. Satisfaction comes from products' features and the level of happiness or disappointment after comparing with consumers' expectation and reality.

The big picture we see from the related research studies in the literature is that they all express that product satisfaction and loyalty have a positive relationship. High satisfaction will bring positive word of mouth for the company, and customers will become an avenue of advertisement for the company. They will tell others about the company's product and speak positively about it, thus solidifying market share.

This study thus study focuses on product satisfaction and uses the following 5 parameters to measure it: specifications, safety, handling, depreciation, and advanced technology. Based on the above theory and proven results, this study infers that product satisfaction has a positive impact on customer loyalty.

H1: Product satisfaction has a positive impact on customer loyalty.

The Relationship between Service Quality and Customer Loyalty

Due to economic development and the increase of average income, customers now pursue both functional and non-functional requirements of products; functional requirement includes material needs, and non-functional requirements reflect more on emotional satisfaction, such as service quality. In the modern society, customers are paying much more attention on non-functional requirement. In addition, service quality is one of the key factors for a business to gain long-term profit and maintain customer loyalty.

If a customer is satisfied with the quality and services provided by the firm, then he becomes loyal to that firm (Wang et al., 2004). Therefore, service quality is one of the factors that determine customer satisfaction. If customers feel satisfied, then this will influence loyalty positively (Garvin, 1988). Service quality is a key factor that affects whether the consumer ultimately remains with the company (loyalty) or defects to a competitor (Schiffman et al., 2012). Referring to the 7P (product, price, promotion, place, people, physical evidence, process) service and marketing matrix Bitner and Booms (1981) put forward, this study infers that service quality has a positive impact on customer loyalty.

H2: Service quality has a positive impact on customer loyalty.

3.4 QUESTIONNAIRE DESIGN

This study uses a survey format to collect data in order to explore the relationship between product satisfaction, service quality, and customer loyalty. The survey population includes customers who return to Nissan (Yulun Motor's) maintenance shop. On the survey, the Likert scale is used to gauge satisfaction and agreement. The Likert scale is divided into 5 levels; strongly unsatisfied (strongly disagree), unsatisfied (disagree), neutral, satisfied (agree), and very satisfied (strongly agree). The scores are respectively 1, 2, 3, 4, and 5.

The questionnaire is divided into several sections, which include vehicle performance, service quality, and customer loyalty. The questions are as follows.

Table 3-1 Car owner information

1. Sex	2. Age	3. Education level	4. Occupation
5. Current car	6. Age of car	7. Reason for maintenance	8. Last car brand purchased

Car is a product that holds its value for an extended period of time and possesses many practical functions as a vehicle, such as for family and business uses; thus, consumers place a heavy emphasis on the attribute of the service and product. Wiseman (1971) researched the purchase behavior of new and old cars and summarized the following six most considered factors: economics, the convenience of handling, appearance, horsepower, after-sales service, and secondhand price. Kang (2000) researched consumer considerations during vehicle purchases and found that consumers place the heaviest emphasis upon product quality and specifications. Chuang (2002) researched the quality attribute of the vehicle industry in Taiwan and found that Taiwanese consumers place the heaviest emphasis, in order of importance, upon fuel consumption, comfort, appearance, interior design, safety, and maintenance. Brown, Light and Gazda (1987) investigated American consumers' attitude towards American cars and imported cars and surmised that safety, fuel consumption, price, acceleration, and maintenance are the factors that influence consumer attitudes. Integrating the above studies and papers, a product satisfaction questionnaire is constructed per Table 3-2.

Table 3-2 Product Satisfaction Measurement Criterion

Measurement	Reference
1. Exterior design (Eg. Appearance 、 Size)	Mu-Rong Hu (2002) Wiseman (1971)
2. Interior Design (Eg. Decoration 、 Texture 、 Colour)	Mu-Rong Hu (2002)
3. Equipment (Eg. Audio system)	Deng-Chuen Kang (2000) Frank Chuang (2002) Mu-Rong Hu (2002)
4. Vehicle Performance (Eg. Climbing ability 、 Acceleration)	Mu-Rong Hu (2002)
5. Handling (Eg. SSA 、 Operating Convenience)	Chao-Min Wang (1997) Wiseman (1971)
6. Cabin Noise (Eg. Soundproof)	Mu-Rong Hu (2002)
7. Roominess (Eg Interior Space 、 Comfort)	Chao-Min Wang (1997) Mu-Rong Hu (2002)
8. Safety (Eg. ABS 、 Airbag 、 Brake Performance)	Chao-Min Wang (1997) Frank Chuang (2002) Mu-Rong Hu (2002)
9. Fuel Consumption	Brown, Light and Gazda (1987)
10. Depreciation	Wiseman (1971) Mu-Rong Hu (2002)
11. Warranty Satisfaction (Eg. Years 、 Miles)	Chao-Min Wang (1997) Mu-Rong Hu (2002) Wiseman (1971)
12. Cost vs Benefit	Jia Zhang Li (1995) Brown, Light and Gazda (1987)
13. Design Intelligence (Eg. Autopilot System 、 Navigation System)	Deng-Chuen Kang (2000)

The service quality questionnaire is made in reference to Yu (2002), “A Relationship Study between Customer Satisfaction and Brand Loyalty”, targeting vehicle maintenance and service content, price, service equipment, and personnel as foundation for design of the questionnaire. Yu (2002) surmised from research into the Taiwan car industry market that, after measuring the service quality of after-sales service, consumers in Taiwan emphasize maintenance appointments, OEM maintenance has a better guarantee and is of higher quality, and maintenance providers seek consent for work on a vehicle. Li (1995) discussed a vehicle purchaser satisfaction model, using advertisement, vehicle performance, after-sales service, and service quality to construct a model to measure customer satisfaction and used a survey to conduct his research. In his research regarding consumer emphasis upon product performance within the SUV segment, Wang (1997) used 8 criteria - handling, horsepower, safety, appearance, fuel consumption, roominess, parking convenience, and service quality - to construct a questionnaire to conduct research. While investigating consumer perceptions on SUV quality, Lin (1998) found that consumers who emphasize quality of living pay more attention to factors such as price, maintenance fee, and word of mouth. Integrating the above studies and papers, a service quality questionnaire is constructed per Table 3-3.

Table 3-3 Service Quality Measurement Criterion

Measurement	Reference
1. The satisfaction of appointment scheduling	Chin-Fang Yu (2002)
2. Manufacturer maintenance is better	
3. The satisfaction of Maintenance service	
4. The satisfaction of finding out the problem rapidly	
5. Ask for permission before change of the components	
6. List the items of maintenance	
7. Time spent on maintenance and repair	

Measurement	Reference
8. Maintenance wage is reasonable	Wei-Pin Lin (1998)
9. The cost of components is reasonable	
10. Maintenance promotion notification	Chin-Fang Yu (2002)
11. The satisfaction of lounge environment	
12. The satisfaction of workshop environment	
13. The satisfaction of lounge service	
14. The satisfaction of after maintenance customer care	
15. Willing to share with others your experiences with the after-sale service.	Chao-Min Wang (1997) Jia Zhang Li (1995) Mu-Rong Hu (2002) Mu-Rong Hu (2002)

Customer loyalty can be evaluated by re-purchase desire. Tisros and Mittal (2000) believed that consumer perception to a product or service is dependent on the benefits the consumer is able to obtain from the product or service. The customer loyalty questionnaire is constructed based on the customer loyalty dimension raised by Gronholdt, Martensen and Kristensen (2000).

Table 3-4 Customer Loyalty Measurement Criterion

Measurement	Reference
1. According to your vehicle's performance, will you still consider purchasing the same brand next time you purchase a vehicle?	Gronholdt, Martensen and Kristensen (2000)
2. According to your experience with vehicle maintenance, will you still consider purchasing the same brand next time you purchase a vehicle?	
3. Do you approve with the quality of your current vehicle? If there is an incremental price increase, will you still consider purchasing?	
4. Are you very willing to share with others your experiences with the current brand?	

The research summarize all the variables into Table 3-5 as following

Table 3-5 Variable Definition

Item	Category	Variable Definition	Measurement
Dependent Variables	Customer Loyalty (CL)	FRP	Purchasing the same brand due to performance
		MRP	Purchasing the same brand due to maintenance
		PRP	Purchasing the same brand due to price
		SB	Sharing the brand with others
Independent Variables	Product Satisfaction (PS)	PQ	Product Quality
		PE	Product Economics
	Service Quality (SQ)	RP	Repair Process
		RC	Reasonable Charge
		SE	Service and Environment
Control Variables		SEX	Sex
		AGE	Age
		EA	Education Level
		OCC	Occupation
		CC	Current Car Model
		AC	Age of Car
	RM	Reason for Maintenance	
	LBP	Last Car Brand Purchased	

3.5 THE EMPERICAL MODEL

The study explores the relationship between product satisfaction, service quality, and customer loyalty.

$$CL_i = \alpha_0 + \alpha_1 PQ_i + \alpha_2 PE_i + \alpha_3 SEX_i + \alpha_4 AGE_i + \alpha_5 EA_i + \alpha_6 OCC_i + \alpha_7 CC_i + \alpha_8 AC_i + \alpha_9 RM_i + \alpha_{10} LBP_i + \varepsilon_i \quad (1)$$

The above model supports the first hypothesis - product satisfaction has a positive relationship with customer loyalty; i represents a company; CL_i , represents the customer loyalty of the company; and ε_i represents the error value from the regression model. The other variables' definitions from the equation are seen in Table 3-5.

$$CL_i = \alpha_0 + \alpha_1 RP_i + \alpha_2 RC_i + \alpha_3 SE_i + \alpha_4 SEX_i + \alpha_5 AGE_i + \alpha_6 EA_i + \alpha_7 OCC_i + \alpha_8 CC_i + \alpha_9 AC_i + \alpha_{10} RM_i + \alpha_{11} LBP_i + \varepsilon_i \quad (2)$$

The above model support the second hypothesis - service quality has a positive relationship with customer loyalty; i represents a company; CL_i , represents the customer loyalty of the company; and ε_i represents the error value from the regression model. The other variables' definitions from the equation are seen from Table 3-5.

3.6 DATA ANALYSIS

This study utilizes SPSS 22 (Statistical Package for the Social Science) software to carry out statistical analysis. The following is an explanation of the analysis used.

- **Reliability Analysis**

This study uses Cronbach's α coefficient to measure consistency and correlation in the relationship among product satisfaction, service quality, and customer loyalty. The higher Cronbach's α coefficient is, the greater is the consistency and the relationship.

- **Descriptive Statistical Analysis**

This study utilizes coefficient analysis to explain car owner information, satisfaction, service quality, and loyalty; and through frequency distribution, percentage, mean, and standard deviation to explain each variable distribution.

- **Factor Analysis**

Factor analysis is a data reduction method. The method identifies unobservable or latent variables by analyzing observed variables (manifest variables) to improve efficiency of the analysis.

- **Correlation Analysis**

This study uses Pearson's correlation coefficient r to perform preliminary analysis on the relationship between the variables. The Pearson correlation coefficient is between +1 and -1. When the correlation factor of two variables is 1, then there is a positive association and when the correlation is 0, there is a negative association, meaning there are no correlations between the two variables. Thus, this study uses Pearson's correlation coefficient r to ascertain the relationship among product satisfaction, service quality, and customer loyalty.

- **One-Way ANOVA**

One-way analysis of variance (ANOVA) determines whether there are any significant differences between the means of three or more independent (unrelated) groups. This study employs One-Way ANOVA to analyze how the owner's information influences product satisfaction, service quality, and customer loyalty.

- **Regression Analysis**

Regressions analysis estimates if there is a relationship between variables. It helps to understand how a dependent variable varies when an independent variable is changed. This study uses regression analysis to examine the effect of “the relationship between product satisfaction and customer loyalty” and “service quality and customer loyalty.”



4. THE INTRODUCTION OF AUTOMOBILE INDUSTRY AND THE CASE STUDY COMPANY

4.1 THE INTRODUCTION OF AUTOMOBILE INDUSTRY

An unstable economy and other uncertainty factors have impacted Taiwan's car industry negatively. Sales figure slid from a high of 57,700 cars sold in 1994 to a low of 42,000 cars sold in 2015, of which domestically produced vehicles make up 65%; or a drop from 87% in 2005. The market for imported luxury cars has continued to grow and in 2015 made up 16.8% of all car sales. Taiwanese car corporations are authorized by foreign manufacturers to sell and provide maintenance services to vehicles. These foreign manufactures include Toyota, Nissan, and Mitsubishi as the three largest brands. Since 2001, Toyota has been the top brand in the Taiwan region.

The car industry has been negatively impacted by the economic downturn in Taiwan, and thus in an effort to revive the industry the government has introduced an incentive of NT\$50,000 for buyers to replace old used vehicles with new vehicles. Car dealers have also introduced insurance and maintenance packages along with other 3C products as incentives, hoping to attract customers. It is important to note that imported luxury cars have competed against domestic made budget cars, which is negatively affecting the ability of domestic car manufacturers to survive in the market. Compounding this problem is the devaluation of the Japanese Yen, which enables Japanese car manufacturers to export luxury cars to Taiwan at even lower prices.

4.2 THE INTRODUCTION OF THE CASE STUDY COMPANY

Empower Motor was established in April 2000 through the merger of Yulon Motor and Taiwan Acceptance Cooperation as a 3-in-one service team. From 2001, the new company successively acquired the rights to distribute cars from Renault, Infinity, and Nissan in central Taiwan. In April 2009, an agreement was signed with Luxgen as a distributor in central Taiwan. In 2011 the company expanded to Shanghai as a sales service company to distribute Nissan and Luxgen vehicles.

Empower Motors operates 11 dealerships as well as 12 workshops throughout Taichung, Nantou, and Changhua areas, making it the largest vehicle dealership in central Taiwan. All sales persons and technicians are required to complete professional training as well as pass proficiency examinations. It has a 24/7 customer service center that proactively follows up with customers for service and insurance reminders as well as gauge customer satisfaction. The company regularly holds training as well as competitions to strengthen product and service quality in order to meet consumer expectations. Empower Motor performs well in national competitions as well as receiving the NISSAN global award many times. Empower Motor believes in giving back to society, and thus it regularly holds events, from cultural to health related, and continues to be a contributing force in society.

5. STATISTICAL ANALYSIS AND RESEARCH RESULT

The population of this study includes owners of Nissan motor vehicles. A total of 200 questionnaires were given out and 200 valid questionnaires were received back. Through the questionnaires, data are collected regarding the satisfaction of car owners, service quality, and customer satisfaction. The data are then analyzed and discussed to examine the validity of the hypothesis.

5.1 DESCRIPTIVE STATISTICAL ANALYSIS

(1) Sex and Age

Of the 200 people who completed the questionnaires, 58.5% were male, while 41.5% were females. Regarding age, those aged 31~40 made up 32% of the respondents, aged 41~50 made up 31%, 21~30 made up 25%, 51~60 made up 11%, and those 60 and over made up 1%.

(2) Education Level

On the distribution of education level, most graduated from universities at 67.5%; the next largest are high school graduates at 18.5%; graduate school graduates are 12.0%; and the smallest group is under junior high school, covering 2%.

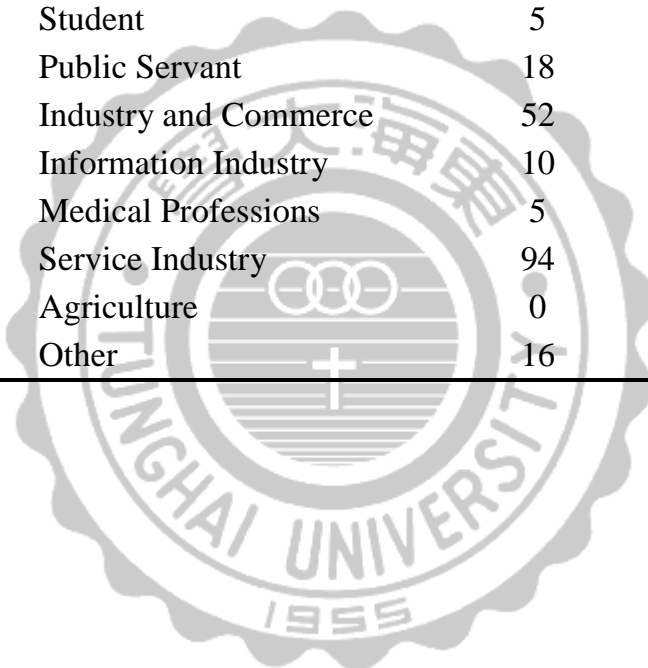
(3) Occupation

For occupation, most are in the service industry at 47.0%; next largest are from the business sector at 26%; and all other occupations take up 27.5%..

Table 5-1 Basic Information Analysis

	<u>VARIABLES</u>	<u>FREQUENCY</u>	<u>PERCENT(%)</u>
<i>SEX</i>	Male	117	58.5
	Female	83	41.5

	<u>VARIABLES</u>	<u>FREQUENCY</u>	<u>PERCENT(%)</u>
<i>AGE</i>	Under 20	0	0
	21-30	50	25
	31-40	64	32
	41-50	62	31
	51-60	22	11
	60-Over	2	1
<i>EDUCATIONAL LEVEL</i>	Junior High School	4	2
	High School	37	18.5
	University	135	67.5
	Graduate School	24	12.0
<i>OCCUPATION</i>	Student	5	2.5
	Public Servant	18	9.0
	Industry and Commerce	52	26.0
	Information Industry	10	5.0
	Medical Professions	5	2.5
	Service Industry	94	47.0
	Agriculture	0	0
	Other	16	8.0



(4) Car Ownership Data

According to car ownership data, most owners owned Tiida, Big Tiida, and Sentra, making up 20%, 18.5%, and 19% of the survey population, respectively. Regarding age of vehicles, 62.5% were below 5 years old, while 37.5% were above 6 years in age. Routine checkups counted for 59.5% of all maintenance, while normal repairs counted for 40.5%. Yulun Motors provides extended warranty to car owners, and thus routine checkups counted for a greater percentage. Lastly, the most purchased brand is Nissan, with 38.5% of the survey population, followed by Toyota at 13%.

Table 5-2 Car Ownership Data Analysis

	<u>VARIABLES</u>	<u>FREQUENCY</u>	<u>PERCENT(%)</u>
CURRENT CAR MODEL	March	8	4
	Tiida	40	20
	Big Tidda	37	18.5
	Livina	25	12.5
	X-Trail	18	9
	Sentra	38	19
	Teana	14	7
AGE OF CAR	0-2	68	34
	3-5	57	28.5
	6-10	43	21.5
	11-15	22	11
	15-Over	10	5
REASON FOR MAINTANCE	Routine checkups	119	59.5
	General maintenance	81	40.5
LAST CAR BRAND PURCHASED	Nissan	77	38.5
	Toyota	26	13
	Honda	6	3
	Hyundai	7	3.5
	Mitsubishi	6	3
	Ford	9	4.5
	Renault	4	2
	Other	17	8.5
	N/A	48	24

5.2 RELIABILITY ANALYSIS

This study employs a questionnaire type of survey to gauge the views of the survey subjects; thus, the questionnaire content must have reliability and validity to ensure data stability. According to the theory of Nunnally (1987), Cronbach's α has to be at least greater or equal to 0.7 for a high confidence. Cronbach's α is 0.886 for customer satisfaction, for service quality is 0.897, and for customer loyalty is 0.843. This shows that the criteria for the research have very high confidence levels.

Table 5-3 Reliability Analysis Results

<u>VARIABLES</u>	<u>NUMBER OF COMPONENTS</u>	<u>CRONBACH'S α</u>
<i>PS</i>	13	0.886
<i>SQ</i>	15	0.897
<i>CL</i>	4	0.843

Variable Definitions:
PS=Product Satisfaction
SQ= Service Quality
CL= Customer Loyalty

5.3 FACTOR ANALYSIS

This study utilizes product satisfaction, service quality, and customer loyalty to conduct KMO and Bartlett's test of sphericity. When the KMO value is greater than 0.5, it represents a high correlation between the variables and signals the suitability of factor analysis. Lastly, this study selects varimax to undergo rotation and extracts the common factors.

Product Satisfaction

There are 13 questions regarding product satisfaction through factor analysis. After rotation, 2 factors are extracted: “product quality” and “product economic”. The cumulative variance is 76.414.

1. Product Quality

Product quality contains 6 variables: “Vehicle Performance”, “Handling”, “Equipment”, “Interior”, “Cabin Noise”, and “Safety”; the percentage of variance of the six variables is 5.560.

2. Product economic

Product economics contains 5 variables: “Cost vs Benefit”, “Warranty Satisfaction”, “Fuel consumption”, “Roominess”, and “Depreciation”; the percentage of variance of the five variables is 1.251.

Table 5-4 Product Satisfaction of Factor Analysis

<u><i>DIM</i></u>	<u><i>COMP</i></u>	<u><i>EIG</i></u>	<u><i>VAR (%)</i></u>	<u><i>CUM (%)</i></u>
<i>PRODUCT SATISFACTION</i>	Product Quality		5.560	71.685
	Q4: Vehicle Performance	0.805		
	Q5: Handling	0.774		
	Q3: Equipment	0.710		
	Q2: Interior	0.699		
	Q6: Cabin Noise	0.615		
	Q8: Safety	0.577		
	Product Economic		1.251	76.414
	Q12: Cost vs Benefit	0.793		
	Q11: Warranty Satisfaction	0.766		
	Q9: Fuel consumption	0.673		
	Q7: Roominess	0.617		
	Q10: Depreciation	0.578		

Variable Definitions:

DIM= Dimension

COMP= Component

EIG= Eigenvalue

VAR= Variables

CUM= Cumulative

Service Quality

There are 15 questions regarding service quality through factor analysis. After rotation, 3 factors are extracted: “repair process”, “reasonable charge”, and “service and environment”. The cumulative variance is 75.612.

1. Repair Process

Repair process contains 6 variables: “Ask for permission before change the components”, “Maintenance service is superior”, “Manufacturer maintenance is better”, “List the item of maintenance”, “Find out the problem rapidly”, and “Appointment scheduling”; the percentage of variance of the six variables is 5.060.

2. Reasonable Charge

Reasonable charge contains 3 variables: “The cost of components is reasonable”, “Maintenance wage is reasonable”. and “Maintenance promotion notification”; the percentage of variance of the three variables is 1.380.

3. Service and Environment

Service and environment contains 3 variables: “Lounge environment”, “Lounge service”, and “Workshop environment”; the percentage of variance of the three variables is 1.214.

Table 5-5 Service Quality of Factor Analysis

<u><i>DIM</i></u>	<u><i>COMP</i></u>	<u><i>EIG</i></u>	<u><i>VAR (%)</i></u>	<u><i>CUM (%)</i></u>
<i>SERVICE QUALITY</i>	Repair Process		5.060	65.678
	Q5: Ask for permission before change the components	0.848		
	Q3: Maintenance service is superior	0.801		
	Q2: Manufacturer maintenance is better	0.715		
	Q6: List the item of maintenance	0.659		
	Q4: Find out the problem rapidly	0.627		
	Q1: Appointment scheduling	0.584		
	Reasonable Charge		1.380	71.282
	Q9: The cost of components is reasonable	0.891		
	Q8: Maintenance wage is reasonable	0.838		
	Q10: Maintenance Promotion notification	0.703		
	Service and Environment		1.214	75.612
	Q11: Lounge environment	0.824		
	Q13: Lounge service	0.760		
	Q12: Workshop environment	0.741		

Variable Definitions:

DIM= Dimension

COMP= Component

EIG= Eigenvalue

VAR= Variables

CUM= Cumulative

Customer Loyalty

There are 4 questions regarding service quality through factor analysis, and the KMO value is 0.807; in fact, Barlett's sphericity test confirms this ($P=0.000 < 0.001$). After rotation, 1 factor is extracted: "customer loyalty". The cumulative variance is 70.039.

Table 5-6 Customer Loyalty of Factor Analysis

<u><i>DIM</i></u>	<u><i>COMP</i></u>	<u><i>EIG</i></u>	<u><i>VAR (%)</i></u>	<u><i>CUM (%)</i></u>
<i>CUSTOMER</i>	Customer Loyalty		2.802	70.093
<i>LOYALTY</i>	Q4: Are you very willing to share with others your experiences with the current brand?	0.806		
	Q2: According to your experience with vehicle maintenance, will you still consider purchasing the same brand next time you purchase a vehicle?	0.869		
	Q1: According to your vehicle's performance, will you still consider purchasing the same brand next time you purchase a vehicle?	0.869		
	Q3: Do you approve with the quality of your current vehicle? If there is an incremental price increase, will you still consider purchasing?	0.724		

Variable Definitions:

DIM= Dimension

COMP= Component

EIG= Eigenvalue

VAR= Variables

CUM= Cumulative

5.4 ONE-WAY ANOVA

This study utilizes the independent sample T test to analyze variances and to verify whether each component and group exhibit obvious differences.

(1) Independent-Sample T Test

• Independent-Sample T Test of Sex

This study uses the independent sample T test to analyze if product satisfaction, service quality, and customer loyalty have significant differences. Through analysis, “sex” shows no obvious influence to all the components.

Table 5-7 Independent-Sample T Test of Sex

<u>GROUP</u>	<u>SEX</u>	<u>NUM</u>	<u>MEAN</u>	<u>SD</u>	<u>P value</u>	<u>T value</u>
<i>PS</i>	Male	117	3.8343	0.5142	0.543	-0.623
	Female	83	3.8832	0.5865		
<i>SQ</i>	Male	117	4.0969	0.4548	0.905	0.120
	Female	83	4.0884	0.5475		
<i>CL</i>	Male	117	3.8996	0.6183	0.830	0.215
	Female	83	3.8795	0.6862		

*, **, *** Denotes significance at the 0.10, 0.05, and 0.001 levels, respectively.

Variable Definitions:

NUM= Number

SD=Standard Deviation

PS= Product Satisfaction

SQ= Service Quality

CL= Customer Loyalty

- **Independent-Sample T Test of the Reason for Maintenance**

This study uses the independent sample T test to analyze if product satisfaction, service quality, and customer loyalty have significant differences. Through analysis, each “reason for maintenance” has no obvious influence on all the components.

Table 5-8 Independent-Sample T Test of the Reason for Maintenance

<u><i>GROUP</i></u>	<u><i>SEX</i></u>	<u><i>NUM</i></u>	<u><i>MEAN</i></u>	<u><i>SD</i></u>	<u><i>P value</i></u>	<u><i>T value</i></u>
<i>PS</i>	RC	119	3.9108	0.55316	0.078	1.772
	GM	81	3.7721	0.52896		
<i>SQ</i>	RC	119	4.1395	0.47870	0.109	1.610
	GM	81	4.0255	0.51007		
<i>CL</i>	RC	119	3.8971	0.69228	0.879	0.153
	GM	81	3.8827	0.58508		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

NUM= Number

SD= Standard Deviation

PS= Product Satisfaction

SQ= Service Quality

CL= Customer Loyalty

RC= Routine Checkups

GM= General Maintenance

(2) **One-Way ANOVA**

• **Product Satisfaction**

Analysis results show that age, education level, occupation, and current car model and car age have no obvious differences. The Scheffe result shows that the car brand last purchased has a greater effect on satisfaction.

Table 5-9 One-Way ANOVA of Product Satisfaction

<u>VARIABLE</u>	<u>COMPONENTS</u>	<u>FREQ</u>	<u>MEAN</u>	<u>F</u>	<u>P</u>
<i>AGE</i>	A. 21-30	50	3.6831	1.992	0.097
	B. 31-40	64	3.9627		
	C. 41-50	62	3.8921		
	D. 51-60	22	3.8217		
	E. 0-Over	2	3.8217		
<i>EA</i>	A. Junior High School	4	3.4231	1.225	0.302
	B. High School	37	3.9439		
	C. University	135	3.8513		
	D. Graduate School	24	3.8077		
<i>OCC</i>	A. Student	5	3.5846	1.621	0.143
	B. Public Servant	18	4.0684		
	C. Industry and Commerce	52	3.7722		
	D. Information Industry	10	3.9385		
	E. Medical Professions	5	3.7692		
	F. Service Industry	94	3.9100		
	G. Other	16	3.6154		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

FREQ= Frequency

EA= EducationalLevel

OCC= Occupation

F= F value

P= P value

<u>VARIABLE</u>	<u>COMPONENTS</u>	<u>FREQ</u>	<u>MEAN</u>	<u>F</u>	<u>P</u>
<i>CC</i>	A. March	8	3.5385	1.168	0.323
	B. Tiida	40	3.7558		
	C. Big Tidda	37	3.9629		
	D. Livina	25	3.9108		
	E. X-Trail	18	3.8675		
	F. Sentra	38	3.9170		
	G. Teana	14	3.9590		
	H. Other	20	3.7077		
<i>AC</i>	A. 0-2	68	3.9242	2.136	0.078
	B. 3-5	57	3.8961		
	C. 6-10	43	3.8766		
	D. 11-15	22	3.6224		
	E. 15-Over	10	3.5615		
<i>LBP</i>	A. Nissan	77	4.0040	3.491	0.001***
	B. Toyota	26	3.9231		
	C. Honda	6	3.6026		
	D. Hyundai	7	3.9560		
	E. Mitsubishi	6	4.1410		
	F. Ford	9	4.1111		
	G. Renault	4	3.5962		
	H. Other	17	3.5385		
	I. N/A	48	3.6410		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

FREQ= Frequency

CC= Current Car

AC= Age of Car

LBP= Last Car Brand Purchased

F= F value

P= P value

- **Service Quality**

The analysis results show that age, education level, occupation, and current car model and car age have no obvious differences. The Scheffe result shows that the car brand last purchased has a greater effect on service quality.

Table 5-10 One-Way ANOVA of Service Quality

<u>VARIABLE</u>	<u>COMPONENTS</u>	<u>FREQ</u>	<u>MEAN</u>	<u>F</u>	<u>P</u>
<i>AGE</i>	A. 0-2	50	3.9960	0.847	0.497
	B. 3-5	64	4.0333		
	C. 6-10	62	4.1075		
	D. 11-15	22	4.0727		
	E. 15-Over	2	4.0333		
<i>EA</i>	A. Junior High School	4	3.8167	1.225	0.444
	B. High School	37	4.1784		
	C. University	135	4.0726		
	D. Graduate School	24	4.1250		
<i>OCC</i>	A. Student	5	4.0667	0.889	0.504
	B. Public Servant	18	4.1519		
	C. Industry and Commerce	52	3.9962		
	D. Information Industry	10	4.2667		
	E. Medical Professions	5	4.9133		
	F. Service Industry	94	4.1418		
	G. Other	16	3.9833		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

FREQ= Frequency

EA= Education Level

OCC= Occupation

F= F value

P= P value

<u>VARIABLE</u>	<u>COMPONENTS</u>	<u>FREQ</u>	<u>MEAN</u>	<u>F</u>	<u>P</u>
<i>CC</i>	A. March	8	4.0167	1.110	0.358
	B. Tiida	40	4.0400		
	C. Big Tidda	37	4.1117		
	D. Livina	25	4.1280		
	E. X-Trail	18	4.1889		
	F. Sentra	38	4.2211		
	G. Teana	14	3.9810		
	H. Other	20	3.9033		
<i>AC</i>	A. 0-2	68	4.1284	0.503	0.734
	B. 3-5	57	4.1310		
	C. 6-10	43	4.0527		
	D. 11-15	22	3.9909		
	E. 15-Over	10	4.0400		
<i>LBP</i>	A. Nissan	77	4.2450	3.494	0.001***
	B. Toyota	26	4.0564		
	C. Honda	6	4.0778		
	D. Hyundai	7	4.2762		
	E. Mitsubishi	6	4.1222		
	F. Ford	9	4.4000		
	G. Renault	4	3.7333		
	H. Other	17	3.8627		
	I. N/A* (First time customer)	48	3.8958		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

FREQ= Frequency

CC= Current Car Model

AC= Age of Car

LBP= Last Car Brand Purchased

F= F value

P= P value

- **Customer Loyalty**

The analysis results show that age, education level, and current car model and car age have no obvious differences. The Scheffe result shows that occupation and the car brand last purchased have a greater effect on customer loyalty.

Table 5-11 One-Way ANOVA of Customer Loyalty

<u>VARIABLE</u>	<u>COMPONENTS</u>	<u>FREQ</u>	<u>MEAN</u>	<u>F</u>	<u>P</u>
<i>AGE</i>	A. 0-2	50	3.7600	1.024	0.396
	B. 3-5	64	3.9961		
	C. 6-10	62	3.8871		
	D. 11-15	22	3.9205		
	E. 15-Over	2	3.6250		
<i>EA</i>	A. Junior High School	4	3.1875	1.836	0.142
	B. High School	37	3.8833		
	C. University	135	3.9167		
	D. Graduate School	24	3.9797		
<i>OCC</i>	A. Student	5	3.9000	2.460	0.026*
	B. Public Servant	18	3.9583		
	C. Industry and Commerce	52	3.781		
	D. Information Industry	10	3.8750		
	E. Medical Professions	5	3.9500		
	F. Service Industry	94	4.0133		
	G. Other	16	3.3906		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

FREQ= Frequency

EA= Education Level

OCC= Occupation

F= F value

P= P value

<u>VARIABLE</u>	<u>COMPONENTS</u>	<u>FREQ</u>	<u>MEAN</u>	<u>F</u>	<u>P</u>
<i>CC</i>	A. March	8	4.0625	1.654	0.123
	B. Tiida	40	3.6938		
	C. Big Tidda	37	3.9324		
	D. Livina	25	3.9300		
	E. X-Trail	18	3.7222		
	F. Sentra	38	4.1053		
	G. Teana	14	4.0179		
	H. Other	20	3.7500		
<i>AC</i>	A. 0-2	68	3.9375	0.966	0.411
	B. 3-5	57	3.8509		
	C. 6-10	43	3.9186		
	D. 11-15	22	3.6932		
	E. 15-Over	10	4.1250		
<i>LBP</i>	A. Nissan	77	4.0779	3.091	0.003**
	B. Toyota	26	3.9038		
	C. Honda	6	3.3750		
	D. Hyundai	7	4.0000		
	E. Mitsubishi	6	4.2083		
	F. Ford	9	3.9722		
	G. Renault	4	3.5000		
	H. Other	17	3.4559		
	I. N/A*	48	3.7656		

*, **, *** Denotes significance at the 0.05, 0.01, and 0.001 levels, respectively.

Variable Definitions:

FREQ= Frequency

CC= Current Car

AC= Age of Car

LBP= Last Car Brand Purchased

F= F value

P= P value

5.5 CORRELATION ANALYSIS

Service quality and product satisfaction display a positive correlation, with r of 0.627 and p of less than 0.01 ($r=0.627$, $p<0.01$). As displayed by Table 5-12, the analysis states that if Nissan raises its vehicle service quality, then customer satisfaction will also increase.

Product satisfaction and customer loyalty display a positive correlation, with r of 0.712 and p of less than 0.01 ($r=0.712$, $p<0.01$). As displayed by Table 5-12, the analysis states that if Nissan raises vehicle product satisfaction, then customer loyalty will also increase.

Service quality and customer loyalty display a positive correlation, with r of 0.655 and p of less than 0.01 ($r=0.655$, $p<0.01$). As displayed by Table 5-12, the analysis states that if Nissan raises vehicle service quality, then customer loyalty will also increase.

Last car brand purchased and product satisfaction, service quality, and customer loyalty display a positive correlation, with r of -0.286, -0.281, and -0.230, respectively, and p of less than 0.01 ($r=-0.286$, -0.281, and -0.230, $p<0.01$). As displayed by Table 5-12, the analysis states that last car brand purchased of a customer is related to customers' product satisfaction, service quality, and loyalty.

Age of car and product satisfaction display a positive correlation, with r of -0.178 and p of less than 0.05 ($r=-0.178$, $p<0.05$). As displayed by Table 5-12, age of car influences the product satisfaction of customers. In addition, age of car and current car exhibit a positive correlation, with r of 0.143 and p of less than 0.05 ($r=0.143$, $p<0.05$).

As displayed by Table 5-12, age and sex display a positive correlation, with r of -0.140 and p of less than 0.05 ($r=-0.140$, $p<0.05$); level of education and age display a positive correlation, with r of -0.340 and p of less than 0.01 ($r=-0.340$, $p<0.01$); current car and sex display a positive correlation, with r of -0.197 and p of less than 0.01 ($r=-0.197$, $p<0.01$); occupation and level of education display a positive correlation, with r of -0.176 and p of less than 0.05 ($r=-0.176$, $p<0.05$); current car and sex display a positive correlation, with r of -0.197 and p of less than 0.01 ($r=-0.197$, $p<0.01$).



Table 5-12 The Correlation Table

	<u>PS</u>	<u>SQ</u>	<u>CL</u>	<u>SEX</u>	<u>AGE</u>	<u>LE</u>	<u>OCC</u>	<u>CC</u>	<u>AC</u>	<u>RM</u>	<u>LBP</u>
<i>PS</i>	1										
<i>SQ</i>	0.627**	1									
<i>CL</i>	0.712**	0.655**	1								
<i>SEX</i>	0.044	-0.009	-0.015	1							
<i>AGE</i>	0.089	0.046	0.046	-0.140*	1						
<i>LE</i>	-0.015	-0.003	0.037	0.028	-0.340**	1					
<i>OCC</i>	-0.023	0.028	-0.027	-0.049	-0.002	-0.176*	1				
<i>CC</i>	0.040	-0.015	0.065	-0.197**	0.104	-0.068	0.026	1			
<i>AC</i>	-0.178*	-0.088	-0.024	-0.072	0.293	0.064	0.058	0.143*	1		
<i>RM</i>	-0.125	-0.114	-0.011	0.049	0.173	0.058	-0.040	0.101	0.616	1	
<i>LBP</i>	-0.286**	-0.281**	-0.230**	0.063	-0.179	0.035	0.001	0.065	0.030	0.035	1

** Correlation is significant at the 0.01 level (2-tailed) and 0.05 level (1-tailed)

Variable Definitions:

PS= Product Satisfaction *LE*= Level of education *AC*= Age of car

SQ= Service Quality *OCC*= Occupation *RM*=Reason for maintenance

CL= Customer Loyalty *CC*= Current Car Model *LBP*=Last car brand purchased

5.6 REGRESSION ANALYSIS

This study validates the direct impact and relationship between product satisfaction, service quality, and customer loyalty. When the T value is greater than 1.96, it represents a high significance. It also validates hypotheses H1 and H2. The analysis is as follows.

The Relationship between Product Satisfaction and Customer Loyalty

This study uses regression analysis to examine if the results support hypothesis 1. From Table 5 13, the T value on product quality is 4.884 and product economic is 3.589, showing that product satisfaction significantly affects customer loyalty.

The relationship between product satisfaction and customer loyalty has been discussed in many research studies. Kasper (1988) reported that brand loyalty and customer satisfaction towards a product have a positive relationship. From an investigation with regard to customer satisfaction in Sweden, Anderson, Fornell and Lemann (1994) presented that customer satisfaction has a positive relationship with customer loyalty. The type and level of emotional response are related to the level of satisfaction from the product. Taylor and Baker (1994) did research on customer satisfaction and customer loyalty in different service industries, showing satisfaction has a direct influence on customers' purchase intention. Based on the above theory and data analysis, this study infers that product satisfaction has a positive impact on customer loyalty.

From Table 5-13, the control variables (sex, age, level of education, occupation, current car, age of car, reason for maintenance, and last car brand purchased) have no effect on customer loyalty. The above data explain that no matter whether customers are from what kind of group, product quality, product economics, repair process, and reasonable charge are not only the most important components that a customer cares about, but also the key factors that affect customer loyalty.

The Relationship between Service Quality and Customer Loyalty

This study uses regression analysis to examine if the results support hypothesis 2. From Table 5-13, the T value on repair process is 3.411; on reasonable charge is 2.143; and on service and environment is -0.784. According to the above data, repair process and reasonable charge have a positive relationship with customer loyalty. However, service and environment have no significant relation with customer loyalty, which means customers are not satisfied with Nissan workshop environment. If the workshop environment is improved, then it might draw more loyalty from customers.

Service quality has been considered as the key factor for customer satisfaction and leads to customer loyalty. Jones and Sasser (1995) claimed that customers' affinity to a specific product or service establishes customer loyalty. Ghylin (2008) stated that the better service quality is, the better customer satisfaction will be. Geetika et al. (2010) viewed service quality as a determinant of customer satisfaction. Based on the above theory and data analysis, this study infers that service quality has a positive impact on customer loyalty. From this, it can be seen that raising product satisfaction and service quality towards a product increase customer loyalty.

Table 5-13 Regression Analysis of Product Satisfaction and Service Quality

	<u>CV</u>	<u>TV</u>
<i>PRODUCT QUALITY</i>	0.344	4.884***
<i>PRODUCT ECONOMIC</i>	0.264	3.589***
<i>REPAIR PROCESS</i>	0.220	3.411***
<i>REASONABLE CHARGE</i>	0.136	2.143**
<i>SERVICE AND ENVIRONMENT</i>	-0.045	-0.784
<i>SEX</i>	-0.019	-0.375
<i>AGE</i>	-0.028	-0.487
<i>EDUCATION LEVEL</i>	0.032	0.600
<i>OCCUPATION</i>	-0.016	-0.323
<i>CURRENT CAR MODEL</i>	0.020	0.399
<i>AGE OF CAR</i>	0.082	1.262
<i>REASON FOR MAINTANANCE</i>	0.038	0.603
<i>LAST CAR BRAND PURCHASED</i>	-0.008	-0.163
<i>R²</i>		0.581
<i>ADJ R²</i>		0.551
<i>F VALUE</i>		19.823
<i>P VALUE</i>		0.000

Variable Definitions:

PQ= ProductQuality *LE*= Level of education

PE= Product Economic *OCC*= Occupation

RP= Repair Process *CC*= Current Car Model

RC= Reasonable Charge *AC*= Age of Car

SE= Service and Environment *RM*=Reason for maintenance

SEX= Sex *LBP*=Last car brand purchased

AGE= Age

6. CONCLUSION

According to the theory and research framework in this study and after the analysis and proof in chapter 5, this chapter discusses the conclusion of the analysis as well as layout recommendations for Nissan Motor regarding management and possible future research.

6.1 CONCLUSION

The main goal of this research is to explore whether or not customer satisfaction and service quality have a direct impact on the desire to purchase. This research raises two hypotheses, as per Table 6.1.

Table 6-1 Hypothesis and Results

Hypothesis	Result
Product satisfaction has significant positive effect on customer loyalty.	Supported
Service quality has significant positive effect on customer loyalty.	Supported

The Analysis and Conclusion of Product Satisfaction

- (1) In the 13 questions regarding customer satisfaction, the most satisfied factor is product quality and product economics. The least satisfied is design intelligence, which is a technical issue. If this technical issue can be improved, then it raises competitiveness against other brands.
- (2) Conducting regression analysis on product satisfaction and loyalty, where satisfaction is the independent variable and customer loyalty is the dependent variable, the analysis shows that customer loyalty and satisfaction have a positive correlation. Therefore, if the company continues to raise satisfaction, then loyalty will also increase.

- (3) Conducting One-Way ANOVA analysis on product satisfaction with 8 other variables, the result shows that product satisfaction varies with different factors, especially the brand of car that was last purchased. This infers that the greater the product satisfaction is, the more difference we can see amongst different factors and variables.

The Analysis and Conclusion of Service Quality

- (1) In the 15 questions regarding customer satisfaction, the most satisfied factor is “repair process”, “reasonable charge”, and “service & environment”. The survey location for this study is at the work shop of the company; thus, for car owners who return for service, they are most satisfied with those three factors.
- (2) Conducting regression analysis on service quality and loyalty, where service quality is the independent variable and customer loyalty is the dependent variable, the analysis shows customer loyalty and service quality have a positive correlation. Therefore, if the company continues to raise service quality, then loyalty will also increase.
- (3) Conducting One-Way ANOVA analysis on service quality with 8 other variables, the result shows that service quality varies with different factors, especially the brand of car that was last purchased. This infers that greater the service quality is, the more difference is shown amongst different factors and variables.

6.2 IMPLICATION AND RECOMMENDATION

- (1) Nissan vehicles are highly regarded for their quality and economical friendliness. With regards to quality, the vehicles' performance and quality (exterior design, interior design, and equipment) are where owners are most satisfied. Consumers are next satisfied with their economical friendliness, such as fuel consumption, depreciation, and great value for money. Areas where Nissan could improve upon are its intelligence design and interior volume capacity. If Nissan's design team can improve on this, then it will raise Nissan's market share as well as owner satisfaction even more.
- (2) Vehicle owners who return for maintenance are satisfied with the maintenance process, reasonable charge, service, and environment. Owners are satisfied with the considerate manner in which the service is booked and carried out. Based on prior analysis, we come to a theory that the owners who return to the manufacturer's workshop for service find the price reasonable, because most of them feel that returning to the manufacturer for service gives them a peace of mind. Thus, even though the price for the manufacturer to carry out the maintenance may be slightly higher than other competitors, it is still within the owner's acceptance range. Lastly, owners are satisfied with the environment of the customer waiting area. The workshop area can be improved and if so, then it can greatly improve the maintenance procedures and raise customer satisfaction.
- (3) Product satisfaction and service quality affect customer loyalty. Owners looking for maintenance will consider vehicle capability and expertise of the maintenance workshop to decide whether or not to purchase from the same brand again, as well as sharing their positive experience with others. Prospective customers may be swayed by a lower price, and thus it is recommended to leverage service differentiation to solidify customer satisfaction and raise customer loyalty.

6.3 LIMITATIONS AND FUTURE RESEARCH

Because of the restraints placed on this study, such as time and human resources, it was not possible to survey all work shop locations. Thus, the data may not be complete. Future studies may remedy this to provide a more complete study.

This study only uses the level of satisfaction, service quality, and customer loyalty as variables to explore how these three factors affect each other. In future studies, other factors and/or population can be included and explore.



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APPENDIX

親愛的車主，您好

本研究目的是針對顧客售後服務滿意度、品牌忠誠度和再購意願之相關研究調查。本問卷採不記名方式，敬請放心作答。非常感激您的協助，使本研究能順利完成。

敬祝 平安順利

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中華民國 105 年 5 月

一、關於車主

1. 性別:

男 女

2. 年齡:

20歲(含)以下 21~30歲 31~40歲
 41~50歲 51~60歲 60歲以上

3. 教育程度:

國中以下 高中(職) 大學 研究所以上

4. 職業:

學生 軍公教 工商業 資訊業
 醫護業 服務業 農林漁牧業 其它

5. 目前車型:

March Tiida Big Tiida Livina
 X-Trial Sentra Teana 其他

6. 車齡:

0~2年 3~5年 6~10年 11~15年 15年以上

7. 維修目的:

例行性保養(定保) 一般維修保養(非定保)

8. 請問上次購買的車輛品牌(請填寫於下方欄位):

二、產品滿意度

請您就當初買這部新車，再交車後，對這部車在各方面的表現是否滿意
請您依照實際感受，圈出適當的數字 (1 代表非常不滿，5 代表非常滿意)

產品滿意度	非常不滿	不滿意	無意見	滿意	非常滿意
01. 外觀部分 (如造型、大小)	1	2	3	4	5
02. 內裝部分 (如裝潢、質感、內裝顏色)	1	2	3	4	5
03. 配備 (如影音系統豐富性)	1	2	3	4	5
04. 車輛性能 (起動、爬坡、加速性能)	1	2	3	4	5
05. 行駛操控性 (如避震效果、配備操作的便利性) ...	1	2	3	4	5
06. 車輛的靜肅性 (如隔音效果)	1	2	3	4	5
07. 室內空間 (如空間大小、乘坐舒適度)	1	2	3	4	5
08. 安全配備完整性 (ABS、安全氣囊、剎車性能) ...	1	2	3	4	5
09. 耗油量 (省油)	1	2	3	4	5
10. 後續車輛殘餘價值的滿意度 (折舊率)	1	2	3	4	5
11. 保固滿意度 (如年限、公里數)	1	2	3	4	5
12. 車價合理、物超所值	1	2	3	4	5
13. 智慧科技設計 (自動駕駛系統、導航資訊系統) ...	1	2	3	4	5

三、售後服務滿意度

當您的愛車回原廠保養維修時，您對原廠的售後服務表現是否感到滿意？請您依照實際感受，圈出適當的數字（1 代表非常不滿，5 代表非常滿意）

售後服務滿意度	非常不滿	不滿意	無意見	滿意	非常滿意
01. 您對這次預約安排的服務滿意度	1	2	3	4	5
02. 您認為原廠維修較有保障	1	2	3	4	5
03. 您對本次的維修服務滿意度	1	2	3	4	5
04. 您對本次維修迅速找到毛病滿意度	1	2	3	4	5
05. 服務人員事先與您徵求同意更換零件	1	2	3	4	5
06. 您對本次維修項目明細是否清楚	1	2	3	4	5
07. 您對本次保養維修時間滿意度	1	2	3	4	5
08. 您對本次維修工資是否合理	1	2	3	4	5
09. 您對本次維修零件費用是否合理	1	2	3	4	5
10. 您對維修保養優惠通知滿意度	1	2	3	4	5
11. 您對客休息室環境滿意度	1	2	3	4	5
12. 您對維修廠房環境滿意度	1	2	3	4	5
13. 您對本次客休息室服務滿意度	1	2	3	4	5
14. 您對保養維修後的關懷與追蹤滿意度	1	2	3	4	5
15. 您會針對此車輛品牌售後服務的滿意經驗， 向親朋好友進行正面的分享	1	2	3	4	5

四、品牌忠誠度

請您針對以下描述，表達您的看法，圈出適當的數字

(1 代表非常不滿，5 代表非常滿意)。

品牌忠誠度	非常不同	不同意	無意見	同意	非常同意
01. 依照您車輛的性能，下次在購買時，仍會考慮目前所使用的車輛品牌	1	2	3	4	5
02. 依照您維修保養經驗，下次在購買時，您仍會考慮目前所使用的車輛品牌	1	2	3	4	5
03. 您認同目前所使用的車輛品質，若車輛價格再高一點，您仍會考慮購買	1	2	3	4	5
04. 您很願意與人分享，您目前所使用車輛的品牌	1	2	3	4	5