Print ISSN: 1738-3110 / Online ISSN 2093-7717
http://dx.doi.org/10.15722/jds.18.1.202001.59

The Perceived-experiential Value and Service Quality of Auto Maintenance and Repair Service

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Received: January 15, 2019 Revised: November 29, 2019 Accepted: December 05, 2019

Abstract

Purpose: This study aims to examine such relationships as the experiential value that customers respond to with regard to maintenance service by empirically revealing how the quality of auto maintenance and repair service affects both customer satisfaction and intention to reuse the same service through the Perceived-experiential Value of customers. **Research design, data and methodology**: The research model was designed with service qualities such as human quality, material quality, interaction quality, and system quality as independent variables, perceived-experiential value as a parameter, and service satisfaction and return visit intention as dependent variables. Through a questionnaire composed of 24 items, a total of 319 survey data from customers with the experience of using car maintenance service centers in Korea were collected and analyzed using a structural equation. **Results**: The material quality did not affect the customers' perceived-experiential value, whereas the interaction quality had the greatest influence. It is confirmed that human quality, interaction quality, and system quality can generate customer satisfaction and repurchase intention through the perceived-experiential value. **Conclusions**: The experiential value of customers can play an important medium role in improving satisfaction, with customers considering interaction quality important. Therefore, the auto maintenance and repair service should consider relationship-focused service strategies.

Keywords : Auto Maintenance and Repair Service, Service Qaulity, Perceived-experiential Value, Return Visit Intention, Distribution Service

JEL Classification Code : M10, M30, M31, M39

1. Introduction

The automotive industry globally has developed based on manufacturing-centered sales, whereas the auto maintenance and repair service have been recognized to play a secondary role in resolving problems occurring within the warranty period after the sale of new cars. The auto maintenance and repair service, therefore, was perceived as a cause of cost rather than sales increase in automotive companies' perspective, rendering its importance in business activities relatively low. In recent years, however, competition in the automobile market has been fierce, and as the customer's various needs increased, detailed service needs increased in the overall use and management of the car beyond its purchase, so that the importance of improving the quality of the automobile maintenance service has emerged (Boulding et al., 1993).

According to McKinsey, a global consulting firm, the sizes of the global Auto Maintenance and Repair Service market and the after-market which is related to it are estimated at € 800 billion in 2017, and they are expected to grow by 3% annually over the next decade, increasing to € 1.2 trillion by 2030. By region, the Auto Maintenance and Repair Service market and after-markets are expected to show low-growth rates of 1.5-1.7% annually for the next 10 years in the US and Europe and high-growth rates of 6.1-7.5% annually in Asian countries such as China. In 2030, automotive after-markets in Asia, including China, are expected to expand to € 430 billion, surpassing the US and European markets.

In the case of Korea, there are approximately 35,800 car maintenance companies as of 2019, where 88.2% are specific maintenance and 11.8% are general maintenance,

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according to the Molit Statistic System. There are more than 10,000 workers nationwide, with an average of 10.17 workers in general maintenance and 1.62 workers in specific maintenance. The total sales are estimated at KRW 5 trillion while royalty sales are estimated at 25%, marking this a significant market in terms of economics. However, there are concerns about other sales declines due to fierce competition and shifts in the automotive market. Moreover, the auto maintenance and repair service market and after-market are expected to continue growing as the number of vehicles on the road continues to increase, the annual mileage of the vehicle increases, and the number of vehicles older than 5-6 years having high-demand for replacement of consumable parts increases.

In the automotive industry, Moment of Truth (MOT) for repurchase was simplified into sales channels in the past, but, recently, the MOT of maintenance service has shown to project a significant impact on repurchase (Kodama, 2003). Whenever maintenance service is provided, trust in products and brands can increase, and satisfactory maintenance service quality is one of the reasons for the repurchase of the product. Therefore, the importance of the auto maintenance and repair service quality is continuously increasing. In particular, the maintenance service trend is much different from the past customer base as the major automobile customers shifted to millennials. Most of the existing customers visit the maintenance service through the introduction or word-of-mouth of sales representatives or acquaintances, while millennial customers, in no time, search and visit online sites, specifically through smartphones, making reservations online. In addition, the expensive-vehicle task force was the subject of service specialization because of the strong demand for customized service rather than the existing formal and standardized service although strategic service delivery for the customer tendency and service segmentation corresponding to the use-specific vehicles such as compact cars, sports cars, and SUVs has been demanded recently (Lusch, Vargo, & Tanniru, 2010).

On the other hand, the proportion of newly released electric vehicles on the market is increasing, and car models using intelligent automatic driving technology, namely autonomous vehicles, are also increasing. Accordingly, vehicle use time increases, leading to an increase in the spare part replacement cycle and the maintenance demand increases, as well as the environment changes, to allow many people to share the vehicles which are parked during a time other than commuting hours based on the existing 24-hour basis (Sweeney & Soutar, 2001). Also, the number of eco-friendly vehicles such as hydrogen and electric vehicles, as well as future automobiles such as autonomous vehicles is rapidly increasing, whereas various, segmented, and specialized maintenance companies in the field of the auto maintenance and repair service are increasing as well. Due to this, competition among the companies has become fierce while the preparation of a specialized maintenance service response strategy for future vehicles through building maintenance infrastructures such as maintenance ability and a maintenance network for future vehicles is also one of the concerns related to maintenance services in the automotive industry (Dabholkar, 2000).

Despite such rapid changes, however, the field of auto maintenance and repair service has a poor management system with a technical maintenance level, and studies for improving service quality or service development are highly insufficient. In particular, the expansion of autonomous cars, car leasing, and car-sharing clearly shows that the automotive industry is now shifting to a service-oriented environment rather than a product-oriented one. Therefore, the auto maintenance and repair service should be approached not just from the concept of car repair, but from the aspect of management service in the whole process of using the car, thus making it necessary to bring about improved service quality and steady service innovation in line with customer needs and consumer trends (Brady & Cronin, 2001).

This study, therefore, tried to find out which service quality factors are considered important by customers based on the perceived experiences of car maintenance service in order to prove empirically what factors affect service satisfaction and return visit intention in purchasing. This study not only suggests specific implications for improving the quality of the auto maintenance and repair service by checking the current status of automobile maintenance customers and major quality factors but also tries to play a role on basic research for future studies because there is a lack of researches on purchase intention or consumption trends for the auto maintenance and repair service.

2. Literature Reviews and Hypothesis

2.1. Automobile Maintenance Service Quality and Perceived-experiential Value

The service quality can be defined as "a consumers' judgment of the overall superiority or excellence of perceived service, which is an abstract and overall evaluation that is different from the objective or actual quality, and is always made within the set of conscious consumers" (Leisen & Hyman, 2004). Representatively, Parasuraman, Berry and Zeithaml (1988) defined the concept of service quality in terms of overall attitudes related to service superiority, and Zeithaml (1996) defined it as the customer's evaluation for the overall service superiority or excellence. In general, service quality can

depend on two approaches: objective quality and subjective quality (Olorulorun, Hsu, & Udo, 2006). The objective quality is a concept that explains the economic technical superiority or excellence between products. In general, the SERVQUAL model developed for measuring the objective quality of service is most commonly used. Parasuraman et al. (1988) proposed five dimensions such as reliability, responsiveness, empathy, assurance, and tangibles. Later, De Wulfetal, Odekerken-Schröder and Iacobucci (2001) suggested 22 measuring items. In many previous studies, various models and factors were proposed with the application of the SERVEQUAL model (Boulding, Kalra, Staelin, & Zeithaml, 1993; Swaminathan, Groening, Mitta,l & Thomaz, 2014).

Subjective quality, on the other hand, is a concept that includes the subjective response of people to an object and is emphasized as the importance of the process quality emerging with the performance quality. Castleberry and McIntyre (1993) categorized service quality in three dimensions and argued that all dimensions of service products, service delivery, and service environments should be considered. The important factor is not simply the resultant quality of the product, but the service delivery procedures or environment perceived by customers during the service delivery process, which can be an important factor in determining service quality. Brady and Cronin (2001) and Dabholkar, Shepherd and Thrope (2000) defined three quality factors, namely, interaction quality, result quality, and physical environmental quality, and presented a model that emphasized the multidimensionality of service quality.

This service quality has been studied in relation to concepts such as customer satisfaction, customer retention, word of mouth, and customer loyalty, rather than the value of customer experience. In particular, service value is a concept that is being studied as a new parameter between service quality and customer satisfaction, and many researchers are empirically studying it in terms of service companies increasing service value in order to enhance customer satisfaction (Llosa, Chandon, & Orsingher, 1998) argued that adding service value to consumer decision-making models based on service quality and cost can improve the explanatory power of consumers' purchase intentions, proffering research results that show how increasing service quality leads to higher service value. Tsai (2015) evaluated perceived service value as a determinant factor for purchasing and repurchasing, arguing that service value is high when ideally assessing service quality because perceived service value is highly correlated with quality or price. Many of these previous studies have demonstrated that service quality affects service value (Cronin, Brady, & Hult, 2000).

As Patterson and Spreng, (1991) argues, however, services must be provided directly to consumers so that consumers can experience the services provided. Consumers build knowledge or skills through direct or indirect experiences. Yuan & Wu (2008) argued that experience value is the most important benefit of the service industry, proving the influence that experiential value provides to customers' satisfaction in terms of the causal relationship between emotional, sensory, thinking perception, and service quality and customer satisfaction. Also, the goods and services provided can be greatly increased in value through the process of consumer sensationalization or experience (Pine & Gilmore, 1998). Chen and Chen (2010) argued that experience is superior to service quality for describing the relationship between perceived value, satisfaction, and behavioral intention, with described quality of experience having a significant effect on satisfaction and perceived value. This means that the higher the quality of the experience product, the greater the perceived value of the consumer (Eggert & Ulaga, 2002).

Based on these previous studies, the quality factors of the auto maintenance and repair service are expected to affect the experience value perceived by customers who visit the garage. Therefore, the following hypotheses are suggested.

H1: The human quality of the auto maintenance and repair service will have a positive (+) effect on the perceived-experiential value.
H2: The material quality of the auto maintenance and repair service will have a positive (+) effect on the perceived-experiential value.
H3: The interaction quality of the auto maintenance and repair service will have a positive (+) effect on the perceived-experiential value.
H4: The system quality of the auto maintenance and repair service will have a positive (+) effect on the perceived-experiential value.

2.2. Perceived-experiential Value and Service Satisfaction

Customers get favorable or unfavorable memories of companies or brands through their direct experiences of service. Thus, customers learn new things from the relationship between their experiences and memories or express the strength and response of service experience through the memory of acting. Perceived experiences of services are manifested in values, emotions, and judgment or behavioral intentions (Johnson et al., 2006). These findings are similar to the results of the studies that consider experience as a cognitive, behavioral, and emotional response (Mathwick et al., 2001).

In previous studies, consumption experience was described as a pleasure factor occurring during the consumption process and after the consumption process (Hennig-Thurau, 2002). Experience value perceived by customers through service is expressed through various reactions such as emotion, fantasy, and pleasure (Ruyter & Wetzel, 2000). On the other hand, Johnson and Rapp (2010) presented the components of the perceived value of service as emotional value, social value, and functional value, while Richard and Allway (1993) presented the perceived-experiential value of service as separately functional value and emotional value. Johnson et al. (2006) emphasized not just the importance of direct service process experience, but the importance of experience value according to environmental factors such as service delivery organization, facilities, and other customers. Morgan and Hunt (1994) also stressed that relational practice is an important factor because the nature of services is a process and a type of human relationship that persons provide, and that the service providing an environment that forms these relational factors is essential in creating a positive experience. Many other previous studies have emphasized the importance of the service environment in order to enhance the value of service experience or to increase positive emotions and induce purchase (Cronin & Taylor, 1992; Bartlett & DeSteno, 2006; Bove, 2009).

The perceived-experiential value is one of the most influential factors that determine consumer's satisfaction and behavioral intention. Deng et al. (2010) defined it in terms of psychological differences in the benefits of the service experience process provided and the costs paid for service experience. Further, Koritos et al. (2014) described perceived-experiential value as depending on time, cost, customer preferences and characteristics, situation and background, symbolism, and perceived quality. Zhang and Lee (2015) found that the physical environment, accessibility, and promotion of experience value have a significant effect on Service Satisfaction. Because service experiences are personal experiences of specific processes at specific times (Soscia, 2007), they can affect satisfaction, which is a response to tangible and intangible services. Therefore, the effect came from various factors such as service environment, human and physical service levels, and service process through which consumers obtain their experiences and stimuli (Yen & Gwinner, 2003).

As a result, this perceived-experiential value determines service satisfaction (Rego et al., 2013). Since the auto maintenance and repair service has a service background based on the customer's direct experiences obtained from the maintenance center, the hypothesis that the experience value perceived by the customer will have a direct effect on service satisfaction could be designed based on these previous studies. In this study, H5 was proposed and verified.

H5: The perceived-experiential value for auto maintenance and repair service will have a positive (+) effect on service satisfaction.

2.3. Service Satisfaction and Return Visit Intention

Bolton and Drew (1991) distinguished two aspects of satisfaction as the degree of agreement between individual expectations and actual rewards, and the phenomenon of the subjective experience of satisfaction and dissatisfaction, or happiness and misery, pleasure, and displeasure. In addition, the goal of service satisfaction is to meet customers' needs and expectations as much as possible, resulting in the repurchase of goods and services and maintenance of customer confidence as well (Jeon et al., 2013). Service satisfaction is a key factor in shaping a customer's future desire to buy (Morales, 2005), an emotional response when the performance of the service exceeds customers' expectations (Oliver, 1993), and a feeling that occurs to customers when they complete their purchase at the next stage of purchasing service (Ruiz-Molina et al., 2009). Service quality means service performance and does not vary greatly from customer to customer, but service satisfaction represents personal differences according to the customer's experience because expectations affect it (Parasuraman, et al., 1991). Reichheld & Sasser (1990) stated that service quality evaluation does not require experience, and that service can be evaluated based on the knowledge of the service provider, but that satisfaction is the view that comes from the customer's service experience. Accordingly, in the case of service satisfaction, the perceived satisfaction and the emotional response for service greatly affect it (Rosaria & Foxall 2006), and consumers not only compare the attributes of the service with the competing service but pursue overall satisfaction by comparing it with personal expectations.

This service satisfaction also affects customer behavioral factors such as positive word of mouth, repurchase, and customer loyalty (Kim, 2016). Behavioral intention is the individual's will and belief that manifests itself as a particular future behavior after the consumer has formed an attitude toward an object, including consumer revisit and recommendation intention (Woodruff, 1997). The positive result of service satisfaction is to make customer attitudes friendly (Thomson et al., 2005), becoming a key strategy for reducing customer churn and increasing customer loyalty (Gallarza & Saura, 2006). Therefore, customer satisfaction for service is being studied as a factor that

directly affects return visit intention (Van Doorn et al., 2010).

Wray et al. (1994) verified the process of leading repurchase intention and word of mouth intention when service quality improved and customer satisfaction increased and found that satisfaction mediates between service quality and return visit intention. Further, Zeithaml, et al. (1996) found that friendly behavioral intentions relate to the ability of service providers and they manifest as positive word of mouth, recommendations to others, loyalty increase, revisiting together with friends, and willingness to pay despite high prices. Many other previous studies suggest a positive and direct link between Service Satisfaction and repurchase intention (Nguyen et al., 2018).

The customer's intention to revisit is a crucial performance factor for the Auto Maintenance and Repair Service, and it is necessary to have loyal customers who maintain ongoing transactions (Walsh et al., 2009). Thus, in order to generate customer's purchase intention and to maintain continuous relationship with service providers by revisiting auto maintenance centers and talking to the acquaintances positively about the centers, relationship improving service satisfaction level should be considered through service quality and perceived-experiential value (Hennig-Thurau, et al., 2002). Based on these previous studies, this study attempted to suggest the following hypothesis where the satisfaction of the auto maintenance and repair service will have a positive effect on the intention to revisit.

H6: Service satisfaction from the auto maintenance and repair service will have a positive (+) effect on the return visit intention.

3. Research Method

3.1. Research Model

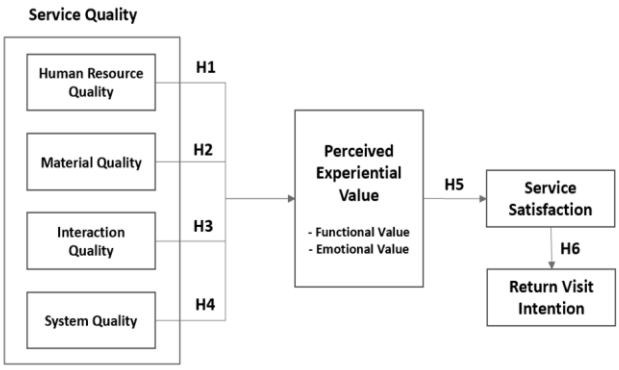

Figure 1: Research model

Based on previous studies related to this, this relation was derived as hypotheses and, finally, the research model shown in Figure 1 was designed. The auto maintenance and repair service qualities like human/physical/interaction /system quality were configured as independent variables, and the perceived-experiential values for the services, including the functional value and emotional value, were set up as parameter. In the case of the dependent variables, service satisfaction and repurchase intention were set up and the model was verified through confirmatory factor analysis and path analysis based on the structural equation.

3.2. Measurement Variable

A survey was conducted to collect data to analyze this model. For the composition of the questionnaire, the questionnaire items as shown in Table 2 were formed through the previous studies, whereas manipulative variables of the questionnaire components that will be composed of the questionnaire were defined. The variables defined in this way, configured as the questionnaire items using the likert-type, 5-point scale and the detailed compositions of the four quality types are as follows: Based on the previous studies of Parasuraman et al. (1988) and Brady and Cronin (2001), human quality is composed of three categories such as employee knowledge, employee kindness level, and employee image. Based on the previous studies of Sureshchandar et al. (2002), Fullerton and Talyor (2002), and Olorunniwo et al. (2006), the material quality is composed of three items like latest equipment, facilities, and suitable system, whereas the interaction quality consists of three categories such as response for customers, interest, and problem-solving, and the three items speed, process, and time constitute the system quality.

The perceived-experiential value, which is the parameter, is composed of the six categories based on the previous studies of Yuan and Wu (2008) as follows: excellence, technical skills, and results in terms of the functional aspect, and comfort, happiness, and interest level in terms of the emotional aspect. Finally, based on the previous studies of De Wulf et al. (2001), and Eggert et al. (2002), service satisfaction, which is the dependent variable, consists of three items such as overall satisfaction level, satisfaction degree of work method, and Satisfaction degree of repair result, and based on the previous researches of Johnson et al. (2010), Ganesan (1994), revisit intent, intent of reusing service, and continuous transaction intention constitute the return visit intention. However, among these, latest equipment of the material quality and speed of the system quality were excluded from this study because the results of measurement model reliability and convergent validity analysis were not significant.

In this study, a survey was conducted on experienced customers who are using car maintenance service centers in Korea. In this regard, an online survey was conducted focusing on customers using service centers in Seoul and Gyeonggi-do. The survey was conducted for 30 days from July 1 to July 30, 2019, and a total of 464 questionnaires were collected, of which 319 surveys were analyzed, except for 145 unsuccessfully answered sheets. SPSS 24.0 was used to identify basic data reliability and validity through demographic characteristics, descriptive statistics, and exploratory factor analysis. Confirmatory factor analysis, model verification, and path analysis for structural equation model analysis were conducted using AMOS 25.0.

Table 2: Variable definitions

Factors	Operation Definition	Items	References
Human quality	Service Quality related to the Auto Maintenance and Repair Service provider employees' knowledge level, kindness level, image, etc.	3	Parasuraman et al. (1988) Brady and Cronin (2001)
Material quality	Quality of service related to the facilities or equipment the auto maintenance shops have for their service	3	Sureshchandar et al. (2002) Fullerton and Talyor (2002) Olorunniwo et al. (2006)
Interaction quality	Quality of service related to items such as response for customers, problem-solving, interest level, etc. that occur while providing services in car maintenance shops	3	
System quality	Quality related to time, process, and speed of the services that car maintenance shops provide	3	
Perceived-experiential Value	Functional and emotional value customers obtain in the process of experiencing the Auto Maintenance and Repair Service	6	Yuan & Wu (2008)
Service Satisfaction	Overall satisfaction that customers, who visit the car maintenance shops and experience services, feel from the service provided by the shops	3	De Wulf et al. (2001) Eggert et al. (2002)
Return Visit Intention	Customer's intention to revisit maintenance shops (center or agency) that provide the Auto Maintenance and Repair Service, and to form relationships and maintain transactions	3	Jonhson et al. (2010) Ganesan (1994)

4. Results

4.1. Demographic Information of the Data

This study surveyed customers with experience in the auto maintenance and repair service. The gender ratio of the subject is 79.3% men vs. 20.7% women. The age group of the subject consists of 11.6% of people under 30 years old, 29.2% of people in their 30s, 33.2% of people in their 40s, and 26% of people over 50 years old, with those in their 30s and 40s exhibiting a high rate. The occupational group of customers was 25.7% in the service industry and 19.1% in the manufacturing/production. It could be confirmed that customers belonging to various occupations were distributed according to the high-rate of others. 93.4% of the customers use car maintenance service for vehicles that they own, while 68% prefer franchised car maintenance shops. In addition, the ratio of the interest level in car maintenance was "very high" at 52.4% and "average" at 40.4%, thus about 92% presenting a positive interest level.

Table 3: Demographic information of survey participants

Item		Frequency	Percentage
Gender	Male	253	79.3
	Female	66	20.7
	Total	319	100
Age group	Under 30 years old	37	11.6
	30s	93	29.2
	40s	106	33.2
	Over 50 years old	83	26.0
	Total	319	100
Occupational group	Manufacturing /Production	61	19.1
	Finance/Insurance	18	5.6
	Distribution industry	20	6.3
	Service industry	82	25.7
	R&D industry	8	2.5
	IT industry	17	5.3
	Others	113	35.4
	Total	319	100
Major types of car-owning	Private vehicle	298	93.4
	Company vehicle and other person's vehicle	21	6.6
	Total	319	100
Preference for the franchised car maintenance shops	Preferring	217	68.0
	Not preferring	20	6.3
	No matter	82	25.7
	Total	319	100
Interest level in car maintenance	Very high	167	52.4
	Average	129	40.4
	Low	23	7.2
	Total	319	100

4.2. Analysis Results of Reliability and Validity

As Table 4 shows, both the reliability of the measurement model and the analysis of convergent validity showed good results. In order to analyze the reliability and validity of the structural equation measurement model, it can be said that the internal consistency reliability was obtained when the composite reliability index was 0.7 or higher (Lee & Kim, 2019). The convergent validity is assessed by factor loading, Cronbach α, and composite reliability index. If factor loading is 0.4 or higher, Cronbach α is 0.6 or higher, there is statistical significance, and the convergent validity can be obtained (Yoo & Kim, 2019). In line with these criteria, all factor loadings were 0.634 to 0.886, all of which were good above 0.6, and internal reliability was obtained as composite reliability 0.813 to 0.968. Since all t values were 15.0 or more, it was confirmed that the results were statistically significant. AVE values ranged from 0.693 to 0.906 and the cronbach α value ranged from 0.818 to 0.966.

As a result of analyzing the AVE values and correlation coefficients among the latent variables in this study using this criterion, the AVE square root value of each latent variable was larger than the correlation coefficients among the latent variables, as shown in Table 5, and the correlation coefficient values were 0.8 or higher, thus the discriminant validity was obtained (Lee & Kim, 2019).

Table 4: Results of reliability and convergent validity test

Variables		Standard	Standard	t	CR	AVE	Cronbach α
SQ	Human Quality	0.851			0.818	0.693	0.818
		0.813	0.057	15.954***			
	Material Quality	0.856			0.914	0.781	0.913
		0.881	0.052	20.490***			
		0.913	0.05	21.584***			
	Interaction Quality	0.900			0.888	0.799	0.888
		0.888	0.044	22.896***			
	System Quality	0.924			0.864	0.761	0.861
		0.818	0.049	18.085***			
Perceived-experiential Value		0.902			0.915	0.782	0.914
		0.913	0.042	25.09***			
		0.837	0.047	20.816***			
Service Satisfaction		0.910			0.936	0.830	0.936
		0.927	0.035	27.871***			
		0.896	0.039	25.468***			
Return Visit Intention		0.956			0.966	0.906	0.966
		0.968	0.024	41.958***			
		0.931	0.028	34.715***			

Note: * p<0.05, ** p<0.01, *** p<0.001

Table 5: Correlation matrix and AVE

	AVE	HQ	MQ	IQ	SQ	PeV	SS	RVI
Human Quality (HQ)	0.693	**0.832**						
Material quality (MQ)	0.781	0.706	**0.884**					
Interaction quality (IQ)	0.799	0.815	0.694	**0.894**				
System quality (SQ)	0.761	0.741	0.675	0.822	**0.872**			
Perceived-experiential Value (PeV)	0.782	0.756	0.638	0.825	0.754	**0.884**		
Service Satisfaction (SS)	0.83	0.777	0.606	0.878	0.740	0.875	**0.911**	
Return Visit Intention (RVI)	0.906	0.716	0.588	0.739	0.672	0.737	0.818	**0.952**

4.3. Analysis Results of Structural Model

As shown in Table 6, $\chi 2$ (p) was 283.156 (P = 0.000) and $\chi 2$ / freedom degree was 2.302 as a result of analyzing the goodness-of-fit of the structural model. The Goodness-of-Fit-Index (GFI) was 0.91, which was significant according to the criteria of 0.9 or more. The Adjusted Goodness-of-Fit-Index (AGFI) was 0.875, the Normal Fit Index (NFI) was 0.954, and the Root Mean Square Error of Approximation (RMSEA) was 0.064, and this means that all kinds of goodness-of-fit were good, meaning the model goodness-of-fit was significant (Yoo & Kim, 2019). The

CFI, which is not affected by the sample but represents the explanatory power of the model, was 0.967, and the TLI, which judges the explanatory power of the structural model, was 0.73. Therefore, the analysis result from this also means that the basic model was very good.

Table 6: Model fit indices for the structural models

Model	χ2(df)	χ2 /degrees of freedom	RMR	GFI	AGFI	NFI	TLI	CFI	RMSEA
Original Model	283.156	2.302	0.053	0.91	0.875	0.954	0.973	0.967	0.064

As a result of hypothesis verification through path analysis of the structural equation model, one of six hypotheses was rejected as shown in Table 7. Among the Service Quality factors, the human quality was found to be 2.415 ($p < 0.05$), having a positive (+) effect on the perceived-experiential value. The interaction quality was 5.513 ($p < 0.001$), which had the most significant effect, and the system quality was 2.034 ($p < 0.05$), which also led to hypothesis adoption. In the case of the material quality factor, however, the hypothesis was rejected because it did not appear to affect the experiential value. The perceived-experiential value was 20.539 ($p < 0.001$), which had a positive (+) effect on the Service Satisfaction for car maintenance, and the hypothesis was adopted. The service satisfaction was 19.387($p<0.001$), which significantly affected the return visit intention.

Table 7: Results of hypothesis test

Hypothesis	SR	CC	t	Support (Y/N)	R^2
Human quality → Perceived-experiential Value	0.21	0.100	2.415*	Adopted	0.781
Material quality → Perceived-experiential Value	0.015	0.072	0.269	Rejected	
Interaction quality → Perceived-experiential Value	0.554	0.089	5.513***	Adopted	
System quality → Perceived-experiential Value	0.159	0.080	2.034*	Adopted	
Perceived-experiential Value → Service Satisfaction	0.912	0.047	20.539***	Adopted	0.832
Service Satisfaction → Return Visit Intention	0.824	0.044	19.386***	Adopted	0.679

Note: * $p<0.05$, ** $p<0.01$, *** $p<0.001$
SR: Standardized Regression Weights, CC: Channel Coefficient

5. Conclusions

This study classified the service quality of the auto maintenance and repair service into human quality, material quality, interaction quality, and system quality, and analyzed the empirical relationship among these quality factors and the service satisfaction/return visit intention to show how they influence the latter. From the main analysis results, three implications regarding this study can be presented: First, the material quality factor among the auto maintenance and repair service quality factors did not affect the perceived-experiential value of customers. This can be interpreted as the general customers considering the material quality such as the equipment or facility as a technical field of expertise so that they do not recognize it as an experiential factor which they perceive. In other words, customers represent their characteristics as during a visit to a car maintenance service center, they may consider a facility or device needed for towing and repairing a car as an expert's area and may not directly judge the quality of the facility's or device's physical properties. The factors such as machines and equipment that exist for car repairs tend to be perceived as not the service quality that customers can directly judge. Therefore, this study confirmed that the material quality did not give a significant relationship to the perceived-experiential Value of customers using the auto maintenance and repair service. This demonstrates that the rout of quality perception of the auto maintenance and repair service can be greatly influenced by human quality, such as the communication between mechanics and customers, expertise, and trust in mechanics. Therefore, it is necessary to consider human quality as more important than material quality in the service environment in order to improve the quality of automobile maintenance service and increase the perceived-experiential value.

Second, the interaction quality was the most influential factor among the service quality factors. As mentioned above, this study demonstrated that communication with customers and various types of interaction improvement activities in car maintenance shops were important in the auto maintenance and repair service in order to enhance the experiential value perceived by customers and to increase satisfaction. In the past, the auto maintenance and repair service was close to the field of trying to secure service reliability based on intimacy and network between mechanics and customers due to the general customers' non-expertise. However, as customers' automobiles and maintenance knowledge were improved and various types of information were shared, interactions such as providing services based on specialized systems, reliable communication, and providing information were rising significantly. This phenomenon increased with the customer's desire that was segmented and diversified as the importance of the auto maintenance and repair service

increased. Thus, it became necessary to find ways to improve the quality of service in various aspects such as checking the entire process of maintenance service directly by customers, sharing information, and expanding customer participation and choice.

Third, the perceived-experiential value acted as an extremely influential factor in the service satisfaction and return visit intention. Since the experience economy has emerged, the importance of experience factors other than price and durability has been emphasized in the market, and it can be said that the experiential value of customers acts as an important factor in the auto maintenance and repair service market. In particular, the car-management-and-use-oriented maintenance is emphasized rather than the car-purchase-oriented maintenance as new car markets such as electric cars and autonomous cars are formed, and patterns of car purchase markets such as leasing, rental cars, and car-sharing are rapidly changing. In these changes, customers more sensitively react to service experiences. Therefore, it can be said that the purchase behavior of service selection moving around the cost-to-satisfaction ratio rather than the cost-effectiveness may be applied to the selection of automobile maintenance service.

Based on this discussion, the implications of the actual auto maintenance and repair service market can be described as follows. First, efforts to improve the human quality of automobile maintenance services should be considered as exceptionally important. In the past, auto mechanics had limitations that could be perceived as simple technical jobs. However, direct communication with customers should be strengthened, and the consulting and service skills of car maintenance technicians should be improved according to the characteristics of customers who trust and value human quality more than material quality, making it necessary to enhance mechanics' capability by providing training for refined responses to customers and for rapport-forming techniques.

Second, it is necessary to consider the approach of providing customer-centered maintenance service through the improvement of technical problem-solving ability for maintenance service and the development of a new and innovative process of maintenance service. Nowadays, customers visiting maintenance centers are not only demanding technical maintenance services but also expanding their reasons for ongoing maintenance and inspection as new vehicle products, such as electric and autonomous vehicles, become available. By identifying customers' needs that have changed in line with these market changes, the reorganization of maintenance service process and experience environment can be considered.

Lastly, most of the traditional reasons for repurchasing a car were models, brands, and conveniences, but recently, satisfaction on maintenance service has increasingly become one of the reasons for a car purchase. In particular, maintenance service has become an important Moment of Truth (MOT) opportunity with customers at least twice a year, rather than a MOT in a car purchase, which is defined as an average of 5-7 years or more. Accordingly, the various services and brand values that customers experience and perceive through maintenance service can be a principal factor in improving the company's competitiveness and customer maintenance. Thus, the automotive industry will also need to consider a new perspective on product and service integration or purchasing and maintenance service convergence.

However, this study has the research limitations as follows. The first limitation is that the only users of car maintenance centers in Korea are the subjects of this study. Therefore, it is necessary to be able to present more extensive research results for maintenance service customers in not just Asia but the entire globe to provide more general research results and implications in the future. Second, there is a limitation that the variables of the service quality and the perceived-experiential value due to the lack of prior research are standardized by variables used in the general service industry. In future studies, a clearer empirical research approach should be made through the design of variables considering the specificity of the automobile market by identifying factors of the service quality or the perceived-experiential value that should be considered for customers in the automobile market.

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