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The Influence of Quality of Physical Environment, Food and Service on Customer Trust, Customer Satisfaction, and Loyalty and Moderating Effect of Gender: an Empirical Study on Foreigners in South Korean Restaurant

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Abstract

To explore the impact of restaurant service quality for foreigners in South Korea on customer satisfaction, customer trust, and loyalty from three dimensions: quality of physical environment, food quality, and service quality and the influence of perceived price on satisfaction and loyalty, a survey was conducted by collecting 202 valid questionnaires and Amos 23 was used to examine the relationships between variables. The results show that the quality of physical environment, food quality, and service quality have significant positive effects on customer trust, but only food quality has a significant effect on customer loyalty and all three have no significant effects on customer satisfaction. In addition, customer trust has a significant positive effect on customer satisfaction and customer loyalty, but the effect of customer satisfaction on loyalty has not been verified in this study. At the same time, perceived price has a significant positive effect on customer satisfaction, but no significant effect on customer loyalty. Then the study examined the moderating effect of gender by using the SEM multi-group analysis method, founding that there are no significant differences between male and female on the impact of the three dimensions of restaurant service quality on customer satisfaction, and no significant differences between male and female on the impact of perceived price on customer satisfaction and customer satisfaction on loyalty, meaning that gender's moderating effects are not valid. These conclusions of this study are useful for restaurant operators to improve the quality of the physical environment, food quality and service quality, effectively improve customer trust, and thus customer satisfaction and loyalty.

Keywords: Restaurant service quality（quality of physical environment, food quality, and service quality）; Customer Trust; Perceived price; Customer Satisfaction; Customer Loyalty

1. INTRODUCTION

Due to the rapid development of the service industry and changes in consumer trends, they are paying more and more attention to saving time and eating healthy in a better eating environment. Not only the fine food and acceptable service quality levels will affect customer satisfaction, but also the decoration and catering facilities that reflect the characteristics of restaurants has certain attractiveness, which affects customer trust and satisfaction in the restaurant, and even the ultimate behavioral decision. The key to a sustainable competitive advantage is to provide high-quality services, which in turn will bring satisfied customers [1]. Satisfaction with industrial food services, customer satisfaction and loyalty and service satisfaction with service quality have

been studied by several researchers. The proper combination of tangible and intangible aspects should lead to customers' perception of high restaurant service quality, which in turn should lead to customer satisfaction and loyalty in the restaurant industry. And previous studies have deduced the key determinants of restaurant service quality and studied the impact of restaurant service quality factors on customer satisfaction, trust, and behavioral willingness. In the previous literature, there is a lack of empirical research on the impact of the combination of physical environment and food and service on quality perception. The combined effects of food, service, and physical environment on results such as customer trust and customer satisfaction have also been ignored. Taking foreigners in the Daegu region of South Korea as a research object, we understood the influence of foreigners on the above factors of customer satisfaction, and loyalty on Korean quick casual restaurants. The specific objectives of the study were (a) to investigate the combined influences of the perceived quality of physical environment, food quality, service quality on customer satisfaction, customer trust and customer loyalty; (b)to examine the impact of perceived price on customer satisfaction and loyalty; (c) to explore the moderating role of gender in the study.

2. THEORY BACKGROUND AND HYPOTHESIS

2.1 Restaurant Service Quality Related Research

Service quality is a subjective quality of relative concept with characteristics of service, which can be defined as the individual's subjective judgment or attitude regarding the superior outcome of a particular service, and service quality was found to be the main variable for customer satisfaction [2]. Service quality has been defined as an attitude that meant an overall assessment of a particular service by presenting SERFVPERF as a measure of outcome [3]. Service quality has been proved to have positive relationships with customer satisfaction, and frequency of patronage [4]. This study focuses on the study of restaurant service quality. Based on prior studies, this study indicated food, physical environment, and employee services should be functioned as vital components of restaurant experience in forming the perceptions of the restaurant service quality in the restaurant industry. Namkung and Jang (2008) used three quality factors (food, atmospherics, service) to measure diners' perceived quality in relation to restaurant experience [5]. That is to say, the overall quality of restaurant service can be measured from the three aspects of food, service and physical environment. Moreover, in their investigation of restaurant customers' intention formation, Ryu and Han (2010) examined and verified the significant association between quality dimensions of quick-casual restaurant product (quality of food, service, and physical environment) and customer satisfaction [6]. Several food service studies have also found that service quality and food quality play a key role in shaping customer satisfaction and customer loyalty [7, 8, 9]. When a customer chooses a restaurant that provides service quality that meets or exceeds his or her expectations, he or she is more likely to choose the same restaurant again. There would be a considerable impact of service quality in determining repeat purchase and customer loyalty. Besides food and the service quality, pleasing physical environment (e.g., lighting, décor, layout, and employee appearance) may determine to a large extent the degree of overall satisfaction and subsequent loyal behavior in the restaurant industry. Bitner (1990) proposed that the physical environment may significantly affect customer's ultimate satisfaction [10]. Research suggests a direct link between physical environment and outcomes such as customer satisfaction and loyalty [11], suggesting that perceived physical environment was a direct indicator of a customer's satisfaction, thereby positively associated with aspects of positive approach behaviors, such as customer loyalty.

Several service management studies have shown that service quality plays a key role in building trust [12, 13]. In catering services, service quality with three dimensions will play a key role in increasing trust in catering service providers. Therefore, the following hypotheses were drawn to test the impact of restaurant service quality on trust. Thus, the following hypotheses were formulated:

H1: Restaurant service quality will have a positive effect on customer trust.
H1a:Quality of physical environment will have a significantly positive effect on customer trust.

H1b:Food quality will have a significantly positive effect on customer trust.
H1c: Service quality will have a significantly positive effect on customer trust.
H2: Restaurant service quality will have a significantly positive effect on customer satisfaction.
H2a:Quality of physical environment will have a significantly positive effect on customer satisfaction.
H2b:Food quality will have a significantly positive effect on customer satisfaction.
H2c:Service quality will have a significantly positive effect on customer satisfaction.
H3: Restaurant service quality will have a significantly positive effect on customer loyalty.
H3a:Quality of physical environment will have a significantly positive effect on customer loyalty.
H3b:Food quality will have a significantly positive effect on customer loyalty.
H3c:Service quality will have a significantly positive effect on customer loyalty.

2.2 Perceived Price

Price is an essential element in predicting and understanding customer behaviors. Perceived price can be described as "the customer's judgment about a service's average price in comparison to its competitors" [14]. This perceived price includes both monetary and non-monetary prices, including the need to consider non-monetary costs such as time and effort to the consumer [2]. According to Anderson et al. (1994), the prices of a product or service can affect the degree of satisfaction among customers, because whenever they assess the given value of a purchased product or service, they tend to consider its price [15]. Customers usually do benchmarks or reference prices in several ways such as recalling past transactions, looking at competitors' prices, seller costs, or through observing the prices paid by other customers [16]. Han and Ryu (2009) found that three components of the physical environment (i.e. decor and artifacts, spatial layout, and ambient conditions) strongly influenced customers' price perception and customer satisfaction level, which in turn directly/indirectly influenced customer loyalty such as revisit intentions and positive word-of-mouth intentions [17]. Ryu and Han (2010) indicated that perceived price has a significantly positive impact on customer satisfaction [6]. A reasonable price, in other words for price fairness is viewed as an important content of perceived price. Campbell (1999) considered price fairness as a key factor that influences brand image, and therefore, perceived price unfairness may lead to negative word of mouth and switching behavior [18]. Greater support was reported by certain scholars who found that price fairness had a significant positive effect on customer satisfaction [19]. Based on the previous researches, the following hypotheses were formulated:
H4: Perceived price has a positive effect on customer satisfaction.
H5: Perceived price has a positive effect on customer loyalty.

2.3 Relationship among customer trust, customer satisfaction and loyalty

Lewis and Weigert (1985) defined trust as behavioral trust, which includes actions arising from the state of cognitive and affective trust [20]. Studies by Mayer et al. (1995) and Morgan and Hunt (1994) illustrated that customer trust was related to loyalty because perceived risk on service decreased when service providers took action to boost customer trust [21, 22]. According to e-CSI model, trust has positively impact on perceived value, customer satisfaction and customer loyalty [23]. Consumers' perceived trust can also influence their overall satisfaction [24], because trust is an important factor in consumer outcome evaluation. In displaying satisfaction, two general conceptualizations of satisfaction exist in writing: exchange particular satisfaction and aggregate satisfaction [25]. Customer loyalty is generally defined as an indication of the undue purchasing behavior of a particular company's services [26]. Berry LL et al. (1988) finds firms recognize that maintaining and preventing departures by managing their existing customers is more important to corporate profit than creating new customers [27]. Prebensen et al. (2014) clearly showed that travelers' satisfaction level plays a significant role in their loyalty formation [28]. Based on the previous researches, the following hypotheses were formulated:
H6:Customer trust has a significantly positive effect on customer satisfaction.
H7:Customer trust has a significantly positive effect on customer loyalty.
H8:Customer satisfaction has a significantly positive effect on customer loyalty.

2.4 Moderating effects of Gender

Some prior studies mentioned gender differences in evaluating product quality and physical environment quality, and suggested that males and females vary in terms of fashion consumption, with female customers being more sensitive to product quality and physical elements of product attributes [29]. Parallel to these views on gender differences, females show more tendencies to be visually oriented, intrinsically motivated, and romantic than do males, and suggests that gender differences may be a key variable in moderating consumers' evaluative judgments [30]. A noticeable difference between genders was found in attitude to food and to the role of food in life [31]. Accordingly, females tend to worry about food and are health oriented, compared to males who value pleasure and have culinary-oriented attitude toward foods. In addition, women have strong desire for affiliation and place more importance on social interactions with employees who provide them with the relevant information about various goods and services of the firm [32]. As demonstrated by Mittal, Kamakura (2001), females placed more emphasis on service quality while males attached more importance to the tangible product quality [33]. Referring to previous literature, evidence of how gender influences peoples' conception of fairness toward perceived price seems to be complicated. Moreover, referring to demand-based pricing and gender differences in perceived fairness, females tend to rate lower for perceived fairness, which means that they are more likely to perceive a price as unfair [34]. In addition, females are more likely to be sensitive to fairness that people's beliefs about what is a fair reward is contingent on contributions of other people in similar contexts, also called referents [35]. However, most of previous studies mainly focused on the differences in judgements of fairness according to gender, insufficient studies have investigated how gender differences may moderate the relationship between perceived price and customer satisfaction. Thus, it remains unclear whether gender is a factor that moderates the correlations between perceived price and customers' judgements of satisfaction. In Han and Ryu's (2009) study, gender differences showed a significant moderating role in the relationship between customer satisfaction and revisit intention in an upscale restaurant; female customers showed a stronger intention to revisit the restaurant when satisfied than did male customers [17]. Drawing on social role theory, men are more willing than women to take risks so that they may be less likely to remain loyal when their satisfaction levels change [36]. Conversely, women are expected to react differently to satisfaction level changes [37]. Based on the previous researches, the following hypotheses were formulated:

H9: Gender has a significant moderating effect on the relationship between restaurant service quality and customer satisfaction.

H9a: Gender has a significant moderating effect on the relationship between quality of physical environment and customer satisfaction.

H9b: Gender has a significant moderating effect on the relationship between food quality and customer satisfaction.

H9c: Gender has a significant moderating effect on the relationship between service quality and customer satisfaction.

H10: Gender has a significant moderating effect on the relationship between perceived price and customer satisfaction.

H11: Gender has a significant moderating effect on the relationship between customer satisfaction and customer loyalty.

3. RESEARCH METHODOLOGY

3.1 Research Model

The conceptual model of the study is developed based on customer satisfaction, customer trust and customer loyalty in relation to quality of physical environment, food and service of Korean quick casual restaurant. It examines the influence of quality of physical environment, food and service on customer satisfaction, customer trust and customer loyalty and the influence of perceived price on customer satisfaction and customer loyalty.

It also examines the moderating effects of gender on restaurant service quality and customer satisfaction, perceived price and customer satisfaction, customer satisfaction and loyalty. The conceptual framework presumes that there are relationships between the independent constructs, quality of physical environment (QPE), food quality (FQ) and service quality (SQ), perceived price (PPC), the mediating construct, customer satisfaction (CS) and customer trust (CTR), the moderating variable, gender, and the dependent variable, customer loyalty (LOY). The research model is shown in Fig.1.
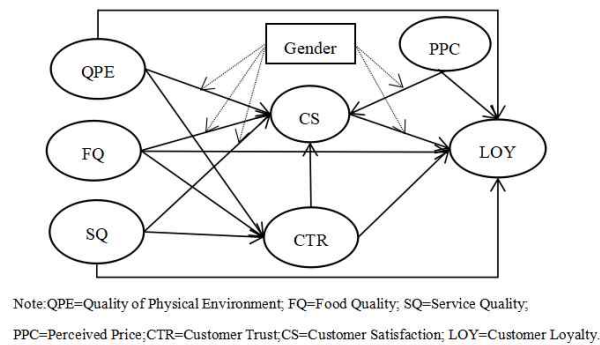

Note:QPE=Quality of Physical Environment; FQ=Food Quality; SQ=Service Quality;
PPC=Perceived Price;CTR=Customer Trust;CS=Customer Satisfaction; LOY=Customer Loyalty.

Fig 1. Research Model

3.2 Measures

Based on previous research (Ryu and Jang, 2007; Ryu et al., 2010, 2012; Liu et al, 2009; Morgan & Hunt, 1994; Zeithaml et al., 1996) [6, 13, 22, 38, 39, 40], a focus group, and a pilot test, a questionnaire was developed to assess three dimensions of restaurant service quality (food, service, and physical environment), perceived price, customer trust, customer satisfaction, and loyalty. All of measurement variables were assessed using a seven-point Likert-type scale, ranging from strongly disagree (1) to strongly agree (7). Quality of physical environment (QPE) consists of six items [6, 39]. For instance, respondents were asked to rate the following question: "The restaurant had attractive interior design and decor." Food quality (FQ) consists of five items [39, 41]. For instance, respondents were asked to rate the following question: "Food was delicious." Service quality (SQ) consists of four items (e.g. "Employees served me food exactly as I ordered it.") [39]. Perceived price (PPC) consists of four items (e.g. "I paid reasonable price for the food and service I got.") [42]. Customer satisfaction (CS) consists of three items (e.g. "This restaurant meets my expectation.") [39].Customer trust (CTR) consists of four items (e.g. "This restaurant is reliable.") [13, 22]. Customer loyalty (LOY) consists of four items (e.g. "I will pass good words about this restaurant to people around me.") [39]. Finally, demographic variables (e.g. gender, age, education level, monthly living expenses) were also assessed.

3.3 Data collection

Taking foreigners in the Daegu region of South Korea as a research object, we did a small scale questionnaire by online and offline two ways, collecting data from foreigners surrounding a large University into the investigation to understand the influence of three dimensions of restaurant service quality on the above factors of customer satisfaction, customer trust and customer loyalty. The instrument for data collection was self-administered structural close ended questionnaire. In this study, questionnaires were collected online by taking the online questionnaires and send the inter linkage by WeChat, and offline face to face, and 252 questionnaires were distributed, and 233 were collected, with a recovery rate of 92.5%, of which 202 were valid questionnaires, with an effective rate of 86.7%. The demographic characteristics of the sample are shown in Table 1. Of these, 67 informants are males, accounting for 33.2%, and 135 informants are females, accounting for 66.8%. The age range is mostly between 20 and 29 years old, accounting for 72.3%, and between 30 and 39 years old, accounting for 16.8%. For the education degree, undergraduate students accounted for 61.9%, graduate students above accounted for 28.2%. For monthly living expenses, 20.3% of

the respondents' monthly living expenses are 300,000-490,000 won, 27.2% of the respondents are 500,000-690,000 won per month, 13.4% are 700,000-890,000 won per month, and 34.2% are over 900,000 won per month. The descriptive statistics above indicate that the foreigners in Korea participating in the survey are mainly foreign students and migrant workers, so the samples are highly typical.

Table 1. Sample profile

CHARACTERISTIC	FREQUENCY	PERCENTAGE
GENDER		
MALE	67	33.2
FEMALE	135	66.8
AGE		
<20	9	4.5
20-29	146	72.3
30-39	34	16.8
40-49	9	4.5
>=50	4	2
EDUCATION		
HIGH SCHOOL AND BELOW	20	9.9
UNDERGRADUATE	125	61.9
MATER	38	18.8
DOCTOR	19	9.4
MONTHLY LIVING		
EXPENSES(WON)	10	5
< 300000	41	20.3
300000-490000	55	27.2
500000-690000	27	13.4
700000-890000	27	13.4
900000-1090000	18	8.9
1100000-1290000	24	11.8
≥1300000		

4. RESULTS

4.1 Reliability and Validity of the Instrument

Reliability refers to the consistency of the results obtained when the same method is repeatedly measured on the same object. Reliability indicators are mostly expressed by correlation coefficients. Cronbach's alpha reliability coefficient is currently the most commonly used reliability coefficient [43].The SPSS 23.0 software was used to analyze the inherent consistency reliability of the questionnaire content. The reliability coefficients (alpha) were 0.937, 0.838, 0.814, 0.880, 0.912, 0.906 and 0.931 for quality of physical environment, food quality, service quality, perceived price, customer satisfaction, and customer trust and customer loyalty, respectively. Table 2 showed that all the alpha coefficients were over the cut-off point of 0.7 [44], suggesting a high level of internal consistency for each construct.

Confirmatory factor analysis (CFA) was applied in this study to evaluate the convergent and discriminant validity of the constructs [45, 46], and then structural equation modeling (SEM) analysis was used to test the research hypotheses (performed with AMOS 23). Table2 presents the results of confirmatory factor analysis.

All the factor loadings ranged from 0.629 to 0.904 were greater than 0.60 [46]. All observable indicators loaded significantly on their respective latent variables and their p-values were below 0.001. Overall, the results indicated a good fit of the research model to the data on the basis of a number of fit statistics ($\chi^2 = 644.989$, df = 330; χ^2/df = 1.955, P < 0.001; GFI = 0.82; NFI = 0.86; CFI = 0.93; IFI = 0.93; TLI = 0.91; RMSEA = 0.069). The composite reliability (CR) for each dimension ranged from 0.743 to 0.903 were all above 0.70, and the values of AVE are all above 0.50. Therefore, these results provided evidence of convergent validity [45]. The discriminant validity of these constructs is supported, as the square root of the construct's average variance extracted (AVE) exceeds its correlations with other constructs in the model [45].The results in Table 3 show that the AVE is greater than the squared correlation estimate for each construct pair, providing additional support of discriminant validity. Overall, the results indicate that the study measures possess adequate fit, reliability, and validity. Thus, the following section presents the structural results.

Table 2. Reliability and Construct Validity

MEASUREMENT	MEANS	SD	CRONBACH'S ALPHA	FACTOR LOADING	AVE	CR
QUALITY OF PHYSICAL ENVIRONMENT (QPE)	5.115	.934	.837		.512	.786
QPE1THE RESTAURANT HAD ATTRACTIVE INTERIOR DESIGN AND DECOR	4.74	1.303		.701		
QPE2 THE DINING AREAS ARE THOROUGHLY CLEAN.	5.43	1.149		.679		
QPE3 EMPLOYEES ARE NEAT AND WELL DRESSED.	5.34	1.162		.646		
QPE4 THE COLOR STYLE OF THE RESTAURANT IS PLEASING.	4.97	1.246		.809		
QPE5 THE LIGHTING OF THE RESTAURANT IS COMFORTABLE.	5.10	1.133		.733		
FOOD QUALITY (FQ)	4.847	1.047	.838		.516	.743
FQ1THE FOOD WAS DELICIOUS.	5.09	1.339		.766		
FQ2THE FOOD WAS NUTRITIOUS.	4.62	1.249		.714		
FQ3THE RESTAURANT OFFERED A VARIETY OF MENU ITEMS.	4.45	1.565		.629		
FQ4THE SMELL OF THE FOOD WAS ENTICING.	4.90	1.274		.777		
FQ5THE APPEARANCE OF FOOD WAS ATTRACTIVE.	5.17	1.268		.697		
SERVICE QUALITY (SQ)	5.226	1.011	.814		.593	.760
SQ1 EMPLOYEES PROVIDED PROMPT AND QUICK SERVICE.	5.30	1.134		.716		
SQ2 EMPLOYEES ARE ALWAYS WILLING TO HELP ME.	5.33	1.168		.731		
SQ3 EMPLOYEES MADE ME FEEL COMFORTABLE IN DEALING WITH THEM.	5.05	1.249		.856		
PERCEIVED PRICE (PPC)	4.839	1.028	.880		.651	.839
PPC1 THE FOOD AND SERVICE PROVIDED WERE WORTH THE MONEY AND TIME.	4.87	1.130		.807		
PPC2 I PAID REASONABLE PRICE FOR THE FOOD AND SERVICE I GOT.	4.94	1.201		.834		
PPC3 I ENJOYED MYSELF MUCH WITH MONEY AND TIME I SPENT.	4.83	1.262		.797		

Item	Mean	SD	CR	Loading	AVE	
PPC4 THE FOOD AND SERVICE WAS ADEQUATE FOR THE MONEY I SPENT.	4.72	1.195		.788		
CUSTOMER SATISFACTION (CS)	4.952	.996	.912		.777	.901
CS1 THIS RESTAURANT MEETS MY EXPECTATION.	4.89	1.112		.844		
CS2 OVERALL, THIS RESTAURANT PUTS ME IN A GOOD MOOD.	4.99	1.081		.904		
CS3 I HAVE REALLY ENJOYED MYSELF AT THIS RESTAURANT.	4.99	1.044		.896		
CUSTOMER TRUST (CTR)	5.006	1.011	.906		.716	.884
CTR1 THIS RESTAURANT IS RELIABLE.	5.09	1.047		.867		
CTR2 THIS RESTAURANT IS HONESTY.	5.22	1.107		.841		
CTR3 I TRUST THE STYLE OF MANAGEMENT IN THIS RESTAURANT.	4.98	1.135		.851		
CTR4 I OVERALL TRUST THIS RESTAURANT.	4.74	1.279		.826		
CUSTOMER LOYALTY (LOY)	5.080	1.107	.931		.774	.903
LOY1 I WILL PASS GOOD WORDS ABOUT THIS RESTAURANT TO PEOPLE.	5.03	1.231		.879		
LOY2 I WILL RECOMMEND THIS RESTAURANT TO MY FRIENDS.	5.07	1.268		.901		
LOY3 I WILL REVISIT THIS RESTAURANT.	5.24	1.161		.900		
LOY4 I WANT TO KEEP VISITING THIS RESTAURANT IN FUTURE.	4.98	1.203		.838		

MODEL FIT STATISTICS: X^2=644.989, DF=330, CMIN/DF=1.955, P<0.001; GFI=0.820; CFI= 0.925; NFI= 0.859; IFI=0.926; TLI= 0.914; RMSEA= 0.069.

Note. AVE = average variance extracted; CR = composite reliability; GFI = Goodness of fit index; CFI = Comparative fit index; NFI = Normed fit index; IFI = Incremental fit index; TLI=Tucker-Lewis Index; RMSEA=The root mean square error of approximation.

Table 3. Correlation Matrix

	QPE	FQ	SQ	PPC	CTR	CS	LOY
QPE	.716						
FQ	.479**	.719					
SQ	.387**	.337**	.770				
PPC	.463**	.473**	.486**	.807			
CTR	.485**	.465**	.477**	.610**	.846		
CS	.506**	.509**	.432**	.511**	.535**	.882	
LOY	.451**	.516**	.425**	.534**	.513**	.564**	.880

Note.*p < .05 ; **p < .01; ***p < .001. Square root of average variance extracted (AVE) is shown on the diagonal and in bold.

4.2 Results of structural model

According to the structural model testing presented in Table 4, quality of physical environment (r11 = .215, p < .05), food quality (r21 = .333, p < .001), and service quality (r31 = .385, p < .001) were positively associated with customer trust, supporting H1a, H1b, and H1c. In particular, food quality exerted the greatest influence

on customer trust. However, with respect to their associations with customer satisfaction, quality of physical environment (r12 = .065, p >.05), food quality (r22 = .078, p > .05), service quality (r32 = -.086, p > .05) were all not significantly related to customer satisfaction. This result rejected H2a, H2b and H2c. Additionally, only food quality (r23 = .251, p < .01) positively affected customer loyalty, whereas quality of physical environment (r13 = -.053, p > .05), and service quality (r33 = .065, p > .05) were not significantly related to customer loyalty. Therefore, H3b was supported, and H3a, H3c were rejected. These findings imply that food quality is a major antecedent of enhancing customer loyalty. In addition, perceived price (r41 = .207, p <.05) was significantly related to customer satisfaction, but not significantly related to customer loyalty (r42 = -.047, p >.05).Therefore, H4 was supported, but H5 was rejected. As expected, customer trust-customer satisfaction path (r51 = .731, p <.001) and customer trust -customer loyalty (r52 = .685, p <.001) supporting H6 and H7. However, with respect to the relationship between customer satisfaction and loyalty, satisfaction (r61 = .049, p>.05) was not significantly related to customer loyalty. Thus, H8 was rejected.

Table 4. Path Test Results

Hypothesis	Path	Path Coefficient	Result
H1a	Quality of physical environment →Customer trust	.215*	Supported
H1b	Food quality→Customer trust	.333***	Supported
H1c	Service quality→Customer trust	.385***	Supported
H2a	Quality of physical environment→Customer satisfaction	.065	Rejected
H2b	Food quality→Customer satisfaction	.078	Rejected
H2c	Service quality→Customer satisfaction	-.086	Rejected
H3a	Quality of physical environment→Customer loyalty	-.053	Rejected
H3b	Food quality→Customer loyalty	.251**	Supported
H3c	Service quality→Customer loyalty	.065	Rejected
H4	Perceived price→Customer satisfaction	.207*	Supported
H5	Perceived price→Customer loyalty	-.047	Rejected
H6	Customer trust→Customer satisfaction	.731***	Supported
H7	Customer trust→Customer loyalty	.685**	Supported
H8	Customer satisfaction→Customer loyalty	.049	Rejected

Note.*p < .05 ; **p < .01; ***p < .001.

4.3 Moderating effects of gender

To check the moderating effects of gender, SEM multi-group analysis was used to find whether there is difference between male and female. First, for testing H9a, a multi-group analysis with the unconstrained model(model 1) showed an acceptable baseline model for both males and females (χ^2 (38) = 61.99, p < .05; NFI = .94; GFI = .93; PNFI = .92; PGFI = .90; CFI = .97; RMSEA = .06). Then, to test the difference of the structural weights across gender, structural weights were constrained to be equal across the two groups. Multi-group analysis revealed that this constrained model(model 2) was acceptable (χ^2 (45) = 69.51, p < .05; NFI = .93; GFI = .92; PNFI = .91; PGFI = .91; CFI = .97; RMSEA = .05). Also, the χ^2 difference test between model 1 and model 2 was not significant (χ^2 (7) =7.52, p > 0.05), suggesting that structural weights of both gender groups were invariant. The parameter estimates of each model are presented Table 6. In addition to the structural weights, structural covariances were also constrained to be equal across the two groups. Multi-group analysis showed that this constrained model(model 3) was acceptable (χ^2 (46) =72.51, p < .05; NFI = .92; GFI = .92; PNFI = .90; PGFI = .90; CFI = .97; RMSEA = .05). Moreover, the χ^2 difference test between model 2 and model 3 was not significant (χ^2 (1) = 3.00, p > 0.05). This suggested that, aside from the structural weights, structural covariance were also invariant across gender. As mentioned above, gender had no significant moderating effect on quality of physical environment and customer satisfaction. Thus, H9a was rejected. The same multi-group analysis was used to test H9b, H9c, H10 and H11. For H9b, model 1 showed an acceptable baseline model for both males and females (χ^2 (38) = 81.65, p < .05; NFI = .92; GFI = .91; PNFI = .91; PGFI

= .90; CFI = .95; RMSEA = .08). Model 2 was acceptable (χ^2 (45) = 91.23, p < .05; NFI = .91; GFI = .90; PNFI = .90; PGFI = .88; CFI = .95; RMSEA = .07). Also, the $\chi2$ difference test between model 1 and model 2 was not significant (χ^2 (7) =9.57, p > 0.05), suggesting that structural weights of both gender groups were invariant. Model 3 was acceptable (χ^2 (46) =93.54, p < .05; NFI = .91; GFI = .90; PNFI = .89; PGFI = .88; CFI = .95; RMSEA = .07). Moreover, the χ^2 difference test between model 2 and model 3 was not significant (χ^2 (1) = 2.31, p > 0.05). This suggested that, both structural weights and structural covariances were also invariant across gender, meaning that gender had no significant moderating effect on food quality and customer satisfaction. Thus, H9b was rejected. For H9c, model 1 showed an acceptable baseline model for both males and females (χ^2 (16) = 12.55, p < .05; NFI = .98; GFI = .98; PNFI = .95; PGFI = .96; CFI = 1.00; RMSEA = .00). Model 2 was also acceptable (χ^2 (21) = 18.93, p < .05; NFI = .97; GFI = .97; PNFI = .94; PGFI = .95; CFI = 1.00; RMSEA = .00). Also, the χ^2 difference test between model 1 and model 2 was not significant (χ^2 (5) =6.38, p > 0.05). Model 3 was acceptable (χ^2 (22) =19.13, p < .05; NFI = .97; GFI = .97; PNFI = .93; PGFI = .94; CFI = 1.00; RMSEA = .00). Moreover, the χ^2 difference test between model 2 and model 3 was not significant (χ^2 (1) = .21, p > 0.05). This suggested that, both structural weights and structural covariance were also invariant across gender, meaning that gender had no significant moderating effect on service quality and customer satisfaction. Thus, H9c was rejected. For H10, model 1 showed an acceptable baseline model for both males and females (χ^2 (26) = 56.67, p < .05; NFI = .95; GFI = .93; PNFI = .92; PGFI = .90; CFI = .97; RMSEA = .08). Model 2 was also acceptable (χ^2 (32) = 65.66, p < .05; NFI = .94; GFI = .92; PNFI = .91; PGFI = .90; CFI = .97; RMSEA = .07). Also, the χ^2 difference test between model 1 and model 2 was not significant (χ^2 (6) =8.99, p > 0.05). Model 3 was acceptable (χ^2 (33) =66.18, p < .05; NFI = .94; GFI = .92; PNFI = .90; PGFI = .90; CFI = .97; RMSEA = .07). Moreover, the $\chi2$ difference test between model 2 and model 3 was not significant (χ^2 (1) = .52, p > 0.05). This suggested that, both structural weights and structural covariance were also invariant across gender, meaning that gender had no significant moderating effect on perceived price and customer satisfaction. Thus, H10 was rejected. For H11, model 1 showed an acceptable baseline model for both males and females (χ^2 (26) = 61.36, p < .05; NFI = .95; GFI = .92; PNFI = .93; PGFI = .90; CFI = .97; RMSEA = .08). Model 2 was also acceptable (χ^2 (32) = 66.44, p < .05; NFI = .95; GFI = .92; PNFI = .92; PGFI = .90; CFI = .97; RMSEA = .07). Also, the χ^2 difference test between model 1 and model 2 was not significant (χ^2 (6) =5.09, p > 0.05). Model 3 was acceptable (χ^2 (33) =67.99, p < .05; NFI = .95; GFI = .91; PNFI = .93; PGFI = .90; CFI = .97; RMSEA = .07). Moreover, the $\chi2$ difference test between model 2 and model 3 was not significant (χ^2 (1) = 1.55, p > 0.05). This suggested that, both structural weights and structural covariance were also invariant across gender, meaning that gender had no significant moderating effect on customer satisfaction and loyalty. Thus, H11 was rejected.

5. DISCCUSSION AND CONCLUSION

The purpose of this study is to explore the impact of restaurant service quality for foreigners in South Korea on customer satisfaction, customer trust, and loyalty from three dimensions: physical environment quality, food quality, and service quality. The influence of perceived price on satisfaction and loyalty were also examined. The study finds that physical environment quality, food quality, and service quality had significant positive effects on customer trust, which have been shown in several service management studies that service quality plays a key role in building trust [12, 13]. Moreover, service quality has the greatest impact on customer trust, followed by food quality, and finally physical environment quality. Of the three, only food quality has a significant effect on customer loyalty, and physical environment quality and service quality have no significant effect on customer loyalty. Moreover, the research results show that all three have no significant effects on customer satisfaction. This is inconsistent with many research results. In addition, customer trust has a significantly positive effect on customer satisfaction and customer loyalty, which have been confirmed in many studies showing that the trust of customers visiting Korean restaurants plays a key role in shaping customer satisfaction and returning intentions [47]. At the same time, perceived price has a significant positive effect on customer satisfaction, which is consistent with the conclusion of Ryu and Han's (2010), but has no significant

effect on customer loyalty [6]. However, the effect of customer satisfaction on loyalty has not been verified in this study but confirmed in other people's research. For instance, Verhoef (2003), examining the effect of satisfaction along with other variables on defection and customer share development, found no significant direct effect for satisfaction [48]. V. Kumar et al.(2013) indicated that the customer satisfaction–loyalty main effect is indeed weak and that customer satisfaction, by itself, can hardly change customer loyalty in a significant way [49].

The study also attempted to verify the moderating effects of gender on the three dimensions of restaurant service quality (physical environment, food and service) and customer satisfaction, on perceived price and customer satisfaction, and on customer satisfaction and loyalty. To know whether there is a difference of the results across gender, the SEM multi-group analysis method was applied by setting two models of structural weights equality and structural covariance equality, and comparing the two constrained models with the unconstrained model, finding that there are no significant differences between male and female, and the five hypotheses of gender's moderating effects are not valid. Although there is a large gap between the male and female samples in this study, the impact of the three dimensions of restaurant service quality on customer satisfaction between male and female has no significant difference. And also there is no significant difference between male and female in the impact of perceived price on customer satisfaction and customer satisfaction on loyalty. Through research, it is known that improving food quality can directly increase customer loyalty, strengthening physical environment quality, service quality and food quality, can strengthen customer trust in restaurants, which in turn will affect customer satisfaction and loyalty. Perceive price for customers is a factor that will improve customer satisfaction, meaning that the high-priced consumer experience makes customers feel happy, which in turn promotes satisfaction. However, satisfaction does not directly increase loyalty. Whether there are intermediate factors between customer satisfaction and loyalty is worthy of further study. These results will give some restaurant operation recommendations to better improve the satisfaction and loyalty of foreign customers to Korean restaurants. In the case of a large number of women in the sample, there is no significant difference in the path coefficient of the model across gender, indicating that the model has a certain degree of invariance between men and women.

6. LIMITATIONS AND FUTURE RESEARCH

The study also has some limitations, such as the sample size is not large enough, most foreigners in the investigated area are students, which may affect the research results because of the narrow scope of objectives. According to prior studies, the results of studies employing student samples may not be generalized to non-student populations [50]. At the same time, this article does not consider cultural differences, because customers in different countries have different food preferences, which may impact on the perception of food quality. In addition, exchange rate differences will affect customers' perception of Korean prices, which may bring some limitations of this article.

As mentioned above, it is necessary to find intermediate variables between restaurant service quality and customer satisfaction, beside trust. It is also recommended that other constructs, such as perceived value and brand image [6, 41], be studied as key dimensions of customer satisfaction. Future research should consider these aspects. Next, the real relationship between customer satisfaction and loyalty is also worthy to study further, the systematic presence of moderators, mediators, and other predictors of loyalty introduce a high variability in the findings, thus reducing the role of satisfaction [49].

REFERENCES
[1] Shemwell, D.J., Yavas, U. and Bilgin, Z. , "Customer-service provider relationships: an empirical test of

a model of service quality, satisfaction and relationship-oriented outcomes," *International Journal of Service Industry Management*, Vol. 9 No. 2, pp. 155-168, May 1998.
    DOI: 10.1108/09564239810210505

[2]   Parasuraman, A., Zeithaml, V. A., & Berry, L. L. , "SERVQUAL: A multiple-item scale for measuring customer perceptions of service quality," *Journal of Retailing*, Vol.64, No. 1, pp.12-40, Spring 1988.

[3]   Cronin, J. J., & Taylor, S. A., "Measuring service quality: A reexamination and extension," *Journal of Marketing,* Vol. 56, No. 3, pp. 55-68, July 1992. DOI: 10.1177/002224299205600304

[4]   Chow, I. H., Lau, V. P., Lo, T. W., Sha, Z., and Yun, H., "Service quality in restaurant operations in China: Decision and experiential-oriented perspectives," *Hospitality Management,* Vol,26, No.3, pp.698-710, September 2007.   DOI: 10.1016/j.ijhm.2006.07.001

[5]   Namkung, Y. and Jang, S., "Are highly satisfied restaurant customers really different? A quality perception perspective," *International Journal of Contemporary Hospitality Management,* Vol. 20, No. 2, pp. 142-155, March 2008. DOI: 10.1108/09596110810852131

[6]   Ryu,K., &Han.H, "Influence of the quality of food, service, and physical environment on customer satisfaction and behavioral intention in quick-casual restaurants: moderating role of perceived price," *Journal of Hospitality & Tourism Research,* Vol. 34, No. 3, pp.310-329, October 2010.
    DOI: 10.1177/1096348009350624

[7]   Chang, H. H., Wang, Y. H., and Yang, W. Y, "The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value," *Total Quality Management & Business Excellence,* Vol. 20, No. 4, pp. 423-443, April 2009. DOI: 10.1080/14783360902781923

[8]   Clark, M.A. and Wood, R.C. "Consumer loyalty in the restaurant industry: A preliminary exploration of the issues," *British Food Journal,* Vol. 101 No. 4, pp. 317-327, May 1999.
    DOI: 10.1108/00070709910272196

[9]   Anna S. Mattila, "Emotional Bonding and Restaurant Loyalty," *Cornell Hotel and Restaurant Administration Quarterly,* Vol. 42, No. 6, pp. 73-79, December 2001.
    DOI: 10.1177/0010880401426009

[10] Bitner, Jo M . Evaluating service encounters: Effects of physical surroundings and employee responses. Journal of Marketing, Vol. 54, No. 2, pp. 69, 1990. DOI：10.2307/1251871

[11] Chang, Kyungro. The Impact of Perceived Physical Environments on Customers' Satisfaction and Return Intentions. Journal of Professional Services Marketing, 2000, Vol. 21, No. 2, pp. 75-85, 2000. DOI: 10.1300/J090v21n02_06

[12] Cho, Jin Ho, "Effects of Service Quality on Customer's Perceived Value, Customer Satisfaction, Trust, and Behavioral Intention in the University Cafeteria," *Journal of Korea Service Management Society,* Vol.16, No.5, pp.73-100, June 2015.

[13] Liu, Y. and Jang, S., "Perceptions of Chinese restaurants in the U.S.: What affects customer satisfaction and behavioral intentions," *International Journal of Hospitality Management,* Vol. 28, No.2, pp. 338-348, April 2009.DOI: 10.1016/j.ijhm.2008.10.008

[14] Chen, L. J., Gupta, A., & Rom, W., "A study of price and quality in service operations," *International Journal of Service Industry Management,* Vol. 5, No.2, pp.23-34, May 1994.
    DOI: 10.1108/09564239410057663

[15] Anderson E W, Fornell C., "A Customer Satisfaction Research Prospectus," *Service quality:new directions in theory and practice,* pp. 241-268, 1994.

[16] Richard A. Briesch, Lakshman Krishnamurthi, Tridib Mazumdar, S. P. Raj, "A Comparative Analysis of Reference Price Models," *Journal of Consumer Research,* Vol. 24, No. 2, pp. 202–214, September 1997. DOI: 10.1086/209505

[17] Heesup Han, Kisang Ryu, "The Roles of the Physical Environment, Price Perception, and Customer Satisfaction in Determining Customer Loyalty in the Restaurant Industry," *Journal of Hospitality & Tourism Research,* Vol. 33, No. 4, pp. 487-510, October 2009.
    DOI: 10.1177/1096348009344212

[18] John Y. Campbell, John H. Cochrane, "By Force of Habit: A Consumption-Based Explanation of Aggregate Stock Market Behavior," *Journal of Political Economy,* Vol. 107, No. 2, pp.205-251, April 1999.

[19] Kaura, V., Durga Prasad, C.S. and Sharma, S. , "Service quality, service convenience, price and fairness, customer loyalty, and the mediating role of customer satisfaction," *International Journal of Bank Marketing,* Vol. 33, No. 4, pp. 404-422, June 2015. DOI: 10.1108/IJBM-04-2014-0048

[20] Lewis,J. D., &Weigert,A., "Trust as a social reality," *Social Forces*, Vol.63, No.4, pp.967-985.June 1985. DOI: 10.1093/sf/63.4.967

[21] Mayer, R. C., Davis, J. H., & Schoorman, F. D. , "An integration model of organizational trust," *Academy of Management Review,* Vol. 20, No. 3, pp.709-729, July 1995.

[22] Robert M. Morgan, Shelby D. Hunt, "The Commitment-Trust Theory of Relationship Marketing," *Journal of Marketing,* Vol. 58, No. 3, pp. 20-38, July 1994. DOI: 10.1177/002224299405800302

[23] S.-H. Hsu, "Developing an index for online customer satisfaction: Adaptation of American Customer Satisfaction Index ," *Expert Systems with Applications,* Vol. 34, No. 4, pp. 3033-3042, May 2008. DOI: 10.1016/j.eswa.2007.06.036

[24] Chiou, J.-S., "The antecedents of consumers' loyalty toward Internet service provider," *Information & Management,* Vol. 41, No. 6, pp. 685-695, July 2004. DOI: 10.1016/j.im.2003.08.006

[25] Joo yeon Ha, Soo Cheong (Shawn)Jang, "Effects of service quality and food quality: The moderating role of atmospherics in an ethnic restaurant segment," *International Journal of Hospitality Management,*Vol.29, No. 3, pp.520-529, September 2010. DOI: 10.1016/j.ijhm.2009.12.005

[26] Hellier, P.K., Geursen, G.M., Carr, R.A. and Rickard, J.A. , "Customer repurchase intention: A general structural equation model," *European Journal of Marketing,* Vol. 37, No. 11/12, pp. 1762-1800, December 2002.

[27] LL Berry, A Parasuraman, VA Zeithaml, "The service-quality puzzle," *Business Horizons,* Vol. 31, No. 5, pp. 35-43, September-October 1988. DOI: 10.1016/0007-6813(88)90053-5

[28] Nina Katrine Prebensen, Eunju Woo & Muzaffer S. Uysal, "Experience value: antecedents and consequences," *Current Issues in Tourism,* Vol. 17, No.10, pp. 910-928, January 2014. DOI: 10.1080/13683500.2013.770451

[29] Rocha, M.A.V.; Hammond, L.; Hawkins, D., "Age, gender and national factors in fashion consumption," *Journal of Fashion Marketing and Management*, Vol. 9, No. 4, pp. 380–390, December 2005. DOI: 10.1108/13612020510620768

[30] Morris B. Holbrook, "Aims, Concepts, and Methods for the Representation of Individual Differences in Esthetic Responses to Design Features," *Journal of Consumer Research,* Vol. 13, No. 3, pp. 337-347, December 1986. DOI: 10.1086/209073

[31] P Rozin, C Fischler, S Imada, "Attitudes to Food and the Role of Food in Life in the U.S.A., Japan, Flemish Belgium and France: Possible Implications for the Diet–Health Debate," *Appetite,* Vol. 33, No. 2, pp.163-180, October 1999. DOI: 10.1006/appe.1999.0244

[32] Kimberly G. Noble, Michael E. Wolmetz, Lisa G. Ochs, "Brain–behavior relationships in reading acquisition are modulated by socioeconomic factors," *Developmental Science,* Vol. 9, No. 6, pp. 642-654, November 2006. DOI: 10.1111/j.1467-7687.2006.00542.x

[33] Vikas Mittal, Wagner A. Kamakura, "Satisfaction, Repurchase Intent, and Repurchase Behavior: Investigating the Moderating Effect of Customer Characteristics," *Journal of Marketing Research,*Vol. 38, No. 1, February 2001. DOI: 10.1509/jmkr.38.1.131.18832

[34] Beldona, S., Namasivayam, K, "Gender and demand-based pricing: Differences in perceived (un) fairness and repatronage intentions," *Journal of Hospitality & Leisure Marketing,* Vol. 14, No. 4, pp. 89 -107, October 2006. DOI: 10.1300/J150v14n04_06

[35] Adams, J.S., "Inequity in social exchange," *Advances in Experimental Social Psychology; Elsevier: Amsterdam, The Netherlands,* Vol. 2, pp. 267-299, 1965. DOI: 10.1016/S0065-2601(08)60108-2

[36] Archer, J., "Sex differences in social behavior: Are the social role and evolutionary explanations compatible?" *American Psychologist,* Vol. 51, No. 9, pp. 909-917, 1996.

    DOI: 10.1037/0003-066X.51.9.909

[37] EllenGarbarino, Michal Strahilevitz, "Gender differences in the perceived risk of buying online and the effects of receiving a site recommendation," *Journal of Business Research,* Vol. 57, No. 7, pp. 768-775, July 2004. DOI: 10.1016/S0148-2963(02)00363-6

[38] Ryu, K., & Jang, S., "The effect of environmental perceptions on behavioral intentions through emotions: The case of upscale restaurants," *Journal of Hospitality & Tourism Research,* Vol. 31, No. 1, pp.56-72, February 2007. DOI: 10.1177/1096348006295506

[39] Ryu, K. Hye-Rin Lee&Woo Gon Kim, "The influence of the quality of the physical environment, food, and service on restaurant image, customer perceived value, customer satisfaction, and behavioral intentions," *International Journal of Contemporary Hospitality Management,*Vol. 24, No. 2, pp. 200-223, March 2012. DOI: 10.1108/09596111211206141

[40] Valarie A. Zeithaml, Leonard L. Berry, A. Parasuraman, "The Behavioral Consequences of Service Quality," *Journal of Marketing,* Vol. 60, No. 2, pp.31-46, April 1996.
    DOI: 10.1177/002224299606000203

[41] Qin, H. and Prybutok, V.R., "Service quality, customer satisfaction, and behavioral intentions in fast-food restaurants," *International Journal of Quality and Service Sciences,* Vol. 1, No. 1, pp. 78-95. March 2009.
    DOI: 10.1108/17566690910945886

[42] Gi-Jin Kim, "Applying Service Profit Chain model to the Korean restaurant industry," *International Journal of Hospitality Management,* Vol. 36, pp. 1-13, January 2014.
    DOI: 10.1016/j.ijhm.2013.07.008

[43] U Sekaran, *Research Method for Business,* New York, 1992.

[44] J Nunnally, *Psychometric theory,* McGraw-Hill, 1978.

[45] Anderson, James C.,Gerbing, David W., "Structural equation modeling in practice: A review and recommended two-step approach," *Psychological Bulletin,* Vol. 103, No. 3, pp. 411-423, May 1988.

[46] Hair J.F., Jr, Black B., Babin B.J., Anderson R.E. & Tatham R.L, *Multivariate Data Analysis, 6th edn.* Prentice Hall, Upper Saddle River, NJ, 2006.

[47] Hyo SunJung, Young Namkung, Hye Hyun Yoon, "The effects of employees' business ethical value on person–organization fit and turnover intent in the foodservice industry," *International Journal of Hospitality Management,* Vol. 29, No. 3, pp. 538-546, September 2010.
    DOI: 10.1016/j.ijhm.2009.08.005

[48] Verhoef, Peter C., "Understanding the Effect of Customer Relationship Management Efforts on Customer Retention and Customer Share Development," *Journal of Marketing,* Vol. 67, No. 4, pp. 30-45, October 2003. DOI: 10.1509/jmkg.67.4.30.18685

[49] V. Kumar, "Revisiting the Satisfaction–Loyalty Relationship: Empirical Generalizations and Directions for Future Research," *Journal of Retailing*, Vol. 89, No. 3, pp. 246–262, September 2013.
    DOI: 10.1016/j.jretai.2013.02.001

[50] Piyush Sharma, Roger Marshall, Peter Alan Reday &Woonbong Na, "Complainers versus non-complainers: a multi-national investigation of individual and situational influences on customer complaint behaviour," *Journal of Marketing Management,* Vol. 26, No.1-2, pp. 163-180, February 2010.
    DOI: 10.1080/02672570903512502