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THE RELATIONSHIP BETWEEN SERVICE QUALITY IN STUDENTS' RESTAURANT AND CUSTOMER LOYALTY

Abstract: In order to evaluate the possibilities for increasing the level of customer loyalty in students' restaurant, in this paper, an investigation of the impacts of the key factors of service quality (ambience and atmosphere, courtesy of staff, food quality and prices) in students' restaurant on customer (students') loyalty is carried out. The data required for the survey are collected through a questionnaire composed of 31 statements, formulated and adopted on the basis of statements contained in DINESERV, DINESCAPE and CFFRSERV model, as the most frequently cited service quality questionnaire models in the literature. For investigation of intensity and statistical significance of the impacts of the above listed quality service factors (as explanatory variables) on the level of students' loyalty (as dependent variable), a descriptive statistical analysis, simple linear correlation and multiple linear regression analysis were implemented. The results of conducted empirical research confirmed the statistical significance of the impacts of all analyzed factors of service quality on customer loyalty in students' restaurant, except in the case of the factor – courtesy of staff. Based on the obtained results a multiple linear regression model is formed, along with corresponding conclusions that can be useful for the management of students' restaurant.

Keywords: Service quality, Customer loyalty, Students' restaurant, Multiple linear regression analysis

1. INTRODUCTION

In the conditions of harsh market competition and increased specificity of customers' expectations and demands, for any business organization, especially those operating within the service industry (e.g. students' restaurants), customer oriented approach is an important prerequisite for acquiring sustainable competitive advantage. The fight for each customer becomes more pronounced than ever, and focus of their marketing efforts on creating satisfied and loyal customers is essential. Since a solid base of loyal customers is a key factor for generating profits in the long term, it is important that student's restaurant identify the sources of satisfaction and loyalty of their customers, in order to achieve formulated business goals.

In general, customer loyalty, as one of the basic prerequisite for the long-term profitability, can be defined as a commitment to an organization, based on the strong positive

attitude of the customer and is expressed in re-purchase of products (or repeated use of services). But, loyal consumers, not only that they do not easily switch the organization, and with time, enlarge the scope of products and services they used, but also, represent the effective means for attracting new customers, thanks to their positive word of mouth communication with friends and acquaintances. Therefore, in the marketing literature, in order to measure the degree of customer loyalty, the level of future purchase intentions and willingness of consumers to recommend the organization to friends and other people, as well as the strength and significance of the influence of various service quality dimensions (factors) on it, are often examined [1], [2], [6].

Starting from the aforementioned, in this paper, based on the number of similar research studies presented in the relevant literature, an empirical investigation of customers' loyalty, future intentions, and attitudes regarding the selected quality factors of service offer in

students' restaurant (*ambience and atmosphere, courtesy of staff, food quality, prices*) was conducted, in order to determine the direction, statistical significance and strength of impacts of service quality factors on customers' loyalty.

2. METHODOLOGY

Empirical research was conducted on a basis of the analysis of primary data collected through a survey method. Selection and adaptation of the statements included in the questionnaire were made based on a thorough review of relevant literature and realized studies in the context of the examination of customers' attitudes, satisfaction, and loyalty towards specific service quality factors in the restaurant industry [3], [5], [9], [11], [12]. More specifically, as a basis for designing a questionnaire, *DINESERV* model [11] has been used primarily, in conjunction with the factors and statements used in *DINESCAPE* [8] and *CFR SERV* questionnaire model [12].

The level of perceived quality of service offer and degree of loyalty of the respondents was measured using 31 statements. The questionnaire is divided into three sections. The first 28 statements were used for measuring the attitudes of service users regarding the quality of provided services from the perspective of the following key quality factors of a students' restaurant's service offer: ► *ambience and atmosphere*, ► *courtesy of staff*, ► *food quality*, and ► *prices*. The second section consists of 3 statements, and was design to examine and capture *customer's degree of loyalty*, i.e. their future behavioral intentions such as revisit intentions, positive word-of-mouth, and willingness to recommend [2], [6]. The last, third section contains questions related to the general information about respondents (gender and number of visits in the past two weeks).

The level of respondents' compliance with the statements included in the questionnaire was measured using a 7-point *Likert*-type scale ranging from 1 (strongly disagree with the statement) to 7 (strongly agree with the statement), and the analysis of collected data along with all the necessary calculations was carried out using the *Statistical Package for Social Sciences, SPSS* version 17.0. In order to ensure intelligibility and clarity of the used statements, the questionnaire was pre-tested on 10 randomly selected service users. The results of a pilot study were used to generate the final

version of the questionnaire.

In November 2014, a survey of 150 respondents, service users of a students' restaurant on the territory of the city of Kragujevac, was conducted. All participants in the survey were members of the student population who visited students' restaurant during the period of survey implementation. From the total number of distributed questionnaires, 147 questionnaires were identified as valid.

Descriptive information regarding the general information on surveyed respondents show certain percentage advantage of female respondents (57,14%), and also extremely dominant percentage of the respondents who have visited students' restaurant more than three time in the last two weeks (67,35%), compared to other response categories (*Table 1*), which can be considered as very relevant information in the context of objectivity of captured responses and also validity of results of conducted analysis.

Table 1. General information of respondents and sample structure

General information	Response category	f_i	%
Gender	Male	63	42,86
	female	84	57,14
Number of visits in the past two weeks	once	9	6,12
	two times	12	8,16
	three times	27	18,37
	more than 3 times	99	67,35

From a wide range of statistical methods for analysis and data processing, in this study, a descriptive statistical analysis, simple linear correlation and multiple linear regression analysis were conducted.

Accordingly, in the first step, for each of the individual service quality factors (*ambience and atmosphere, courtesy of staff, food quality, prices*) arithmetic mean of the arithmetic means of the attitudes of respondents (presented by a particular value on a *Likert* scale ranging from 1 to 7) for the corresponding statements defined within the particular factor, is calculated. Construct reliability and internal consistency of the statements grouped within individual factors is checked based on the value of *Cronbach's alpha coefficient*.

Finally, after the application of simple linear correlation analysis, and verification of the assumptions on which it is based, multiple linear regression analysis was conducted, in

order to identify the effect of each of four explanatory variables (*ambience and atmosphere, courtesy of staff, food quality, prices*), as the main components of the quality of service in students' restaurant, on dependent variable (*degree of loyalty*), and also to examine and test the statistical significance of those effects.

3. EMPIRICAL RESULTS

The results of a descriptive statistical analysis, performed on a total sample, indicate that the average ratings of all service quality factors are in the range from 5,31 – 5,99 (*Table 2*), showing relatively high level of satisfaction of respondents regarding the selected factors and statements¹ within them.

Table 2. Descriptive statistics for service quality factors and customer loyalty

Service quality factors and Loyalty	Number of statements	Arithmetic mean
Ambience & atmosphere	12	5,55
Courtesy of staff	8	5,43
Food quality	6	5,31
Prices	2	5,99
Loyalty	3	6,14

The highest level of agreement with the formulated statements is recorded in the case of the service quality factor - *prices*, since the average values of the respondents' answers to the corresponding statements (*prices are in accordance with the food quality and portion sizes; students' restaurant has the correct food prices*), are ranging from 5,90 to 6,08. In addition, an extremely high degree of loyalty among respondents is recorded, since the average value of the arithmetic means of the respondents' opinion regarding the included statements (*I would like to come back to this restaurant again in the future (6,31); I would say positive comments and impressions about students' restaurant to other people (5,90); I would recommend students' restaurant to my friends and colleagues (6,22)*) is 6,14.

High values of *Cronbach's alpha* for each of the presented factors of service quality (since they are higher than 0,7 [7]), confirm the high level of reliability of factors and internal consistency of incorporated statements, used

¹ For the complete list of statements used in survey, separated within individual service quality factors, readers are referred to the authors (see e-mail addresses on a first page).

for measuring respondents' attitudes towards each of them, as well as future intentions and behavior in terms of their loyalty (*Table 3*).

Table 3. Reliability analysis results – Cronbach's alpha coefficient values

Service quality factors and Loyalty	Number of statements	Cronbach's alpha
Ambience & atmosphere	12	0,869
Courtesy of staff	8	0,913
Food quality	6	0,904
Prices	2	0,890
Loyalty	3	0,925

In order to determine a degree to which loyalty responses are associated with scores recorded for service quality factors, a simple linear correlation analysis was performed, as a preliminary dependency investigation efforts, and results are presented in the form of a correlation matrix (*Table 4*).

Table 4. Correlation matrix for the observed service quality factors and degree of loyalty

Variables	(Y _i)	(X ₁)	(X ₂)	(X ₃)	(X ₄)
Loyalty (Y _i)	1	0,73**	0,59**	0,74**	0,47**
Ambience & atm. (X ₁)	0,73**	1	0,73**	0,62**	0,36**
Courtesy of staff (X ₂)	0,59**	0,73**	1	0,66**	0,34**
Food quality (X ₃)	0,74**	0,62**	0,66**	1	0,44**
Prices (X ₄)	0,47**	0,36**	0,34**	0,44**	1

Note: (**) denotes rejection of Null hypothesis at 1% significance level.

Based on the calculated values of Pearson's correlation coefficients it can be noticed that between dependent variable, *Y_i* (*loyalty*) and each of four explanatory variables (*X_i*) exists (with variables *X₁* and *X₃* - strong, and variables *X₂* and *X₄* - moderate) direct, linear quantitative relationship (linear correlation) in the formed sample. A statistical significance of linear correlation between dependent and each of the explanatory variables is confirmed, based on the implementation of standard procedure for statistical hypothesis testing regarding the population correlation coefficient ρ [4]. For each of four individual pairs of variables, the null hypothesis ($H_0: \rho=0$) is rejected, at $\alpha=0,01$ level of significance.

Finally, in order to examine the statistical significance of the effects of four explanatory variables (*ambience and atmosphere, courtesy of staff, food quality, and prices*), as the main components of the quality of service in students' restaurant, and strength of their

impacts on dependent variable (*loyalty*), a multiple linear regression analysis was conducted, and results are presented in *Table 5*.

Table 5. Multiple linear regression analysis results

Model	Unstandard. Coefficients (b_i)	Standardiz. coefficients β	t test statistic	p-value
Constant	0,338	/	0,884	0,378
(X_1)	0,592	0,463	6,468**	0,000
(X_2)	0,077	0,08	1,080	0,282
(X_3)	0,399	0,450	6,693**	0,000
(X_4)	0,136	0,134	2,546**	0,012

Note: (**) denotes statistical significance of the estimated parameters at $\alpha=0,01$ level of significance.

More specifically, estimated multiple linear regression model can be presented as follows:

$$Y = 0,338 + 0,592 * X_1 + 0,077 * X_2 + 0,399 * X_3 + 0,136 * X_4$$

where, Y denotes *customer's loyalty*, X_1 – *ambience and atmosphere*, X_2 – *courtesy of staff*, X_3 – *food quality*, and X_4 – *prices*.

In addition, values of the ordinary (unstandardized) regression coefficients (b_i) are relatively approximate to the values of standardized regression coefficients (β_i) which is expected and understandable since the measurement of explanatory variables was performed using the same 7-point *Likert* scale. The results of statistical hypothesis testing regarding the statistical significance of the estimated regression parameters, based on the calculated two-sided *t-test* statistic and *p-values*, confirmed the statistical significance of the influence of the following explanatory variables on dependent variable (*loyalty*): *ambience and atmosphere*, *food quality*, and *prices*, at 0,01 level of significance. Statistical significance of the impact of explanatory variable – *courtesy of staff*, in a joint influence of service quality factors on respondents' *loyalty*, was not confirmed. In addition, based on the estimated regression model, it can be concluded that predictors *ambience and atmosphere* and *food quality* have the strongest influence on dependent variable (*loyalty*), (β coefficient = 0,463 and 0,450, respectively), while the influence of the predictor - *prices* is considerably weaker (β coefficient= 0,134) than other two factors.

The key indicators of representativeness and goodness of fit of the estimated regression model are presented in *Table 6*. Calculated value of coefficient of determination ($r^2=0,687$) shows that 68,7 % of the total variability of the dependent variable (*loyalty*) is explained by variations of explanatory variables included in

regression model. Its relatively high value ($r^2 > 0,5$) indicates that estimated regression model represent empirical data well. Obtained value of *F-test* statistic (77,968) with $df_1=4$ and $df_2=142$ degrees of freedom suggests that the value of coefficient of determination in population is statistically, significantly different from zero (since, $p\text{-value}=0,00 << \alpha=0,01$), with which the statistical validity and representativeness of the model is confirmed.

Table 6. Measures of representativeness of the estimated multiple linear regression model

Determination Coefficient (r^2)	Standard error (s)	ANOVA			
		F-stat.	df_1	df_2	p-value
0,687	0,602	77,968	4	142	0,000**

When conducting multiple regression analysis it is recommended to examine whether the problem of multicollinearity exists. Although the existence of multicollinearity can be determined by analyzing the values of Pearson's correlation coefficients between the explanatory variables in the model, it is usually examined based on the values of the *VIF* coefficient (*Variation Inflation Factor*) [10].

Table 7. VIF coefficient values

Model	Variance Inflation Factor (VIF)
Constant	/
Ambience & atm.	2,329
Courtesy of staff	2,508
Food quality	2,048
Prices	1,263

Based on the values presented in *Table 7*, it can be concluded that the problem of multicollinearity of predictor variables does not exist, since the *VIF* coefficient values for all explanatory variables are in range from 1,263 to 2,508, and therefore less than 5 (the most commonly used lowest acceptable threshold value for this indicator, [10]).

4. CONCLUSION

The primary objective of the study was to examine the direction, intensity and statistical significance of the influences of selected service quality factors (*ambience and atmosphere*, *courtesy of staff*, *food quality*, and *prices*) in students' restaurant on customers' future behavioral intentions (i.e. *loyalty*), in order to provide useful information to the management of restaurant necessary for the

improvement of quality of their service.

Based on the obtained analysis results, from a list of considered factors of quality of restaurant's service, *ambience and atmosphere* is singled out as a service quality factor with the highest positive impact on the respondents' loyalty, after which follows *food quality*, and *prices* with the considerably weaker influence compared to previous two factors. Statistical significance of identified influences of service quality factors on customer's loyalty is

confirmed in all cases except in the case of the factor – *courtesy of staff*.

Generally, improvements of courtesy and service delivery should be implemented on the basis of a detailed and frequent communication with restaurant guests, since the provision of quality service by the employees and restaurant is one of the main things that makes guests satisfied and willing to create long-term relationships.

REFERENCES:

- [1] Fu, Y.Y., & Parks, S. (2001). The Relationship between Restaurant Service Quality and Consumer Loyalty among the Elderly. *Journal of Hospitality & Tourism Research*, 25 (3), 320-326.
- [2] Ha, J., & Jang, S.C. (2010). Perceived values, satisfaction, and behavioral intentions: The role of familiarity in Korean restaurants. *International Journal of Hospitality Management*, 29, 2-13.
- [3] Larasatia, A., DeYong, C., & Slevitch, L. (2012). The Application of Neural Network and Logistics Regression Models on Predicting Customer Satisfaction in a Student-Operated Restaurant. *Procedia - Social and Behavioral Sciences*, 65, 94-99.
- [4] Lovrić, M. (2009). *Osnovi statistike*. Faculty of Economics University of Kragujevac.
- [5] Marković, S., Raspor-Janković, S., & Dorčić, J. (2011). What are the Key Dimensions of Restaurant Service Quality? An Empirical Study in the City Restaurant Settings. *Sustainable Tourism: Socio-Cultural, Environmental and Economics Impact*, 235-249.
- [6] Namkung, Y., & Jang, S.C. (2010). Effects of perceived service fairness on emotions, and behavioral intentions in restaurants. *European Journal of Marketing*, 44(9/10), 1233-1259.
- [7] Pallant, J. (2009). *SPSS: Priručnik za preživljavanje: postupni vodič kroz analizu podataka pomoću SPSS-a za Windows, (Serbian translation of III edition)*. Belgrade: Mikro knjiga.
- [8] Ryu, K.(2005). *DINESCAPE, emotions and behavioral intentions in upscale restaurants*. PhD thesis.
- [9] Ryu, K., & Jang S. (2008). DINESCAPE: a scale for customers' perception of dining environments. *Journal of Foodservice Business Research*, 11(1), 2-22.
- [10] Soldić-Aleksić, Jasna, (2011). *Primenjena analiza podataka: rad u programima za statističku analizu i tabelarna izračunavanja (in Serbian)*. CID, Faculty of Economics University of Belgrade.
- [11] Stevens P., Knutson, B., & Patton, M. (1995). DINESERV: a tool for measuring service quality in restaurants. *Cornell Hotel & Restaurant Administration Quarterly*, 36(2), 56-60.
- [12] Tan, Q., Oriade, A. & Fallon, P. (2014). Service quality and customer satisfaction in chinese fast food sector: a proposal for CFFRSERV. *Advances in Hospitality and Tourism Research*, 2(1), 30-53.

