

# Revisiting customers' perception of service quality in fast food restaurants



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## ABSTRACT

This research is an extension to previous work in fast food restaurant marketing. The population of this research consists of actual fast food restaurant customers. Following the literature, data are analyzed using Confirmatory Factor Analysis, Structural Equation Modeling, and Path Analysis. Findings of this work identify factors impacting customer satisfaction, as well as dimensions of service quality and their rankings in the fast food restaurant context. Results indicate that there is no direct way of increasing behavioral intentions through improving service quality for fast food restaurants. Rather, behavioral intentions can be improved through customer satisfaction as an intermediary. Further, this work finds evidence that customer satisfaction can be improved through service quality, food quality, and price-value ratio, which in turn would pave an indirect path toward improvement in behavioral intentions in this industry. Results of this research shed light on prioritizing managers' focus and resource allocation for customer satisfaction and different dimensions of service quality and can be used by fast food restaurant managers to set guidelines and strategies in providing better service to their customers.

## 1. Introduction

Providing high quality service to customers is one of the most important challenges every organization faces. No firm can survive unless it can attract and keep a sufficient number of satisfied customers. Successful performance of firms depends on creation of distinctive value in services they offer in an effective way for customers. This has made the perceived product quality become one of the most important competitive factors in the market.

Customer satisfaction, in general, is one of the most important factors in determining an organization's success and increased efficiency. This paper uses the definition of customer satisfaction offered by the SERVPERF instrument (Cronin and Taylor, 1992): customer performance perceptions and performance importance which measure service quality. The SERVPERF instrument is developed based on the SERVQUAL instrument by Parasuraman et al. (1985, 1988) in which service quality is measured as the gap between perceptions and expectations. SERVQUAL suggests that a positive gap would indicate satisfaction, while a negative one would indicate dissatisfaction. In this research, as is common in the fast food restaurant literature, customer satisfaction is measured with the SERVPERF instrument and is sourced from food quality, service quality, and price-value ratio. A detailed discussion of variable choices and their root in the literature is provided in the paper. According to Kotler and Armstrong (1995), marketers always look for ways to create value and satisfaction for their customers, which is an evidence for the importance of customer

satisfaction.

For customer-oriented firms, customer satisfaction is considered a necessary element for success. Marketers normally seek to create value and satisfaction for customers, and service quality is a determinant factor in customer satisfaction. Additionally, in the restaurant industry success and survival of each restaurant depends on the restaurant performance and its customers' viewpoint about it. More loyal customers (behavioral intentions) who choose to make the purchase and decide on repeating their purchase in the future make the business more successful, which would then help the business survive in a competitive market. Therefore, the relationship among behavioral intentions, service quality, and customer satisfaction is crucial and is investigated in this work in the context of fast food restaurant industry.

While these three factors and their relationship have been studied by Qin and Prybutok (2008), more recent research findings necessitate a need to revisit the problem. Kim and Leigh (2011) at UC Davis Center for Healthcare Policy and Research study fast food restaurants' target market and identify groups of consumers who are more likely to consume fast food products. Based on their findings, people with middle level incomes (up to \$60,000) and those who work more hours are more likely to eat at fast food restaurants. These findings challenge the target market sample used by Qin and Prybutok (2008) for their analysis. Their college student sample would not be a good representative of groups of consumers who have middle level income and those who work more hours; hence, may not be generalized to other circumstances. In other words, this would challenge the findings by

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Qin and Prybutok (2008) and would make their results questionable, which would then call for a revisit of the problem and results based on the UC Davis 2011 research findings. Qin and Prybutok (2008) themselves note in their paper that their results may not be applicable to a broader population group and suggest an on-site survey as an extension to their work to find more valid outcomes. Additionally, a sample of college students represents less heterogeneity in population, and it is common knowledge that fast food customers are not limited to college students only. Therefore in this work, the author focuses on extending the previous knowledge and findings and seeks potential differences with previous work done in the field.

In this work the author collects the data from real fast food restaurant customers and uses a setting similar to the previous work for the analysis. Not all results of the current paper conform to Qin and Prybutok (2008). Results of this paper show that there is no direct way of making improvements in customer behavioral intentions by improving service quality. Rather, this paper finds evidence that in order to reach better behavioral intentions, fast food restaurant managers need to go through customer satisfaction as an intermediary. The paper provides support that customer satisfaction can be improved through service quality, food quality, and price-value ratio. It also identifies and ranks service quality dimensions which would then shed light on allocating resources and paying attention to each dimension based on the business strategy and goals for the managers.

This paper's findings show the general population being more sensitive toward receiving an error-free service as well as having access to employees helping them with their requests at a fast food restaurant more than anything else. This is different in some ways from what Qin and Prybutok (2008) found. They found college students' priority in service quality and satisfaction to be receiving a sympathetic and reassuring service with convenient operating hours. While the differences in findings are interesting and may intuitively make sense (for example, fast food restaurants located on university campuses are not open for long hours; hence, operating hours become important), due to research findings by Kim and Leigh (2011), results of the work done by Qin and Prybutok (2008) may not be a true reflection of the target market for this industry. This would invalidate previous findings and may not offer beneficial and valid managerial implications for fast food restaurant managers. In this work the author's target market sample is chosen in a way that it would be in line with findings by Kim and Leigh (2011). The author believes that since findings of this paper are backed by more recent research in the field, they should be taken into account more seriously as they come from a population which allows for incorporation of Kim and Leigh (2011)'s findings; therefore, they would be more generalizable to a broader population. In turn, the results should be treated as a more trustworthy source for managerial implications in this field.

The present study fills the gap and contributes by investigating customer satisfaction and ranking of service quality dimensions in fast food restaurants. It provides evidence that the path toward making improvements in behavioral intentions is through customer satisfaction as the intermediary. Results show that improving service quality in fast food restaurants will not directly improve behavioral intentions. Since in practice no manager has access to an infinite amount of resources, by providing ranking of service quality dimensions, the paper helps managers find their focus area and allocate their resources better given their business goals and strategies. Fast food restaurant managers can use findings of this research to improve service quality to their customers. This work also sheds light on fast food restaurant managerial decisions and helps managers take future steps in creating a more customer-oriented culture at their restaurants.

The remainder of the paper is organized as follows: in Section 2 a review of the relevant literature is presented. Section 3 and Section 4 cover the conceptual model and hypotheses, and methodology and scale measurement respectively. Section 5 includes the data collection process and Section 6 focuses on data analysis and findings. Paper

concludes with Sections 7 and 8 which present discussion and managerial implications and further research directions.

## 2. Literature review

Service has been studied from different angles in the literature. According to Zeithaml and Bitner (1996), service may include behaviors, processes, and performances. Lehtinen and Lehtinen (1991) summarize service quality in three elements: physical quality, which includes components such as buildings and equipment used; corporate quality, which includes organizational image and attributes; and interactive quality, which results from the interaction between service staff and customers and the interaction among customers. Understanding of service quality and its relationship with other factors calls for a review of previous research on service quality in fast food restaurants.

In a competitive market, fast food restaurants will need to focus on improving their service quality in order to be able to compete and survive (Gregory et al., 1998). Zeithaml and Bitner (1996) mention that improvement in service quality attracts new customers and helps the organization keep their current customers. In addition to that, as Yu (2002) mentions, higher service quality will make customers be more satisfied, which will then increase the repurchase incident (i.e., behavioral intentions). This signals the importance of studying the relationship among service quality (including its measurement) and customers' behavioral intentions in making the purchase and their satisfaction based on the service they receive from the restaurant, along with other factors studied in the literature. This relationship has been previously studied (Zeithaml et al., 1996; Oliva et al., 1992; Meuter et al., 2000). This part of the paper focuses on reviewing the details of previous work done in this area.

In order to review the literature in this field and given the multiple angles of the problem, and also for the convenience of the reader, previous work is categorized into three streams. Major papers in each stream are reviewed within each block and are used in making the connection to each hypothesis of this work. The first stream builds the theoretical foundation for Hypotheses 1–3 of this paper. The second stream builds the theory for Hypothesis 4, and the third one supports Hypothesis 5. These streams are presented as following.

### 2.1. Service quality, customer satisfaction, and behavioral intentions

Service quality has been considered as a superior construct and the determinant factor for customer satisfaction (Gotlieb et al., 1994). The relationship between service quality and customer satisfaction has been emphasized by researchers (Storbacka and Lehtinen, 2001). For instance, emerging service quality models are mostly observed in the literature after the 1980's (O'Neill et al., 1998), showing the importance of this issue. Law et al. (2004) find the elements impacting customer satisfaction and their relationship with behavioral intentions. Kivela et al. (1999) develop a predicting model of behavioral intentions based on customer satisfaction. Further, while service quality and customer satisfaction have interactions, Brady and Robertson (2001) show that service quality impacts behavioral intentions through customer satisfaction, which they identify as an intermediary effect.

According to Kim and Lough (2007), the more faithful to a service the customers become, the more satisfied from the service they will be. That, in turn, will increase their purchase probability (behavioral intentions) and will also help the firm use word-of-mouth from its satisfied customers (Laczniak et al., 2001). Equivalently, negative word-of-mouth can be created by dissatisfied customers. An example is the case in which a customer gets unhappy or dissatisfied from a company because of an undesired and/or negative reason, which will result in the customer complaining about the situation (Ladhari, 2007) and hence reducing behavioral intentions. These show the close interaction among service quality, customer satisfaction, and behavior-

al intentions.

In addition, service quality has been found to be more important than product quality (Ghobadian et al., 1994). Increasing efficiency and effectiveness in providing profitable services will result in quality increase (Chang and Chen, 1998). Kotler and Armstrong (2000) define a marketing relationship as the process of creating and enhancing strong relationships with customers and other benefiting parties based on value. The desired service cycle theory defines the relationship between internal and external customers in details (Schlesinger and Heskett, 1991), which in turn shows the importance of service quality in fast food restaurants and in creating a cycle of satisfied customers and their behavioral intentions to become loyal to the restaurant. Further, a study modeling the repeat purchase process and customer satisfaction in food shopping (Law et al., 2004) shows that waiting time and other service factors such as staff viewpoint, environment, and sufficient room in the restaurant for food consumption, as well as food variety and food quality, are all important and influential factors which impact customer satisfaction and repurchase incident (i.e. behavioral intentions).

Cardello et al. (2000) investigate two groups of variables in the food context: behavioral and attitude. Behavioral variables include selection, purchase, and consumption. Attitude variables include liking or disliking the food, the food being tasty or not, tendency toward food consumption, and repurchasing the food. They consider the relationships between the food and the location and atmosphere of place where the food is served. They show that tendency or distaste of the customer toward the food can be affected by implicit factors independent from the food. These factors may include information about the food, promotions, location type, or place where the food is served. These findings signal the importance of service quality in this industry.

To measure service quality, Parasuraman et al. (1985, 1988) develop the SERVQUAL instrument which includes five dimensions: reliability, tangibles, responsiveness, assurance, and empathy. In that framework, service quality is defined as the difference between customers' perception of the service provider's actual performance and the customers' service expectation from them. SERVQUAL has been used to measure the factors impacting service quality for restaurant customers by Bojanic and Rosen (1994); however, their data analysis did not turn out very successful for various reasons, the most important one being ambiguity in factor loadings across different constructs. In addition to that, issues with convergent validity and unstable dimensionality make SERVQUAL a less attractive instrument for measuring service in the fast food restaurant context (Cronin and Taylor, 1992). Another commonly used framework to measure service quality is the SERVPERF instrument (Cronin and Taylor, 1992), which does not have the aforementioned issues. The SERVPERF instrument adds 22 items to the five dimensions introduced by SERVQUAL and has the differences substituted by performance perception for service quality and their importance included in measurement. This paper employs SERVPERF and its five dimensions of service quality in the fast food industry as the instrument for analysis.

Earlier discussion of the literature brings up the importance of relationship between service quality and customer satisfaction, service quality and behavioral intentions, and customer satisfaction and behavioral intentions which are included and tested in the first three hypotheses of this work.

## 2.2. Food quality and customer satisfaction

In addition to service quality, other variables related to customer satisfaction were also tested in fast food restaurants. Shock and Stenfaneli (1992) discuss the theory that service quality, place, products, and prices affect the restaurant processes and their success. It has been suggested that service quality is only one aspect of customer satisfaction and that customer satisfaction should be measured from different angles rather than from only one (Zeithaml et al., 1996). Law

et al. (2004) study the relationship between factors impacting customer satisfaction. They show that food quality and variety of foods offered are among the important elements of customer satisfaction. Food quality is an indication of quality of ingredients and food offered by the fast food restaurant which includes the food's cleanness, freshness, and healthiness as well as variety of foods offered at the fast food restaurant. Product quality and price are the other elements of customer satisfaction which need to be measured (Zeithaml and Bitner, 1996). Johns and Howard (1998) show that the main purpose of going to a restaurant is to respond to a human need (hunger). In other words, customers go to a restaurant to eat; that's why quality of food is an extremely important factor in attracting the customers to, and maintaining them in, a dining place. They also show that quality of food is so important that even knowledgeable employees would not be considered a substitute for that from the customers' perspective. Given the importance of food quality based on previous research findings in this field, food quality is treated as a construct of customer satisfaction. This builds the theory for the fourth hypothesis of this research, which is developed and tested in the next sections of the paper.

## 2.3. Price-value ratio and customer satisfaction

Another important factor in determining customer satisfaction is the price to value ratio. Bell et al. (1997) show that customers consider price of an item relative to their overall perceived value of it, rather than only the price itself. In particular, Johns and Howard (1998) show that price to value ratio gets a high score as one of the important factors in predicting and determining customer satisfaction. Ribeiro Soriano (2002) shows the relationship between the price-value ratio with customer repurchase incident. Fornell et al. (1996) find a positive relationship between the perceived value and customer satisfaction where the perceived value is defined as the perceived level of quality compared with the paid price. Therefore, following the literature, in this research the price-value ratio is considered as an important factor in customer satisfaction analysis and is used in developing and testing the fifth hypothesis of this paper.

This research fills the gap in the literature by revisiting and investigating the direct relationship among service quality (based on the aforementioned elements), customer satisfaction, and their behavioral intentions using data from actual fast food restaurant customers in response to recent findings by Kim and Leigh (2011). It also provides rankings of dimensions used in service quality which would be useful for managers to prioritize their offerings based on their available goals and resources. Findings of this paper shed light on managerial decisions in the field and have useful managerial implications and may also be employed by fast food restaurant managers in order to improve their customers' service experience.

In the next section the conceptual model used in this paper and the hypotheses are introduced. Next, the author explains the scale measurement and the data collection process followed by data analysis and investigation of the hypotheses of the paper.

## 3. The conceptual model and hypotheses

This paper focuses on finding the relationship among service quality, customer satisfaction, and behavioral intentions. In other words, it investigates ways to improve behavioral intentions through customer satisfaction and service quality in the fast food restaurant context. Therefore, the hypotheses are formed to test whether behavioral intentions can be improved directly through improvements in service quality or whether that path has to go through customer satisfaction as the intermediary. In turn, this intermediary itself is under impact by some factors, and service quality has its own dimensions.

Following the studies on customer satisfaction (as discussed in Sections 2.2 and 2.3), food quality and price-value ratio are also added

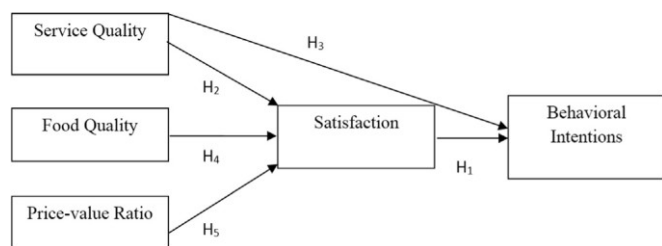


Fig. 1. The conceptual model.

as the constructs of the analysis. In other words, the hypotheses are developed to test the relationship between customer satisfaction (as the intermediary) and the three constructs which are service quality, food quality, and price-value ratio, as well as the direct relationship between (1) service quality and behavioral intentions and (2) customer satisfaction and behavioral intentions. In addition by summarizing the discussion presented in Section 2, service quality has five dimensions: reliability, tangibles, responsiveness, assurance, and empathy (Parasuraman et al., 1985, 1988). The paper also investigates the significance of each of these five dimensions in the fast food restaurant context and provides rankings based on their importance and role. Fig. 1 summarizes the discussion and represents the conceptual model used in this study. The model is the same as the one developed in Qin and Prybutok (2008).

Following the earlier discussions in the paper and reviewing the theoretical background of this work based on what was done in the past, hypotheses of this work are developed and presented in this section. The present study investigates five hypotheses which test (1) the causal relationships between service quality, food quality, and price-value ratio with customer satisfaction, and (2) the causal relationship between customer satisfaction and behavioral intentions. It also tests the causal relationship between service quality and behavioral intentions. Variables used in each hypothesis and their relationship with the literature are explained in the three streams of literature review (Sections 2.1, 2.2, and 2.3) and are similar to the ones studied by Qin and Prybutok (2008). As discussed earlier, Hypotheses 1–3 are explained in the first stream of literature, and hypotheses 4 and 5 are discussed in the second and third streams, respectively. The five hypotheses are presented below.

**H1.** : There is a significant and direct relationship between customer satisfaction and their behavioral intentions in a fast food restaurant.

**H2.** : There is a significant and direct relationship between service quality and customer satisfaction level in a fast food restaurant.

**H3.** : There is a significant and direct relationship between service quality and customer behavioral intentions in a fast food restaurant.

**H4.** : There is a significant and direct relationship between food quality and customer satisfaction level in a fast food restaurant.

**H5.** : There is a significant and direct relationship between price-value ratio and customer satisfaction level in a fast food restaurant.

In addition to these five hypotheses, as indicated earlier, this paper also investigates the significance of the five service quality dimensions and their ordered importance in the fast food restaurant context. This analysis and the related ranking could be very useful for fast food restaurant managers since the ranking helps them identify the more important dimensions of service quality for their business and helps the managers in allocating resources to each dimension in order to improve their service quality given their business priorities and the strategies they implement.

#### 4. Methodology and scale measurement

In order to measure the constructs, a questionnaire with 37

**Table 1**  
Questionnaire details.

Construct	Question numbers from the questionnaire
Service quality	1–21
Food quality	22–25
Price-value ratio	26–28
Customer satisfaction	29–33
Behavioral intentions	34–37

questions is developed. The questionnaire includes questions following the SERVPERF instrument. Further and in more detail, questions incorporating service quality and customer satisfaction follow Cronin and Taylor (1992). Questions about the price-value ratio follow Kim and Kim (2004) and Kara et al. (1997), and those related to food quality follow Johns and Howard (1998) and Kivela et al. (1999). Finally, behavioral intentions questions follow Boulding et al. (1993) and Keillor et al. (2004). The full questionnaire is presented in the Appendix A.

Following the SERVPERF instrument in order to measure each construct, the consumer performance perception is multiplied by its importance. For instance, if a respondent has found convenience of the parking place (question 1) to be very good at the restaurant (corresponding rating equals to 4), and parking has a very important weight for him/her (corresponding score equals to 5), then total score for parking for that respondent would be  $4 \times 5 = 20$ , similar procedure is done for all questions on page one of the questionnaire. The Second set of questions (page 2 of the questionnaire) measure customer satisfaction and behavioral intentions through the statements related to each. A five-point Likert scale is used for measurement in all 37 questions.

Table 1 summarizes the list of questions in the questionnaire used for measuring service quality, food quality, price-value ratio, customer satisfaction, and behavioral intentions. The relationship between these constructs are investigated in Section 6.

The measured constructs are used to investigate the five hypotheses and to identify the significance and the ranking of the five service quality dimensions. The next section provides details on how the survey was conducted and how the data were collected.

#### 5. Data collection

The data were collected through offline survey questionnaires three times a day (around breakfast, lunch, and dinner time) from June 8, 2015, to July 25, 2015. The population of the study is from a random sample of customers from three locations of one of the largest and most popular fast food restaurants in the nation in a large city in the US. Given the size and huge popularity of this particular fast food chain restaurant and the fact that most fast food restaurants (and the fast food restaurant of this study in particular) follow the franchise business model and, hence, have to adhere to similar conditions such as menu, decoration, uniforms, form of greeting, etc., it is believed that the data collected from these three locations of this large and very popular chain restaurant would be a reasonable representative of other locations of the focal fast food restaurant as well as other fast food restaurants in the country.

Using a 95% confidence level (z-score 1.96), 0.4 population standard deviation, and margin of error of 0.05, a suggested sample size of 246 was reached which was rounded up to a sample size of 250 valid responses from the customers was chosen for the survey. The author continued the survey until 250 complete and non-defective questionnaires were collected. That resulted in 318 distributed questionnaires in total, 68 of which were defective and taken out. The respondents were at least 18 years old and were approached in person at the fast food restaurant locations. Each respondent was handed a questionnaire in person by the author. The respondents filled the

questionnaire with no monetary compensation. The sample includes both “dine in” and “take out” customers. For the “dine in” customers, the respondents chose to fill out the questionnaire before or after finishing their food.

In the next section descriptive statistics from the data as well as data analysis and findings are presented.

## 6. Data analysis and findings

The first part of this section presents descriptive statistics from the collected data. The second part covers data analysis, Confirmatory Factor Analysis (Anderson and Gerbing, 1988), and the data validation tests. Next, the Structural Equation Modeling (path analysis model) is presented and hypothesis testing results are introduced. The former step investigates the relationship between the survey questions and the constructs and their connection with the latent variables, while the latter focuses on the relationship between the constructs and incorporates hypothesis testing. Finally, the significance and ranking of the service quality dimensions are obtained and presented.

### 6.1. Demographic features

This section summarizes the demographic features of the survey data.

**Age:** According to the collected data, 111 respondents were between 29 and 38 years old, the highest frequency (44.4%); 14.4% of the respondents were between 39 and 48 years old, and 35.6% of them were aged below 28. The minimum frequency 5.6% belongs to the people who were over 49 years old. It is important to note that more than 85% of all sample respondents chosen by Qin and Prybutok (2008) were below 30 years old which makes it quite unlikely for a majority of them to be at the middle income level since they were students. This is another indicator that their findings are not necessarily built on a valid sample of target market for fast food restaurants and would not be a real reflection of their customers, hence, their findings will not provide useful guidelines for managers in this industry.

**Education:** The maximum frequency belongs to respondents with a bachelor's degree, 129 subjects, equal to 51.6% of the questionnaires. The minimum belongs to respondents below high school, 1.2% of the subjects. Also, subjects with a high school or an associate's degree comprised 24.8% of the respondents. Finally, 22.4% of the subjects had a master's degree and above.

**Gender:** 128 persons were male, which is 51.2%, and 122 were female, which is 48.8% of the population.

**Accompanying parties:** Questionnaires show that 47.2% of the respondents (118 subjects) were with their families, that 23.6% of the respondents were unaccompanied at the time of purchase, and that 29.2% of the respondents were accompanied by at least one friend.

**Visit status:** 56.4% of the respondents (141) had visited the fast food restaurant more than six times, 26% were first time customers, and 17.6% had visited the fast food restaurant between two to five times.

### 6.2. Data analysis

In this section, first the data are tested with different goodness of fit measures, Confirmatory Factor Analysis is used, and the models in the analysis are developed. Next, Structural Equation Modeling and path analysis are used to test the hypotheses, provide rankings to service quality dimensions, and investigate their significance. SPSS and LISREL are used as the two softwares for data analysis in this paper.

#### 6.2.1. Confirmatory factor analysis and goodness of fit tests

In order to make sure that the factors studied are in line with the selected variables, Confirmatory Factor Analysis (CFA) is used in this

**Table 2**  
Cronbach's alpha and composite reliability for each construct.

Factors	Cronbach's alpha coefficient	Composite reliability (CR)
Services quality	0.76	0.85
Food quality	0.72	0.79
Price-value ratio	0.81	0.88
Customer satisfaction	0.75	0.82
Behavioral intentions	0.79	0.86

paper. First, the estimated Cronbach Alpha coefficients and Composite Reliability (CR) measures are used to test for reliability in the data. Results show that all Cronbach Alphas are above 0.7, which indicates that they are at their acceptable level. Also, all CRs are above 0.7, meaning, that they are also at an acceptable level (Olorunniwo et al., 2006). Therefore, reliability of the data is verified, meaning that all indicators measure the latent constructs with reliability. Findings are shown in Table 2.

Next is to test for construct validity to identify that the selected factors have the required accuracy for measuring the desired constructs. For this purpose, convergent validity and discriminant validity are tested. For convergent validity, the Average Variance Extracted (AVE) (Fornell and Larcker, 1981), factor loadings, and Composite Reliability (CRs shown in Table 2) are estimated and used. Composite Reliability and factor loadings for each construct are found to be above 0.7. Results for the AVEs are also all above 0.5; hence, according to Fornell and Larcker (1981), they are at the acceptable level. Based on these findings, convergent validity is achieved. Table 3 summarizes the AVE and factor loadings for each construct.

Discriminant validity is the next to be tested. The AVEs and correlations between each two construct are used to perform the test. It is observed that the square root of each AVE is greater than its corresponding correlations (Fornell and Larcker, 1981); therefore, discriminant validity is also achieved. Based on the convergent validity and discriminant validity results, construct validity is achieved and validated in the data. Table 4 summarizes the discriminant validity results.

According to the model, the results confirm the factors' relationship with the constructs. In other words, the present study performs well by using Confirmatory Factor Analysis. According to Kline (2015), RMSEA and Chi-Square test are used to assess the model fit. RMSEA is found to be larger than 0.08 for the initial model. Therefore, the model would need some corrections from a statistical perspective until it reaches at least close to 0.08 for an acceptable fit (MacCallum et al., 1996). In order to investigate whether the conducted modification makes a significant change in the model, Chi-square test is used (Kline, 2015). According to Table 5, using the Chi-square test and RMSEA, the initial model reaches an appropriate component construct to be used in the structural model after six modifications. Therefore, it is concluded that the modification process is reached at the best matrix of covariance in the fifth model as follows.

Additionally, analysis of the t-statistics shows that all questions but three questions (Q2, Q3, and Q37) have a t-value greater than 1.96; therefore, those questions are dropped from the analysis and the remaining questions are used for the rest of the analysis. Table 6 summarizes the Confirmatory Factor Analysis results for the measurement model including the path coefficients and the t-values for each question.

Other fit indices used in this paper to test the model goodness of fit are the standardized root mean square residual (SRMR), the adjusted goodness of fit index (AGFI), the normed fit index (NFI), the comparative fit index (CFI), the non-normed fit index (NNFI), and the parsimonious normed fit index (PNFI). Measured values for each of these indices based on the model, their acceptable thresholds, their relevant benchmark research papers, and the decision based on

**Table 3**  
Convergent validity results for each construct.

Factors	Average variance extracted (AVE)	Factor loadings
Services Quality	0.753	0.72
Food Quality	0.841	0.78
Price-value Ratio	0.712	0.81
Customer Satisfaction	0.687	0.73
Behavioral Intentions	0.587	0.82

**Table 4**  
Discriminant validity results for each construct.

	Services quality	Food quality	Price-value ratio	Satisfaction	Behavioral intentions
Services quality	0.753 <sup>a</sup>				
Food quality	0.651	0.841 <sup>a</sup>			
Price-value ratio	0.593	0.739	0.712 <sup>a</sup>		
Customer satisfaction	0.621	0.742	0.673	0.687 <sup>a</sup>	
Behavioral intentions	0.673	0.427	0.584	0.584	0.587 <sup>a</sup>

Note:  
<sup>a</sup> Diagonal elements report the AVE and other matrix entries report the squared correlation estimation between them.

**Table 5**  
Model iterations and chi-square values.

Fitted Models	$\chi^2$	$\Delta\chi^2$	df	RMSEA	Significance
Model 1	1495.25	–	519	0.111	–
Model 2	1468.92	> 2.75	515	0.105	1%
Model 3	1415.85	> 2.75	512	0.099	1%
Model 4	1384.51	> 2.75	505	0.095	1%
Model 5	1382.51	> 2.75	501	0.084	1%
Model 6	1382.98	< 2.75	500	0.083	Insignificant

comparing the measure values with the benchmark are presented in Table 7. Based on the results, the model performs well with respect to all indices.

In summary, based on the tests performed, the model iterations, obtained evidence of reliability as well as construct and discriminant validity, and the goodness of fit measure results, the Structural Equation Model may be developed and used to test the hypotheses of the paper. The next part elaborates on the Structural Equation Model, hypothesis testing, and findings.

6.2.2. Structural equation model (path analysis model)

As discussed in the previous part, the model reaches its appropriate level in the fifth iteration; therefore, the modification process finishes and is statistically reliable. Hence, the Structural Equation Model (Jöreskog and Yang, 1996) can be used for hypothesis testing. Figs. 2 and 3 demonstrate the model results for path analysis coefficients as well as the t-values for all constructs in the model...

Based on the results, the five hypotheses of the paper, which are presented in Section 3 are tested here. Table 8 summarizes the five hypotheses, their path coefficient, their t-value, and the hypothesis test results. As can be observed, all but one of the study hypotheses (Hypothesis 3) are confirmed at 95% level since they have t-values larger than 1.96.

Findings show that service quality is not considered as a direct significant influence for customers' behavioral intentions (H3). This signals that, while providing better service to fast food restaurants customers would significantly and positively impact customer satisfac-

**Table 6**  
Measurement Results for the Initial Model.

Construct	Question number	Path coefficient	t-Value	Decision
Service quality	1	0.12	2.03	Keep
	2	0.09	1.30	Drop
	3	0.07	0.96	Drop
	4	0.28	4.25	Keep
	5	0.27	4.07	Keep
	6	0.28	4.13	Keep
	7	0.40	6.16	Keep
	8	0.45	6.97	Keep
	9	0.51	8.08	Keep
	10	0.45	6.99	Keep
	11	0.62	10.14	Keep
Food quality	12	0.64	10.66	Keep
	13	0.61	9.85	Keep
	14	0.72	12.23	Keep
	15	0.68	11.37	Keep
	16	0.65	10.72	Keep
	17	0.59	9.56	Keep
	18	0.47	7.39	Keep
	19	0.37	5.63	Keep
	20	0.26	3.90	Keep
	21	0.28	4.18	Keep
Price-value ratio	22	0.69	11.46	Keep
	23	0.88	14.61	Keep
	24	0.76	13.18	Keep
	25	0.56	8.80	Keep
Satisfaction	26	0.85	14.36	Keep
	27	0.72	12.05	Keep
	28	0.54	8.56	Keep
Behavioral intentions	29	0.37	5.70	Keep
	30	0.63	10.39	Keep
	31	0.56	9.70	Keep
	32	0.76	13.50	Keep
	33	0.76	13.54	Keep
Behavioral intentions	34	0.67	11.19	Keep
	35	0.79	14.01	Keep
	36	0.81	14.91	Keep
	37	0.65	1.76	Drop

**Table 7**  
Model goodness of fit measures.

Index	Measured value	Cut-off point	Benchmark paper (s)	Decision
SRMR	0.06	< 0.10	Sivo et al. (2006)	Acceptable
AGFI	0.84	> 0.80	Gefen, Straub, and Boudreau (2000)	Acceptable
NFI	0.95	> 0.9	Anderson and Gerbing (1988);Mulaik et al. (1989)	Acceptable
NNFI	0.95	> 0.9		Acceptable
CFI	0.95	> 0.9		Acceptable
PNFI	0.81	> 0.75	Sivo et al. (2006)	Acceptable

tion (H2), it would not directly encourage the customers to make the purchase and/or revisit for future purchases. Also considering that the direct relationship between satisfaction and behavioral intentions is found to be significant (H1), fast food restaurant managers would still need to improve customer satisfaction in order to improve behavioral intentions indirectly; however, they would need to rely on some factors other than service quality only. The results of the other two hypotheses, which are on food quality and price-value ratio (H4 and H5), confirm this and indicate that more focus should be put on food quality and price-value ratio in a fast food restaurant in order to improve customer satisfaction and their indirect effect through customer satisfaction toward behavioral intentions. The latter would translate into a more successful business in a competitive market. Managerial implications, insights, and guidelines related to these findings are presented and

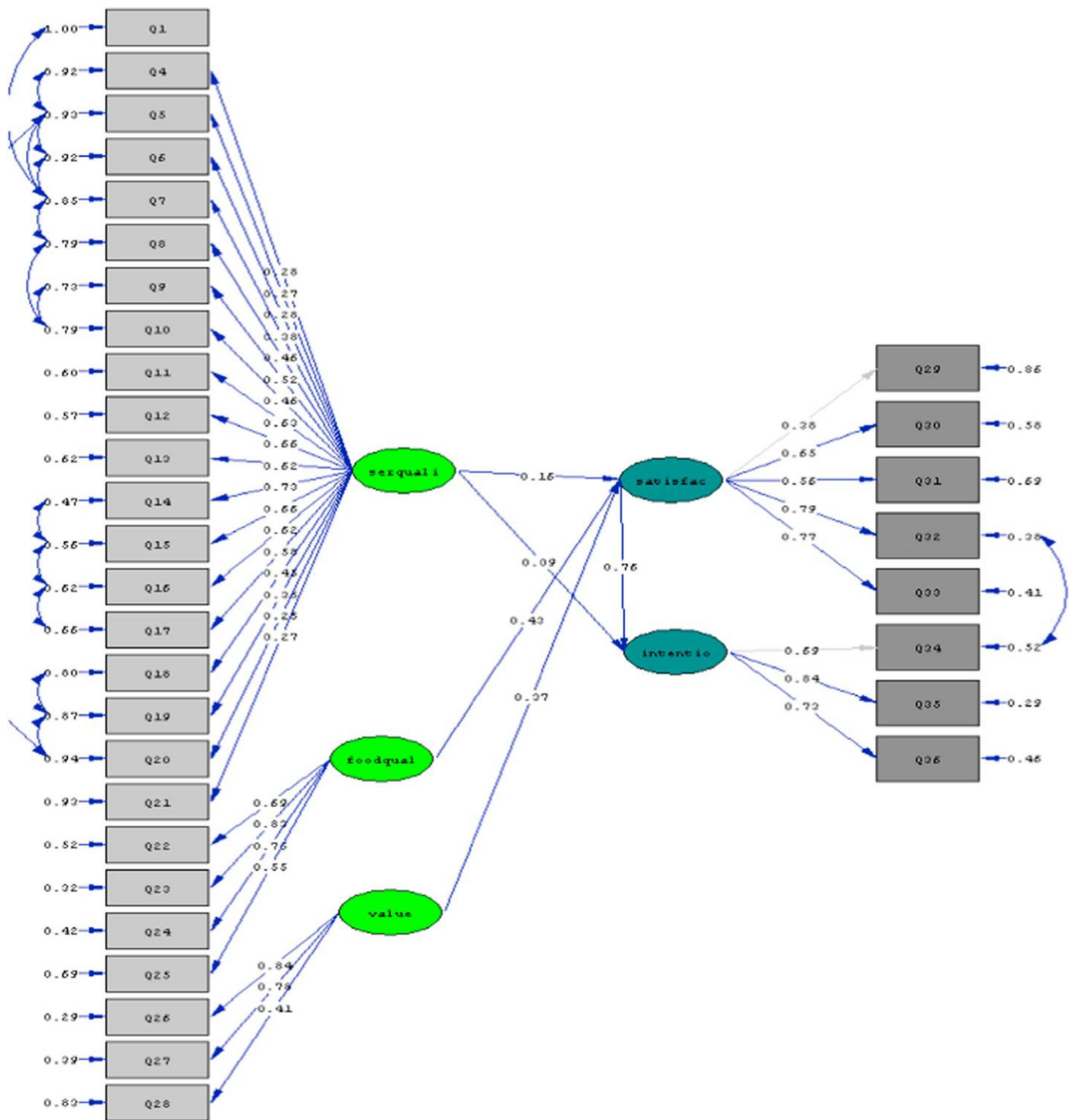


Fig. 2. Structural equation modeling results and path analysis.

discussed in details in the next section of the paper.

A comparison of these findings with Qin and Prybutok (2008) shows that, among findings of the five hypotheses of this paper, two are in-line with what they have found; however, findings do not seem to be the same in the remaining three. Both studies found a direct and significant relationship between customer satisfaction and behavioral intentions and food quality and customer satisfaction. While this paper finds a direct significant relationship between price-value ratio and customer satisfaction, such a relationship is not found significant in their work. In addition to that as discussed earlier, the current study does not find a direct significant relationship between service quality

and behavioral intentions, but such a relationship was found significant in Qin and Prybutok (2008). Finally, this paper identifies a direct and significant relationship between service quality and customer satisfaction, while such a relationship was not found to be significant in the work done by Qin and Prybutok (2008).

Based on the discussion presented earlier in this paper (i.e., a more recent research by UC Davis about fast food restaurants' target market and Qin and Prybutok's sample not being generalizable to a broader group), validity of previous findings seem to be questionable. It is believed that the new findings will be better representative of the relationship among behavioral intentions, customer satisfaction, and

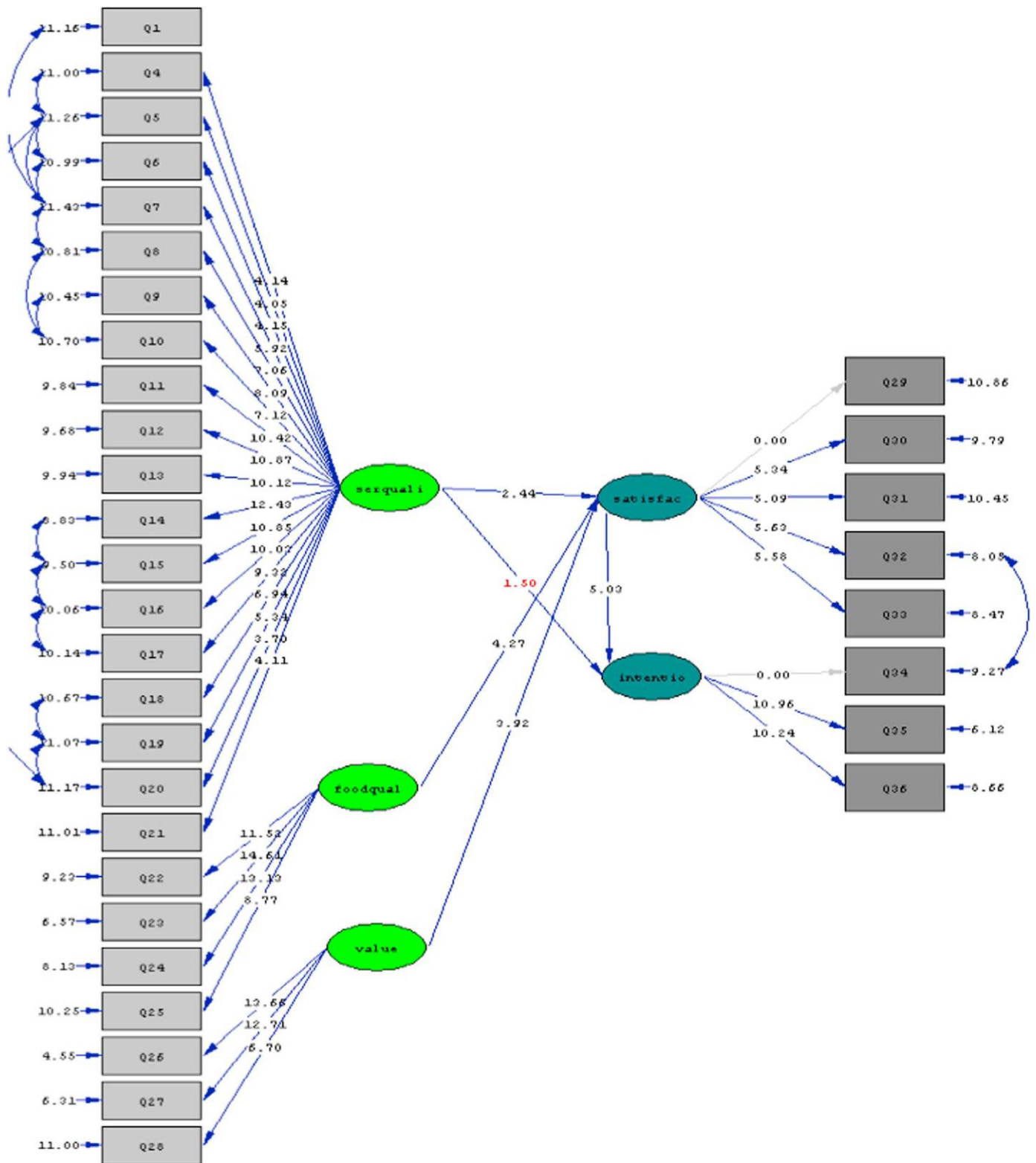


Fig. 3. Estimated path analysis t-values.

service quality in this field and, hence, should be a better source for managerial implications and guidelines for managers.

6.2.3. Ranking the service quality dimensions

The last part of this section focuses on investigating the significance and providing a ranking for the five dimensions of service quality. This ranking would be useful for managers to set their focus on the more

important dimensions of service quality given their business goals and strategies and their most likely limited resources. The results show that all five dimensions significantly impact service quality as their t-statistics suggest. These findings are ranked based on the standardized coefficients and are summarized in Table 9.

While this paper finds that the general population care more about receiving an error-free service as well having access to employees



**Table 8**  
Hypothesis testing results.

Hypothesis			Path coefficient	t-Value	Hypothesis result
H1	Satisfaction	Behavioral Intentions	0.76	5.03	Confirmed
H2	Service Quality	Satisfaction	0.16	2.44	Confirmed
H3	Service Quality	Behavioral Intentions	0.09	1.50	Rejected
H4	Food Quality	Satisfaction	0.43	4.27	Confirmed
H5	Price-value	Satisfaction	0.37	3.92	Confirmed

**Table 9**  
Ranked service quality dimensions.

Rank	Construct	Standardized coefficient	t-Value	Effect result
1	Reliability	0.94	10.80	Significant
2	Responsiveness	0.81	8.89	Significant
3	Empathy	0.59	6.88	Significant
4	Assurance	0.59	6.76	Significant
5	Tangibles	0.42	2.61	Significant

helping them with their requests, *Qin and Prybutok (2008)* found college students' priority to be receiving a sympathetic and reassuring service with convenient operating hours. A discussion on the application of the new findings is presented in the next section of the paper. Both studies find tangibles to be the least influential dimension of service quality. In this study, responsiveness (0.81), assurance (0.59), and empathy (0.59) ranked as the second, third, and fourth dimensions influencing service quality in the fast food restaurant context. It is believed that this ranking would be useful for fast food restaurant managers and would help them improve their service quality given their business priorities, their available resources, and the strategies they choose to implement.

Section 7 of the paper provides managerial implications based on the hypothesis testing and data analysis findings and provides a bigger picture of the findings by offering insights and suggestions which fast food restaurant managers can use in order to help them find the service quality and customer satisfaction strategies that would best suit their businesses.

**7. Discussion and managerial implications**

This section provides managerial implications based on the results of hypothesis testing. The results show that there is no direct path from service quality to behavioral intentions. Therefore, it is important to have a deeper understanding of how customer satisfaction (as the intermediary) can be improved so that fast food restaurants would reach improved behavioral intentions. This section provides guidelines on how to improve each construct which enhances in customer satisfaction, as well as a set of guidelines on how to make improvements in each of the five dimensions of service quality given their ranking. A detailed discussion on each part is as follows.

As discussed in Section 6.2.2, fast food restaurants need to improve their food quality as well as their price-value ratio so that they can improve behavioral intentions through improved customer satisfaction. In this part, some suggested strategies for fast food restaurant managers are presented to help them make the improvement from those two aspects.

Food is the main offering at any dining place, and its quality is a significant determinant of fast food customer satisfaction. Food quality includes items such as ingredients used in the food, variety of food types and beverages offered, healthy menu, etc. According to the

National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), more than two in three adults are considered to be overweight or obese. This signals the importance of offering healthier menus to fast food customers, which would then result in more customer satisfaction through food quality. According to the findings, offering a healthy and diverse menu, with tasty food are important criteria for customer satisfaction in this industry. This includes but is not limited to offering food with different attributes, such as level of fat and amount of calories included in it for different groups of customers. Fast food restaurants can also be clear and informative on details of the foods they offer. Such details could include food ingredients used, information on gluten free fast food, amount of fat and calories in the food, etc. This will help the fast food restaurants to distinguish their services based on food quality and gain better customer satisfaction levels, which would help them improve behavioral intentions and, at a higher level, be more successful in the competitive market.

The other hypothesis testing confirmed the direct significant relationship between price-value ratio and customer satisfaction in fast food restaurants. This factor has two elements, price and value; therefore, strategies for both factors are discussed here. Fast food restaurants can modify the prices of their items. They can offer different food sizes at different price levels for different target customers. They can also offer lower per unit price for larger purchases. Another suggestion would be to offer a variety of “combo” menus, which will have a lower price compared to the summation of prices of all items included in order to create more value for their customers. Another strategy in the competitive market would be to keep an eye on the prices offered by the other players in the market and maintain a competitive pricing strategy. These strategies can help a fast food restaurant improve its price-value ratio and reach higher customer satisfaction levels, which will eventually result in better behavioral intentions and more success in the market.

Based on the findings, the direct and significant relationship between customer satisfaction and behavioral intentions shows that fast food restaurant managers should focus their efforts on customers returning and repurchasing at their restaurant through improving customer satisfaction. Using the results of the other two hypotheses, as discussed above, fast food restaurant managers can use food quality and price-value ratio to improve customer satisfaction and hence behavioral intentions. In other words, customer satisfaction can lead to customer loyalty, better service feedback, spread of positive word-of-mouth, and eventually intentions to purchase more. The latter can be translated into better financial outcomes. This shows that management of customer satisfaction levels is a strategically critical task for fast food restaurants so that managers can improve behavioral intentions by maintaining their current customers and attracting more new ones.

Finally, the remaining hypothesis result shows that service quality significantly and directly impacts consumer satisfaction. Given the importance of service quality and its five dimensions, suggestions and managerial implication for improving each dimension are offered. In practice, it is unlikely for managers to have access to an infinite level of resources; therefore, fast food restaurant managers may choose to follow these insights in order to improve each of the five dimensions of service quality for their businesses based on their priorities and resources available. This paper provides some suggested insights for fast food restaurant managers which can be employed for each service quality dimension to improve the business. It is important to note that while service dimension rankings are quantified and show the importance of each dimension, fast food restaurant managers may still need to choose their business focus among these five service quality dimensions and practice the guidelines which are offered for the corresponding aspect based on their business strategy and focus.

The standardized coefficient estimation results show that the most important factor in determining service quality is reliability. This finding shows the importance of punctuality and meeting commitments and services promised to the customers with no mistake by the

restaurant staff, which signals the importance and role of employees in customer satisfaction. One way to reach that goal would be to provide additional staff training, such as setting standards for service levels. Staff would need good training to be able to communicate with the customers and provide information they ask for. This information includes but is not limited to details about the food offered, the ingredients, types of beverages sold, payment methods, deals, coupons, discounts, etc. Therefore, making the staff more knowledgeable would result in improved reliability of the fast food restaurant. Another managerial implication to enhance reliability would be to implement tailored training programs based on the attributes of each fast food restaurant location. Fast food restaurant managers can also provide the staff with some degrees of freedom and more authority so that they can offer on-site compensations to dissatisfied customers in order to make sure that those customers leave the restaurant happy and satisfied and that there will be a repurchase incident from them. In summary, given the importance of reliability as the major dimension of service quality, it is essential for fast food restaurant managers to improve that dimension. Higher service quality levels will then increase customer satisfaction, which will result in improved customer loyalty and repurchase incidents (i.e., behavioral intentions).

Next is responsiveness, which ranks second in determining customer satisfaction. As discussed before, responsiveness is the level of speed and accuracy of service provided, staff behavior in crowded times, and expected time to receive the food while waiting in a line. In most cases, dissatisfaction sources from the long wait time in lines. A suggestion for managers would be to have the fast food restaurants equipped with computerized and electronic ordering devices to reduce the customer waiting time and, hence, improve customer satisfaction. These machines will enable the customers to order and to pick up their food in a more convenient and time saving matter. This gains extra importance during busy hours of operation. Examples include but are not limited to drive-through ordering and pick-up options, online ordering and pick-up systems, electronic touch pad menus, and online menus, which many fast food restaurants have already adopted or are in the process of adopting. Given the importance of this dimension, following these guidelines will significantly improve service quality, hence, customer satisfaction and as a result of that behavioral intentions.

The third determinant of service quality is empathy, which includes paying attention to the customers and their needs. Fast food restaurant managers may wish to be involved and make sure that the employees understand the customers' needs by responding to their complaints and creating a warm and friendly atmosphere for them. The feeling of a "caring" management and staff will improve service quality at the fast food restaurant. Improving in service quality by enhanced empathy will result in higher customer satisfaction and more loyalty, which then turns into a more successful business.

The fourth important dimension of service quality is assurance. In order to improve assurance for the customer, the fast food restaurant manager and staff can create and enhance a sense of comfort and safety in their customers by respectful communications, providing clear information, and establishing trust. Staff training can also create and facilitate communication between the customers and staff. These guidelines can then be used to improve service quality through assurance, which will result in higher customer satisfaction levels.

According to the findings, the least important element of service quality is identified to be the tangibles. Suggestions for improving service quality through this dimension are as follows. Restaurant managers can meet the customers' needs by designing and creating a proper physical environment and opening branches in convenient and easy-to-access locations. It gains more importance when finding a parking spot or when time wasted in traffic becomes an issue in bigger cities. Fast food restaurants can also update their interior decorations and designs to enhance service quality. Finally, a very simple but important factor which if not followed correctly can negatively impact

service quality is to maintain a clean dining place for the customers. By following these relatively simple and straightforward guidelines, fast food restaurant managers will be able to improve service quality through tangibles and create more customer satisfaction.

Findings of this study create a clearer picture of the important service quality dimensions, as well as the relationship among service quality, customer satisfaction, and behavioral intentions in fast food restaurants. Given the more recent findings by Kim and Leigh (2011), which clarify the target market for fast food restaurant customers, it is believed that relationships and rankings of service quality dimensions identified by Qin and Prybutok (2008) may not be applicable to a broader population. Therefore, it is believed that the findings and insights provided by this work could be more applicable to fast food restaurants by the managers. These results can be used in improving service quality, creating proper values for the customers, promoting customer satisfaction levels, and enhancing customer loyalty and behavioral intentions. It is hoped that this research would shed light on a better customer orientation culture in the fast food restaurant industry.

## 8. Further research directions

In the past, many fast food companies have launched their businesses in different locations across the globe. People in different countries have different cultures and traditions that may influence their perception of service quality and the elements related to that along with other things. For instance, fast food corporations have found that foreign franchisers often fail in keeping up with the American cleanliness standards and that they often also use lower quality ingredients which are still considered good in their home country.<sup>1</sup> Another example is that fast foods are popular for their convenience in the US market, while in other countries, they represent more of a treat.<sup>2</sup> These examples bring up the importance of having a deeper understanding of fast food purchase motives, consumers' expectations, and their perceptions in different countries and locations. It also makes the applicability of findings based on a certain market to other global markets challenging and questionable. Therefore, an extension to this work would be to study the research question within a market other than the US market, in other words, researchers could revisit this study in different markets in order to investigate the potential differences in consumers' behavioral intentions and satisfaction based on their perception of service quality in those markets.

This paper provides evidence on important dimensions of service quality in only one type of dining place (i.e., fast food restaurants). According to Kim and Leigh (2011) the target market for this type of dining place is people with midrange income levels. Customers with higher income levels are more likely to choose dining places which offer premium full service and are mostly categorized as higher end restaurants. As one would expect, service plays a very important role (and likely with a higher weight compared to fast food restaurants) in this type of dining places. The interaction among service quality, behavioral intentions, and customer satisfaction remains unanswered for customers with higher levels of income, who choose to go to a premium service restaurant and most likely have higher service level expectations with more delicate customer satisfaction and expectations. Therefore, another interesting extension to this work would be to do a similar study for premium full service restaurants and investigate service quality within that context. These two research directions are left for future researchers.

<sup>1</sup> University of Southern California:  
[http://www.consumerpsychologist.com/intl\\_Promotion.html](http://www.consumerpsychologist.com/intl_Promotion.html)

<sup>2</sup> University of Southern California:  
[http://www.consumerpsychologist.com/intl\\_Promotion.html](http://www.consumerpsychologist.com/intl_Promotion.html)

**Appendix A. The questionnaire**

The following questionnaire is used for a study on service quality and its relationship with customer satisfaction and behavioral intentions at fast food restaurants.

The full questionnaire should not take more than 15 min of your time. All responses are anonymous and confidential.

Please answer all questions very carefully. Your time and cooperation are appreciated in advance.

Your experience with this fast food restaurant					Questions	Importance for you				
Very good	Good	Natural	Bad	Very bad		L	Natural	high	Very high	
5	4	3	2	1	Convenient parking place	1	2	3	4	5
5	4	3	2	1	Interior decoration and design	1	2	3	4	5
5	4	3	2	1	Location	1	2	3	4	5
5	4	3	2	1	Clean tables	1	2	3	4	5
5	4	3	2	1	Ease of access to the menu	1	2	3	4	5
5	4	3	2	1	Staff appearance	1	2	3	4	5
5	4	3	2	1	Staff friendliness	1	2	3	4	5
5	4	3	2	1	Trained and knowledgeable staff	1	2	3	4	5
5	4	3	2	1	Relaxing place to eat	1	2	3	4	5
5	4	3	2	1	Trustfulness of the staff	1	2	3	4	5
5	4	3	2	1	Fast service	1	2	3	4	5
5	4	3	2	1	Reliability of waiting time as it shows on the bill	1	2	3	4	5
5	4	3	2	1	Staff being professional during busy times	1	2	3	4	5
5	4	3	2	1	Reasonable wait time	1	2	3	4	5
5	4	3	2	1	Easiness of ordering and payment	1	2	3	4	5
5	4	3	2	1	Staff being error free when taking orders	1	2	3	4	5
5	4	3	2	1	Helpfulness of staff/ managers when an ordering error happens	1	2	3	4	5
5	4	3	2	1	Ease of access to napkin, ketchup, etc.	1	2	3	4	5
5	4	3	2	1	Convenience of restaurant hours based on your schedule	1	2	3	4	5
5	4	3	2	1	Food quality	1	2	3	4	5
5	4	3	2	1	Kids menu offering	1	2	3	4	5
5	4	3	2	1	Food being nutritious	1	2	3	4	5
5	4	3	2	1	Food being tasty	1	2	3	4	5
5	4	3	2	1	Freshness of ingredients	1	2	3	4	5
5	4	3	2	1	Variety of food options on the menu	1	2	3	4	5
5	4	3	2	1	Food price	1	2	3	4	5
5	4	3	2	1	Beverages price	1	2	3	4	5
5	4	3	2	1	Meal size	1	2	3	4	5

Please mark how much you agree or disagree with each statement.	Very low	Low	Natural	High	Very high
I am satisfied with service quality at this fast food restaurant.	1	2	3	4	5
I am satisfied with food quality at this fast food restaurant.	1	2	3	4	5
I am satisfied with food prices at this fast food restaurant.	1	2	3	4	5
I feel satisfied for choosing this fast food restaurant to eat at.	1	2	3	4	5
I made the right choice by eating at this fast food restaurant.	1	2	3	4	5
I will recommend this place to my friends and acquaintances.	1	2	3	4	5
I will come to this fast food restaurant again.	1	2	3	4	5
I will put a good word for this fast food restaurant when I talk with other people about it.	1	2	3	4	5
I will talk about the shortcomings of this fast food restaurant when I talk with other people about it.	1	2	3	4	5

## Demographic Information

### • Gender

Male Female 

### • Age

18 to 28 29 to 38 39 to 48 49 to 58 59 and above 

### • Education

Unfinished high school Finished high school Associate degree Bachelors' degree Masters' degree and above 

### • In this trip I am visiting this fast food restaurant with....

Just by myself Friends Family 

### • How many times have you visited this fast food restaurant before?

This is my first time Two to five times More than six times 

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