

Service Quality and Customer Satisfaction Relationship: A Research in Erzurum Ataturk University Refectory

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Abstract

In this study, perception of service quality and its impact on satisfaction were examined through a research where students using the refectory within the university campus were selected as the sample. In the study, a survey questionnaire was used as the data collection technique and Ruetzler's (2005) scale, which was developed to measure service quality in a college refectory, was used for creating the survey form. In the methodology, factor analysis, ANOVA, t-test, and multiple regression analysis were performed on 689 valid cases of survey data. Multiple regression analysis was applied to three dimensions of refectory service quality (service, hygiene and atmosphere) that were determined as a result of factor analysis and it was found that these dimensions affect satisfaction positively in general and at the level of 44%. Among the service quality dimensions, it was determined that atmosphere did not have a significant effect on satisfaction. It was concluded that hygiene dimension had a higher impact on satisfaction than the service dimension. Furthermore, it is among remarkable findings of the research that statistically significant differences were found between groups in terms of gender, the amount of monthly expenditure, and the faculty of the respondents as a result of the one-way ANOVA tests and the t-tests.

Key Words: Service Quality, Customer Satisfaction, University Refectory

1. Introduction

All businesses should attach importance to the quality phenomenon in order to survive within the competitive market structure. What is more, beyond this basic level of importance attached to the quality concept, it has become necessary to focus on this issue carefully. The rationale behind this argument can be expressed as the fact that businesses can increase their customers' satisfaction through quality practices that may make them different from other competing businesses; the motivation for placing emphasis on quality is a reflection of the idea that it is possible to achieve improvements in this way. Quality, especially nowadays, beyond the approach that businesses could achieve better performance if they implement quality practices, has become a value that makes it impossible for the business to survive and consequently continue its existence if not implemented. In other words, beyond circumstantial decisions concerning quality, it has become a necessity for businesses to embed quality into their business processes.

The high-quality production approach, which has particularly gained importance after the World War II, was initially exercised in the manufacturing sector due to needs of that time. However, especially in the 1980s, in parallel with the increase of activity in the services sector, organizations began to realize the benefits which could be obtained by the adoption of quality approach in this area. Because of this, the literature witnessed a progressive increase in the research studies and approaches that refer to the concept expressed as the service quality.

However, it was observed that certain distinctions were highlighted in approaches developed for service quality because of the fact that a number of characteristics of the service sector differ from those of the manufacturing sector. In this case, it is possible to mention the effect of characteristics such as the orientation of services towards emotional aspects rather than cognitive aspects of the customers, the intensity of human-human interactions, and the difficulty in remedying the mistakes which occur in presentation.

Of course, it is not possible to deem organizations offering catering services exempt from the requirement of engaging in quality practices where other businesses operating in other service areas are required to integrate quality into their processes. Catering businesses are an integral part of social life both biologically in the context of satisfying the nutrition requirements of the society and socially in terms of addressing values of socialization and aesthetics-pleasure. Therefore, operation of businesses in this sector by adopting quality approaches has brought along customers' preferring those businesses that offer these services more intensively. It could be suggested that particularly in Turkey, the common belief about eating and drinking out is that catering businesses produce and present foods in unhygienic environments using low quality ingredients and this puts an important role on businesses operating in this area at the point of assuring consumer confidence in general. In addition, the presence of a relaxing and socializing atmosphere in these businesses could make them preferable in the context of various objectives in addition to satisfying one's biological needs.

In this study, we empirically investigated the perception of quality of a catering firm, which provided services to students and staff in a state university and studied the impact of consumers' perceptions on the overall satisfaction. However, in the research, it was deemed appropriate to consult the views of only the students since they are the key subject of universities. In another aspect, the fact that the perception of the students was more determinative for deciding whether the firm should continue its food service in the university was also effective in selecting the sample from this population. The motivation for conducting this research is two-fold; both being able to measure the students' perception about the service quality of the food served in the refectory and initiating the necessary actions with regards to the service offering by means of sharing the results of the research with the university refectory unit and the university management. In the study, initially, we aimed at theoretically establishing service, quality, service quality, and the relationship between service quality and satisfaction. In this part of the research, we also examined the service quality within the context of food and beverage industry as well as food and beverage services offered at universities. In the following section, we provided information about the application stage of the research and presented our findings. Finally, we discussed the findings obtained from the research in the conclusions section and provided recommendations for the future.

2. Service Concept and Its Characteristics

People face the concept of the service across every stage of life through different ways and they always live intertwined with this concept. The service concept is adapted to the current society's life and is as old as the history of humans. Considered from this viewpoint, the study of service together with its nature, quality, and similar characteristics in a systematical manner and with its technical dimensions coincides with 1700s (Eroglu, 2004: 69; Sayim&Aydin, 2011: 246; Kocbek, 2005: 22; Erkut, 1995: 9; Zengin&Erdal, 2000: 47).

Today, although the service concept has characteristics accepted by most people and common elements included in definitions, a unanimously agreed service definition is yet to be reached. The reasons for failure to derive an unanimous definition could be summarized as follows: 1) The service concept is addressed in many different ways depending on the economic and sociological changes; 2) It is impossible to consider "pure tangible goods" and "pure abstract service" (Ozer&Ozdemir, 2007: 2,10,11); 3) There is a high level of diversity in the services sector; and 4) the service sector has unique characteristics (Kilic & Eleren 2009: 93). Abstractions, lack of property rights, provision of benefits, and personal effort or activities constitute the common elements of service definitions. In Edvardsson's study, the service concept was defined and it was mentioned that activities, actions, processes, and interactions are the most commonly used concepts in the definitions (Altinel, 2009: 3).

In line with this, the service concept was defined in Gidhagen's study (1998: 3) as "a concept that has a more or less abstract structure and comprised of all activities that take place between the customer, the service personnel or the physical resources of the service provider and offered as a solution to customers' problems". Quinn et al. (1990: 60) suggested a definition by highlighting the characteristics of the service.

According to this, service is described as "including all economic activities with non-physical outcomes, generally consumed at the time it is produced, providing its consumer with abstract values such as avail, entertainment, convenience, comfort, or health". Similarly, Mucuk (2001: 285) explained service concept as "abstract foods or benefits that are produced and consumed simultaneously, that cannot be stored and transported, and that are characterized by the user's not having the right of ownership". Kotler (2001: 291) as well highlighted the abstract nature of the product and the forms of ownership in the production process and addressed service as something "that does not result in the ownership of a tangible good when consumed", as "a type of product comprised of abstract activities which are offered by one party to the other and do not necessitate ownership".

Since there is a distinction between goods and/or services in the definitions given in many economics books and all marketing related definitions include the "products or services" distinction, the difference of services from physical products should be recognized (Kucukaltan, 2007: 29). Theodore Levitt asserted that beyond the fact that services themselves constitute a branch of industry, they have a kind of complementary nature to the industrial products (Kotler, 2009: 50). As a matter of fact, Akbaba & Kilinc (2001: 162) defined the service phenomenon along similar lines, as products offered for use by humans and machines. It is accepted that there are services and abstract elements in the provision of many goods as well as there are tangible aspects in the provision of many services (Ozer & Ozdemir, 2007: 12). The point that should be emphasized here is the fact that the service, which is generally considered an abstract benefit, becomes meaningful together with tangible products.

3. Distinguishing Features of Services

Although it is not possible to offer the customer goods and services independently of each other, it is plausible to mention some of the features that separate services from goods. Parasuraman & Zeithaml indicated the features that distinguish services from goods as "Abstraction, Non-homogeneousness, Inseparability, and Perishability". Palmer (2001: 227), Gidhagen (1998: 3), Kozaket al. (2011: 9) and Ozturk (1998: 7) have added the ownership feature to these four distinguishing features. It is observed that these features are addressed in the marketing literature with various aspects; e.g. abstraction is considered as intangibility (Ozguven, 2008) and impalpability; non-homogeneousness is considered as variability (Yumusak, 2006) and heterogeneity (Ozguven, 2008); inseparability is considered as simultaneous production and consumption (Ozguven, 2008); and perishability is considered as not being able to be stocked (Yilmaz, 2007) and easily degradability.

It is considered that "intangibility" is the main feature that separates any service from visible and palpable tangible goods. Since services are not tangible objects like goods and are in the form of performances, there is often no tangible situation that could represent the service received by the customer, as is the case in the consumption of goods (Eroglu, 2004: 75). The performance achieved in producing a service is likely to differ from one service provider to another, from one customer to another, and from "time" to "time" (Tutuncu, 2009: 24) and it is difficult to reach a standardized form of the output (Gidhagen, 1998: 3). Another distinguishing feature of services, perishability, means that services cannot be stocked or stored, cannot be returned and resold (Ozturk, 1998: 10). Because periodic fluctuations in the demand for services will directly affect the amount of production of services that cannot be stocked, perishability of services becomes a serious problem as the amount of fluctuation increases (Mucuk, 2001: 288). In comparison to the physical goods, services are consumed at the time they are produced. For this reason, production and consumption processes are inseparable and indistinguishable from each other (Icoz, 1996: 29). The nature of services, that they are intangible and impossible to store, does not create ownership for a person who receives the service (Dibb et al. 1994: 667). The fact that services cannot be owned is among the key differences between services and goods (Ozturk, 1998: 11). You may encounter those that are impalpable, those that are abstract as tangible ornaments; however, it is very difficult to buy physical ownership of abstract, intangible services such as experience (movies), time (consultancy) or operation (dry cleaning) with money (Shostack, 1977: 73).

4. Quality Concept

The word quality is derived from the Latin word, *Qualis*, and it means distinctive characteristic (Ehlers, 2007: 96). Dictionary meaning of quality is characteristic. Characteristic is defined as a feature or quality belonging typically to a person, place, or thing and serving to identify them. There are many different definitions of quality in the literature. One reason for not being able to arrive at a standard definition of the quality concept is the fact that various definitions are valid for various sectors such as services and manufacturing, for various groups such as producer/vendor, or for various situations such as production / consumption (Pirnar, 2007: 38-39).

Another reason is the fact that quality is directly related to users' needs and expectations which are also variable (Tutuncu & Dogan, 2003, cited in Tutuncu, 2009: 63). Quality management, which is a completely new management approach for organizations and businesses in our country (Top, 2009:7), has found its place in management decisions and legislations of various civilizations throughout the history. In their studies conducted independently of one another Simsek (2001:15) and Bozkurt (1998:18) indicate that there is a statement like "If a builder builds a house for a man and does not make its construction firm, and the house which he has built collapses and causes the death of the owner of the house, that builder shall be put to death" in the article 229 of the laws of Hammurabi dated 2150 B.C.

Similarly, it is highlighted that during the period of the Phoenicians, if the quality of the product is below the identified standards or is in disagreement with the identified standards, the hand of the master who produced the product would be cut off when this was found out (Gitlow et al. 1989: 8-9 cited in Top, 2009: 8).

Deming, who is an important researcher in the field of quality approaches that came to the forefront especially in Japan after the Second World War, uses the following example when defining quality: "What is quality? What does a person mean by quality of a pair of shoes? Let us assume that someone's shoes are in question. Does good quality mean that it can be worn for a long period of time? Alternatively, that it is dyed well? That it is found to be comfortable? That it is waterproof? That price is appropriate for whatever is perceived as quality? What is the main defect of a shoe? Emergence of a nail in the footbed? A heel that is broken at once? Spots? What kind of qualifications create dissatisfaction in the mind of the customer?" Deming asked these questions and in a sense showed that quality can have many different definitions (Yilmaz, 2008: 186).

4.1. The Concept of Service Quality

When the quality concept is considered from the viewpoint of manufacturing businesses and service businesses, it is observed that it is very difficult to derive a standard quality concept in service businesses due to the intangibility and concurrency characteristics of the service (Kucukaltan, 2007: 59). Service quality can be described briefly as a phenomenon considered within the context of customers' expectations and perceptions about the service offered (Yilmaz, 2011: 184). Therefore, the same service can be perceived as high quality by a customer and as low quality by another customer. In other words, service quality depends on the customer's perception (Kucukaltan, 2007: 60). Therefore, instead of the quality of service, "perceived quality of service" term is widely used in the literature. Perceived service quality is a result of the comparison of customer's expectations prior to receiving the service and his/her actual service experience. It is assessed by the direction and magnitude of the difference between customers' expectations and perceived performance (Zeithaml & Bitner, 2000: 27).

Customers' expectations and perceptions of service will determine the quality of service. If the provided service does not meet or exceed the expectations of the customer, then the service quality will be perceived to be low; if it does exceed the expectations, then the service quality will be perceived to be high (Akbaba & Kilinc, 2001: 163-164). Based on this approach, service quality can be defined as the difference between the customer's expectations about the service performance prior to the service provision and the customer's perceptions of the service provided (Asubontenget al., 1996: 64).

Parasuraman, Zeithaml & Berry (1985: 42) described service quality as the comparison of expected service and perceived service performance and they developed the SERVQUAL measurement technique to measure the service quality as such. While service quality is defined by Edvardsson (1998: 142) as the degree of being able to meet the customers' expectations and to determine their needs and wants, Kandampully (1998: 433) gave a similar definition of satisfying the customer's expectations with the service provided. On the other hand, Teas (1993: 27) defined service quality as the comparison of performance with ideal standards.

As can be seen from this review, service quality definitions are often focused on the customer. However, what customer says should not be considered sufficient at all times. Particularly, unspoken customer needs and expectations should be revealed and identified (Atilgan, 2001; 27).

Measurement of service quality constitutes the first phase of service quality improvement and development process. If a business is able to obtain access to accurate information about the current quality level, then they can take the necessary steps about what needs to be done more effectively (Usta & Memis, 2009: 90). A business that desires to improve the quality of their services should initially determine its position and then should set out what needs to be done in order to improve the quality of service (Akbaba & Kilinc, 2001:164).

It is a common belief that it is very difficult to measure the service quality because of the differences in the meanings attributed to quality by each individual customer (Ruetzler, 2005: 24).

Since services are consumed by customers at the time they are produced, a customer is not only interested in the quality of the output that is produced as a result of production as is the case in product quality, but also is interested in the quality of other elements of service with which he/she is in interaction during the entire production process. This feature of the service has introduced the concept of service quality dimensions (Sevimli, 2006: 14).

Researchers have suggested various dimensions in order to determine the quality of the service provided and have tried various approaches. Parasuraman et al.(1988) built the service quality gap model in their study and identified 10 general dimensions of service in order to determine the difference between customer expectations and perceptions. This and other ongoing work of Parasuraman et al. have been used by many service quality researchers and they have become prominent in the measurement of service quality.

Parasuraman et al. progressively applied the 10 dimensions comprised of physical/tangible features, reliability, responsiveness, competence, courtesy, credibility, security/safety, convenience, communication, and understanding the consumer on four different service sectors (banking, telephone companies, credit cards, and product repair and maintenance services) in their 1988 study and consequently developed the SERVQUAL scale which consists of 22 propositions in five dimensions. These dimensions are (Parasuraman et al. 1988)

- **Tangible/Physical Features:** Appearance of buildings, tools and equipment, and personnel during the service provision of the business,
- **Reliability:** The ability to provide the promised service in an accurate and reliable manner,
- **Responsiveness:** Willingness to help the customer and to provide prompt service,
- **Assurance:** The employees are courteous, knowledgeable and able to create a sense of confidence in the customers,
- **Empathy:** The business puts itself in the customers' shoes, pays individual attention to customers, and shows personal interest in customers.

The dimensions included in the SERVQUAL scale and dimensions proposed by some other researchers are given in Table 1.

Table 1. Different Views on the Dimensions of Service Quality

Authors	Dimensions
Christian Grönroos	Technical Quality, Functional Quality, Quality of the Firm
Lehtinen	Physical Quality, Interactive Quality, Company Image
Parasuraman, Zeithaml, & Berry	Tangible/Physical characteristics, Reliability, Responsiveness, Assurance, Empathy,
Sasser, Olsen, Wycaff	Material Level, Facilities, Staff

Source: Ozturk, S.A. (1996). Hizmet İşletmelerinde Kalite Boyutları ve Kalitenin Artırılması (Quality Dimensions and Quality Improvement in Service Businesses), *Verimlilik Dergisi (Productivity Journal)*, No. 2.

Although it is observed that SERVQUAL scale is widely used for measurement of service quality in the related literature, it is possible to come across other models of service quality measurement. It could be suggested that criticisms on the SERVQUAL scale have been effective in development of other service quality measurement models. These criticisms are grouped under two main headings. One of them is that the scale cannot be applied to all service industries and all situations, its variables (dimensions) are not the same for all service industries but in fact they differ from one industry to another. The other criticism is that the five dimensions included in the scale are not sufficient, the dimensions are not independent of each other, and there are inconclusive results of the tests proving the validity and accuracy of the scale at the point of statistical significance and acceptability (Akbaba&Kilinc, 2001: 166).

Despite all the criticism it has received, the SERVQUAL scale is remarkable as it is the most common method used to measure service quality (Yilmaz, 2007: 89).

For the measurement of service quality in catering businesses, having been inspired by the SERVQUAL, Stevens, Knutson & Patton (1996) developed the DINESERV¹ (Dining Service Quality) scale which comprised 29 propositions in five dimensions of SERVQUAL. It is found in the literature that this scale is frequently used for measurement of service quality in catering businesses (Kilic & Eleren 2009: 103-104).

4.2. The Relationship between Service Quality and Customer Satisfaction

The main objective of businesses is to reach the profitability levels targeted for certain periods. In order to achieve this goal, businesses are required to keep the customer portfolio that adds value to them as wide as possible and maintain this portfolio. This fact necessitates that businesses keep the satisfaction levels of their customers who are buying their products and services high.

Businesses' ability to understand the needs and expectations of not only their current customers but also their potential customers and to act in accordance with this is of utmost importance for the realization of high levels of customer satisfaction. Therefore, acting with a customer-focused approach presents itself as a must-have requirement for improving the satisfaction of customers. Being able to act with a customer-focused approach is closely related to the customers' expectations and preferences as well as the level of quality of the services provided by the business to its customers (Kocbek, 2005: 61).

In particular, for the businesses to be able to win customers with potential to add value to them at a higher level in an increasingly growing competitive market structure, they need to provide products and services that can satisfy the needs of the customers; this is of vital importance in sustaining their presence in the market. The underlying cause of this can be related to the high level of expectations of customers at all times and under all circumstances concerning the products and services that they have been offered. If the perception of the level of quality of products and services offered to the customer is lower than expected, it can bring about dissatisfaction that is proportionate to the difference between expectation and perception. In another aspect, if the customers' perceived service quality is high, then it can lead to high levels of satisfaction. Therefore, while businesses engage in certain measurements to determine the satisfaction levels of their customers, they should also determine the differences between customers' expectations and their perceptions about the realized results at the same time. In this way, it would be possible to determine which service quality elements lead to satisfaction or dissatisfaction and guide the customer relations policies accordingly (Ozturk & Seyhan, 2005).

The relationship between perception of quality and customer satisfaction is of great importance especially for the service sector. It could be suggested that this is because customers are not only interested in the tangible aspects of the products offered to them in the service sector but also the intangible aspects of these products in the provision process. To give an example from the catering businesses assessed within the scope of the service sector that constitutes the research field of this study, customers purchasing the food and beverage offered by these businesses are likely to consider certain other factors that determine quality in addition to the quality of food and beverage; other factors such as the atmosphere of the business, hygiene of the space and the food and beverage, attitudes and behaviors of service personnel, and perception of the value of the price paid for the products and services offered. Moreover, owing to the concurrency factor, which is a characteristic of the service provision, it becomes even more difficult for service businesses to compensate for the lack of quality that may occur in relation to products and services offered to the customers and the resulting dissatisfaction. Therefore, it could be suggested that in order for the catering businesses to increase the level of customer satisfaction and consequently assure their competitiveness in the market, they should place more importance on, and pay greater attention to improving the service quality.

4.2.1. Food - Beverage Services in Universities

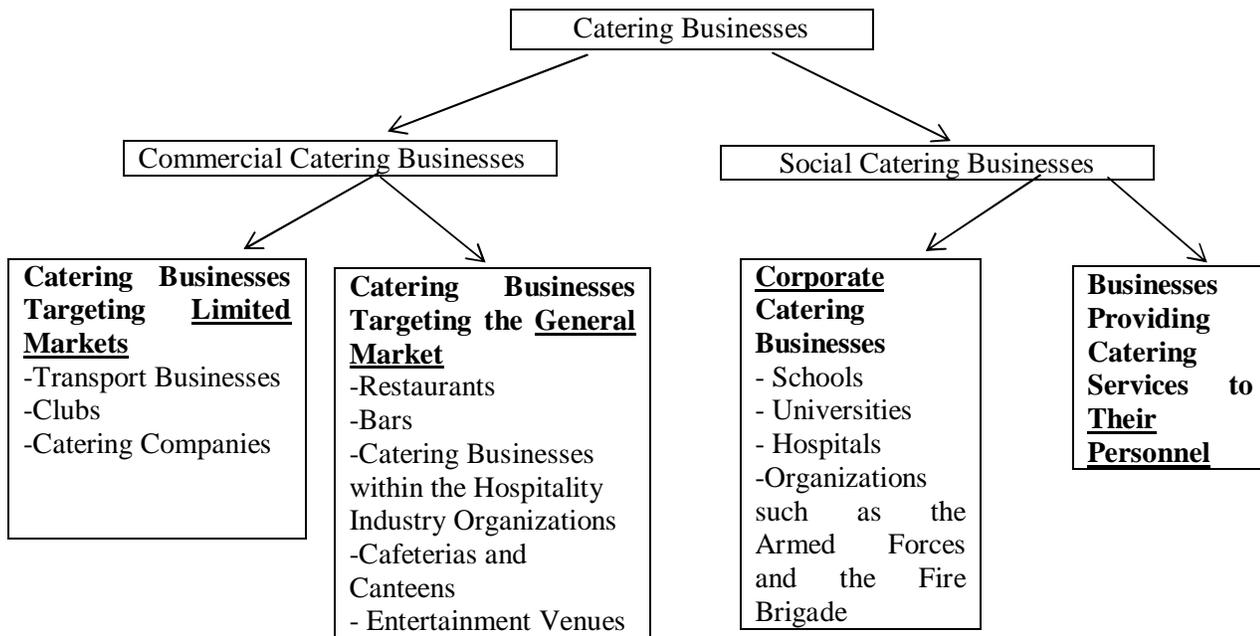
As is indicated by Rizaoglu & Hancer (2005) in Figure 1, catering businesses operating on university campuses are among the corporate food-beverage businesses. Although there are commercial businesses operating on university campuses that are classified as commercial catering businesses; the subject of the study comprises the refectory service which provides catering service to students with a social understanding rather than with an aim of achieving commercial gain. For this reason, the classification derived by Rizaoglu and Hancer is in line with the subject of this study.

¹ This is a measurement model developed by Stevens, Knutson and Patton (1996) using the propositions of SERVQUAL scale in order to measure the service quality in catering businesses.

Catering services on university campuses are similar to the practice of industrial businesses (Baser, 1995: 14). As is the case in industrial businesses, catering services in universities can be provided by commercial catering companies in accordance with the agreements made between the university and the company. It is also possible for the universities to establish their catering organization and offer such services (Aktas, 1995: 11). In both cases, executive committees established under the University for the Provision of catering services make arrangements related to the catering services that are to be offered to students as well as administrative and academic staff at universities.

Catering services offered to students at universities for satisfying their needs can be listed as canteens located within schools, colleges, vocational schools and dormitories; cafeterias and restaurants run by commercial businesses; and refectories organized by the Health, Culture, and Sports Departments of universities. Health, Culture, and Sports Affairs Department was established within the universities in accordance with the Law on Higher Education No. 2547. This department, as is stated in the related regulation, is responsible for providing the services required for meeting the basic needs of students such as accommodation, food and drink, and scholarships and loans. It cooperates with organizations providing these services in order for the better provision of the service; and it strives for the dormitories, canteens, and cafeterias to provide services in the best possible way (www.yok.gov.tr, Accessed on 25.04.2013).

Figure 1. Classification Catering Businesses by Type



Source: Rizaoglu, B. & Murat Hancer (2005), **Menü ve Yönetim (Menu and Management)**, Detay Yayıncılık: Ankara

In the study of Almanza et al. (1994) participants receiving services in university cafeterias were asked questions about service quality and they answered these questions in terms of the level of importance. Participants in the research rated quality of the food, location, cleanliness and price elements important whereas they regarded existence of home delivery service, decor, environment for socialization, and atmosphere unimportant (Ruetzler, 2005:41). This finding obtained in the study in question can be interpreted as students in the university give priority to satisfying their eating and drinking needs while purchasing food and drink products. That is because university students stay on campus mainly for educational purposes. On the other hand, people dining in catering businesses such as restaurants, cafés, and bars satisfy their eating and drinking needs as well as socialization needs and they even engage in recreational activities. Thus, their expectations from service provision can be multifaceted and versatile. In another study by Brown et al. (1997) on this subject, it was determined that university students place more importance on the taste of the food, the cleanliness of the cafeteria, and the temperature of the food. The factors deemed the least significant by the students were found to be the appearance of the dining hall and the level of noise.

Based on this result, it could be suggested that university students attach the highest importance to the quality of the food. In a study conducted by Celik (2012) to determine the perception and satisfaction of students and administrative personnel about the quality of the service provided by the refectory department, it was found that the customers were generally satisfied with service elements other than the organoleptic (sensory) characteristics of the foods offered.

5. Methodology

5.1. The Purpose and Importance of the Study

The main aim of this research is to determine university students' perceptions of quality dimensions for catering services and to find out whether these perceptions have an impact on their satisfaction from the service. Students' general satisfaction perceptions about their university are formed as a result of the interaction between many factors. Although the quality of education is at the forefront of these factors, it is possible to assert that some other factors could also be effective on the students' satisfaction. Among these factors in question, the potential of the quality of catering services to affect student satisfaction should not be ignored. At universities offering services to their students in many different areas, the perception of quality about certain areas could be considered to affect the perception developed about other areas of service provision. Considering this matter in terms of the image of universities, it could be asserted that the ability to provide services at high quality has importance for both its likely positive impact on existing students' satisfaction and its possibility to increase the student potential. In this context, it could be suggested that perception of catering services as high quality is likely to have a positive impact on the university's image and consequently on the students.

5.2. The Sample of the Study and Data Collection

The research is intended for the measurement of the quality of lunch service offered to students in university refectories. The research site is designated as Erzurum Ataturk University student refectory. The refectory, where the data of the research were collected, provides lunch service to students five days a week on weekdays along the academic year. According to the information received from the refectory manager, the area where service is provided is 3000 m² and has a capacity to dine 2,000 people (student and staff) at a time. Furthermore, it was indicated that approximately 4,000 people (students and staff) per day dined in the refectory while the lunch service was provided in circulation in the 2012-2013 academic year. Survey technique has been used in the research as a means of data collection. Although the lunch service is offered to the university personnel in the same refectory, only the students of the university were selected to be included in the sample of the research. That is because the refectory service in the university is organized mainly for university students. The total number of students enrolled in faculties and colleges within the central campus of Ataturk University in the 2011-2012 academic year is 37,358 (www.osym.gov.tr, accessed on: 12.06. 2013). There are two more refectories in addition to the main refectory on campus that is located in a very large area. Due to the large size of the campus area, severe winter conditions, and the difficulty of transportation on campus during winter, majority of the sample is comprised of students of faculties that are located in close proximity to the main refectory.

Research data were collected using the simple random sampling method. Assuming a 95% confidence interval and $e = 4\%$ margin of error, the sample size is calculated as $n=600$ (Kurtuluş, 2004: 187). Taking into account the possibility of incorrect and / or incomplete surveys, 1,000 surveys were distributed. Among the surveys collected, 689 were deemed valid and included in the analyses. Assistance of 12 students enrolled in the School of Tourism Management and Hospitality was received during the data collection phase. Prior to data collection, these students were given information about the research topic and the content of the survey form.

The scale developed and validated by Ruetzler (2005) was adapted and used in the research. Keeping faithful to the meanings of questions in Ruetzler's scale, some items were arranged so as to appeal to the students comprising the sample of the research. Four questions on overall satisfaction were added to this scale, which is comprised of 37 questions and used for measuring service quality in university refectories. A 5-point Likert scale was used to assess the statements in the scale where 1 corresponded to "strongly disagree" and 5 corresponded to "strongly agree". In addition to these questions in the scale, 11 supplementary questions aimed at determining demographic and individual characteristics of the sample were included in the survey. These questions are gender, age, residence before enrolling in the university, the amount of expenditure, the level of education, faculty/school, class, type of study, year of study, the number of times dining in the refectory, and the form of benefiting from the refectory.

5.3. Analyses of the Research and Interpretation of the Findings

5.3.1. Demographic Findings

In order to reveal the demographic structure of the sample, initially a frequency table was created using the data obtained from the survey. Accordingly, percentile values of the demographic structure of the sample are given in Table 2.

Table 2. Demographic Characteristics of the Sample

Gender	N	%
Male	400	58.1
Female	289	41.9
Age		
16-18	21	3
19-21	358	52
22-24	252	36.6
25-27	47	6.8
28+	11	1.6
Residence Before Enrolling in the University		
Erzurum	164	23.8
Outside Erzurum	525	76.2
Monthly Average Expenditure		
Less than 250	107	15.5
251-500	400	58
501-750	136	19.7
751-1000	32	4.6
1001-1250	7	1
1251+	7	1
Type of Education		
Foundation Degree	58	8.4
Undergraduate	592	85.9
Postgraduate	29	4.2
PhD	10	1.5
Level of Education		
Freshman	211	30.6
Sophomore	159	23.1
Junior	145	21
Senior	102	14.8
Postgraduate Course Phase		
Postgraduate Dissertation Phase	22	3.2
PhD Course Phase	6	0.9
PhD Dissertation Phase	7	1
Program of Education		
Formal Education	591	85.8
Evening Education	98	14.2
Years in the University		
Less than 1 year	219	31.8
1-2 years	166	24.1
3-4 years	257	37.3
5-6 years	40	5.8
7 years or above	7	1
Form of Benefiting from the Refectory		
Daily	17	2.4
Weekly	595	86.4
Monthly	77	15.2
Monthly Average Number of Days Using the Refectory Services		
1-5	51	7.4
6-10	46	6.7
11-15	138	20
16-20	351	50.9
21 or above	103	14.9
Total	689	100

As can be seen in Table 2, the number of male students is higher than that of female students. In terms of age, a high proportion of the sample is below 24. The majority of the students involved in the research have come from outside Erzurum for their education and most frequently, the monthly average expenditure amounts to 500 TL and below 500 TL. It is among other demographic findings that the majority of students is at the undergraduate level and enrolled in formal education. When the form of benefiting from the refectory services is analyzed, it is observed that a very high percentage of students buy weekly cards to use the refectory services.

5.3.2. Factor Analysis and Reliability Analysis

In this part of the study, statistical values obtained after the factor analysis conducted on both the satisfaction statements which were identified based on the studies in the literature and the scale which was developed by Ruetzler (2005) to determine the perception of quality in the university refectory services are presented. The reason for conducting factor analysis on the scale is that the sample is from a different culture. In addition, based on the idea that the sample of this research has a different culture, some statements in the scale have been changed. Moreover, reliability analysis was conducted to test the internal consistency of the statements in both the refectory service quality and satisfaction dimension.² The results are shown in Table 3.

Table 3. Factor Analysis Results

Refectory Service Quality Factors and Variables	Factor Loading	Eigen value	Variance Explained (%)	Cronbach's Alpha	Mean
Factor 1 - Service		3.306	23	0.79	3.14
Meals are served at the appropriate temperature.	.507				
Meals offered appeal to my palate.	.524				
I am satisfied with the variety of drinks offered.	.697				
I am satisfied with the variety of meals offered.	.629				
Drinks are served at the appropriate temperature.	.558				
I am satisfied with the quality of drinks offered.	.623				
Meals that would make me feel home are offered here.	.621				
Refectory staff are able to answer my questions.	.575				
The university's food service unit takes into account the views of the students.	.566				
Factor 2 - Hygiene		2.468	17	0.81	3.83
The dining area is clean.	.851				
Staff who serve my food are clean.	.849				
Food receiving points are clean.	.726				
Factor -3Atmosphere		1.582	11	0.71	3.00
Dining room is inconveniently crowded.	.878				
Dining room is inconveniently noisy.	.875				
Factor-1 Satisfaction Factor and its Variables		2.947	73	0.88	3.60
In general, I am satisfied with the services offered at this refectory.	.853				
I will choose to dine in this refectory until I graduate.	.867				
I will suggest this refectory to my student friends.	.887				
The services provided by this refectory meet my expectations.	.825				

As can be seen in Table 3, as a result of the exploratory factor analysis with varimax rotation, service quality scale is explained in three dimensions consisting of 14 variables and satisfaction scale is explained in a single dimension consisting of four variables.

² Alpha values obtained after the reliability analysis include the dimensions that are comprised of the remaining statements following the factor analysis which was applied on the service quality scale.

During the factor analysis, those statements with a factor loading that is less than 0.40, that are loading on more than one dimension, and that are reducing the reliability of the scale were excluded from the analysis. As a result of this exclusion, 23 of the 37 statements included in the refectory service quality scale were left out of the analysis. The service quality scale explains 52% of the total variance in general. The total variance explanation rates of the sub-dimensions of the scale are 23%, 17%, and 11%, respectively. The total variance explanation rate of the satisfaction scale with one dimension is found to be 73%. As a result of the reliability analysis of the scales, Alpha values of 14 variables which remained after the factor analysis was conducted on the refectory service quality scale were found to be 0.77. When the Alpha values in Table 3 are examined, it could be suggested that both the values of sub-dimensions of refectory service quality and the values of satisfaction scale are above the acceptable level for social science studies (Kalayci, 2008: 403). In another aspect, when the average values in Table 3 are analyzed, it is observed that participants' perceptions of both refectory service quality sub-dimensions and the satisfaction scale are above average.

5.3.3. Results of the Analysis of Differences

In this part of the study, independent samples t-test and one-way ANOVA test were applied to determine whether there was a significant difference in the students' perceptions of refectory service quality sub-dimensions and of satisfaction depending on the differences in the demographic characteristics of the sample. As a result of the analyses, only the results of those demographic groups which are significantly different from each other are presented in Table 4 below. Within the scope of the analysis of differences, initially, the independent samples t-test analysis was performed in order to determine the differences in male and female participants' perception of factors. The results obtained are presented in Table 4.

Table 4. T-Test by Gender

		Levene Test for Equality of Variances		t-test for Equality of Means				Factor Means			
		F	Sig.	t	Degrees of Freedom	Sig. (2-tailed)	Mean Difference	Gender	N	Mean	Std. Dev.
Service	Equal Variances Assumed	1.211	.272	-5.385	687	.000	-.35141	Male	400	2.99	.04367
	Equal Variances not Assumed			-5.456	648.008	.000		Female	289	3.34	.04734
Hygien	Equal Variances Assumed	.133	.716	-2.784	687	.006	-.47954	Male	400	3.74	.05178
	Equal Variances not Assumed			-2.780	617.053	.006		Female	289	3.96	.06152
Atmosph	Equal Variances Assumed	.210	.647	-.162	687	.871	-.01509	Male	400	2.99	.06030
	Equal Variances not Assumed			-.162	619.516	.872		Female	289	3.01	.07116
Satisfac	Equal Variances Assumed	1.203	.273	-4.283	687	.000	.35293	Male	400	3.52	1.0874
	Equal Variances not Assumed			-4.315	639.555	.000		Female	289	3.87	1.0387

According to the results of the t-test performed in order to determine whether there existed significant differences between participants with respect to the gender groups in terms of the participants' perceptions of refectory service quality sub-dimensions and satisfaction, it was found that there existed significant differences in service, hygiene, and satisfaction dimensions. When the column including mean values in Table 4 is examined, it is observed that the perceptions of females are higher than that of males for all three dimensions in question. It is possible to interpret this result as female students' perceptions of service quality are higher than the perceptions of male students. In another aspect, it is possible to mention the effect of the fact that women's expectations of quality of service are lower than men's expectations on this result. Similar results were reached in the research by Kwun (2011) which aimed at determining the perception of service quality of the university's catering services. In that study, it was found that women's perceptions of the quality of the food offered and satisfaction were statistically significantly higher than those of men.

However, in the same study, no significant difference was found among the gender groups in the dimensions of perceived value, menu, service quality, and facilities offered. It was also determined in the study of Joung et al. (2011) that female students had higher quality perceptions in terms of the presentation of food when compared to male students.

The one-way ANOVA test was performed to determine whether there existed a significant difference in terms of the perceptions of food service quality dimensions and satisfaction among the groups formed according to the amount of overall monthly expenditure of students purchasing the refectory service. Statistical values obtained as a result of the analysis are presented in Table 5.

Table 5. ANOVA Results According to the Amount of Monthly Average Expenditure

Service	Amount of Expenditure (TL)	Amount	N	Mean	F	Sig.
		Less than 250	107	3.26	2.306	.043
251-500	400	3.15				
501-750	136	3.10				
751-1000	32	2.69				
1000-1250	7	3.20				
1251 or above	7	3.17				
Hygiene	Amount of Expenditure (TL)	Less than 250	107	3.85	2.504	.029
		251-500	400	3.90		
501-750	136	3.76				
751-1000	32	3.27				
1000-1250	7	3.66				
1251 or above	7	3.61				
Atmosphere	Amount of Expenditure (TL)	Less than 250	107	2.96	.782	.563
		251-500	400	3.01		
501-750	136	3.11				
751-1000	32	2.71				
1000-1250	7	2.92				
1251 or above	7	2.57				
Satisfaction	Amount of Expenditure (TL)	Less than 250	107	3.89	3.098	.009
		251-500	400	3.69		
501-750	136	3.56				
751-1000	32	3.17				
1000-1250	7	3.39				
1251 or above	7	3.10				

When the values in Table 5 are examined, it is observed that there are significant differences in all dimensions apart from the atmosphere dimension in terms of the amount of monthly average expenditure of students participated in the research.

As a result of the post-hoc test performed in order to determine which of the groups had led to the difference, it was found that the group with the expenditure amount of 751-1,000 TL had statistically significantly lower perceptions of service and hygiene quality and satisfaction dimensions in comparison to the remaining three groups with lower amounts of expenditure. It could be suggested that this result originated from the fact that the group with higher average expenditure level had higher expectations of service quality than other expenditure groups.

Significant differences in refectory service quality dimensions and satisfaction perceptions of students purchasing refectory services who participated in the research, with respect to their faculty are presented in Table 6.

Table 6. ANOVA Results by Faculty

Service	Faculty	Amount	N	Mean	F	Sig.
		Sciences	97	3.29		
		FEAS	40	2.86		
		Education	88	3.29		
		Engineering	68	2.82		
		Health Sciences	40	3.26		
		Medicine	33	3.01		
		Vocational School	52	3.03		
		Letters	132	3.14		
		Other	139	3.21		
Hygiene	Faculty	Amount	N	Mean	F	Sig.
		Sciences	97	3.93		
		FEAS	40	4.00		
		Education	88	3.92		
		Engineering	68	3.77		
		Health Sciences	40	3.81		
		Medicine	33	3.43		
		Vocational School	52	3.82		
		Letters	132	3.80		
		Other	139	3.84		
Atmosphere	Faculty	Amount	N	Mean	F	Sig.
		Sciences	97	2.91		
		FEAS	40	2.78		
		Education	88	3.03		
		Engineering	68	3.05		
		Health Sciences	40	3.20		
		Medicine	33	3.00		
		Vocational School	52	3.17		
		Letters	132	2.98		
		Other	139	2.99		
Satisfaction	Faculty	Amount	N	Mean	F	Sig.
		Sciences	97	3.82		
		FEAS	40	3.65		
		Education	88	3.78		
		Engineering	68	3.29		
		Health Sciences	40	3.74		
		Medicine	33	3.21		
		Vocational School	52	3.63		
		Letters	132	3.83		
		Other	139	3.62		

When the values in Table 6 are examined, it is observed that there are significant differences in service and satisfaction dimensions among the faculty groups of university students who participated in the research. As a result of the Post-Hoc test performed in order to determine which faculty groups differed from others, it was found that service and satisfaction perceptions of students of engineering faculty were significantly lower than the perceptions of students of faculty of sciences and faculty of letters. This result can be explained by the rather technical approach of students of faculty of engineering to events/phenomena; this technical approach to phenomena is in fact a characteristic of the engineering profession. In other words, it could be stated that students of faculty of engineering have low levels of tolerance to certain disruptions or shortages that occur in the presentation of the service owing to their technical viewpoints and this fact is effective in the difference found in the perceptions of students of faculty of engineering and students of other faculties.

5.3.4. Results of Regression Analysis

In this part of the study, regression analysis was conducted in order to reveal the impact of service, hygiene, and atmosphere dimensions that constitute the service quality in the refectory on satisfaction. The values obtained from the analysis are presented in Table 7.

Table 7. Regression Analysis Results for the Impact of Refectory Service Quality on Satisfaction

Model	R ²	F	Std. Beta	t	Sig.
Service	.441	181.835	.371	11.112	.000*
Hygiene			.395	11.821	.000*
Atmosphere			.020	.697	.486

*Note: Independent Variables: Service, Hygiene and Atmosphere; Dependent Variable: Satisfaction; *p<.001*

When the values in Table 7 are examined, it is observed that the effect of refectory service quality perception is at 44% level as is indicated by the R² value as well. In other words, perception of refectory service quality explains 44% of the students' satisfaction from the service. In another aspect, the standardized beta values were considered in order to determine the degree of influence of each refectory service quality sub-dimension on satisfaction. Accordingly, service and hygiene sub-dimensions have a significant and positive effect on satisfaction. Moreover, as demonstrated by the beta values, the effect of hygiene sub-dimension on satisfaction is higher than that of service sub-dimension. It was concluded that the effect of atmosphere sub-dimension was not statistically significant. It could be regarded an expected outcome that service quality significantly affects satisfaction. The stronger effect of hygiene dimension on satisfaction can be explained by the fact that the sample of the study comprised students in higher education. That is because; it can be asserted that students in higher education attach great importance to the hygiene of the food they consume and the environment where the service is offered.

When the statements included in the scale within the scope of the service dimension, which is the other dimension with significant impact on satisfaction, are examined, it is observed that there are statements about the quality of food in this dimension in addition to the presentation of service. Considering the fact that meeting their nutrition requirements is among the main purposes of university students who use refectory services available on campus (Kilic&Bekar, 2012: 39), it could be concluded that the significant effect of service dimension on satisfaction is an expected outcome. The fact that main objectives of university students in using the refectory on campus are consuming healthy and high quality food might have had an effect on the result that atmosphere dimension did not have a significant effect on satisfaction. In other words, it could be concluded that the students do not consider the atmosphere of the refectory a prominent factor for high quality service provision. However, it could be stated that a significant result is obtained in the context of the atmosphere dimension. It was observed in the responses given to the open ended question "*If you have further comments, you may specify here*" in the survey for students to indicate their views and suggestions that the students particularly complained about the discomfort induced by the music played in the refectory.

When the studies investigating the relationship between service quality and satisfaction are reviewed, it is possible to observe that various dimensions of quality have changing degrees of effect on satisfaction. In the studies of Kilic&Bekar (2012), Kim (2009), Andaleeb & Kaskey (2007), Shanka& Taylor (2005), and Kim et al. (2004) about the subject, service quality was determined to be a factor that had a significant effect on satisfaction. In the study of Dollah et al. (2012) as well, it was determined that university students found the quality of food insufficient and this situation was effective in the low levels of satisfaction from services.

In the study of Estapa et al. (2005), service quality was addressed in the context of the appearance and presentation of personnel, and the cleanliness of the service area and it was detected that these dimensions were significantly effective on the food quality and satisfaction. In Kim's (2009) research, it was found that in addition to the quality of the food, the quality perception of service delivery was an important factor for satisfaction. In the research of Othman et al. (2013), it was concluded that the perception of the quality of ingredients used in foods was the factor with the highest impact on satisfaction. It was determined in Donkoh et al.'s (2012) study that hygiene of the areas where food was served and the efficiency of service had significant and high impact on satisfaction. It was concluded in Nazdirah et al.'s (2013) study that the highest level of expectation of students from the university refectory units was about the hygiene of the environment where food service was delivered.

Furthermore, it is observed that, contrary to one of the findings of this research, there are several research studies where atmosphere was found to be effective on satisfaction (Kilic & Bekar, 2012; Andaleeb & Kaskey, 2007; Donkoh et al., 2012). Therefore, it could be asserted that university refectories located on campus are important for the students in terms of socialization and thus they should not be ignored.

5.3.5. Conclusions and Suggestions

This study investigated the students' perceptions of service quality and their impact on satisfaction on the basis of the service offered by a company which is the provider of refectory services in Ataturk University that is located in the province of Erzurum. It was found that although the students' perceptions of hygiene factor among the components of the service offered in the refectory were not very high; still they were higher than other service components; namely, service and atmosphere. Therefore, it is possible to suggest that it is important for the contractor company undertaking the refectory services to take into account this finding while continuing its service provision in terms of maintaining its quality perception at high levels for prolonged periods. In another aspect, it could be stated that the university administration should pay attention to service provision under hygienic conditions while managing the current contractor company and determining the future contractor company which will be providing refectory services in the following periods.

The results of the regression analysis indicate that the most important factor affecting the satisfaction levels of the students is hygiene perception and that is why, particular attention and importance should be placed on this point. Moreover, it is possible to assert that keeping the university youth's right to dine in healthy conditions at the forefront is another point which should be addressed within the scope of the necessity to act with an understanding of social responsibility that should be undertaken by businesses. As a result of the regression analysis, atmosphere was found to not have a significant effect on satisfaction; this may have originated from the fact that students prefer to meet their basic food and drink needs under hygienic conditions over enjoying their time in a comfortable environment in the refectory.

Finally, it is deemed appropriate to put forward some suggestions considering several points in line with the results of this research. Quoting from the study of Celik (2012: 36) conducted on the subject: "As is well known, catering services are procured through public tenders which are held annually. In this context, continuous entry of new firms into the sector or frequent changes in contractor companies result in disruptions in food service and service quality assurance; consequently, this necessitates frequent repetition of such studies". Therefore, the university's undertaking this type of research studies periodically throughout the year with regards to the services of the contractor company by including both students and administrative personnel for auditing purposes is likely to provide positive contribution to service delivery at a higher quality.

Moreover, formation of a general perception that the university's refectory services are of high quality would increase the preference for the university. In addition, this study was carried out only using the data obtained from the university's central refectory unit. It could be mentioned that studies to be conducted in various areas of the university would make it possible to increase the generalizability of the results obtained. In the table presenting demographic characteristics of the sample, faculties with high concentrations are those that are in close proximity to the central refectory building. However, the fact that some faculties are far from this area may lead to the result that students of these faculties prefer units providing catering services that are close to their faculties over the central refectory. Therefore, the fact that students from other faculties are not represented with a higher number in the sample could be considered a major limitation of this research.

The fact that 22 of the statements among the 36 statements included in the service quality scale, which was used after adapting it according to the characteristics of the sample, were removed could be put forward as an indicator of the problems with the scale.

However, the original scale was tested with students of different nationalities and thus, from different cultures while this research included students coming from different regions of Turkey in its sample. It should not be ignored that the scale was applied on a sample with similar cultural codes and this might have had an impact on the above-mentioned result. It could be interpreted that the reason for this might be the differentiation in perceptions of individuals/groups which have different cultural backgrounds in terms of the elements of service provided. In any case, it is considered that using different scales in similar studies to be conducted on this subject may be beneficial to researchers in this field in terms of making comparative assessments.

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