

EXPLORATORY ANALYSIS OF CUSTOMER SATISFACTION IN CASE OF CLUJ-NAPOCA CITY HALL SOCIAL CANTEEN

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Abstract

This study is an exploratory analysis of customers' satisfaction with regard to the services provided to people on welfare by the social canteen organized by Cluj-Napoca City Hall. In addition to assessing customers' satisfaction, it also aims to highlight the main factors influencing the satisfaction level. The satisfaction model was constructed and tested on the results of a survey conducted among the people benefiting the services from the institution mentioned.

The questionnaire's structure allows for the assessment of satisfaction construct and role, and pays attention to the influence that quality attributes and client expectations have on satisfaction, revealing that these directly and significantly affect the level of customers' satisfaction.

Univariate statistical analysis of data and structural model analysis are used to emphasize the attributes of the quality of service that affect to a high extent customer satisfaction and that can be used at managerial level to increase service quality in order to achieve higher customer satisfaction.

Also from the managerial point of view, the study has a dual significance. It is linked to the concerns for ensuring and improving the quality of services in order to increase the customers' satisfaction, as well as to concerns about the image of the institution.

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Introduction

In some ways, social assistance can be considered for many developing countries the poor branch of public administration. This is because of the particularities of customers who turn to welfare, most of this category being made up of the most disadvantaged or poor citizens, and because of the funding problem or of legislative issues. In many countries, including Romania, it has been more talk than action with regard to social welfare programs, their importance being stated only in official discourses and electoral speeches.

In fact, in Romania, many politicians or Government officials consider welfare as a taboo subject or a topic unimportant and uneventful for public administration. They get irritated or nervous when they are reminded that they have been voted by a part of social assistance beneficiaries (citizens who are forced to rely on social services) based on the electoral promises they have made. In most cases, these promises finally remain just promises.

Among the social services provided in Romania, an important component is the social canteen that delivers free food to people who, for various reasons, cannot provide by themselves their daily subsistence. In general, the beneficiaries of social canteen are the pensioners who have an extremely low pension, families with an extremely low income, single persons without income, disabled people and unemployed workers who do not benefit unemployment allowance anymore and have not found work.

This study aims to assess the satisfaction of welfare beneficiaries with regard to the services provided by the social canteen and to highlight the main factors that influence the satisfaction level. In this sense, using both univariate statistical analysis of data and analysis of structural models, the study intends to show that there are a number of attributes of the service quality that affect to a high extent the satisfaction level of welfare beneficiaries. Any manager of social canteen should consider these attributes in his approach to improve the quality of services and the customer satisfaction.

Last but not least, the study aims to highlight, through the analysis of structural equations models (SEM), the construct of client satisfaction, the role and influence that both quality attributes and expectations have on satisfaction, as well as the aspects (consequences) affected by client satisfaction.

The importance of client satisfaction

The extensive production and supply of products and services is no longer the sole purpose of economic activities, achieving the main objectives of the public and private institutions are connected largely to ensuring customer satisfaction. Thus, the main aim of institutions, whether private or public, is to not only 'sell' or provide products or services to citizens, but also to meet the high degree of requirements and needs of consumers, users or citizens.

The importance of customer satisfaction, generally speaking, lies in the recognition of the method and manner in which organizations, whether private or public, create 'comfort' among both citizens and consumers of products or services, as well as among the suppliers of such services or products.

Private companies are concerned of ‘customer satisfaction’ in order to maintain an advantage over competitors, advantage that will ultimately generate economic success for the company. The concern of public organizations for citizens’ satisfaction derives from the new approach in public administration known as „new public management”.

These changes are based on the concern for measuring performance, improving quality and reviving the public and nonprofit organizations. They are generated by the result of two converging forces: (1) the demand pressure for better accountability of organizations exerted by politicians, the media and the public, (2) the increasing the commitment of public organizations managers to results and performance (Poister, 2003).

Applying the concept of customer satisfaction in public administration can bring more benefits for beneficiaries of public services as well as for their suppliers. Related to this, Wagenheim and Reurink (1991) opinion that public organizations have at least the following major benefits from measuring customer satisfaction, including: (1) Contribution to the improvement of the quality of provided service; (2) Contribution to reducing costs and expenditures; and (3) An increase of the morale.

Derek Allen (2004) opinions that customer satisfaction plays several roles in a public organization (fig.1). In this respect, Derek believes that customer satisfaction can mainly play the role of adjustment loop of ‘feed-back’ type, or of an input into the system. In addition, in his opinion the importance of customer satisfaction derives from the fact that customer satisfaction links customers of an organization to that organization, emphasizing, among others, the preoccupation of the organization with the demands and needs of customers or consumers.

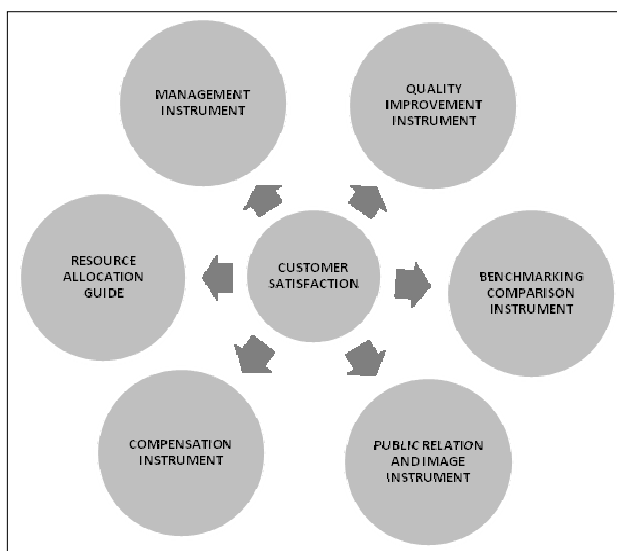


Figure 1. The role and importance of client satisfaction (Source: Derek, 2004)

In addition, in terms of management, measuring satisfaction has certain significance for the managers of public institutions. Some dimensions of customer satisfaction can

give answers to management issues. Measuring customer satisfaction can highlight weaknesses or strengths related to the different functions of management such as evaluation, monitoring, budgeting, motivation of personnel, etc. From this point of view, measuring customer satisfaction and integrating of the results into the activities and processes of the institution can determine a real progress in improving service quality and avoiding future problems. It can also determine an increased flexibility through a continuous adjustment to the requirements and expectations of customers ultimately leading to a better positioning of the institution on the market.

Models and theories of customer satisfaction

Customer satisfaction phenomenon and process is presented in the literature, particularly through the theory of confirmation/disconfirmation of expectations. In fact, this theory and explanatory model of customer satisfaction reveal the complexity of this concept.

In general, the theory of satisfaction confirmation/disconfirmation process is based on the idea that the phenomenon of customer satisfaction is based on a comparison of what you expect from a product or service (customer expectations) and what you receive from that product or service (quality perceived by customer).

Terry G. Vavra (1997) proposes an explanatory model based primarily on the theory of confirmation/disconfirmation of expectations explaining the phenomenon of satisfaction. As a general description, Vavra’s model assumes 3 major factors (components) that contribute to the construct of customer satisfaction, namely (Fig.2):

- (1) the aspect referring to factors that generate and influence the appearance of customer satisfaction (satisfaction antecedents)
- (2) the construct of customer satisfaction
- (3) the aspect related to the consequences that customer satisfaction has

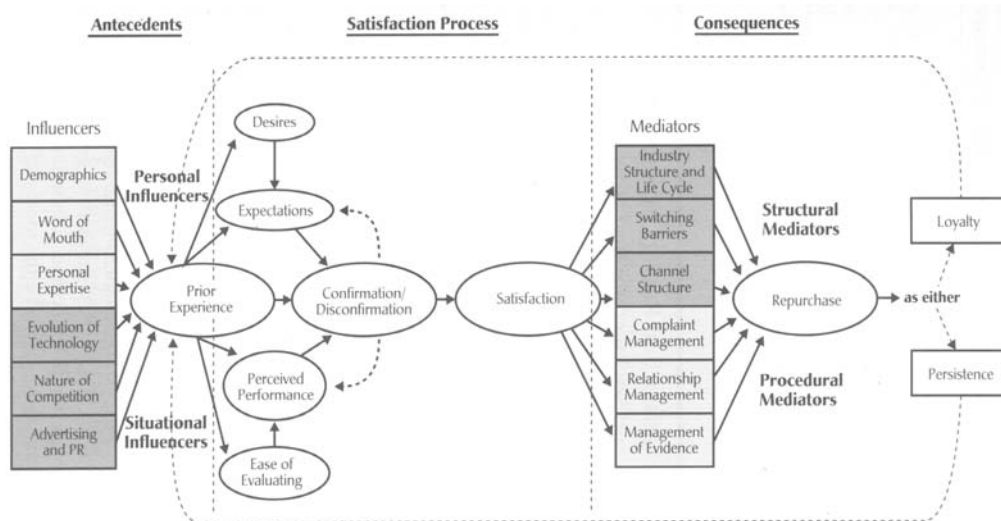


Figure 2. Explanatory model of customer satisfaction (Source: Vavra, 1997, pp. 37)

According to the author of this model, the occurrence and construction of customer satisfaction phenomenon is influenced and determined by certain factors, called ‘antecedents’ of satisfaction. In this sense, the most important antecedent (fig.2) of customer satisfaction is prior experience, which affects the expectations regarding the product or service, as well as the perception of its performance or quality.

In the literature, 5 major explanatory models are presented (Kristensen *et al.*, 1999) related to either the influence that the expectations of both customers and quality perceived by customers have on satisfaction construct. According to these models (fig.3 to 7), customer satisfaction may be influenced in a cumulative manner by customers expectations and perceived quality (Oliver, 1980; Oliver, 1981; Anderson and Sullivan in 1993, Oliver and Sarbo, 1988; Spreng and Olshavsky, 1993; Churchill and Suprenant, 1982). In addition, there are situations in which customer satisfaction is affected solely by either the customer expectations (Yi, 1991) or by the perceived quality (Tse and Wilson, 1988).

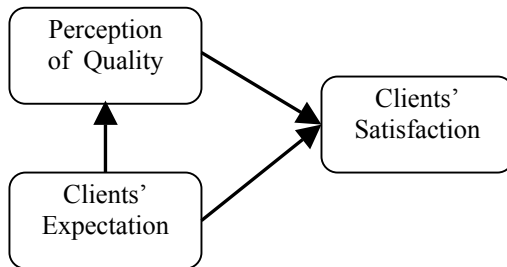


Figure 3. Model 1 explaining client satisfaction construct

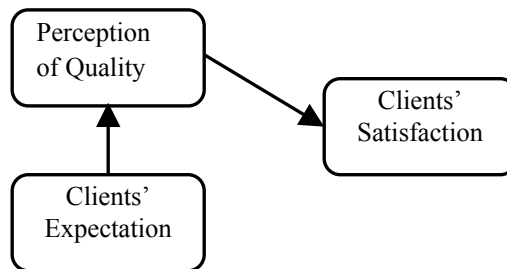


Figure 4. Model 2 explaining client satisfaction construct

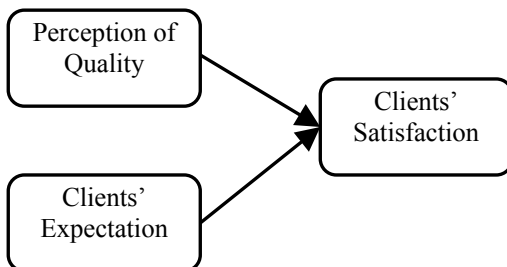


Figure 5. Model 3 explaining client satisfaction construct

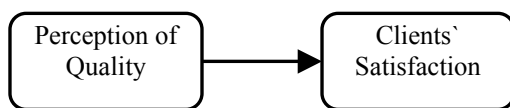


Figure 6. Model 4 explaining client satisfaction construct

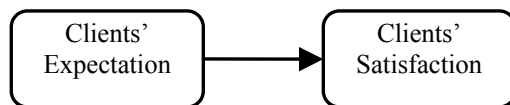


Figure 7. Model 5 explaining client satisfaction construct

In terms of aspects or dimensions influenced by customer satisfaction, most specialists agree that customer satisfaction has an impact on the repetitive buying process (Anderson and Sullivan 1993) as well as on customer loyalty (Hill and Alexander, 2001) in case of private institutions. In case of public institutions, satisfaction has an impact and a direct influence both on matters relating to the amount of complaints received as well as on the institution image (Fornell *et al.*, 1996).

Description of service supplied by social canteen

The main mission of the social canteen is to provide food for the poorest people (on welfare), who due to lack of income or extremely low income can not ensure their daily subsistence. In fact in our country, the main manner in which the state helps the categories of the population below subsistence threshold (on welfare) are those relating to grants awarded for payment of utilities (such as payment of electricity and heat) and related the subsidies granted for payment of food distributed free of charge to these socially disadvantaged people.

In general the problem of securing funds for socially assisted people lies mainly with the local authorities (mayors and local councils), most social canteens operating under the control of city halls, the allocation and subsidy being covered by both governmental regulations and the rules of the local authority.

Therefore, as mentioned above, the main mission of the social canteens is to help the poorest people by distributing a minimum quantity of food, quantity which could ensure minimum subsistence.

In terms of legislation, the persons who fall within the category of socially assisted individuals and are eligible for free food are people with a monthly income of less than 80 Euro or persons whose income per family is less than Euro 80 per month. This category of socially assisted individuals generally includes elderly and people with disabilities who are unable to work, those with pension bellow 80 Euro per month, people who aren't any longer entitled to get the unemployment allowance, Roma families with many children whose income per family does not exceed the amount of 80 Euro per month and others who do not have any sources of income. Also, it must be reiterated that in accordance with the regulations in place, daily food allowance for social assistance (financial allocation determined by the authorities for

purchase, preparation and distribution of food) is about 1.2 Euro per day, allowance that is, in our opinion extremely small compared with the existing prices and the minimum wage in Romania (comparisons being made with the prices and minimum wages valid in October 2008).

The main issues related to this form of social protection of disadvantaged people are connected to the amount of these allowances and food subsidies. In this regard, daily food subsidy of about 1.2 Euro per day allocated for a person is extremely small and can not provide a sufficient quantity of food and the calories needed by these people.

On the other hand, as most of the amounts needed for food allocations are financed by local authorities (municipalities or local councils), there are situations when no such subsidies for food are provided by the authorities mentioned above due to a lack of funds or insufficient funds at their disposal (there are frequent situations in which due to little funds of certain town halls, food allowance is not ensured, which adversely affects the amount of food received by people under social protection).

A possible solution to the problems mentioned above would be for the social canteens to work within a system of partial self-financing, which means that in addition to distributing free food to poor people they should sell food to other client categories that have enough income to pay for these services, acting as cafeterias.

In this respect, it must be mentioned the example of the social canteen organized by Cluj-Napoca City Hall, which in addition to distributing free food to poor people acts as a cafeteria selling food to certain categories of clients who while do not fall into the poor category don't have enough money to go to restaurants: students, pupils, workers, middle-income clients. Thus, on the one hand, money from the food sold are used for the purchase of food needed for social protection, and on the other hand, selling profit can replace the amounts needed from the local budget for free food provision.

Methodology of research

Construction and testing of the model of satisfaction with the service provided by the social canteen was made through a survey conducted among the people benefiting the services of the social canteen run by Cluj-Napoca City Hall.

In this poll a number of 285 assisted people were questioned, that is 95% of the total population served (clients on welfare) by the social canteen of Cluj-Napoca City Hall. Although the social canteen serves not only the people registered in the City Hall records as on welfare but also other categories of citizens (for selling food for instance), it may be said that the socially protected people are the canteen's main customers.

To better understand the purpose and reason for which the authors surveyed some variables randomly (Table 1), we will briefly describe how the food is distributed to needy people. Thus, the distribution manner and schedule depends on the season; there are two ways to distribute food.

The first way to distribute free food to socially assisted people (the usual way) taking place during autumn, winter and spring, involves the distribution each week of a daily quantity of food to people on welfare for 4 days per week (Monday through

Thursday). Friday is the day reserved for the distribution of a large quantity of food to cover the entire weekend demand. The food distributed is cooked food (warm food) and theoretically should ensure the minimum number of daily calories.

The second way of food distribution, which runs during the summer, is the distribution once a week of cold food (uncooked food), in quantities which theoretically speaking are enough for the entire week. Therefore, the summer food program entails distribution of uncooked food 4 times a month. This schedule is determined on the one hand by the fact that cooked food is highly perishable in summer conditions and there is the risk of people getting sick due to the lack of facilities for food preservation in warm climate (cold or canned food can be relatively better stored). On the other hand, the fact that during summer season food is distributed once a week and not every day is determined by the desire of avoiding that the people come to the canteen every day in a very hot climate as many of them have health problems and are restricted from being exposed to heat and sun.

Therefore the authors of this research took into consideration the two ways of food distribution when designing and building the questionnaire. Also related to the instrument used, the survey was based on a questionnaire structured in the same manner as the questionnaire used by American researchers to build the U.S index of customer satisfaction (ACSI). The questionnaire was modified and adapted to the specifics of the social canteen. The questionnaire is built in the following manner:

- (1) A first question is meant to help reveal customer expectations regarding the service before using it;
- (2) A first set of questions, designed to emphasize customer satisfaction related to various attributes or dimensions of service quality;
- (3) A second set of questions, designed to highlight both overall satisfaction related to services provided by the canteen and how expectations are confirmed / disconfirmed and to compare the institution with an institution that provides ideal services in terms of quality;
- (4) A third set of questions - designed to analyze aspects related to clients' complaints;
- (5) A fourth set of questions designed to highlight both the image of institutions as well as confidence in institutions among respondents;
- (6) A fifth set of questions designed to highlight the socio-demographic data of customers;

It should be noted that the questions use mainly as a scale of measurement the continuous scale 1-5 (1 - very dissatisfied, below my expectations and 5-very satisfied, over my expectations). It also should be mentioned that in the analysis and the design of the model a number of 11 measurable variables for quality dimensions (of a total of 19 variables), and a number of 3 measurable variables for both overall satisfaction and institution image (Table 1) were used.

Table 1. Latent and measurable variables of the model

Latent variable	Measurable variable (satisfaction with)
A1- quantity of food received	quantity of food received for a week –Q1 quantity of warm food received-Q2 quantity of food received for Friday, Saturday and Sunday – Q3
A2 – employees' behavior with the clients	fair manner of treating the clients – Q4 kindness of treating the clients – Q5
A3 –benefits brought by the social canteen to its clients	services provided by the canteen make my life easier – Q6 benefits brought by the social canteen compared to the efforts of the clients – Q7
A4- convenient food distribution schedule	food distribution schedule –summer schedule – Q8 food distribution schedule – usual schedule –Q 9
A5 – duration of food distribution (stand in line time)	duration of food distribution – summer schedule – Q10 duration of food distribution – usual schedule –Q11
AS – clients expectations on service quality	clients expectations on service quality before dealing with the service Q12
SG – client overall satisfaction	client overall satisfaction with the canteen services - Q13 disconfirmation of expectations related to the canteen's services - Q14 compare to an ideal social canteen Q15
I – institution's image in the clients' eyes	willingness to recommend the canteen – Q16 confident in future better quality services – Q17 frequency of disparaging the canteen –Q18

We must mention that for the analysis and design of customer satisfaction model we used a univariate statistical analysis as well as a multivariate statistical analysis (exploratory analysis of factor reduction, factorial confirmatory analysis, construction and modeling of structural equations), with the aid of statistical processing software SPSS16 and AMOS 7.

Therefore, we mention that the study of customer satisfaction in the case of the services provided to people on welfare by the social canteen run by Cluj-Napoca City Hall was part of the research project sponsored by Romanian government (CNCSIS cod: 1493/2006).

Data analysis and interpretation

I. Univariate analysis of data

Related to the distribution of respondents' answers on measurable variables the table below presents both the frequency and the average of the responses (table 2).

Survey data, from the perspective of univariate analysis, show that, in general, socially assisted people are satisfied with the services provided by the social canteen. In this respect, the percentage of people 'satisfied' or 'very satisfied' with the canteen's services is extremely high (82.8%).

Also, about the attributes (dimensions) of service quality, the survey reveals that the people are very satisfied in particular with how fair they are treated as clients (91.2% of the people are 'satisfied' or 'very satisfied' by how fair they are treated), and the kindness with which the employees treat customers (89.5% of the people are 'satisfied' or 'very satisfied' with the kindness of employees). At the same time, the people are least satisfied with the amount of food received both during the summer (the summer food distribution) and during spring-autumn period (the usual food distribution).

The relatively small satisfaction of people with the quantity of food received can be explained in light of financial low allowance for food assistance per person, allowance that under the laws currently in place is below 1.2 Euro per day per person. From this allowance the canteen must pay both purchase of food and food distribution-related costs (purchase of packaging for food transport).

Therefore, the amount of 1.2 Euro per day for a socially protected person for food is not enough to distribute sufficient quantities of food.

Related to the institution's image among customers (people on welfare), the survey reveals that the image is relatively good. In this respect, the survey reveals that 84.2% of respondents are 'willing' or 'very willing' to recommend the canteen. Also, a percentage of 57.9% of respondents are 'confident' or 'very confident' that the canteen will provide future quality social services.

Regarding the expectations of respondents related to services provided by the social canteen, the survey reveals that these expectations are not high, the quality of service provided being at or above the level expected by the clients. Thus, 49.5% of respondents are of the opinion that the quality of service is at the level of their expectations, while 34.7% of respondents believe that quality of service is above or well above their expectations (prior to consumption expectations).

Table 2. Frequency and mean of answers linked to the measurable variables of the model

Measurable variable	Satisfaction (percentage response)						Total percentage	Mean
	Very dissatisfied	Dissatisfied	Somewhat satisfied	Satisfied	Very Satisfied			
Quantity of food received for a week –O1	21,1	11,9	7,7	31,2	28,1		100	3,33
Quantity of warm food received -O2	17,2	16,5	9,1	25,3	31,9		100	3,38
Quantity of food received for Friday, Saturday and Sunday – O3	19,6	8,8	9,1	32,3	30,2		100	3,45
Fair manner of treating the clients – O4	0,7	0,4	7,7	13,3	77,9		100	4,67
Kindness of treating the clients – O5	-	1,1	9,5	30,9	58,6		100	4,47
Services provided by the canteen make my life easier – O6	Total disagree 2,1	Disagree 5,6	Neither agree nor disagree 13,0	Agree 49,8	Total agree 29,5		100	3,99
Benefits brought by the social canteen compared to the efforts of the clients – O7	Total disagree 2,8	Disagree 7	Neither agree nor disagree 11,6	Agree 46,0	Total agree 32,6		100	3,99
Food distribution schedule –summer schedule – O8	-	8,8	8,8	67,0	15,4		100	3,89
Food distribution schedule –usual schedule –O 9	-	7,4	7,7	68,1	16,8		100	3,94
Duration of food distribution – summer schedule – O10	-	17,5	32,3	42,5	7,7		100	3,4
Duration of food distribution – usual schedule –O11	1,1	16,5	24,6	50,5	7,4		100	3,47
Clients expectations on service quality before dealing with the service (prior to consumption quality) - O12	Very low 3,2	Low 9,5	Neither high nor low 63,2	High 23,4	Very high 1,1		100	3,09
Client overall satisfaction with the canteen services- Q13	-	1,1	16,1	46,3	36,5		100	4,18
Disconfirmation of expectation related to canteen's services - Q14	Much below expectations 0,4	Below expectations 15,4	At the level of expectations 49,5	Over expectations 29,1	Much over expectations 5,6		100	3,24
Compare to an ideal social canteen Q15	Very far from 1,4	Far from 8,1	Nor far from nor close to 32,6	Close to 41,8	Very close to 16,1		100	3,63
Willingness of recommending the canteen – O16	No willingness 5,2	Little willingness 4,2	Nor willingness nor lack of willingness 6,3	Willingness 48,4	Much willingness 35,8		100	4,05
Confident in future better quality services – O17	Totally unconfident 7,4	Unconfident 14,7	Nor unconfident nor confident 13,7	Confident 50,5	Very confident 13,7		100	3,48
Frequency of disparaging the canteen – O18	Very often 17,9	Often 17,9	Nor often, nor seldom 12,6	Seldom 24,2	Very seldom 27,4		100	3,25

II. Exploratory factor analysis and confirmatory factor analysis of the satisfaction construct

The main applications of factor analytic techniques (factor analysis and confirmatory factor analysis) are: (1) to reduce the number of variables and (2) to detect structure in the relationships between variables, that is to classify variables. In customer satisfaction research, factor analysis is typically used in an exploratory fashion. There are no hypotheses regarding the factor structure. We do not specify before running the model which predictor variables will co-vary significantly with the outcome variable. In exploratory factor analysis, there is no a priori hypothesis regarding factor composition or structure.

In contrast, confirmatory factor analysis requires the explicit formulation of hypotheses regarding the underlying structure. The proposed structure is then accepted or rejected depending upon the statistical goodness of fit: the extent to which the data are consistent with the hypothesized factor structure.

Hecks (1998) describes confirmatory factor analysis as one approach validation. That is, inferences concerning certain unobservable constructs such as customer satisfaction can be made based upon confirmatory analysis. These inferences often involve the construct's structure and relation to other constructs. In an applied customer satisfaction research setting, prior information typically drives our assumptions concerning factorial structure (Basilevsky, 1994).

The differences between confirmatory and exploratory factor analysis could be summarized in the following: First, confirmatory factor analysis requires a priori the specification of the number of factors, their composition and their co-variation. Second, in exploratory factor analysis it is not possible, for example, to specify the degree to which two or more factors co-vary. Indeed, most of the time researchers using exploratory factor analytic approaches retain orthogonal dimensions. This orthogonally construct which is probably an unrealistic assumption represents a very substantive criticism of many exploratory factor analyses.

In practice, there is less clear delineation between confirmatory and exploratory analytic approaches. Not infrequently, confirmatory analyses take on exploratory characteristics as researchers iteratively redefine their ostensibly confirmatory analyses in a search for the model that best "fit" the data (Bollen, 1989). In reality, researchers pursuing a confirmatory approach do not simply leave their data if the hypothesized factor structure is rejected.

Factor analysis of the 11-item satisfaction construct employed the extraction procedure of the principal component with Varimax rotation procedure. The criterion used to determine the number of factors was based upon the derivation of factors with an eigen value greater than unity and cumulative variance of factors greater than 80%.

A 5-factor was derived (table 3). Bartlett's test of sphericity and led to a rejection of the null hypothesis, that the data are not correlated ($\chi^2(55) = 1589.866, p = .000$). The KMO index of 0,804 is, according to Kaiser's classification, "meritorious" (Kaiser, 1974). The 5 factors account for 86, 63 % of the total variance and the communalities are generally respectable (all factors have communalities greater than 0,8).

Table 3. Satisfaction construct: exploratory factor analysis

	Factor number					
	1	2	3	4	5	c
Quantity of food received for a week –Q1	,891	,019	,081	,051	,098	,812
Quantity of warm food received -Q2	,863	,002	,103	,195	,089	,802
Quantity of food received for Friday, Saturday and Sunday – Q3	,894	,062	,061	-,002	,006	,807
Fair manner of treating the clients – Q4	,053	,028	,060	,007	,921	,856
Kindness of treating the clients – Q5	,110	,108	,152	,162	,864	,820
Services provided by the canteen make my life easier – Q6	,137	,082	,920	,093	,119	,895
Benefits brought by the social canteen compared to the efforts of the clients – Q7	,076	,012	,944	,004	,091	,905
Food distribution schedule –summer schedule – Q8	-,015	,954	,019	,016	,098	,921
Food distribution schedule –usual schedule –Q 9	,088	,951	,072	,085	,033	,926
Duration of food distribution – summer schedule – Q10	,097	,038	,042	,917	,134	,871
Duration of food distribution – usual schedule –Q11	,094	,062	,050	,930	,025	,880
Eigenvalue	3,228	1,865	1,865	1,865	1,865	
Variance (%)	29,350	16,956	14,440	14,014	11,552	
Cumulative variance (%)	29,350	46,305	60,745	74,760	86,312	

Notes: c refers to communality, sample (N) = 285

The results of confirmatory factors analysis are presented in Table 4. The non-constrained regression weight linking the sub-constructs or factors and their associated measures are all statistically significant. The covariance between the 5 sub-constructs (latent variables) is positive and significant.

Table 4. Satisfaction construct: confirmatory factor analysis

	Regression weight	Standard error	Critical ratio	P	Standard weight	Squared multiple correlation
Q2 <--- A1	1,041	,070	14,951	***	,840	,705
Q4 <--- A2	,587	,126	4,658	***	,628	,394
Q5 <--- A2	1,000	na	na	na	1,046	1,093
Q6 <--- A3	1,237	,175	7,082	***	1,027	1,055
Q7 <--- A3	1,000	na	na	na	,770	,593
Q8 <--- A4	,590	,161	3,671	***	,689	,474
Q9 <--- A4	1,000	na	na	na	1,215	1,476
Q10 <--- A5	1,045	,146	7,175	***	,899	,808
Q11 <--- A5	1,000	na	na	na	,836	,699
Q3 <--- A1	1,000	na	na	na	,812	,660
Q1 <--- A1	1,067	,071	15,079	***	,851	,724
Covariances						Correlations
	Estimation	Standard error	Critical ratio	P	Estimation	
A1 <--> A2	,187	,056	3,344	***	0,21	
A1 <--> A3	,229	,069	3,341	***	0,25	

A1 <--> A4	,148	,054	2,739	,001	0,14	
A1 <--> A5	,212	,066	3,221	,001	0,24	
A2 <--> A3	,130	,038	3,446	***	0,23	
A2 <--> A4	,065	,029	2,252	***	0,10	
A2 <--> A5	,141	,037	3,834	***	0,26	
A3 <--> A4	,088	,034	2,619	,001	0,13	
A3 <--> A5	,101	,040	2,544	,001	0,18	
A4 <--> A5	,088	,034	2,602	***	0,13	
$\chi^2 (34) = 77.540, p = ,000$						
Goodness of fit measurement						
Model	RMR	GFI	RMSEA	TLI	IFI	CFI
Default	,037	,954	,067	,955	,972	,972
Saturated	,000	1,000	na	na	1,000	1,000
Independence	,383	,528	,316	,000	,000	,000

Notes: *** refer to $p = ,000$

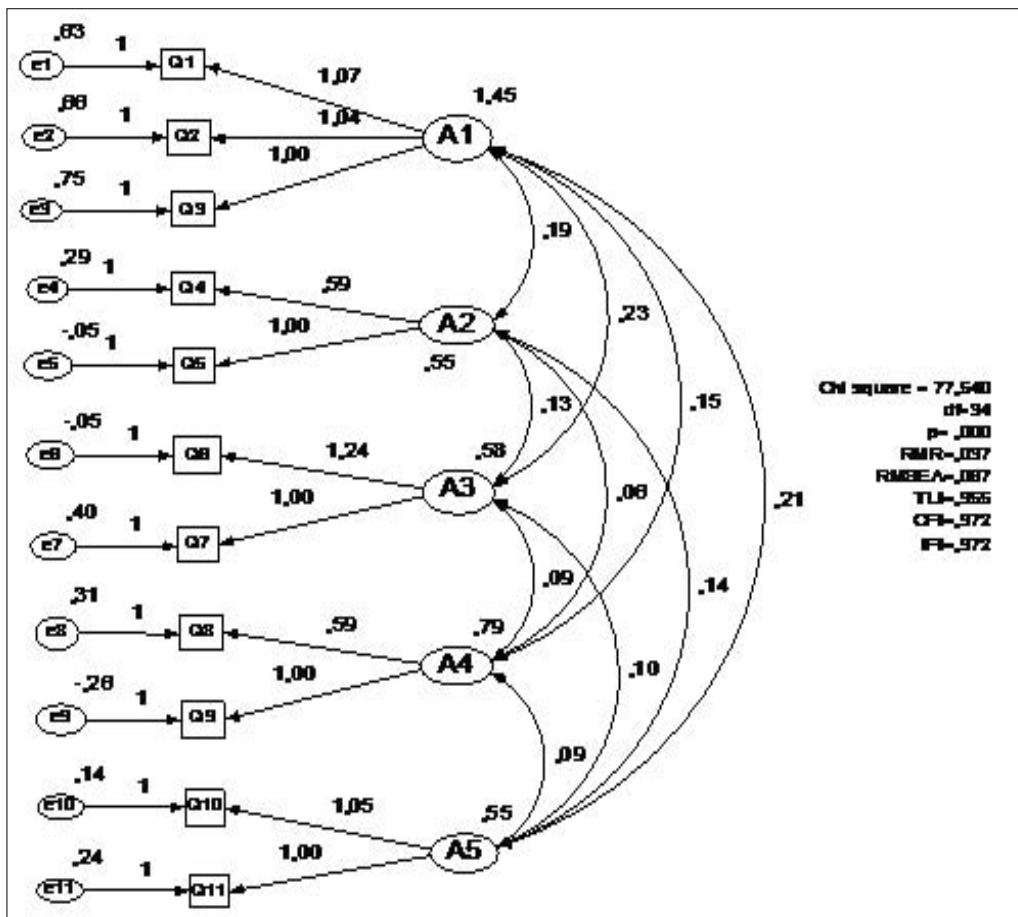


Figure 8. Graphical representation of confirmatory factorial analysis

Results of ‘goodness of fit’ tests applied to the model shows that the structure proposed and analyzed by confirmatory factorial analysis can be accepted because the results (Table 4. Fig. 8) falls below the critical values (Hu and Bentler, 1995; Marsh, Balla and Hau, 1996) for accepting the model proposed (RMR: 0,037; RMSEA: 0,067; TLI: 0,955; CFI: 0,972).

III. Structural equation model

The latent variable structural equation model (SEM) is best understood when decomposed into two main components: the measurement model and structural model. The measurement model represents the confirmatory factor analytic component. In effect, the measurement model formally explains the relationships between manifest (observed) variables and unobservable latent constructs. The structural portion of the latent variable SEM model specifies the causal links among the latent variables.

Structural equation models with latent variables have two distinct components as implied earlier. The measurement model subsumes the „composition” of the latent variables while the structural model depicts how the variables are interrelated.

Equations 1.1, 1.2, and 2.1 outline, in a matrix form, the measurement and structural components of the model.

$$y = \Lambda_y \eta + \varepsilon \tag{1.1}$$

$$x = \Lambda_x \xi + \delta \tag{1.2}$$

$$\eta = \beta \eta + \Gamma \xi + \zeta \tag{2.1}$$

Where:

Structural model

η = vector of endogenous latent variables

ξ = vector of exogenous latent variables

β = matrix of regression coefficients corresponding to effects of latent endogenous variable on endogenous variables.

Γ = matrix of regression coefficients corresponding to effects of latent exogenous variable on one another

ζ = vector of latent variable errors in equations.

Measurement model

ε, δ = vector of observed variable errors in equations.

Λ_y = matrix of regression coefficients corresponding to factor loading on exogenous, latent variables

Λ_x = matrix of regression coefficients corresponding to factor loading on endogenous, latent variables

The results of structural equation models are presented in table 5, table 6, table 7 and figure 9 below:

Table 5. Estimated structural equation model

			Regression weight	Standard error	Critical ratio	p	Standard weight	Squared multiple correlation	
SG	<---	A4	,118	,118	1,003	***	,173	SG	,460
SG	<---	A2	,219	,073	2,986	***	,257	I	1,051
SG	<---	AS	-,338	,864	-,391	,001	-,153	q34	,178
SG	<---	A3	,118	,060	1,985	***	,150	q35	,272
SG	<---	A1	,168	,095	1,765	***	,349	q33	,206
SG	<---	A5	,088	,137	,646	***	,114	q26	,348
I	<---	SG	,764	,117	6,522	***	,950	q1	,143
I	<---	AS	-,411	,203	-2,020	***	-,231	q27	,345
q17	<---	A2	,692	,104	6,626	***	,681	q25	,632
q19	<---	A2	1,000	na	na	na	,963	q8	,797
q20	<---	A3	1,320	,176	7,514	***	1,061	q7	,731
q37	<---	A3	1,000	na	na	na	,746	q14	,662
q5	<---	A4	,644	,110	5,850	***	,720	q15	,708
q10	<---	A4	1,000	na	na	na	1,162	q5	,519
q15	<---	A5	1,000	na	na	na	,842	q37	,556
q14	<---	A1	1,000	na	na	na	,814	q20	1,126
q7	<---	A1	1,070	,070	15,366	***	,855	q10	1,351
q8	<---	A5	1,031	,133	7,736	***	,893	q17	,464
q11	<---	A1	1,033	,068	15,081	***	,835	q19	,927
q25	<---	SG	1,000	na	na	na	,795	q11	,697
q27	<---	SG	,904	,100	9,012	***	,588		
q1	<---	AS	1,000	na	na	na	,378		
q26	<---	SG	,803	,089	9,052	***	,590		
q33	<---	I	1,000	na	na	na	,454		
q35	<---	I	1,642	,275	5,960	***	,521		
q34	<---	I	1,014	,193	5,252	***	,422		
$\chi^2 (34) = 77.540, p = ,000$									
Goodness of fit measurement									
Model			RMR	GFI	RMSEA	TLI	IFI	CFI	
Default model			,049	,915	,066	,910	,935	,934	
Saturated model			,000	1,000	na	na	1,000	1,000	
Independence model			,299	,485	,219	,000	,000	,000	

Table 6. Estimation of covariances and correlations of latent variables

Covariances						Correlations	
			Estimation	Standard error	Critical ratio	P	Estimation
A5	<-->	A1	,212	,066	3,230	,001	,235
A2	<-->	A5	,138	,036	3,781	***	,270
A1	<-->	AS	-,115	,052	-2,214	***	-,361
A2	<-->	AS	-,012	,027	-,450	,001	-,069
A4	<-->	AS	,084	,028	2,937	***	,372

A5 <-->	AS	,061	,032	1,903	***	,310
A3 <-->	A1	,213	,064	3,325	***	,239
A2 <-->	A3	,120	,035	3,429	***	,239
A3 <-->	A5	,098	,037	2,614	***	,177
A3 <-->	AS	-,023	,027	-,851	,001	-,118
A4 <-->	A1	,149	,054	2,745	***	,145
A2 <-->	A4	,065	,029	2,214	***	,111
A3 <-->	A4	,087	,032	2,743	***	,139
A2 <-->	A1	,186	,056	3,329	***	,226
A4 <-->	A5	,092	,034	2,681	***	,145

Table 7. Total effects (Group number 1 - Default model)

	AS	A1	A5	A4	A3	A2	SG	I
SG	-,338	,168	,088	,118	,118	,219	,000	,000
I	-,669	,128	,067	,090	,090	,167	,764	,000

To evaluate a model, its goodness-of-fit with the data is assessed. The goodness of fit measurement presented in tables 5 generally follows the recommendations of Hoyle and Panter (1995). The chi-squared statistic is the oldest of the fit measures; a statistically significant value of chi-squared is generally a desirable finding. It suggests there is a significant relationship between two or more variables. In our model the chi-squared measure of discrepancy tests how much the implied and sample covariance matrices differ under the null hypothesis that they do not. The results of the chi-squared test indicate a rejection of null hypothesis.

Unfortunately, the chi-squared statistic is very sensitive to sample sizes – as the sample increases chi-squared is more likely to be statistically significant (Allen and Rao, 2000). In the same time, Hair *et al* (1998) report that if sample size becomes large enough, significant differences will be found for any specified model. Hence they suggest that the test is not reliable outside the sample range of 100-200 observations.

Given this situation, goodness-of-fit is also indicated in root means square residual (RMR) and root mean square error of association (RMSEA) that is recommended as an alternative to the chi-square test in the case of large samples (Hair *et al*, 1998), and three type 2 indices suggested by Hoyle and Panter (1995); Tucker-Lewis index (TLI), incremental fit index (IFI) and comparative fit index (CFI). RMSEA lies below the upper threshold value of 0,85 regarded as “reasonable” by Brown and Cudeck (1993) while values of TLI, IFI and CFI approximate to the lower threshold of 0,9 suggested by Hair *et al*. (1998).

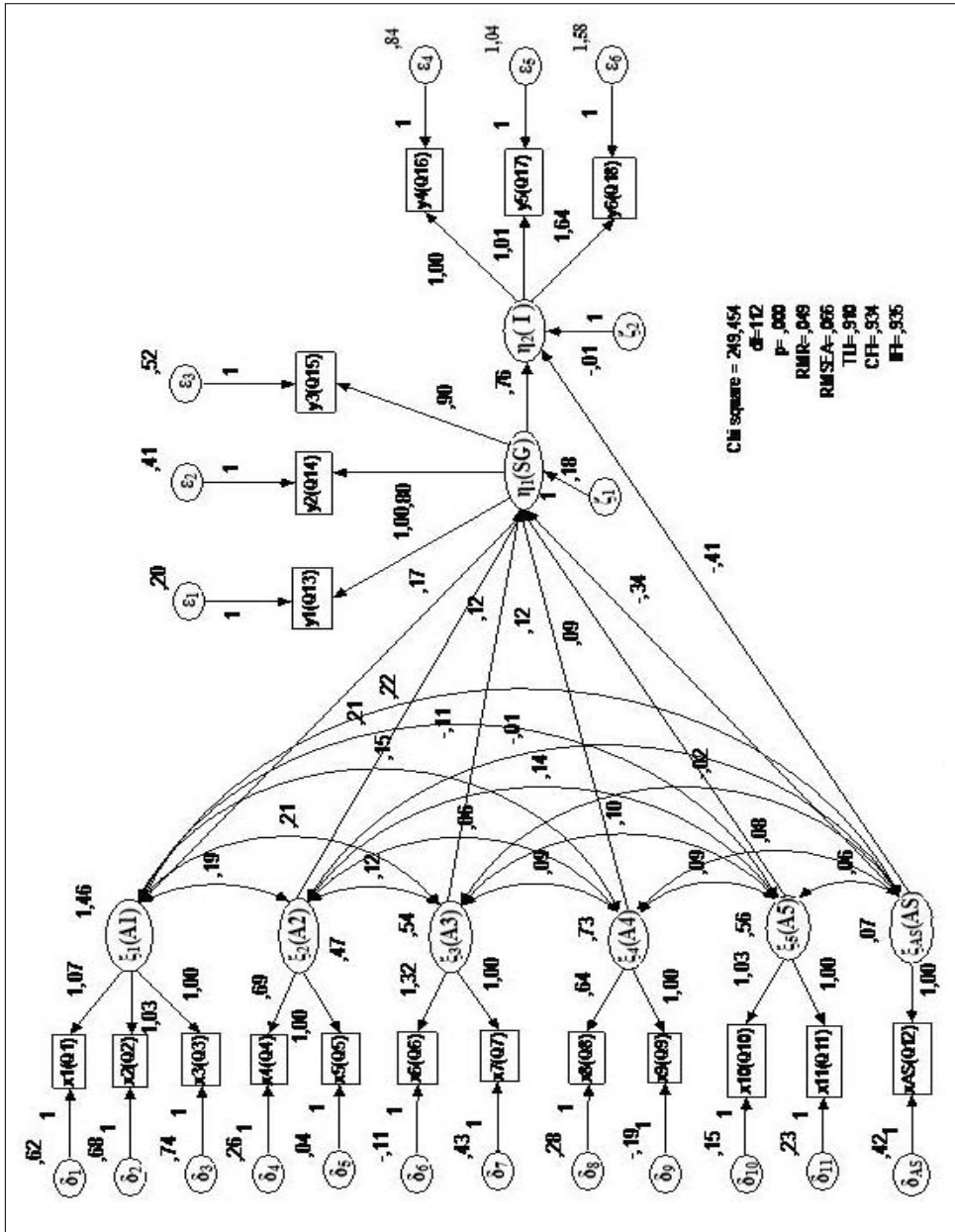


Figure 9. Structural equation model with latent variables for social canteen

Structural parameters of the structured equations model are presented below in table 8.

Table 8. Parameters of the structured equations model for customer satisfaction with the services of social canteen

Latent variable	Observed variable	Model equation
$\xi_I = \text{quality attributes}$		
$\xi_1 = A1$	$x_{11}(Q1)$ $x_{12}(Q2)$ $x_{13}(Q3)$	$x_{1i} = \lambda x_{1i} \xi_1 + \delta_{1i}$
$\xi_2 = A2$	$x_{21}(Q4)$ $x_{22}(Q5)$	$x_{2i} = \lambda x_{2i} \xi_2 + \delta_{2i}$
$\xi_3 = A3$	$x_{31}(Q6)$ $x_{32}(Q7)$	$x_{3i} = \lambda x_{3i} \xi_3 + \delta_{3i}$
$\xi_4 = A4$	$x_{41}(Q8)$ $x_{42}(Q9)$	$x_{4i} = \lambda x_{4i} \xi_4 + \delta_{4i}$
$\xi_5 = A5$	$x_{51}(Q10)$ $x_{52}(Q11)$	$x_{5i} = \lambda x_{5i} \xi_5 + \delta_{5i}$
$\xi_{AS} = \text{clients expectations}$	$x_{AS}(Q12)$	$x_{AS} = \lambda x_{AS} \xi_{AS} + \delta_{AS}$
$\eta_1 = \text{overall satisfaction}$		
$\eta_1 = \sum_1^5 \gamma_1 \xi_1 + \gamma_{AS} \xi_{AS} + \zeta_{SG}$	$y_{61}(Q13)$ $y_{62}(Q14)$ $y_{63}(Q15)$	$y_{6i} = \lambda_{6i} \eta_1 + \varepsilon_{6i}$
$\eta_2 = \text{institution image}$		
$\eta_2 = \gamma_{AS} \xi_{AS} + \beta_1 \eta_1 + \zeta_1$	$y_{71}(Q14)$ $y_{72}(Q15)$ $y_{73}(Q16)$	$y_{7i} = \lambda_{7i} \eta_2 + \varepsilon_{7i}$

Where:

$\eta_1, \eta_2 =$ vector of endogenous latent variables

$\xi_I =$ vector of exogenous latent variables $I = 1,2,3,4,5, AS$

$\beta_1 =$ matrix of regression coefficients corresponding to effects of latent endogenous variable on endogenous variables.

$\Gamma =$ matrix of regression coefficients corresponding to effects of latent exogenous variable on one another $i= 1, 2,3,4,5, AS$

$\zeta =$ vector of latent variable errors in equations.

$\varepsilon, \delta =$ vector of observed variable errors in equations. (ζ_{SG}, ζ_1)

$y_{6i}, y_{7i} =$ regression coefficients corresponding to factor loading on endogenous, latent variables

$x_{1i}, x_{2i}, x_{3i}, x_{4i}, x_{5i}, x_{AS} =$ regression coefficients corresponding to factor loading on exogenous, latent variables.

Conclusion

Implications of the study conducted with respect to the social canteen depend very much on the perspective used to analyze customer satisfaction related to this institution.

From the perspective of univariate statistical processing, namely from the perspective of the percentage of satisfied customers, the survey shows that most social customers are, in general, satisfied with the services provided by the social canteen. In this respect, 82.8% of respondents are 'satisfied' or 'very satisfied' with the services of the canteen. Also, the relatively high quality of service provided by the social canteen is highlighted by the large percentage of people who believe that the quality of the service provided matches their expectations (49.5%) or is over their expectations (34.7%). Only a percentage of 15.8% of people believe that the quality of the service provided by the social canteen is below their expectations.

In terms of quality attributes, the survey data reveals that socially assisted people are satisfied with most of the aspects related to the 'human' dimension of service provision, respectively, how employees behaved in their relation with the customers.

In this respect, most of the people on welfare are 'satisfied' or very 'satisfied' (Table 2) both with how they are equally treated and with the kindness of employees. Thus, from the perspective of service presentation the social canteen under Cluj-Napoca City Hall is mainly concerned with dealing well, without discrimination and with due respect, with its customers which are among the most disadvantaged citizens.

In terms of dissatisfaction level, the survey reveals that the people on welfare are most dissatisfied with the amount of food received (Table 2). The relatively low level of satisfaction is due to the fact that the amount allocated for food is low in comparison with the prices and expenditures related to food distribution and not necessarily to the fact that the canteen's employees 'steal' food.

Analysis and validation of structural equation model (SEM) on customer satisfaction with social canteen services emphasizes three major issues.

First, by validating the model, it is shown that it is possible to establish a credible link between customer satisfaction and certain quality dimensions through unobservable factors (latent factors). In this sense, it can be said that customers satisfaction is determined and influenced by quality dimensions (attributes) related to employee behavior towards customers, convenience of food distribution schedule and quantity of food distributed for free.

Secondly, the structural equation model clearly highlights that from the point of view of customer satisfaction, both attributes of quality and customers expectations directly and significantly affect the level of customer satisfaction. Therefore, in terms of factors that affect customer satisfaction, it can be concluded that in the case of welfare services, the theoretical model that best explains customer satisfaction is the third model.

Also, related to customer expectations, the model shows that customer expectations have a negative effect on the level of satisfaction in the sense that the higher the expectations related to service, the lower the customer satisfaction tends to be.

Thirdly, the model highlights the impact and consequences of customer satisfaction and customer expectations. In this sense on the basis of model validation it can be concluded, that socially assisted people's satisfaction strongly and positively influences the image of the institution (table 7), in the sense that the higher the level of satisfaction is, the better or positive image of the institution they have.

From the managerial point of view, the study has a dual significance, being linked both to concerns for ensuring and improving quality, as well as to concerns about the image of the institution.

In this sense, in connection to managers efforts to ensure and improve quality, the study reveals the fact that the managers of social canteens must take into account both the tangible aspects of the service (such as quantity of food distributed) as well as the intangible aspects of service presentation (convenient timetable for food distribution and behavior of employees in their contact with customers) in order to increase customer satisfaction.

Secondly, the present study reveals that managers of the social canteens must be aware at all times that in order to maintain or improve the image of the institution a high level of customer satisfaction should be assured. Otherwise, lack of a high level of customer satisfaction not only reduces or negatively changes the image of the institution but renders useless or inefficient any other measure or initiative meant to maintain or improve the institution's image.

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