

Quality Evaluation Directs Improvement Efforts for Uncle Sam: An Examination of Service Quality Perceptions at Anniston Army Depot

Martin A. O'Neill Ph.D
Associate Professor
Hotel and Restaurant Management
Auburn University
Auburn, Alabama

Abstract

The study sought to investigate consumer perceptions of food service quality at a major Military institution in Anniston, Alabama. Using an Importance-Performance framework with modified SERVQUAL scales, a number of gaps between importance and performance of food service attributes were observed. From this, a framework was developed within which areas for service quality investment or divestment could be identified. This framework will assist the Directorate in its ongoing quality improvement drive.

Key words: Food Service, Quality, Perceptions, Continuous Improvement

Introduction

This research project investigated the conceptualization and measurement of service quality, through an application of the importance-performance analysis (IPA) technique with modified SERVQUAL scales. More specifically, and in direct recognition of the importance given to this issue by the United States Department of the Army, the research sought to evaluate consumer perceptions of the dining experience at Anniston Army Depot, Anniston, Alabama.

In addition to its strategic role in homeland defense, this depot also serves both the military and wider communities on many fronts including social welfare, financial and employment counseling. The depot employs an estimated 4400 civilian and military personnel and as such must also provide for the food service needs of all site and contract employees. All on-site dining facilities are managed by the Directorate of Community and Family Activities (DCFA), who pride themselves on the quality of service provided to Depot personnel. It is as part of the Directorates ongoing quality improvement drive that the research project was undertaken. DCFA is particularly interested in ascertaining not only how they are currently performing with respect to food service provision in the eyes of Depot personnel, but also what is important to personnel from a dining service perspective.

The results reveal the core service quality dimensions of importance to Depot personnel in their assessment of Depot dining services, as well as actual performance data related to these dimensions. Of particular significance is the fact that a number of gaps between importance and performance of service attributes and aggregated dimensions were observed. A framework is presented by which DCFA can identify areas of customer service which warrant further investment and those where they may be currently over-delivering. Additionally, the information should prove useful in helping DCFA with their ongoing quality improvement efforts.

Service Quality Research

Today's food service professional faces many choices when it comes to measuring consumer perceptions of service quality, with a full range of measurement techniques available. The difficulty is that many of these techniques are too costly, too complicated or inappropriate for what is being measured. The most critical challenge facing managers, therefore, is to identify and implement the most appropriate methods for measuring the quality of the service experience (Ford and Bach, 1997). To this end a plethora of qualitative and quantitative methods lend themselves to the task in hand. Qualitative methods include interviews, focus groups, customer role-play and observation research, and whilst highly subjective, they nonetheless provide an interesting insight into the mindset of individual customers. On the downside however, the use of these techniques requires specialist training and can be quite expensive in terms of both time and monetary commitment.

Quantitative techniques, on the other hand, claim to be more objective and measurable and can be administered either face to face (as in the case of exit intercept surveys), indirectly (by telephone) or simply left for the consumer to fill out in their own time (as in the case of most restaurant comment cards). Similarly, surveys can be employed on a regular basis, as in the case of comment cards or on a less regular basis, as in the case of ad hoc research to investigate specific issues associated with

service delivery. Of importance here is the validity, reliability and practicability of the particular survey method.

Research into service quality based on the confirmation-disconfirmation paradigm has been extensively used (Wilkie, 1990; Wells and Prensky, 1996; Oliver, 1997). This body of research seeks to explore the relationship between a consumer's pre-purchase expectations and their perceptions of service performance post-consumption. As consumers evaluate the level of the service's performance, they typically cannot help but compare that performance to what they expected. In turn, these expectations provide a baseline for the assessment of a consumer's level of satisfaction. These models contend that service quality can be conceptualized as the difference between what a consumer expects to receive and his or her perceptions of actual delivery. They suggest that service performance exceeding some form of standard leads to satisfaction while performance falling below this standard results in dissatisfaction (Wells and Prensky, 1996; Oliver, 1997).

Pre-eminent amongst these studies has been the work of Parasuraman, Zeithaml and Berry (1990) and the development of their SERVQUAL instrument, Cronin and Taylor (1992) and the SERVPERF technique and Martilla and James (1977) and the importance-performance analysis technique (IPA). SERVQUAL is based on the belief that a service is deemed to be of high quality when customers' expectations are confirmed by subsequent service delivery. SERVQUAL has been extensively researched to validate its psychometric properties and has been applied in a wide variety of industry sectors (Lewis 1987; Ryan & Cliff 1997; Lam, Wong and Yeung 1997). It takes the form of a two part 22-item questionnaire, which seeks to estimate customers' pre-consumption expectations of service as well as post-consumption perceptions of actual service received. Customers are asked to complete each section of the survey on the basis of a multiple point Likert scale which extends from strongly disagree to strongly agree. Measures of service quality can be derived by subtracting the expectation scores from perception scores, which can also be weighted to take account of the relative importance of each quality dimension.

SERVPERF and IPA on the other hand are best described as performance-only based measures of service quality and for many are perceived as an improved means of measuring the service quality construct (Bolton and Drew, 1991; Cronin and Taylor, 1992). SERVPERF makes use of the original SERVQUAL scale items and also requires the customer to rate a provider's performance, on a Likert scale extending from strongly disagree to strongly agree. Unlike SERVQUAL, however, it does not seek to estimate difference scores, but requires the consumer to rate only the performance of a particular service encounter. It is felt however, that from an operational point of view; much useful information is lost when performance only measures are taken. This has spawned the development of the more rigorous and practically useful Importance-performance Analysis (IPA) technique, which emerged from the earlier work of Martilla and James (1977)..

As a tool to develop marketing strategies, IPA has gained popularity over recent years for its simplicity, ease of application and diagnostic value (Alberty and Mihalik, 1989; Guadagnolo, 1985; Joseph and Joseph, 1997). Like SERVPERF, IPA is best described as an absolute measure of performance, which also seeks to identify the underlying importance ascribed by consumers to the various quality criteria under assessment (Martilla and James, 1977). In other words, importance is viewed as a reflection by consumers of the relative value of the various quality attributes. It is this additional information, which makes the technique more suited to the task of directing improvement based upon what is deemed most important by consumers.

The objective is to identify which attributes, or combinations of attributes are more influential in repeat purchase/referral behavior and which have less impact. The information derived should prove invaluable in terms of the development of quality improvement, training and marketing strategies for the organizations that use it (Ford, Joseph and Joseph, 1999). This view is confirmed by Lovelock, Patterson and Walker (2001) who state that the importance-performance technique is an especially useful management tool helping to “direct scarce resources to areas where performance improvement is likely to have the most effect on overall customer satisfaction”. It also has the benefit of pinpointing which service attributes should be maintained at present levels and “those on which significant improvement will have little impact”. It is for this reason that IPA has been chosen as an acceptable methodological approach for the Anniston Army Depot study.

In direct recognition of the importance and wellbeing afforded its personnel, the United States Department of Defense (DOD) enacted the Directorate of Community and Family Activities to serve the needs of America’s Army. This Directorate has always viewed customer service as their number one goal and as central to the attainment of their core mission, which is to direct and coordinate “plans, policies, and procedures pertaining to the administration and management of the community and family support programs and single fund management”. Not surprisingly, the continuous quality improvement (CQI) ethic is central to the vision and day-to-day operations of the Directorate of Community and Family Activities at Anniston Army Depot. Interest in the measurement of consumer perceptions of service quality is thus understandably high and measuring the quality of the service experience is now an integral part of the Directorates responsibilities. The challenge however, is to identify and implement the most appropriate measurement tools for their operation. In stressing the importance of service quality to the Directorates operations this research is of significance in developing and testing a methodology which upon successful testing should permit the Directorate to evaluate the quality of all services provided at the Depot on an ongoing basis.

Methodology

The sample was drawn from all Depot personnel at Anniston Army Depot (AAD), Anniston, Alabama over a six week period spanning June-August, 2006. The Depot employs a total of 4,400 personnel, comprising federal, contractor and tenant employees, all of which were invited to participate in the study. The Depot offers a range of different dining sites including coffee shops, formal line production dining rooms, food courts and mobile truck delivery services. Having received the full endorsement of all senior Depot personnel, employees were invited to participate in the survey in an open letter from the Principal Investigator and the Director of the Directorate of Community and Family Activities. This letter of invitation, accompanying information letter (used to describe the purpose of the research) and actual research questionnaire were first screened and approved by the Principal Investigator’s (PI) Institutional Review Board (IRB) for Human Subjects research.

A combination of both qualitative and quantitative methods was employed to complete the research. This required the use of two specific research instruments including in-depth one-to-one interviews and the administration of a quantitative survey instrument. While both methods dealt with service quality issues, only the results of the actual questionnaire (the main research instrument) are presented in any detail within this report.

Qualitative research was first undertaken in the form of a series of one-to-one interviews with key personnel from DCFA. Personnel were first questioned on the importance of the quality issue generally to the Directorate's activities and then more specifically on existing quality measures implemented by the Directorate. A series of definitions for the service quality construct were talked through, as well as a range of differing methodologies that might lend themselves to the task of evaluating the service quality construct on-site. Agreement was reached on the use of the IPA technique utilizing modified SERVQUAL scale items for the purposes of evaluation.

The issue of actual scale items and their fit as regards to Depot dining services was then discussed in detail. These discussions were deemed essential in helping finalize the main research instrument (questionnaire) and guaranteeing its fit within the context of AAD and its on-site dining services. The investigator initially sought unprompted discussion of the attributes that contributed to service quality on the Depot, initially in general, and then specifically in the context of dining services. Respondents were then presented with a draft list of revised SERVQUAL scale items and asked to comment on their relevance. In respect of each item, respondents were asked to develop alternative forms of the scale which they considered to be more useful. An iterative approach was applied to subsequent telephone interviews, in which discussion was additionally invited on the refined scale items derived from the previous discussions. Agreement was finally reached on a suitable research instrument which it was hoped would satisfy the Directorate and the Principal Investigator in terms of psychometric (validity and reliability) and diagnostic performance. As the ensuing results section will show, the instrument was found to satisfy good reliability as well as both face and content validity.

Service quality was evaluated using scales based largely on the importance-performance paradigm (Ennew, Reed and Binks, 1993). Scale items were based on the 22 items of the original SERVQUAL which has been widely replicated and the factor structure found to be appropriate to a wide range of consumer services, of which catering services are typical. A full list of the 22 refined scale items is shown in Table 1. An additional scale item (#23) addressing the issue of overall quality of dining services was included for the purposes of validity testing. This 'customization' is in keeping with similar survey adaptations, for example, Allen and Davis (1991), Babakus and Boller (1992) and Carman (1990).

Respondents were asked to rate both their perceptions of the attributes listed on a five point Likert scale anchored at (1) strongly disagree and (5) strongly agree. In addition respondents were asked to rate the level of importance attributed to each attribute on a similar scale anchored from low importance (1) to high importance (5). In terms of interpretation, a score of 2.4 or below on the perception scale denotes below average performance, while 2.5 or above denotes above average performance. Similarly, a score of 2.4 or below on the importance scale denotes below average importance, while 2.5 or above denotes above average importance.

A total of 4,400 self-completion questionnaires were dispatched to the various Directorates represented on the Depot, who in turn distributed the questionnaires to all employees falling under their immediate supervision. Employees also were presented with an accompanying information letter describing the significance of the research and guaranteeing their anonymity if they decided to participate in the study. As respondent anonymity was assured with no identification indicators, participants were not required to sign a consent letter. While encouraged to complete the questionnaires during shift break, employees also were permitted to complete the questionnaire at home. All completed questionnaires were handed back to the employee's immediate

supervisor who then had responsibility for returning the questionnaires to the Directorate of Community and Family Activities. All completed questionnaires were then forwarded to the Principal Investigator for input, analysis and reporting.

Results

The results of the study are presented in six sections. Section one provides a brief description on the demographic characteristics of the sample. Section two addresses the performance of the research instrument and includes reliability data. Section three presents an item-based analysis of the key results containing mean values for all importance, performance scales, as well as the I/P difference scores for each item. Section four presents a dimension based analysis of the key components of the service quality construct. Dimensions have been aggregated according to their original SERVQUAL RATER categorization. Section five presents this key data in matrix format and section six addresses the issue of behavioral intention and related correlation data.

Demographic profile

The principal demographic characteristics of the sample are shown in Table 1. Of the 4,400 questionnaires administered, a total of 744 returns were received, representing a valid response rate of approximately 17 percent (17%) - no explanation can be offered for this low response rate. Table 1 highlights a male dominant work environment with approximately 72 percent of all employees classifying themselves as male. Approximately 77 percent of respondents fall into the 46 and over age classification, which is consistent with the fact that approximately 42 percent of all respondents have worked at the Depot for some 10 plus years. The sample was drawn predominantly from the Federal Employee base with just over 96% of respondents classifying themselves as such. The vast majority of respondents (just over 92%) work in either the Industrial and/or West Area complexes.

Table 1. Demographic profile of respondents

Frequency of Ages			Frequency of Gender		
Value Label	n	%	Value Label	n	%
18-30	133	17.9	Male	539	72.4
31-45	204	27.4	Female	201	27.0
46-55	182	38.5	Missing	4	.5
55 +	267	35.9	Total	744	100.0
Other	25	3.4			
Missing	5	0.7			
Total	744	100.0			
Frequency of Tenure			Frequency of Position		
Value Label	n	%	Value Label	n	%
< 1 Year	108	14.5	Fed. Employee	718	96.5
2-5 Years	265	35.6	Contractor	2	0.3
6-10 Years	55	7.4	Tenant Employee	7	0.9
11-15 Years	21	2.8	Other	12	1.6
15 +	290	39.0	Missing	5	0.7
Missing	5	0.7	Total	744	100.0
Total	744	100.0			

Note: Missing denotes non response on these variables

Performance of the Research Instrument – reliability and validity indicators

The instrument performed well in terms of both reliability and validity. Overall reliabilities (Cronbach's alpha) were $\alpha = 0.99$ and 0.98 respectively for the importance and performance scales. Overall reliability for the importance-performance difference scores was also high at $\alpha = 0.80$. These reliability measures clearly exceed the usual recommendation of $\alpha = 0.70$ for establishing internal consistency of the scale (Cronbach, 1951). The instrument was further assessed in terms of construct validity, which included tests of convergence and the research instrument's ability to discriminate between the underlying dimensionality of the service quality construct. Convergence was investigated by calculating the mean I/P difference scores for each of the 22 scale items and correlating (Pearson's product moment correlation) these with the mean score from an overall single item measure of quality which was also included in the instrument. A moderate correlation of 0.449 was found which was nonetheless significant at the 1% level ($p < 0.01$). Discriminant validity was assessed by calculating the mean importance score for each of the 22 scale items and correlating these with a single item measure of quality which sought to evaluate "Overall Excellence and Quality Perceptions" of Depot Dining Service provision. A correlation of -0.031 was found, which was not shown to be significant at the 1% level ($p = .391$), thereby attesting to the discriminating nature of the research instrument.

Item based analysis of key results

The next stage of the analysis was to examine the sample responses across the 22 attributes to assess consumer perceptions of service quality and the relative importance assigned by personnel to each. For each respondent, an Importance – Performance difference score was also calculated. This information is presented in Table 2, where mean scores for all respondents are shown for each of the service quality attributes. It should be pointed out at this stage that in the interests of reliability, only those respondents (58%) completing both the importance and performance scales have been included in this section of the analysis.

In addition, a series of paired-samples *t* tests were run to evaluate where mean performance scores differed significantly from mean importance scores. This was deemed necessary in order to highlight areas of actual concern from the consumer's point of view. The idea being that when respondents' importance scores are shown to significantly differ from corresponding performance scores for a particular variable this is reflective of the existence of a quality performance gap. This in turn may be used to target specific quality improvement efforts. Similarly, where performance scores are shown not to significantly differ from corresponding importance scores for a particular quality variable this may also serve to highlight exceptional performance and/or misdirected quality effort. Table 2 highlights mean importance and performance values for each of the 22 variables assessed in addition to the I/P difference scores for each variable. While a series of paired sample *t*-tests was conducted for all variables, the results of these tests are not included. A statistically significant negative differential ($p < 0.001$) was recorded for all variables. This is indicative of the fact that there is considerable room for performance improvement.

Table 2. Analysis of individual I/P variable scores

Quality Attribute	Mean Importance	Mean Performance	I/P Difference
1. The facilities are clean & appealing	4.62	3.69	-0.93
2. The décor of the PR is visually appealing	3.72	3.50	-0.22
3. PR staff workers appear neat	4.36	3.12	-0.24
4. Menu choices & prices are clearly visible	4.23	3.40	-0.83
5. Menus and brochures are clear, accurate & visually appealing	4.03	2.84	-1.19
6. Interest in resolving customer complaints	4.25	2.95	-1.30
7. Service at the PR is prompt	4.40	3.12	-1.28
8. The range of food products is broad	4.20	3.23	-0.97
9. The range of beverages is broad	4.09	3.10	-0.99
10. The quality of meat is high	4.39	2.99	-1.40
11. Employee willingness to help customers	4.32	3.32	-1.00
12. Staff behavior instills confidence in PR	4.24	3.23	-1.01
13. Employees consistently courteous	4.36	3.38	-0.98
14. Employee knowledge to answer questions	4.16	3.41	-0.75
15. The employees make me feel like a special individual while in the restaurant	3.84	2.98	-0.86
16. Operating times are convenient to me	4.24	3.49	-0.75
17. I feel safe/at ease eating in the PR	4.13	3.68	-0.45
18. Checkout is quick/easy at the register	4.29	2.94	-1.35
19. I would utilize the MTs if there was a stop closer to my area	3.44	3.01	-0.33
20. I feel PR prices are competitive & fair	4.25	2.77	-1.48
21. If I have complaints with service or food quality I usually let the employees know	4.02	3.34	-0.68
22. Any complaints that I have had have been handled efficiently	4.06	3.17	-0.89

In the interests of ease of interpretation, a score of 2.4 or below on the perception scale denotes below average performance, while 2.5 or above denotes above average performance. Similarly, a score of 2.4 or below on the importance scale denotes below average importance, while 2.5 or above denotes above average importance. Table 3 highlights that all variables recorded above average performance with variable performance scores ranging from $m=2.77$ (Variable 20 – “I feel prices are fair and competitive”) to $m=3.69$ (Variable 1 – “The facilities are clean and appealing”). Corresponding importance scores range from $m=3.60$ (Variable 19 – “I would utilize the mobile trucks if there was a stop closer by”) to $m=4.62$ (Variable 1 – “The facilities are clean and appealing”).

There are still problem areas worthy of significant attention; not least the fact that negative differentials continue to be recorded for all 22 attributes. As stated previously, a series of paired samples t tests reveals these differences to be significant in all cases at the 1% level ($p<0.001$). This is indicative of the fact that while respondents consider each of these items to be of significant importance in their overall evaluation of the service experience, the facilities surveyed are still not performing at a level reflective of the importance assigned. Of particular note are the

following variables which recorded a 20% and/or above negative differential between consumer importance ratings and their corresponding performance ratings. In other words respondents are very dissatisfied with Dining Service provision as it relates to each of these variables:

- Variable 5 – Menus and brochures are clear, accurate and visually appealing.
- Variable 6 – Interest in resolving customer complaints
- Variable 7 – Service at the Post-restaurant is prompt.
- Variable 10 – The quality of the meat is high
- Variable 11 – Employee willingness to help customers
- Variable 12 – Staff behavior instills confidence
- Variable 18 – Checkout is quick/easy at the register
- Variable 20 – I feel prices are competitive and fair

Each of these variables warrants urgent attention in terms of improving both dining service delivery and consumer perceptions of overall quality and satisfaction.

Dimension based analysis of the results – adapted SERVQUAL

Analysis now turns to the service quality dimensions defined in the original SERVQUAL scale. These five dimensions, referred to by the acronym RATER (Reliability, Assurance, Tangibles, Empathy and Responsiveness) were formed from the original 22-item scale and categorized into the RATER dimensions based upon their relative fit and the feedback received in the initial qualitative stages of the study. The variables included in each category were then aggregated and tested for reliability using Cronbach’s alpha. A short description of each dimension, as well as the scale items that actually comprise each is provided in Table 3 along with the relative reliability ratings for each.

Table 3. Reliability of Aggregated SERVQUAL Dimensions

SERVQUAL Dimension	Scale Items Included	Importance Attributes [Cronbach’s α]	Performance Attributes [Cronbach’s α]
Reliability (<i>Dependable, accurate performance</i>)	4, 6, 18, 19, 22	0.82	0.77
Assurance (<i>Competence, courtesy, credibility & security</i>)	12, 13, 14, 17, 20, 21	0.89	0.85
Tangibles (<i>Appearance of physical elements</i>)	1, 2, 3, 5, 10	0.77	0.84
Empathy (<i>Easy access, good communications & customer understanding</i>)	15, 16	0.67	0.54
Responsiveness (<i>Promptness & helpfulness</i>)	7, 8, 9, 11	0.88	0.81

It can be seen that other than with the exception of the “Empathy” dimension, each of the remaining RATER dimensions satisfy the recommended alpha level of 0.70 for reliability. This is a strong indicator that each of the dimensions listed is a

reliable indicator of that which it is purported to measure. While the values for the Empathy dimension fall below this level, they are nonetheless quite acceptable in the field of social sciences research.

The relative mean importance and performance values were then calculated for each RATER dimension based upon an aggregation of the variables pertaining to each (Table 4). I/P difference scores were then calculated for each dimension and a series of paired sample t tests conducted to attest to the degree of significant difference between each.

Table 4. Importance/performance Means for SERVQUAL Dimensions

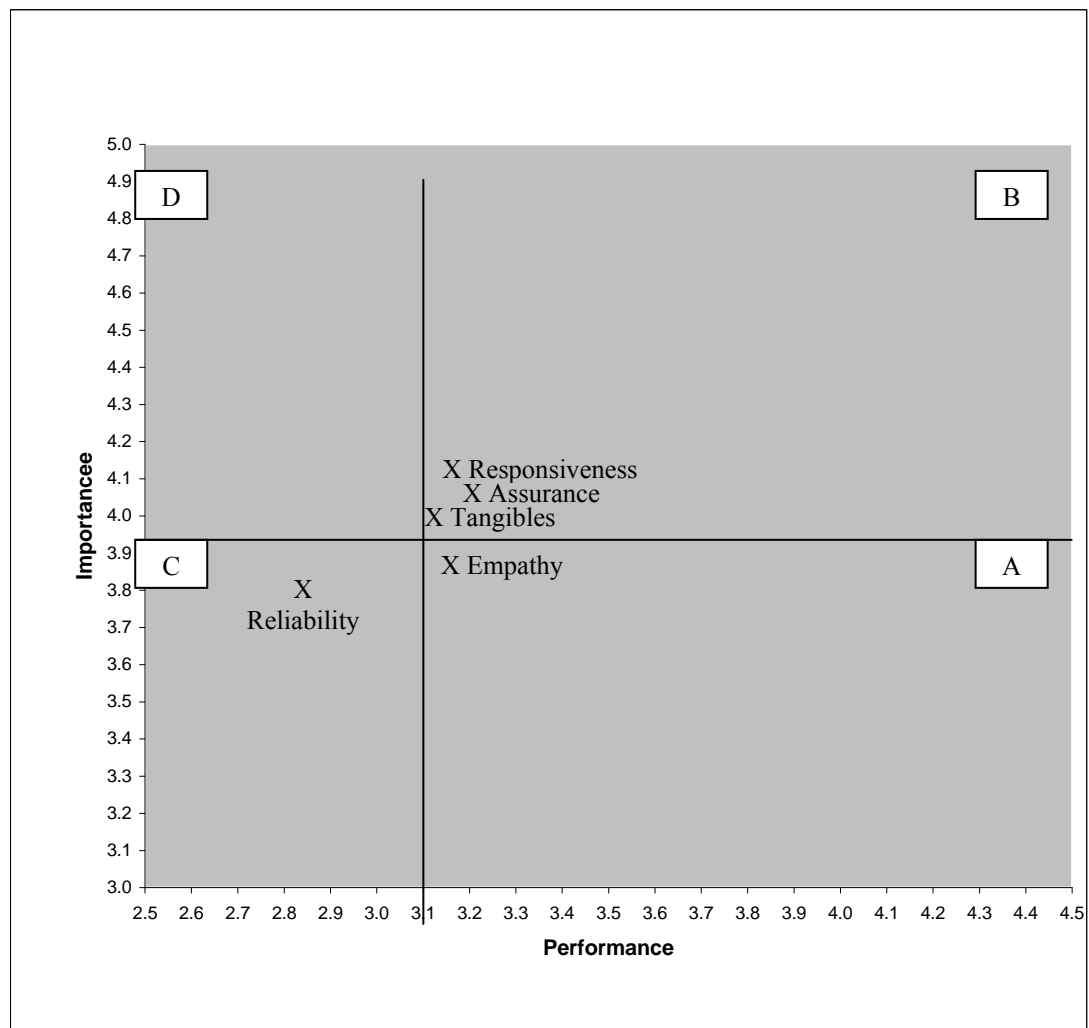
Quality Dimension	Mean Importance	Mean Performance	I/P Difference
Reliability	3.89	2.87	-1.02
Assurance	4.10	3.20	-0.90
Tangibles	4.06	3.17	-0.89
Empathy	3.97	3.16	-0.81
Responsiveness	4.17	3.22	-0.95

As with the previous analysis of individual service quality attributes, results reveal that the mean importance/performance scores for each dimension are again above average ($m=2.50$). Responsiveness received the highest importance and performance ratings ($m=4.17$ & $m=3.22$ respectively), while Reliability recorded the lowest I/P ratings ($m=3.89$ & $m=2.87$). Any corresponding improvement effort must therefore be prioritized in this area. Similarly, the degree of relative importance assigned, exceeds the corresponding performance value for each dimension and the degree of difference was found to be significant in all cases at the 1% level ($p<0.001$); once again pointing to the need for urgent targeted improvement.

Importance – Performance matrix

The next stage in the analysis examined the relative positioning of the individual service quality dimensions in relation to overall mean performance and importance for operators. One of the advantages of using a weighted performance measure is that attributes can be plotted graphically on a matrix and this can assist in quick and efficient interpretation of the results. Figure 1 highlights the relative positioning of dimensions in matrix format. The matrix is represented by the importance values on the vertical axis, while performance values are on the horizontal axis. Each of the aggregated RATER dimensions is shown on the matrix with a corresponding interpretation provided below. When presented in matrix format the results present the operator with a number of strategic alternatives, two of which are of significance in this instance.

Figure 1 – Importance - performance matrix of RATER service dimensions



- Quadrant A indicates somewhat of a misuse of the operator’s resources. While judged to be performing well above average in relation to the provision of this particular dimension, customers in their assessment of the overall experience have deemed these attributes relatively unimportant (below average importance). It is unlikely therefore that any further investment and/or improvement in this area will lead to a greater perception of quality on the part of the consumer.
- Quadrant B reflects a situation where the operator is perceived to be performing above average in relation to the delivery of those service attributes deemed most important by customers. Existing efforts should be maintained with respect to each of the four dimensions falling into this quadrant (Assurance, Tangibles and Responsiveness).
- Quadrant C reflects the fact that certain aspects of the experience are not performing to their full service potential. When viewed in the context of the corresponding importance weighting, however, any pertaining improvement effort would have to be questioned. It should be clarified at this stage that the aggregate importance rating for this variable remains high and regardless of

rank relative to other dimensions, targeted improvement should continue to be directed at this more logistical element of the service delivery system. Indeed the item based analysis represented in Table 2 supports this contention

- Quadrant D is where the greatest improvement effort is required. Attributes that fall into this category are deemed to be of above average importance to customers in their overall evaluation of the service experience, yet are under-performing in the customer’s eyes (below average performance). It should be a priority that improvement efforts are focused in this area. None of the dimensions assessed fall into this quadrant.

Analysis of behavioral intention

Analysis then turned to the issue of buyer behavioral intention and the relationship between the consumers mean I/P quality rating and their intention to revisit and/or recommend the facilities under investigation to others. Two measures of behavioral outcome were: “How likely is it that you will continue to utilize Post-restaurant &/or Mobile truck services”? and “How likely is it that you would recommend the Post-restaurant &/or Mobile truck services to others”? Respondents were asked to rate their responses on a five point Likert scale anchored at “Highly Unlikely” (1) through to “Highly Likely” (5) for both variables. This test was performed by calculating the mean performance scores for each of the 22 scale items and correlating these with the mean values for each of the two behavioral variables using Pearson’s product moment correlation. The results of this analysis are shown in Table 5.

Table 5. Correlation index of I/P difference scores and behavioral intention variables

Mean I/P Differ. Score	Pearson Correlation Sig. (2-tailed) n	Mean SQ Score
Revisit Behavioral Variable	Pearson Correlation Sig. (2-tailed) n	.325** .001 650
Recommend Behavioral Variable	Pearson Correlation Sig. (2-tailed) n	.400** .001 654

** Correlation is significant at the 0.01 level (2-tailed).

Results of this test (Table 5) show that moderate correlations of .325 and .400 were found for intention to revisit and recommend respectively, which while small were nonetheless significant at the 1% level (p = <0.001).

Conclusions and Implications

At a time of Base Realignment and Closure (BRAC) nationally, this project was designed to help focus the continuous quality improvement efforts of the Directorate of Family and Community Activities, particularly as they relate to food service provision. While at first glance the results may be viewed in a negative light, they should be received positively, as they give a clear and to an extent representative viewpoint of employee feeling and feedback on food service operations. Clearly, where issues have been identified as a concern by employees; this points to the need for concentrated improvement efforts, which should be viewed as a clear opportunity for the organization to improve on present performance.

A number of issues have been identified that warrant clear attention to detail, not least that those concerning reliable and timely delivery of the service offering. These issues must now be prioritized in terms of future developmental effort. In terms of specific recommendations, the following are offered for consideration: Having solicited broad employee feedback on the service quality issue, it is proposed that a short summary of the main findings from the survey be distributed amongst all employees. This should serve to not only keep personnel informed of the change process, but also the follow-up.

Many perceptions have been identified to be of clear concern to personnel. It is proposed that some form of post-evaluative work should take place in open or closed forum to identify these issues in terms of cause and/or potential solutions. Bearing in mind that Continuous Quality Improvement is by definition an ongoing process, it is proposed that the IPA techniques employed in the survey become utilized on an annual basis, serving not only as a yearly indicator of performance, but serving also as a comparative benchmark against which related quality improvement initiatives can be tested. The results provided herein, serve as a benchmark against which future improvements can be tested. In short, there can be neither systematic nor sustained quality improvement without reliable, valid and truly representative information.

On a related note, the data has provided further support for the use of importance-performance measures of service quality. When measured using a 22 item scale, difference scores based on importance and performance were found to be closely related to respondents' behavioral intention, when assessed in terms of intention to revisit and recommendation intention.

The IPA methodology has proven very attractive to the DCFA in their ongoing quality improvement efforts and is to be employed on an annual basis as part of the DCFA's ongoing quality approach. The simplicity of the instrument combined with its ability to share meaningful results in a graphic and user friendly manner has led to its adoption for this purpose. Indeed, DCFA recently employed IPA to evaluate employee satisfaction with its Morale, Welfare and Recreational (MWR) service arm.

The study does have a number of clear limitations though, not least the low response rate, the generalizability of the results and a less than acceptable response from contract employees employed on at the depot. The issue of response might be explained by the manner of distribution and the fact that surveys were distributed at an inconvenient time for manner potential respondents. There is a suspicion that surveys might have been set aside for later completion and simply forgotten about due to the pressures of the normal work day. A possible counter to this would of course have been direct intercept at the various points of sale and service outlets wherein respondents could complete the questionnaire during their actual lunch and or coffee breaks.

A further limitation relates to the fact that the convenience sample drawn for the study was not purely random. While complete random sampling is impossible, the sample basis could have been broadened to include all those who can avail of the services on offer – both depot personnel and visitors. The depot plays host to a wide variety of visitors including retired personnel, their families and extended networks. Once again this limitation might have been countered by an alternative distribution process wherein all consumers would be afforded the opportunity to complete questionnaires at the point of sale immediately following consumption. The results also point to a less than desirable response from contract employees who make up

almost one quarter of the depot's work force. This can partly be explained by the very heavy workload and tight schedules that confront most contract employees and the fact that many do not avail of the dining services on the depot.

While acknowledging that these limitations do exist and that they may have biased the results in some way, it is suggested that they do not detract in any way from the use of such a measurement tool for evaluating and tracking consumer perceptions of service quality over time. As the previous analysis has demonstrated, the tool has performed well in terms of both reliability and validity and it is suggested that it would perform equally well in any other service setting.

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