

## **From the Editor**

The three articles highlight the importance of education and training for the foodservice industry. The importance of educating the public on the safety of pre-packaged foods reported by Broz et al shows the informational role of the foodservice professional when interacting with consumers. Lee et al describe competencies needed by directors of assisted living facilities (ALFs). O'Neill demonstrates the need for continuing education for staff to maintain service standards.

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Bonnie L. Gerald  
Editor, *Journal of Foodservice Research & Education*

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

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### **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
<b>5. Menus and brochures are clear, accurate &amp; visually appealing</b>	<b>4.03</b>	<b>2.84</b>	<b>-1.19</b>
<b>6. Interest in resolving customer complaints</b>	<b>4.25</b>	<b>2.95</b>	<b>-1.30</b>
<b>7. Service at the PR is prompt</b>	<b>4.40</b>	<b>3.12</b>	<b>-1.28</b>
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
<b>10. The quality of meat is high</b>	<b>4.39</b>	<b>2.99</b>	<b>-1.40</b>
<b>11. Employee willingness to help customers</b>	<b>4.32</b>	<b>3.32</b>	<b>-1.00</b>
<b>12. Staff behavior instills confidence in PR</b>	<b>4.24</b>	<b>3.23</b>	<b>-1.01</b>
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
<b>18. Checkout is quick/easy at the register</b>	<b>4.29</b>	<b>2.94</b>	<b>-1.35</b>
19. I would utilize the MTs if there was a stop closer to my area	3.44	3.01	-0.33
<b>20. I feel PR prices are competitive &amp; fair</b>	<b>4.25</b>	<b>2.77</b>	<b>-1.48</b>
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 $\alpha$ ]	Performance Attributes [Cronbach’s $\alpha$ ]
Reliability ( <i>Dependable, accurate performance</i> )	4, 6, 18, 19, 22	0.82	0.77
Assurance ( <i>Competence, courtesy, credibility &amp; 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 &amp; customer understanding</i> )	15, 16	0.67	0.54
Responsiveness ( <i>Promptness &amp; 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

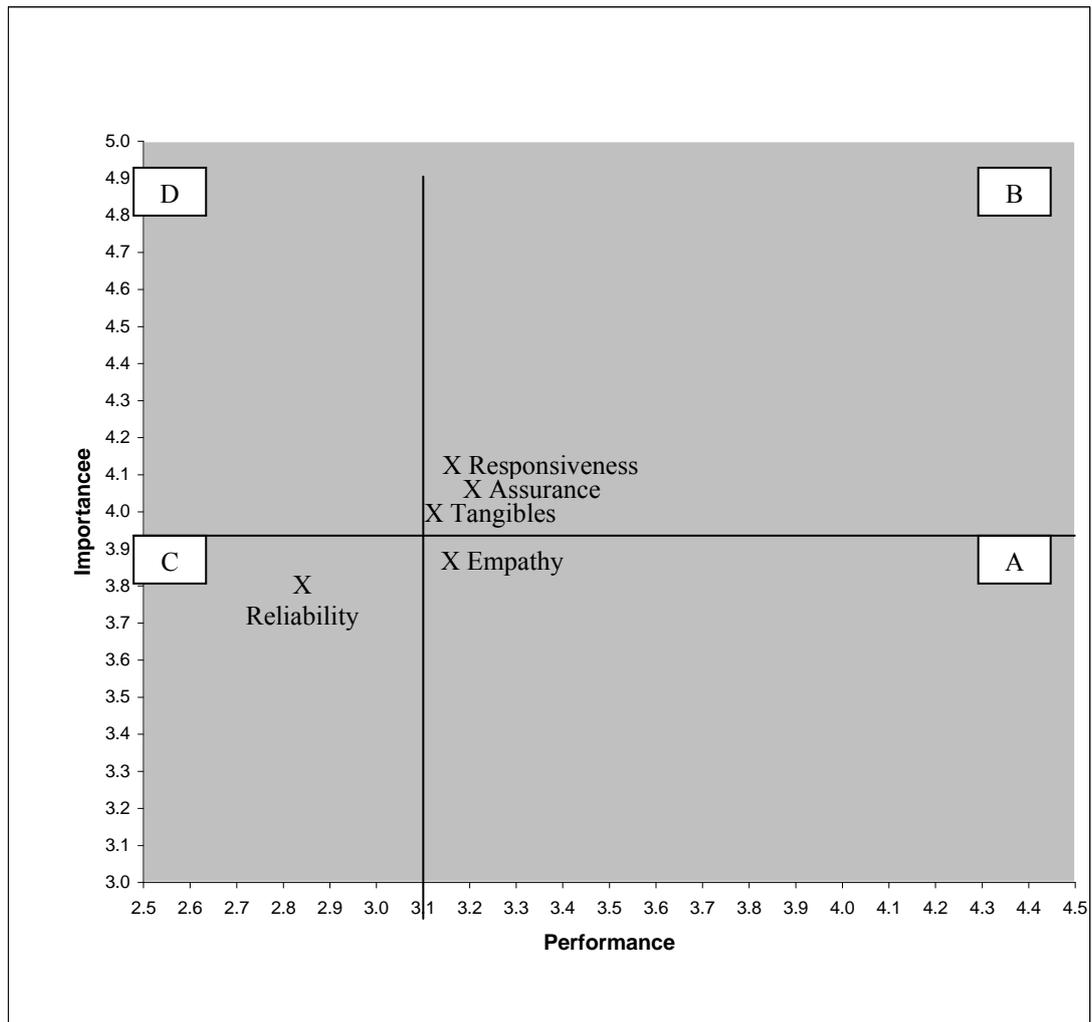
Quality Dimension	Mean Importance	Mean Performance	I/P Difference
Reliability	3.89	2.87	-1.02
Assurance	4.10	3.20	-0.90
Tangibles	4.06	3.17	-0.89
Empathy	3.97	3.16	-0.81
Responsiveness	4.17	3.22	-0.95

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

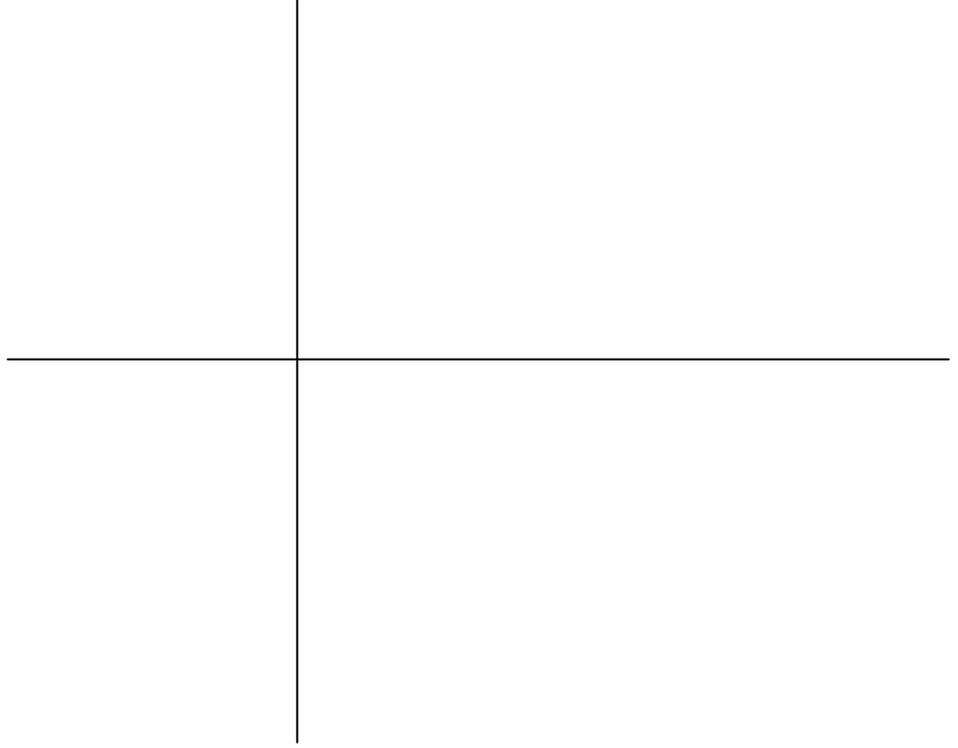
almost one quarter of the depot's work force. This can partly be explained by the very heavy workload and tight schedules that confront most contract employees and the fact that many do not avail of the dining services on the depot.

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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**CONSUMER PERCEPTION OF TAKE-OUT FOOD:  
SAFE HANDLING PRACTICES AND DESIRED PACKAGE ATTRIBUTES**

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**ABSTRACT**

This study was conducted via an online survey service to determine how the public perceived take-out food, food packaging, and general food safety issues. The survey covered topics ranging from sanitation practices to how food is treated once purchased from a given establishment. Despite research suggesting a general lack of consumer food safety knowledge, results from this 324-person sample indicated familiarity with proper sanitation, high-risk foods and associated pathogens. When asked about desirable packaging attributes, participant responses were mostly concerned with purchasing food in a container that would be leak-proof, and that would keep the food at the appropriate temperature.

**KEY WORDS:** Consumer perception, take-out food, food safety, food packaging.

## INTRODUCTION

As consumer purchases of food away from home increases annually, with it arise several concerns as to the public's knowledge of safe food handling behavior. The increase in take-out food is accompanied by the increasing risk of foodborne illness (Binkley & Ghiselli, 2005). In spite of proper sanitary practices by foodservice personnel, once packaged food has left the establishment, consumers must rely on their own food safety knowledge and the integrity of the packaging to prevent consuming a contaminated product. This evolution of take-out food has trended towards curbside service since 2001. Convenience curbside take-out products are now responsible for up to ten percent of total sales for some establishments (Swartz, 2004). Over the last three years, curbside take-out has doubled the annual take-out sales of chain concepts such as Outback Steakhouse, Applebee's and Chili's (Warner, 2006). This increase in sales indicates a huge amount of profit for the chains when one considers that 57% of the American population orders take-out food at least once per week (Klara, 2004). Such profits represent a 58% increase over a ten-year period in 2002; up \$152 billion from 1992 figures (Stewart, Blisard, Bhuyan, & Nayga, 2004). In essence, "restaurants have become places to [purchase] food to eat somewhere else" (Food Institute Report, 2007, p.1). While such convenience seems irresistible to consumers, widespread purchase of take-out food raises several problematic factors: the amount of time from purchase to consumption, the type of container being used, and the consumer knowledge as to reheating food products safely.

Because of the growing demand for take-out foods, foodservice establishments have no choice but to react (Foodservice & Packaging Institute, Inc., 2007). The challenge however is to find containers that keep the food hot, and are cost effective (Matsumoto, 2000). Containers used by traditional quick service restaurants (QSRs) hold foods that are frequently consumed in the car or the parking lot, while curbside to go concepts need packaging that will keep the food quality intact until the consumer arrives home (Swartz, 2004). Before Applebee's began its curbside service, the company conducted focus groups to determine what the consumer wanted from take-out packaging. What was discovered was that the chain's existing white polystyrene clamshell containers did not keep food hot, tended to leak, and were damaged easily with sharp utensils (Sheridan, 2003). The current containers, heavy plastic bases with clear, sealable lids, cost the company far more than did the competitively priced clamshells, but they are also functioning on several levels: as a means to support the integrity of the product, as a marketing tool, and to reproduce the upscale nature of the restaurant's table settings in the consumer's home (Shea, 2004).

Chain QSRs and full-service restaurants are showing great potential for increased usage of foodservice disposable packaging over the next five years, with an estimated annual increase of 5 percent, as opposed to typical growth of 1 or 2 percent (Falkman, 2002). Thirty-eight percent of restaurant owners polled anticipated that take-out sales would contribute more to total sales in 2007. In addition, 37 percent of consumers polled have used curbside services in restaurants previously considered "sit-down" establishments (National Restaurant Association, 2007).

Only take-out and curbside services are fueling the increased sales in the foodservice market since consumer interest for dining in restaurants is not growing. The value to the current consumer is the ability to purchase already prepared food, and take it

away to consume at home (Prewitt, 2002). This market is supported by single working people, and dual-income couples, both with or without children, who are purchasing take-out food five times per week due to time constraints (Binkley & Ghiselli, 2005). Subsequently, the QSRs have taken over 50% of the food away from home market (Allen, 1999).

With increased consumption of take-out food, come increased risks to the consumer associated with a general lack of food safety knowledge and practices (Milliorn, 2001). Although the federal government regulates the manufacture of single use packaging items with regard to health issues and environmental safety concerns, there are no governmental regulations on the packaging or labeling of take-out food (Foodservice & Packaging Institute, Inc., 2007). All food safety standards are self-regulated, leaving the responsibility to the restaurant operators to ensure the safety of products and services they provide (Binkley & Ghiselli, 2005). Most take-out containers and packaging materials do not contain any handling or reheating instructions. A 2002 survey of 1011 men and women over 20 years of age, by the American Dietetic Association (ADA), revealed that 75% of survey participants would appreciate safe handling instructions on take-out labels (Klara, 2004). In addition, the survey indicated that 51% of Americans do not know the proper temperature for reheating leftovers, and that 48% rely solely on their senses to determine if a food product is spoiled (Klara, 2004). Other research suggests that consumers do not understand how long leftovers may be safely stored (Terpstra, Steenbekkers, de Maertelaere & Nijhuies, 2005). Three reported cases of *Clostridium botulinum* reported in 2007 were associated with incidents in which packaged foods were not cooled and stored properly (Lando & Fein, 2007). This lack of safety knowledge represents a serious problem, especially when considering the growing number of consumers purchasing take-out food.

Because of the growing popularity of take-out food and the public's lack of food safety knowledge, a significant increased risk for widespread foodborne illness is likely. The purpose of this study was to determine the level of public awareness of food safety issues associated with food prepared away from home, as well as public perception of positive and negative attributes of take-out food containers and packaging. Specifically, this study was conducted to support the following research questions: (1) Are consumers who purchase take-out foods knowledgeable about food safety topics? (2) Do consumers feel that restaurants are responsible for the safety of their customers? (3) Do consumers purchase take-out foods based on perceived qualities of take-out containers? (4) What are qualities impacting purchase decisions?

## **METHODOLOGY**

This study utilized an online survey engine (source: [www.surveymonkey.com/take-out%20food](http://www.surveymonkey.com/take-out%20food)) to obtain the sample, host the survey, and gather data. The survey method was chosen to elicit responses directly from a large sample of consumers who purchase take-out food on a regular basis. To expedite dissemination, a link to the survey was posted on an online university daily announcement system that is available to all staff, faculty and employees.

Snowball sampling was chosen for this study due to its popularity in current research on consumer perceptions (Banister, 2003). This method is very cost effective when compared to a mailed paper survey, and can result in a large number of participants

(Sukalakamala, 2007). The technique utilizes a web-based survey engine, and encourages participants to forward the survey on to other internet-users (Kelly, Clark, Brown & Sitzia, 2003). In addition, five hundred cards printed with the URL of the survey were placed in the to-go containers of selected restaurants representing high volume fast food, quick service restaurants with pick up counters, and casual dining featuring curbside service.

Configuration of the instrument was based on a survey designed to measure elements impacting purchasing decisions by consumers visiting wineries (Kolyesnikova, 2006). The pilot-tested instrument consisted of twenty-six questions including screening questions and demographics. The instrument was designed to measure four constructs: consumer food safety knowledge, elements impacting purchase decisions, responsibilities of the restaurant, and perception of packaging qualities. Approval from the University's Internal Review Board was obtained prior to the study for research using human subjects.

In the first portion of the survey, participants were asked to respond to nine statements on a five-point Likert scale; response choices ranged from 1 (totally agree) to 5 (totally disagree). The questions were designed to elicit the most important aspects driving the consumer's decision to purchase take-out food, as well as to understand the level of food safety knowledge of the average consumer.

Following these statements were a series of nine multiple choice questions designed to gauge consumer knowledge of food safety, safe food handling practices, and take-out purchasing behavior. The third portion of the survey consisted of four questions designed to examine consumers' perceptions of desired attributes in take-out packaging, as well as safe food handling practices. The survey ended with seven demographic questions. The survey was administered between January and March of 2007, and was made available on surveymonkey.com.

## **RESULTS**

Of the 324 surveys received, 310 were used in the analysis. Fourteen surveys were unusable for data analysis because the participants failed to complete all portions of the survey. Eighty-six percent of the sample reported purchasing take-out food at least once per week, and for an average monthly purchase of 7.09 times. This behavior resulted in an average of \$80.04 spent on take-out food per month, per person. The mean age of respondents was 45.30 years, most were female (80.4%), white (87.5%), married (63.9%), and self-rated their food safety knowledge level as at least fair (50.5%). The sample reflected a wide educational level from high school diploma to graduate degree., with the majority holding a graduate degree (Table 1).

For analyzing reliability of measurement, a Cronbach's alpha value of .69 was obtained. To measure construct validity, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA), and the Bartlett Test of Sphericity were used to determine the appropriateness of applying factor analysis to consumer knowledge. The value of MSA was .69, which was a reasonable value (Kaiser, 1974), and verified that the use of factor analysis was appropriate in the study. Bartlett's Test of Sphericity value ( $\chi^2$ ) was 820.043, (df = 45,  $p < .001$ ), and showed that the data used in this study did not produce an identity matrix and thus were multivariate normal and acceptable for factor analysis.

Factor analysis with a Varimax rotation procedure was employed to identify underlying dimensions of consumer perception of food safety. Four factors, with eigenvalues greater than 1.0 and accounting for 65.6% of the total variance were retained.

Table 1. Demographic Characteristics of Respondents (n=324)

Gender	%	Marital Status	%
Female	80.4	Married	63.9
Male	19.6	Single	23.6
		Divorced	9.5
		Widowed	3.0
Educational Level		Ethnicity	
High School Diploma	5.1	White, Non-Hispanic	87.5
Vocational/Technical School	1.4	Hispanic	5.8
Some College	15.9	African-American	0.7
Undergraduate Degree	20.0	Asian	3.7
Some Graduate Work	11.2	Other	2.4
Graduate Degree	44.7		
Other	1.7		

All attributes with factor loadings of 0.49 or greater were kept in the analysis. The constructs identified were titled “consumer food safety knowledge,” “elements impacting purchase decision,” “responsibility of a restaurant,” and “perception of packaging qualities” (Table 2).

Participants were fairly knowledgeable about food safety issues, based on responses about potentially hazardous foods and associated pathogens. However, they tended to underrate their level of this knowledge ( $M = 2.01$  on a five point scale). Participants were also very concerned about packaging qualities and food safety information being provided by the restaurant ( $M = 2.33$ ). While participants gave lower responses on some take-out packaging attributes, such as the container’s ability to be recycled ( $M = 2.15$ ), the participants were very concerned with purchasing food in a container that would be leak-proof (95.3%), and that would keep the food hot/cold (91.9%) (open-ended).

Very little difference in elements impacting purchase decisions between the various demographics was noted. However, there was statistical significance between genders regarding the importance of packaging for take-out food. Males were more likely to consider packaging an important aspect of the purchase decision as compared to females ( $t = -3.01, p < .05$ ).

Table 2. Factors, Variables, and Associated Values

Factor and Variables	Factor loading	Eigen Value	Reliability Coefficient	Communality
<b>Consumer food safety knowledge</b>		2.681	0.909	
I feel I understand how to properly handle leftover food.	0.938			0.375
I feel I understand what causes a food borne illness and prevent it from happening in my home.	0.927			0.563
I feel I am very knowledgeable in food safety.	0.882			0.533
<b>Elements impacting purchase decision</b>		1.641	0.504	
When I purchase take-out food, I return home with the food as soon as possible.	0.808			0.738
When I purchase take-out food, the restaurant is very important in the decision process.	0.491			0.621
<b>Responsibility of a restaurant</b>		1.178	0.351	
I feel restaurants should provide take-out containers that are recyclable.	0.837			0.521
I feel the restaurant is responsible to provide food safety information concerning take-out food.	0.66			0.792
<b>Perception of packaging qualities</b>		1.063	0.266	
When I purchase take-out food, the location of the restaurant plays a big part in choosing that restaurant.	0.743			0.886
When purchasing take-out food, the packaging is an important consideration.	0.7			0.866

*Consumer Food Safety Knowledge*

Analysis of Likert-rated questions revealed that 85.4% of respondents either totally agreed or agreed that they understood how to properly handle leftover food (M = 1.93, SD = 0.79). Eighty-two percent either totally agreed or agreed that they understood what caused a foodborne illness, and how to prevent this in the home (M = 1.96, SD = 0.85). In addition, 72.6% either totally agreed or agreed that they were knowledgeable about food safety (M = 2.14, SD = 0.86).

*Elements Impacting Purchase*

Eighty-six percent of respondents either totally agreed or agreed that they returned home with take-out food as quickly as possible (M = 1.65, SD = 0.85), and 93.7% of respondents either totally agreed or agreed with the statement that the restaurant (i.e., brand loyalty) was important in the decision process (M = 1.55, SD = 0.64).

*Responsibility of a Restaurant*

Sixty-four percent of respondents either agreed or were neutral about the statement that restaurants should be responsible for supplying food safety information (M

= 2.33, SD = 1.03), and 35% were neutral about whether or not the packaging was recyclable (M = 2.15, SD = 0.87).

*Perception of Packaging Qualities*

Forty-three percent of respondents were neutral concerning packaging being an important factor impacting purchase decision (M = 2.79, SD = 0.88), while 90.2% totally agreed or agreed that the location of the restaurant is a major part of the decision process (M = 1.75, SD = 0.71). These respondents were less concerned with brand loyalty as with distance from restaurant to home, and necessary packaging attributes (Table 3).

Table 3. Factors, Statements, and Associated Means and Standard Deviations

Factors and Statements	Mean <sup>a</sup>	SD
Consumer food safety knowledge		
I feel I understand how to properly handle leftover food.	1.93	0.79
I feel I understand what causes a foodborne illness and prevent it from happening in my home.	1.96	0.85
I feel I am very knowledgeable in food safety.	2.14	0.86
Elements impacting purchase		
When I purchase take-out food, I return home with the food as soon as possible.	1.65	0.85
When I purchase take-out food, the restaurant is very important in the decision process.	1.55	0.64
Responsibility of a restaurant		
I feel restaurants should provide take-out containers that are recyclable.	2.15	0.87
I feel the restaurant is responsible to provide food safety information concerning take-out food.	2.33	1.03
Perception of packaging qualities		
When I purchase take-out food, the location of the restaurant plays a big part in choosing that restaurant.	1.75	0.71
When purchasing take-out food, the packaging is an important consideration.	2.79	0.88

(<sup>a</sup> = On a scale of 1= Totally agree; 5 = Totally disagree)

When asked about the proper temperature for a consumer refrigerator, 68.1% chose the correct response. However, when asked about types of food that would likely cause a foodborne illness, only 32.9% chose the correct response. Nearly 98% of respondents knew that if a food should not be eaten it will not always smell bad. Eighty-five percent associated *Salmonella* sp. with raw poultry, but only 40.5% of respondents knew the proper hand washing technique requires hands being rubbed together for at least 20 seconds. Respondents were asked how many times per day they washed their hands; 56.2% reported washing them 0-10 times, 32.3% reported washing them 11-15 times, 7.1% reported washing them 16-20 times, and 4.4% reported washing their hands over 20 times per day.

When asked about the proper way to thaw ground beef, 95% of respondents knew that it should be done in the refrigerator, but only 32.2% knew that reheating leftovers required an internal temperature of at least 165 degrees F. Eighty percent of respondents felt that food could only remain un-refrigerated for one hour; only 3.7% chose the correct response (4 hours). Likewise, 52% of respondents felt that leftover food was only edible within 2 days, while only 2.7% chose the correct response (a weeks' time).

Four additional questions relating to take-out food and packaging were asked at the end of the survey. First, respondents were asked about desired packaging characteristics. The most widely chosen characteristics were: leak-proof (95.3%), keep the food hot/cold (91.9%), keep the food from becoming soggy (84%), packaging with compartments to separate food items (74.2%), microwaveable (55%), recyclable (51.3%), and finally, oven-safe (13.8%).

The second question addressed the type of packaging that was used when foods were purchased. The most frequently used packaging types were: foamed polystyrene containers (91%), corrugated paperboard containers (pizza boxes) (85.2%), aluminum foil wrappers (54%), plastic microwaveable containers (44.0%), non-microwaveable plastic containers (41%), and aluminum containers (37.9%).

The third question asked respondents what they did with leftover take-out food. Sixty-seven percent said they left the food in its original container and refrigerated it. Fifty-three percent said they transferred the food to another container and refrigerated it. Thirty-five percent of respondents said they disposed of any leftover take-out food. Point seven percent said they left it in the original container and did not refrigerate it. No respondents said they transferred the food to another container and did not refrigerate it.

The fourth question addressed the type of food safety information that was supplied to respondents when they purchased take-out food. The majority of respondents reported having no information supplied by the restaurant, 22.5% reported receiving information regarding reheating instructions, 14.4% said they received cooking instructions, 4.7% received information on how to store the food or leftovers, 2.3% received information concerning how long to keep the product in the refrigerator, and only 1.0% received information on amount of time food should be un-refrigerated.

## CONCLUSION

Most respondents were knowledgeable about the majority of the food safety questions; meaning they were familiar with food safety issues, as well as some of the more advanced topics dealing with *Salmonella* sp., and the foods associated with other foodborne pathogens. However, one important result was how close the response percentages were for safe internal temperature for re-heated leftovers (145 degrees F at 31.6% vs. the correct response: 165 degrees F at 32.2%). Due to the fact that such misinformation could lead to consumption of contaminated food, this high percentage could be a red flag among missed items. For the most part, respondents erred on the side of caution. For example, most said they would refrigerate uneaten food within an hour, when according to food safety guidelines food can be left un-refrigerated for up to four hours. Likewise, when asked how long leftover food remains viable, over half of respondents said “within two days.” Guidelines state that if properly refrigerated, leftovers are viable for a full week. Though these are technically “wrong” responses to food safety questions, this lack of knowledge would probably not correlate with foodborne illness.

Clearly, some consumers purchased take-out food based upon perceptions about take-out packaging. However, respondents concerned with the packaging used were primarily interested in container attributes that facilitated prompt consumption such as thermal integrity; resistance to leakage; retention of product crispness; and compartmentalization of product. This variable is consistent with the Likert-rated questionnaire item that suggests most respondents purchased take-out food for the purpose of returning home with the food and consuming it immediately.

Consumer perception indicated the majority of respondents felt that restaurants had a responsibility to provide safe handling instructions; however, nearly eighty-two percent of respondents claimed that no information whatsoever was provided with purchased take-out products. Due to the fact that safe handling practices are strictly up to the consumer once the package has left the establishment, restaurants would be wise to provide such information (Foodservice & Packaging Institute, Inc., 2007).

According to respondents, individual experiences at specific restaurants played a major part in the purchasing decision process. The majority of the respondents agreed or strongly agreed that the restaurant was a major deciding factor in their decision to purchase take-out food, and that they remained loyal to specific establishments. In addition, another major factor in the decision making process was the location of the restaurant, where a majority of respondents said this was a major factor fueling their purchase. The closer the restaurant was located to the respondents' homes, the less concerned the respondents were about packaging qualities. Future studies of consumer perception of take-out packaging, as well as consumer food safety knowledge, could be strengthened by conducting this experiment on another sample. In addition, random sampling and paper/pencil surveys could strengthen the method. Finally, the long interview method could be utilized targeting a specific market segment.

Limitations of this study included narrow demographic parameters for age, gender, race, education and income level; which prevented this study from being generalized to the population as a whole. In addition, internet hosted surveys do not allow the researchers to accurately measure response rate, nor were the researchers able to

determine exactly how the respondents were exposed to the survey: i.e., the university website, the restaurant cards or word of mouth.

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## **Competencies and Skills Required for Foodservice Directors in Assisted Living Facilities**

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### **Abstract:**

A national mail survey of administrators and foodservice directors currently employed in Assisted Living Facilities (ALFs) was conducted to identify knowledge and skills needed for successful employment as future foodservice directors in ALFs. Data included socio-demographic information and importance ratings of 34 competencies and skills assessed with a five-point Likert-type scale. “Acts as effective team leader and/or team member” were rated highest by both groups. Educators must continue to assess whether the curriculum is adequate for preparing dietetic, hospitality, and other students for employment in this growing field.

**Key Words:** educational competencies/skills, assisted living facilities, foodservice management

## Introduction

The number of Americans aged 65 years and older is increasing. By 2030, older adults are expected to comprise 20% of the total United States (U.S.) population (approximately 71.5 million Americans) (AoA, 2005). Life expectancy is predicted to increase with a resultant increase in the prevalence of chronic health conditions and assistance being needed for activities of daily living (ADLs) (Schoenborn, Vickerie, & Powell-Griner, 2006). Many older adults depend on others to assist them with ADLs thus, the demand for appropriately trained professionals in healthcare and long-term care is expected to increase.

A 2004 report published by the U.S. Department of Health and Human Services indicates that approximately 36,000 older adults (2.5 % of the 65+ age group) reside in assisted living facilities (ALFs) (National Center for Assisted Living, 2006a). The demand for ALFs as an alternative housing option is predicted to increase not only because they are a less costly alternative to nursing homes but because they allow more independence while providing needed assistance with ADLs. ALFs typically provide services such as 24 hour supervision, scheduled or unscheduled assistance with ADLs, nutritious meals, social activities and some health related services. Regulations of ALFs differ by state as do the costs and precise services that are provided. Some costs and services are influenced by the sources of payment available, e.g. Medicaid, Medicare, private pay insurance plans, etc (Cohen & Miller, 2000).

The quality of food and foodservice have been identified as important considerations when residents select and evaluate ALFs (Chao & Dywer, 2004). Thus it is important for ALFs to change their foodservices to meet the needs of residents. When the residents dislike and cannot enjoy food served in facilities, they are dissatisfied with their overall care (Kayser-Jones, 1996). Huang (2004) and Huang and Shanklin (2008) found that food quality is linked with ALF residents' intake of nutrients. Further, perceptions by ALF residents of food quality and foodservice quality had a positive influence on satisfaction with the overall dining experience (Howells, 2007; Howells & Shanklin, 2007). Enhancing the quality of food and services provided by the foodservice department in ALFs could increase residents' overall satisfaction level with all services provided by the facilities. Furthermore, providing appealing nutritious meals and a dining environment that promotes socialization, positively contributes to improving residents' quality of life in ALFs (Popper & Kroll, 2003). Ginn and Young (2003) suggested that ALF administrators should make customer service a top priority by creating value, ensuring quality service, and increasing customer satisfaction. To achieve this goal, ALF administrators and foodservice director's management skills especially in recognizing the resident needs and preferences are becoming more important. They must have the competencies and skills to provide the quality of food and services expected by their residents and their families, maintain their satisfaction and attract other potential customers.

A growing number of older population will boost the demands of nutrition services and nutritional counseling in residential care facilities (Bureau of Labor Statistics, U.S. Department of Labor, 2006). This change contributes to potential employment growth in these areas. Additional job openings will also occur when experienced workers, retire or leave positions they hold. Foodservice professionals and dietetic educators need to address the demands of the changing health care systems and

ready current and returning students for potential employment opportunities in ALFs and other housing alternatives.

Administrators and foodservice directors currently employed in ALFs are in a unique and ideal position to identify essential knowledge and skills needed for employment as future foodservice directors. Dietetic educators must continue to assess whether the curriculum is currently adequate for preparing dietetic and other students for employment in this growing field. The purpose of this study was to identify the essential knowledge and skills of foodservice directors in ALFs.

## **Methods**

### **Sample**

The three geographic regions with the greatest number of licensed ALF beds were selected from the nine Administration on Aging (AoA) regions as the sampling frame. These three regions comprised 18 states. The proportional sampling was used in this study. First, a percentage of total licensed beds by each state among the sampling frame were calculated. Base on the percentage, each state would result vary number of the ALFs sample. Thus, a total of 250 ALFs assembled from 18 states were randomly selected from ALF directories shown by state on the official AoA website (National Center for Assisted Living, 2006b). This sampling method can assure adequate national representation of administrators and foodservice directors/managers currently employed in licensed ALFs.

### **Data collection and analyses**

The research protocol was approved by the Institutional Review Board for Human Subjects before commencing data collection. With permission, the data collection instrument was adapted from a mail questionnaire evaluating preparation of foodservice directors in acute care hospitals (Gregoire, Sames, Dowling & Lafferty, 2005). A list of 34 competencies and skills statements were assessed with a five-point Likert-type scale (1=Extremely Unimportant, 2=Somewhat Unimportant, 3=Neutral, 4=Somewhat Important, 5=Extremely Important) to determine the relative importance of each of the 34 competency and skill statements for success as foodservice directors in ALFs. Ten socio-demographic questions were added to the survey so that participants could be fully characterized.

Two inquiry phases were conducted. Initially a cover letter and questionnaire were mailed to 250 ALF administrators and 250 foodservice directors employed in the sample of ALFs described above. Postage-paid return envelopes and a summary request card were included in each mailing. A reminder postcard was mailed two weeks after the first mailing to non-respondents. Two weeks later, a replacement questionnaire was sent to all non-respondents. Responses were extremely limited thus a second more targeted mailing commenced.

Return rate for the first questionnaire administration was only 4.2%. Second phase surveys were then mailed to a second randomized sample of AFL administrators and food serviced operators from the same regions with a minimum of 100 beds. To further personalize the surveys in the second mailing, administrator names and correct addresses were secured by searching individual ALF homepages or by telephone calls placed to the facilities, assuring that they were operational and of at least 100 bed

capacities. The order and types of contacts were the same as phase one. Return rate for this mailing was 16.2% (81 out of 500 surveys). Response rate for combined first and second administration was 10.2%.

The Statistical Package for the Social Sciences (version 13.0 for Windows, 2004, SPSS Inc., Chicago, IL) was used for statistical analyses. Before performing actual data analyses, Mann-Whitney tests were used to determine if there were differences between key variables of phase one and phase two. The results were not statistically significant for all variables tested. Since no significant differences were found between the two phases, data were combined for analyses without any restriction. Descriptive statistics were run to determine mean importance ratings of competencies and skills, comparisons between administrators and food service directors, and demographic profile of respondents. Assumption of normality could not be met because of small sample size, thus nonparametric analyses were conducted (George & Mallery, 2003). Mann-Whitney and Kruskal-Wallis tests compared importance rating mean differences among demographic characteristics of foodservice directors and administrators. Statistical analyses  $p \leq 0.05$  was used for all tests.

## **Results and Discussion**

### **Demographics**

The majority of the foodservice directors were male (58.8%) and between 41-50 years of age (51.0%) (Table1). Many (44.0%) had an associate degree with majors in hospitality management and culinary arts. Most respondents had been employed in their current position for 5-10 years and had 5-10 years of experience working in ALFs. The majority of foodservice directors were also certified dietary managers (37.3%; n=19) and certified food protection professionals (27.5%; n=14). Only 4 were registered dietitians.

In contrast, the majority of administrators were female (74.5%); 44.7% were between 30-50 years of age. Most had either a bachelor's (44.7%) or master's degree (27.7%) with majors in long-term care administration and business management. The majority had worked between 5-20 years in their current position (60.8%); 40.4% had worked in ALFs for 5-10 years. All respondents were licensed or credentialed to work as an administrator in ALFs.

**Table 1.** Demographic Characteristics of Foodservice Directors and Administrators

Characteristic	Foodservice directors		Administrators	
	n	%	n	%
<b>Gender</b>				
Male	30	58.8	12	25.5
Female	21	41.2	35	74.5
<b>Age</b>				
<30	3	5.9	2	4.2
31-40	8	15.7	10	21.3
41-50	26	51.0	11	23.4
51-60	6	11.7	17	36.2
>60	8	15.7	7	14.9
<b>Level of education</b>				
Associate degree	22	44.0	10	21.3
Bachelor's degree	14	28.0	21	44.7
Master's degree	3	6.0	13	27.7
Doctorate degree	0	0.0	1	2.1
Other	11	22.0	2	4.2
<b>Years in the position</b>				
<5	14	27.4	14	29.8
5-10	20	39.2	13	27.7
11-20	11	21.6	11	23.4
21-30	6	11.8	7	14.9
>30	0	0.0	2	4.2
<b>Years in the field<sup>a</sup></b>				
<5	13	25.5	9	19.2
5-10	21	41.2	19	40.4
11-20	12	23.5	15	31.9
21-30	5	9.8	3	6.4
>30	0	0.0	1	2.1
<b>Major area of study</b>				
Long-term care administration	1	2.4	14	31.1
Business	8	19.0	13	28.9
Nursing	1	2.4	10	22.2
Social work	0	0.0	3	6.7
Culinary art	11	26.2	0	0.0
Hospitality management	16	38.1	0	0.0
Dietetic	3	7.1	0	0.0
Others <sup>b</sup>	2	4.8	5	11.1
<b>Credential (foodservice directors only)<sup>cd</sup></b>				
Registered dietitian	4	7.8	0	0.0
Certified dietary manager	19	37.3	0	0.0
Dietetic technician registered	2	3.9	0	0.0
Certified food protection profession	14	27.5	0	0.0
Others <sup>e</sup>	6	11.8	0	0.0
No response	16	31.4	0	0.0

<b>Profit status</b>				
Profit	31	60.8	30	63.8
Non-profit	20	39.2	17	36.2
<b>No. of Licensed beds</b>				
<100	19	37.2	15	32.6
100-199	27	52.9	28	60.9
200-299	3	5.9	3	6.5
300-399	0	0.0	0	0.0
400-499	1	2.0	0	0.0
≥500	1	2.0	0	0.0

<sup>a</sup>Years of experience in assisted living facilities

<sup>b</sup>Includes psychology, journalism, education, home economy and law

<sup>c</sup>All of administrators were required to hold a specific credential, certificate or license according to the state regulation.

<sup>d</sup>Respondents might hold more than one credential; thus the total exceeds 100%

<sup>e</sup>Includes registered nurse, certified food safety manager

### **Importance Ratings for Competency and Skills**

Foodservice directors and the administrators rated 23 and 17 competencies as extremely important or somewhat important, respectively. “Acts as effective team leader and member” was rated highest by both groups (Table 2). The four competencies rated least important by both groups were the same and included “conduct research,” “interprets research for use in practice,” “demonstrates knowledge of factors that affect information services,” and “participates in education of dietetics students.”

Table 2 illustrates the eleven competencies and skills rated significantly higher by the foodservice directors than the administrators ( $p \leq 0.05$ ) using Mann-Whitney analyses. These competencies and skills were financial management, budgeting, education and research, strategic planning, negotiation skills, and information services. Kruskal-Wallis tests were used to determine statistically significant differences based on highest level of education attained. Respondents with graduate degrees rated the following as more important: budgeting, proficiency in computer software usage, maintaining relationships with other professionals, and financial management.

**Table 2.** Importance Rating<sup>a</sup> Competencies and Skills Essential Success for The Role of ALFs Foodservice Directors

<b>Competencies and Skills</b>	<b>Foodservice Directors (Mean ± SD)</b>	<b>Administrators (Mean ± SD)</b>
Acts as effective team leader	4.9± .3	4.8± .6
Acts as effective team member	4.9± .3	4.8± .6
Manages all aspects of foodservice operations (food science, food safety, operations, menu planning, etc)	4.9± .3	4.8± .6
Assures current operations are compliant with government and regulatory agency guidelines	4.9± .3	4.8± .5
Demonstrates effective time management	4.8± .4	4.6± .4
Performs in an ethical manner in the healthcare setting	4.8± .4	4.7± .7
Demonstrates ability to coach and develop others	4.7± .4	4.6± .6
Demonstrates ability to communicate effectively verbally	4.6± .5	4.7± .4
Effectively manages projects	4.6± .5	4.6± .5
Demonstrates ability to communicate effectively in writing	4.6± .4	4.4± .7
Practices self-regulation of professional development <sup>c</sup>	4.5± .7	4.0±1.0
Maintains functional relationships with other professionals <sup>d</sup>	4.5± .7	4.2± .8
Performs duties efficiently within the organizational governance structure	4.4± .6	4.3± .7
Analyzes financial information for use in decision-making	4.4± .6	4.2± .7
Assures ongoing operation measurement and process improvement activities	4.4± .6	4.2± .8
Develops operation budgets <sup>c</sup>	4.4± .7	3.9±1.1
Implements risk management strategies	4.3± .7	4.4± .7
Demonstrates understanding of job analyses	4.3± .7	3.9± .9
Understands service delivery systems at different sites across the continuum of care	4.2± .7	3.8±1.2
Demonstrates understanding of principles of strategic planning and applies them to organizational decisions <sup>c</sup>	4.2± .6	3.8± .9
Demonstrates proficiency in computer software usage <sup>d</sup>	4.1± .8	3.9± .8
Develops revenue generating opportunities <sup>d</sup>	4.0± .9	3.7±1.0
Performs negotiation tasks <sup>c</sup>	4.0± .8	3.5± .9
Performs human resource functions within the legal, cultural, and union environment	3.9± .9	4.1± .9
Applies knowledge of marketing principles to decision making	3.9± .8	3.6±1.0
Serves as clinical nutrition resource to medical staff <sup>c</sup>	3.9±1.1	3.4±1.1
Creates business plans incorporating both financial and operational data <sup>cd</sup>	3.9± .9	3.2±1.2

Demonstrates understanding of payment and reimbursement models and their effects on providers <sup>c</sup>	3.8±1.0	3.3±1.1
Develops capital budgets <sup>d</sup>	3.8±.8	3.4±1.3
Participates in education of dietetics students (preceptor, developing materials, teaching classes) <sup>c</sup>	3.8±1.0	3.0±1.1
Demonstrates knowledge of factors that affect information services, such as networking and security <sup>c</sup>	3.7±.8	3.1±1.0
Interprets research for use in practice <sup>c</sup>	3.5±1.0	2.7±1.1
Conducts research <sup>c</sup>	3.4±1.0	2.4±1.1

<sup>a</sup>Scale: 1=Extremely Unimportant, 2=Somewhat Unimportant, 3=Neutral, 4=Somewhat Important, 5=Extremely Important

<sup>b</sup>SD=Standard Deviation

<sup>c</sup>Rating of foodservice director differs significantly (p<0.05) from rating of administrator by using Mann-Whitney analysis

<sup>d</sup>Ratings differ significantly (p<0.05) among level of education by using Kruskal-Wallis analysis

Foodservice directors and administrators were asked to identify and rate other competencies and skills they believed were important for foodservice directors to be successful. Responses from administrators suggested that foodservice directors should have ability to “cross-training supervisors,” “demonstrate effective staffing strategies,” and “coaching in a positive way.” Foodservice directors considered “proficiency in the culinary arts” as an important needed skill. Results support work by Canter, Moorachian and Boyce (2007) which found that food and nutrition professionals believed food and culinary knowledge and skills were important competencies for dietetic practice and strengthened practice as dietetic professionals.

Results from this study exemplify differences between administrators and foodservice directors including diversity in educational credentialing. Only four foodservice directors were registered dietitians; most were certified dietary managers (n=21) or certified food protection professionals (n=13). Stonerook and colleagues (1999) found similar results in their study of foodservice directors employed in long-term care facilities. Gregoire et al. (2005) reported fewer than half of foodservice departments in acute care hospitals were managed by registered dietitians. This may reflect an unrecognized problem related to the quantity and quality of academic preparation in foodservice management for dietetics curricula or compensation of foodservice directors in AFLs. Gregoire et al. (2005) recommended that the profession explore strategies to enhance dietitians’ interest in courses in health care foodservice management and to determine the most effective education preparation.

The levels of education also differed between administrators and food service directors ranging from some high school to attainment of graduate degrees. Foodservice directors were more likely to have completed high school or an associate degree program in hospitality management and culinary art major, whereas, administrators had earned at least a bachelor’s degree. The academic majors of the administrators included a wide range of disciplines such as long-term care administration, finance and management, nursing, and/or social work. Variability among the education of administrators suggests that qualifications are not standardized for employment in long-term care. Mollica (2006)

reported that administrators were adequately prepared for their positions and had attained state requirements.

Both groups rated “acts as effective team leader and/or member” highest in importance and “conducted research and interpret research for use in practice” lowest in importance. Findings support results of previous work conducted in different settings (hospital versus assisted living facilities) reinforcing an emphasis on the need for demonstrated proficiency in management competencies (Dowling, Lafferty, & McCurley, 1990; Gregorie et al., 2005). Research skill was rated least important for foodservice directors and administrators. However, foodservice professions should recognize the need of research in order to discover and reflect shifting paradigms in long-term care. ADA position paper (Fanelli-Kuczmariski, & Weddle, 2005) suggest that conducting research to document outcomes that establish the cost-effective provision of appropriate nutrition service to quality of live was crucial for older adult.

Significant difference ( $p \leq 0.05$ ) was found between foodservice directors and administrators in the importance rating of eleven business skill-related competencies. Foodservice directors viewed those competencies significantly more important than administrators. The competencies rated as 4.0 or higher are currently listed in the 2002 Commission on Accreditation for Dietetic Education Accreditation Handbook in the knowledge and performance statements (2006).

## **Conclusions and Applications**

The purpose of this research was to evaluate competencies and skills needed for successful employment as future foodservice directors in ALFs. Educational attainment, academic major, professional credentials, and importance ratings between foodservice directors and administrators differed. Distinctive competencies appear to be important for those aspiring to become ALFs’ foodservice directors.

An ADA position paper (Lafferty & Dowling, 1997) stated that effective management of healthcare foodservice and nutrition service is best accomplished by dietetic professionals. The availability of registered dietitians (RDs) was an important quality indicator for food and nutrition services in ALFs (Chao et al, 2007). However, our findings are similar with Gregoire et al. (2005), that is, the majority of foodservice directors were not under the direction of a RD. Future research should focus on attracting dietetic students and determining how best to better prepare them for working in ALF or long-term care foodservice management positions.

Awareness of the competencies and skills that ALF administrators and foodservice directors identified as important is particularly valuable for those beginning careers or those who are considering an employment change to this arena. Educators working with graduates of Dietetic Programs in Dietetics, Coordinated Programs, and Dietetic Technician Registered programs, rely on standardized, approved, competency driven curricula to prepare students for the work world. They must not ignore ongoing research and the valuable perspective of current employers in the desired work settings.

Acknowledging needed competencies and skills can guide both formal and self preparation prior to undertaking work in ALFs or related long-term care environments. Being cognizant of the priorities and importance ratings of administrators and foodservice directors is also critical for consultants considering or currently working in ALFs or long term care settings since these administrators and foodservice directors most

often determine position descriptions, contracts, and services desired. Food and culinary knowledge and clinical expertise are developed in academic programs and may prepare dietetics professionals for their first employment opportunities and/or strengthen their practice as dietetic professionals (Canter et al., 2007). However, attention to the business component in management, financial and foodservice skill sets is also needed and valued by employers (Dowling et al, 1990; Sneed, Burwell, & Anderson, 1992). Those professionals with a desire to learn new skills or those adding to their professional development and portfolio documentation would do well to consider the numerous and increasing opportunities afforded by ALFs. Canter et al. (2007) suggests RDs or dietetic technicians who want to build their new skills in culinary art can join a Food and Culinary professional group, such as Research Chef Association or by browsing online culinary programs.

Limitations of this study were a low response rate (10.2%). Accepted methods to elicit best responses were used, i.e. having a clearly written, simple to read, brief survey questions with a cover letter, verifying accuracy of addresses prior to mailings, securing names of the personnel at randomized sites, completing reminder mailings, providing incentive and avoiding major holidays. Differences between those who responded and those who did not are largely unknown. A suggestion for future work with these particular groups is to collect the data through telephone interview, web survey or in face to face professional meetings or conferences.

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