

A STRUCTURAL EQUATION MODEL OF THE  
SENIOR CITIZENS' PURCHASING PROCESS  
IN FOODSERVICE: CONSIDERING THE  
QUALITY OF FOOD, NUTRITION,  
SERVICE AND ENTERTAINMENT  
IN FOODSERVICE  
ENVIRONMENT

By

SHIH-MING HU

Bachelor of Science  
National Pingtung University of Science & Technology  
Pingtung, Taiwan  
1993

Master of Science  
Florida International University  
Miami, Florida  
1999

Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
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By

Shih-Ming Hu

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Dissertation Approved:

Jerrold K. Leong

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Dissertation Adviser

William D. Warde

---

Bill Ryan

---

Woo Gon Kim

---

A. Gordon Emslie

---

Dean of the Graduate College

## DEDICATION

This dissertation is dedicated to my father, Michael Chun-Tsai Hu, my mother, Chia Hsiu Lin, and my wife, Sunny Li-Ju Chen.

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## CHAPTER I

### INTRODUCTION

According to the U.S. Census 2000 data, the retirement market continues to grow (Haas & Serow, 2000). As the baby boomers will begin to retire around 2010, the estimated number of Americans aged 55 and older will increase from 55.9 million (20.9% of the total U.S. population) in 1997 to 94.9 million (29.4%) by 2020. By 2050, the 55 plus cohort will reach 104.3 million, accounting for nearly one-third of the U.S. population (Gunderson, 1999). Since this group of the population will dominate the U.S. economy in terms of their spending power - their total income generally exceeded \$2 trillion, accounting for 52% of all personal income in America in 2001, which is expected to reach 65% by 2005 - there will be great potential in the retirement market for the hospitality industry to target (Burritt, 2001). In theory, retirees can contribute profoundly to a community in many ways. About 90% of their income goes to local goods and services, such as food, housing, transportation, health care services and entertainment, which helps create jobs and stimulates local businesses (Howells, 2001). It is estimated that the retirement of about 76 million baby boomers will significantly impact the hospitality and tourism industry, particularly for the long-term lodging (Burritt, 2001) and senior food service. According to a market survey conducted by Lahue (2000) it is

indicated that more than 40% of seniors eat at family or casual style restaurants at least once a month. In addition, the mature group age 55 to 74 spent more per capita on food away from home than the national average. To bid successfully in the aging market, hospitality service providers must design their services to meet the particular needs and desires of an aging U.S. population. Especially, it is valuable for the foodservice operations located in the potential retirement destinations to reflect their operation strategy on the concern of this senior group.

### Purpose and Objectives of the Study

Although many studies have been done in measuring customer's purchasing behaviors, including service quality, customer perceived value, customer satisfaction, repurchase intention and word-of-mouth (WOM) endorsement in foodservice industry, only a few of them have examined the effects from the older diner's standpoint and have been anchored in three restaurant sectors (quick service, casual dining, fine dining). Furthermore, only a limited number of studies allowed for measuring and assessing older diner's specific perceptions such as the quality of food, nutrition, and entertainment. Therefore, the purpose of this study is to investigate the senior citizens' perceptions of the restaurant's services and their purchasing behaviors among three restaurant sectors (quick service, casual dining, fine dining). The objectives of this study are to:

- 1) identify the senior citizens' dining-out behaviors (such as favorite restaurant type, frequency of dining-out, and average expenditure of dining-out)

- 2) propose an effective scale for measuring the restaurant's services in terms of food quality, nutrition quality, entertainment quality, and front of the house (FOH) service quality along with the customer perceived value for senior citizens
- 3) identify whether the senior citizens' perceived service levels in the foodservice market differ among the quick service, casual dining, and fine dining restaurant
- 4) identify how the senior citizens' perceptions of the restaurant's service qualities including food quality, nutrition quality, entertainment quality, and FOH service quality along with the customer perceived value influence their dining satisfaction and repurchase intention
- 5) identify whether a high level of dining satisfaction will increase a repurchase intention and a positive WOM endorsement as perceived by senior citizens
- 6) identify whether the senior citizens will develop a stronger intention to recommend the particular foodservice product to others (WOM endorsement) when they intend to revisit the particular foodservice product (repurchase intention)
- 7) propose a relationship model to study and understand the senior citizens' perceptions on restaurant's services and their purchasing behaviors

## Background

To be successful in the restaurant business, foodservice providers are required to deliver not only a good quality of product and service, but also a high level of dining satisfaction that will lead to increase customer return and a positive word-of-mouth

(WOM) endorsement. For this reason, restaurant marketers and hospitality researchers more often try to investigate and understand customer's expectations on service quality, perceived value, and satisfaction level. Recently, a great number of researchers have widely applied service quality and customer satisfaction theories to the foodservice industry. Dube et al. (1994), Lee and Hing (1995), Johns and Tyas (1996), Oh and Jeong (1996), and Fu and Parks (2001) have suggested that service quality and customer satisfaction directly link to customer return behavior in the hospitality market. In addition, Zeithaml and co-authors (1996), Oh (1999; 2000), Tam (2004) have shown that service quality, customer perceived value, and satisfaction are highly correlated and predict the customer's repurchase behavior and WOM endorsement. Although these theory-based research findings have significantly contributed to the understanding of the customer's purchasing behavior in the hospitality market, there is a continuing demand for refining the existing theories to meet the changes in the customer's purchasing behaviors in today's hospitality market. Especially for the specific groups such as senior customers who may have a special concern on their received services. For example, as people age, decreased physical activity may further reduce energy needs and that means the elderly should choose the smaller portion of food (Guthrie & Lin, 2002). Therefore, providing a choice of a reduced portion size meal with a reduced price may enhance food service quality and dining satisfaction for the elderly. Furthermore, since they don't eat much, selecting nutrient-dense foods is more important to them than to younger adults (Guthrie & Lin, 2002). According to the report of Fintel (1990), people 50 years old and older are interested in health and nutrition. They tend to favor foods that are low in calories, cholesterol, and salt and anticipate having nutritional information available to

them. Consequently, offering healthful food and nutritional information in restaurants may enhance their satisfactions on the nutrition quality and food quality, even though it might bring some challenges to the foodservice providers. On the other hand, Knuston and Patton (1993), Shank and Nahhas (1994), and Williams (1996) found that the elderly have more spare time and view dining out as a leisure activity. Thus, they are less concerned with the speed of service than younger adults. As a result, incorporating the entertainment concepts into the dining experience may attract more senior consumers. Some popular entertainments such as music, games, separate accommodating areas, supervised children's playgrounds, leisure facilities, special services for celebrating customers' birthday or annual ceremony, and big TV screens for lunch movie or sport games have been widely used in modern foodservice industry (Williams, 1996; "Brumback", 2004).

### Definition of Terms

- 1) Customer Satisfaction: Oliver (1981) indicated satisfaction as an "evaluation of the supposed inherent in a product acquisition and/or consumption experience". Hunt (1977) defined satisfaction as an "evaluation rendered that the product experience was at least as good as it was supposed to be".
- 2) Customer Perceived Value: As Zeithaml (1988) defined that customer perceived value can be broadly defined as "the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given". In other

words, customer-perceived value is a trade-off between benefits and sacrifices perceived by the customer in a supplier's offering (Zeithaml, 1988).

- 3) Front of House (FOH) Service Quality: The gap between customer's expectations of service and the performance they actually receive in the front of house of a foodservice establishment. The dimensions of the FOH service quality are based on the Parasuraman, Zeithaml, and Berry's (1988) five service dimensions which are reliability, assurance, responsiveness, tangibles, and empathy.

### Problem Statement

Refining the existing theories to meet the changes in socioeconomic conditions and customer's purchasing behaviors in today's hospitality market is necessary. For instance, in the year of 2004, a bill called the Menu Education and Labeling Act filed that the information about the nutritional content of food should be provided in restaurants (bill number 2003 H.R. 3444 and 2004 S. 2108) was passed. Now more than ever, Americans want to eat healthily and be satisfied when dining outside the home (Kapoor, 1996). Health and dietary concerns such as heart disease, gastrointestinal difficulties and diabetes, may impact meal selection. As Cardello's (1995) findings mentioned, food quality should be measured by customer acceptability and must be judged by the consumers of the products. Consequently, today's customers' expectations on food quality and nutrition quality might have changed and which may impact the service quality of the foodservice industry. On the other hand, the elderly have more spare time and view dining out as a leisure activity. Thus, incorporating entertainments into dining



experience may be desired by this mature group. As Williams (1996) reported, modern pubs offering entertainments such as music, games, indoor sports, separate restaurant areas, and leisure facilities have become the places that are attractive to the over-55 age group.

Numbers of studies have revealed that the senior age group may contribute significantly to the foodservice industry in terms of their spending power and spare time. For a more successful operation in the mature market, it is vital to identify the older diner's purchasing behaviors and the factors driving their dining behaviors. Much theory-based research relating to the service quality, customer perceived value, customer satisfaction, repurchase intention, and WOM endorsement has been successful in studying the customer's perceptions of the restaurant services and their dining behaviors in the foodservice industry (Dube et al., 1994; Lee and Hing, 1995; Johns and Tyas, 1996; Fu and Parks, 2001; Tam, 2004). However, only a few of the previous studies have been confirmed in the mature market. For example, only a few of them examined the effects from the older diner's standpoint and have been anchored in three different restaurant sectors. Furthermore, only a limited number of studies allowed for measuring and assessing senior citizens' specific perceptions on food quality (Oberoi & Hales 1990), nutrition quality (Fintel, 1990; Guthrie & Lin, 2002), and entertainment quality.

Therefore, the issue entitled "*Do the restaurant's quality of food, nutrition, entertainment, and front of the house service along with the customer perceived value influence the senior citizen's dining satisfaction, repurchase intention, and word-of-mouth endorsement?*" will be addressed in this study.

## Significance of This Study

Since such studies focusing on the senior groups were rarely reported, the findings would make three unique contributions to the hospitality market and the literature of the hospitality research. First, an effective scale for measuring restaurant's services in terms of food quality, nutrition quality, front of the house service quality, and entertainment quality along with the customer perceived value for senior citizens were developed. Second, this study identified a relationship model to study and understand the senior citizens' purchasing process in the foodservice market. Third, some of the senior citizens' purchasing behaviors were explored and updated. Fourth, the differences of the senior citizens' perceptions on restaurant's services were compared among three different restaurant sectors, and discussed for the reference of improvement, which would be valuable to the foodservice industry for their strategic plan of the mature market.

## Research Questions

1. What are the dining-out behaviors of the elderly such as the frequency of dining out, the choices of restaurant type, and the average expenditure on dining out?
2. What are the relationships between the restaurant's service dimensions (food quality, nutrition quality, entertainment quality, FOH service quality) along with the customer perceived value and dining satisfaction, repurchase intention, and WOM endorsement overall in the three restaurant sectors as perceived by senior citizens?

3. Do the senior citizens' perceptions of the restaurant's services and customer perceived value differ among the three restaurant sectors (quick service, casual dining, fine dining)?

## CHAPTER II

### REVIEW OF LITERATURE, CONCEPTUAL MODEL, AND HYPOTHESES

#### Introduction

The objective of this chapter is to validate the reasons behind conducting this study with a view toward senior citizens' purchasing behaviors in foodservice industry. A conceptual research model was developed based on the existing theories. Several research hypotheses were developed to test the existing theories in foodservice industry.

The literature focused on two parts. First, an overview of senior market and the purchasing behavior of senior citizens in foodservice market were thoroughly investigated to understand the impact of the mature group on foodservice industry. Second, the literatures and theories regarding service quality, customer satisfaction, customer perceived value, and customer repurchase intention were reviewed in this part. The theoretical model and measurement of service quality and customer satisfaction were identified. The previous researches regarding the applications of SERVQUAL model in foodservice industry were discussed as well.

This chapter provided a rationale for the development of service quality and customer satisfaction measurement and a set of theoretical propositions for a viable model of the relations of service quality, customer satisfaction, customer perceived value, customer

repurchase intention, and word-of-mouth (WOM) endorsement in the foodservice industry.

### The Mature Market

According to the U.S. Census 2000 data, the retirement market continues to grow. As the baby boomers begin to retire around 2010, the estimated number of Americans aged 55 and older will increase from 55.9 million (20.9% of the total U.S. population) in 1997 to 94.9 million (29.4%) by 2020. By 2050, the age of 55 plus cohort will reach 104.3 million, accounting for nearly one-third of the U.S. population (Gunderson, 1999). Contrary to many people's image of penniless, many senior citizens have more discretionary income than people in other age groups (Shank & Nahhas, 1994). Some senior citizens still work and receive income from retirement pensions and various financial investments. They may have no children to support and may have more money available to spend (Dychtwald, 1989; Moschis, 1992). Since this group of the population will dominate the U.S. economy in terms of the spending power - their total income generally exceeded \$2 trillion, accounting for 52% of all personal income in the United States in 2001, and is expected to reach 65% by 2005 - they will be a great potential market for the hospitality industry to target (Burrirt, 2001).

## Impacts of Senior Group on Hospitality Industry

As reported by Lahue (2000), one of the 76 million baby boomers turns 50 every eight seconds. More than one-quarter of all U.S. spending on dining, healthcare, apparel, transportation, entertainment and household furnishings is done by mature consumers. This active adult age segment comprises 13.2% of the U.S. population, but represents 77% of all U.S. assets (Lahue, 2000). The elderly have much higher discretionary incomes than other age groups, plus time to enjoy shopping and consumption. Their incomes permit them to indulge themselves more than they actually do. The wealth and spending power of the elderly bring great opportunities for a wide range of hospitality and tourism products, such as long-term lodging, senior foodservice, travel services, entertainments, and gambling (Dychtwald, 1989; Lazer, 1986; Morgan & Levy, 1996).

Fintel (1990) indicated that a finding from the 1989 association of Consumer Reports on Eating Share Trends (CREST) was that 36% of eater occasions for the 55 to 64-year-old group and 46% of occasions for consumers 75 years old and older were in midscale restaurant. In addition, a study from National Restaurant Association (NRA) revealed that consumers older than 60 tended to dine at self-service cafeterias or buffets more than sit-down or fast food restaurants. Those 50 to 59 years old like to dine in sit-down restaurant with an average check size of more than \$10. The notable finding was that patrons of quick service restaurant declines with age from 79.1% of eater occasions for adults 18 to 24 to 47.5% for customers 65 to 74 years old (Fintel, 1990). Recently, the results of a market survey estimated that more than 40% of seniors eat at family or casual style restaurants at least once a month, while 17% visit family restaurants more than once

a week, and more than 10% visit casual restaurant more than once a week. Nine out of ten seniors are willing to try new restaurants. In addition, the mature group aged 55 to 74 spent more per capita on food away from home than the national average. Seniors at the aged of 55 to 64 spent \$885 per year, while those aged 75 and over spent \$ 575 annually (Lahue, 2000).

Previous research on the shopping behavior of senior citizens has found that they tend to be loyal shoppers, more so than their younger counterparts (Moschis, 1992; Shank & Nahhas, 1994). Other research supports the belief that elderly consumers are set in their ways or lack senses of adventure. Elderly consumers are considered susceptible to brand loyalty and are thought to purchase the same products or brands to reduce their risk of buying new or relatively unknown products (Moschis, 1992).

#### Reasons of Dining Out and Factors of Restaurant Selection

Knutson and Patton (1993) indicated that convenience and companionship were the primary reasons the older diners eat out in a restaurant. Most of the elderly indicated that they don't want to spend all their time in the kitchen. They don't think cooking at home is an economical way because they may have only one or two people in a household. Furthermore, they enjoy eating out with friends and see dining out as a socialized activity. Like most diners, food quality is the dominant reason driving this mature group to visit a particular restaurant (Knutson & Patton, 1993). Service quality is also considered as a more important factor for selecting a restaurant by the elderly (Knutson & Patton, 1993). Shank & Nahhas (1994) determined that friendly service and

individualized attention were considered more important by older diners than younger adults. In addition, senior citizens were less likely to rate speed of service as an important factor in selecting a restaurant. They have more spare time and view dining out as a leisure activity (Shank & Nahhas, 1994). As reported by Dychtwald (1989), Popcorn (1991), and Knutson and Patton (1993), the elderly are increasingly concerned about how eating may affect their health and longevity. In Knutson and Patton's (1993) study, meals that are described as low in cholesterol, calories, and salt are popular choices for the elderly.

Senior citizens represent a very different market segment. They think differently, act differently, and have different purchasing behaviors. The service requirements for senior citizens may be different from those for younger groups. To provide an adequate level of services to the senior citizens, it is crucial for the foodservice operators to know the senior citizens' expectations of services.

### Issues on Food Quality and Health

For seniors, health and mobility are problems, and their spending is more oriented toward their extended families (Lazer, 1986). Although baby boomers and their parents are eating out more for reasons of convenience and socialization (Dychtwald, 1989; Popcorn, 1991; Knuston & Patton, 1993), they are still careful about their dietary choices. The study of a 1989 CREST reported that people 50 years old and older are interested in health and nutrition. They tend to favor foods that are low in calories, cholesterol, and salt and anticipate having nutritional information available to them (Fintel, 1990).



According to the report of Technomic (2000), seniors rank above average with regard to ordering healthier options and wanting full disclosure on restaurant menus. Health and dietary concerns, such as heart disease, gastrointestinal difficulties and diabetes, can impact meal selection. Quality is dominant in their purchasing habits so that these new seniors are willing to pay what is necessary to ensure quality and good service.

The Menu Education and Labeling Act (bill number 2003 H.R. 3444 and 2004 S. 2108) has been passed to request that restaurants should provide nutritional information on their menu. Some previous studies reported that the nutrition information on food labels has caused people to change their minds about buying a food product (Harris & Blisard, 2002). Furthermore, it is difficult for consumers to limit their intake of calories at restaurants given the limited availability of nutrition information. Several research suggested that consumers would like to be provided with nutritional information at restaurants and a call for action from the Surgeon General and Secretary of Health and Human Services (2003) recommends that, to reduce the incidence of obesity, there be increased availability of nutrition information for foods eaten and prepared away from home. The Institute of Medicine (1990) recommended that all restaurants should be required to have standard menu items evaluated for their nutritional profiles and provide this information to patrons upon request. Recently, bills have been passed to amend the Federal Food, Drug, and Cosmetics Act to ensure that consumers receive information about the nutritional content of restaurant food and vending machine food. Now more than ever before, Americans want to eat healthfully and to be satisfied when dining outside the home (Kapoor, 1996).

## Integrating Food and Entertainment Services in the Foodservice Place

Today's lifestyles and changing demographics indicated that people are more likely to participate in sports, seek entertainment, and look for new experiences than ever before. As reported by Williams (1996), British pubs have diversified heavily into food (about two-thirds now offer food), have become increasingly retail-oriented, and constitute a large part of the leisure industry, offering entertainment such as music, games, indoor sports, separate restaurant areas, supervised children's playgrounds, and leisure facilities such as bowling and video games. As a result, modern British pubs have become the places that are attractive to the over-55 age group that has more time and money than other age groups, and seeks quality service and value. Furthermore, as Kochak (1998) reported that restaurants featuring all varieties of live entertainment are opening up everywhere and the concept of integrating food and entertainment can draw repeat business. An instance from the report of Mackey (2004), Johnny Rockets, a Los Angeles based family restaurant chain, have built a loyal customer following by adhering to an entertainment concept in the dining experience. Their special services such as having servers dance on the half hour, twirl straws, serve those smiley faces of ketchup with every order of fries, and make sure that every party of customers has a nickel for the tabletop jukebox have made 5% increase in customer loyalty that can improve profits 25% to 85%, according to the *Harvard Business Review*.

## Service Quality

### Definition and Measurement of Service Quality

Service quality has been perhaps the most explored topic in services marketing. Early efforts in defining and measuring quality were mostly centered in the tangible products (goods) sector, while the seemingly more difficult services sector was ignored. Grönroos (1982) notes that service quality delineates two rather distinct facets of the construct: a technical dimension (the core service provided) and a functional dimension (how the service is provided). Product quality was traditionally linked to the technical specifications of goods, with most definitions of quality arising from the manufacturing sector where quality control has received prolonged attention and research (Grönroos, 1990). Parasuraman et al. (1985) portrayed Japanese philosophy on quality that is ‘zero defects-doing it right the first time’. Garvin (1983) defined quality as that while involves eliminating ‘internal failures’ (defects before the product leaves the factory) and ‘external failures’ (defects after product use); while for Crosby (1979), quality is ‘conformance to standards’. While these product-based definitions of quality may be appropriate to the goods-producing sector ‘knowledge about goods quality. . . is insufficient to understand service quality’ (Parasuraman et al., 1985).

Literature published in the late 1970s and early 1980s provided a clearer understanding of service quality and its measurement. For example, Bateson (1979), Shostack (1977), Chase (1978) and Lovelock (1991) recognized the intangible characteristic of services and that most services are performances rather than objects and

are experiences rendered, unlike goods which are tangible objects to be possessed. For the restaurant industry, the intangibility of services means that precise specifications for the uniform quality of service are difficult, if at all possible, to set. This makes it difficult for restaurant managers, staff and patrons to count, measure, test or verify service outputs and service quality. As a consequence, Bowen and Cummings (1990) suggest that 'an organization's overall climate of service, the atmosphere or feel of the setting, is very important in shaping both customers' and front-line employees' attitude about the process and outcome of service delivery'. This implies that, for the present study, it was imperative that the instrument used for measuring service quality include a means of capturing patrons' perception of the tangible influences on service quality, such as the physical facilities, equipment and appearance of personnel.

Carman and Langeard (1980), Grönroos (1978, 1983) and Lehtinen and Lehtinen (1982) have discussed another characteristic of services which makes service quality definition and measurement difficult its simultaneous production and consumption. Particularly in labor-intensive services such as restaurants, quality is created during the process of service delivery, and in encounters between staff and patrons. This then suggests that an instrument to measure service quality must have adequate means of assessing patrons' perceptions of service quality during these service encounters. A third characteristic of service is its heterogeneous nature, especially in those services with high labor content. This means that service performance will vary from producer to producer, from patron to patron and also from one encounter to the next. Booms and Bitner (1981) and Zeithaml (1981) have suggested that the heterogeneous nature of service hinders the consistency of service delivery and thus, assessment of service quality. What the

establishment had intended to deliver might be quite different from what the patrons received (Booms and Bitner, 1981). An understanding of the characteristics of service is necessary in the selection of an appropriate instrument to measure service quality. Such an instrument needs to accommodate the difficulties raised above and recognize that the quality of services is more difficult for customers to evaluate than the quality of goods, that quality assessments are made not only on the service outcome, but also on the process of service delivery and that perceptions of quality result from comparisons of actual performance with the customer's prior expectations (Parasuraman et al., 1985). Indeed, Sasser et al. (1978), Grönroos (1982), Lehtinen and Lehtinen (1982), and Parasuraman et al. (1985, 1988) all concurred that service quality can be measured by comparing the expectations of patrons with their perception of the actual service performance. Indeed, Grönroos (1982), Parasuraman et al. (1985) and Barrington and Olsen (1987) have developed models of service quality based on this concept.

### The SERVQUAL Theory

Since Parasuraman and colleagues (1985) introduced a conceptual model of service quality that resulted in a 22-item measurement scale called SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988) for measuring service quality, it has been adopted by many researchers and widely applied in many industries. The SERVQUAL approach identifies and measures the gap between customers' expectations of service and the performance they actually receive. Definitions of service quality tend to focus on meeting customers' needs and requirements and how well the service delivered meets their expectations. In

order to deliver and maintain service quality, an organization must first identify what it is that constitutes quality to those whom it serves. Parasuraman et al. (1985) identify over 200 attributes of service quality. The pool of attributes was derived from an extensive series of interviews with customers in four different commercial services. Using factor analysis five main dimensions of service quality were identified. They were reliability, assurance, responsiveness, tangibles, and empathy. According to the model of Parasuraman et al. (1985), the definitions of service quality are as follows: 1) Reliability refers to the ability to perform the promised service dependably and accurately. Promise made to an organization's promotional efforts can contribute to participant expectations. Consistency of performance at the highest standard is crucial to reliability. 2) Assurance indicates courteous and knowledgeable employees who convey trust and confidence. Assurance contains elements of the organization's credibility, competence and security. 3) Responsiveness is the willingness to help the participants and provide prompt attention. Foodservice patrons expect their requests to be handled quickly and accurately. 4) Tangibles represent the physical facilities, equipment, and appearance of personnel and presence of users. Tangibles can create an atmosphere. The tangible aspect of a service is one of the few dimensions that a potential service patron can know and evaluate in advance of participation. 5) Empathy dimension includes caring and individual attention to users. Empathy expresses an understanding of the participants' needs.

The importance of the above dimensions in understanding service quality cannot be underestimated. However, comparing service expectations with service perceptions has offered a more insightful perspective. Perceptions of quality by those who provide

services and those who consume them often have been reported to differ (Parasuraman et al., 1985). In such cases, attributes are transformed by management into service standards, which may not be consistent with consumers' perceptions and experiences (La Page, 1983). Solomon et al. (1985) concluded that a customer assesses quality by his or her perception of the way in which the service is performed. As a result, service quality has been defined as the outcome of a comparison between expectations of a service and what is perceived to be received (Czepiel et al., 1985; Klaus, 1985; Parasuraman et al., 1985). The gap between expectations and perceptions of performance determines the level of service quality from a consumer's perspective.

Parasuraman et al. (1988) developed the gaps model and the subsequent SERVQUAL instrument designed to identify and measure the gaps between customers' expectations and perceptions of the service received. Service quality from the consumer's perspective depends on the direction and degree of difference between the expected service and the perceived service. Thus by comparing customers' expected service with customers' perceived service, hotels, for example, can determine whether its service standard is appropriate. The SERVQUAL instrument developed by Parasuraman et al. (1991) has proved popular, being used in many studies of service quality. This is because it has a generic service application and is a practical approach to the area.

The SERVQUAL model is built on the assumption that the smaller the gap, the better the quality of service provided. The SERVQUAL model has to some extent laid the foundations for quality service research; however, its definition of service quality is similar to that of customer satisfaction. The overlap, unfortunately, has resulted in a conceptual and interpretation overlap regarding customer satisfaction and service quality

among researchers. Therefore, in addition to methodological differentiation, a stand-alone conceptual framework is needed in order to further advance customer dining satisfaction research. Tyas (1993), Johns (1996) and Johns and Tyas (1996) have strongly challenged the "gap" theory by arguing that service quality precedes customer satisfaction, and that performance alone is a more useful measure than the performance expectations gap, because customers may perceive expectations in the same terms as performance and also because expectations are complex structures, based on an individual's perceptions and are therefore less accessible to "rational" constructs than has been previously assumed.

#### Applications of SERVQUAL in the Foodservice Research

As summarized in Table 1, a number of researchers have attempted to apply related theories and approaches in the foodservice industry. Lee and Hing (1995) applied the SERVQUAL approach to measure and compare the service quality at French and Chinese restaurant. Lee and Hing (1995) indicated that the SERVQUAL demonstrates how easily and inexpensively the instrument can be used to identify the strengths and weaknesses of individual restaurants' service dimensions so that management can improve weak aspects of service and refine their marketing efforts so that customer expectations are met.

Stevens and co-authors (1995) drafted DINSERV from the concept of SEVQUAL and LODGSERV to assess customers' perceptions of service quality over three types of restaurants. In their achievement, they developed a DINESERV questionnaire that is a reliable, relatively simple tool, for determining how consumers view a restaurant's quality. A total of 29-item DINESERV questionnaire comprises service-quality standards



that fall into 5 categories: 1. assurance, 2. empathy, 3. reliability, 4. responsiveness, and 5. tangibles. By administering the DINESERV questionnaire to guests, a restaurant operator can get a reading on how customers view the restaurant's quality, identify where problems are and determine how to solve them. DINESERV also provides restaurateurs with a quantified measure of what consumers expect in a restaurant.

Similarly, Heung and colleagues (2000) adopted DINSERV instrument to compare the service quality of four types of airport- restaurant in Hong Kong. The survey asked the traveler to rate 33 service-quality items in 3 ways: as they relate to desired service, as they relate to adequate service and how the travelers perceived the actual service. They found that restaurants at the Hong Kong airport provide service that exceeds the travelers' basic expectations for adequate service. However, those restaurants do not exceed travelers' desired service levels.

Richard, Sundaram, and Allaway (1994) investigated the effect of service quality dimensions on choice behavior in the home pizza delivery market. Twenty-two service quality items based on SERVQUAL's five dimensions were included in their survey questionnaire. In addition, Richard et al. (1994), proposed that SERVQUAL ignored the outcome dimension of service quality, such as whether or not the pizzas were made with superior ingredients, and whether or not the respondents believed that the restaurants made the pizza crusts exactly as the respondents liked them. Thus, Richard et al. (1994) added six items that measured the outcome of pizza delivery service. The results suggested that the outcome, empathy, responsiveness, and reliability dimensions are important determinants of choice behavior.

Bojanic and Rosen (1994) used the SERVQUAL instrument in a chain restaurant with a diverse clientele and a varied menu that included international items. They administered a questionnaire that measured customers' expectations while waiting for tables. The same customers were asked to answer a second questionnaire on completing the dining experience to gauge their perceptions of the actual service they received. Bojanic and Rosen (1994) indicated that it was difficult to have customers fill out two different questionnaires before and after their dining experiences. They often simply gave both questionnaires to the customers after they had received the services. The results identified dimensions similar to those in Parasuraman et al.'s (1988) SERVQUAL instrument. The difference was that empathy was divided into two dimensions: knowing the customer and access to services. Among Bojanic and Rosen's (1994) six dimensions, knowing the customer, reliability, and assurance were the most significant in predicting overall restaurant quality; the other three dimensions were not important predictors of overall quality of restaurant.

Unlike most of the foodservice researchers, Dube et al. (1994), Johns and Tyas (1996), Fu and Parks (2001) added food quality items into the SERVQUAL scale for measuring service quality in restaurant and contract foodservice, which was usually ignored in many of the service quality researches in foodservice operations. Dube et al. (1994) indicated that the elements or attributes of customer satisfaction should provide clues regarding what actions a food-service manager should take to increase the likelihood that customers will come back. Managing for optimal customer satisfaction requires that satisfaction data be used to suggest positioning strategies that will help a business carve a niche. In their study, the attributes of customer satisfaction showed that

customer satisfaction with a meal eaten in a restaurant results from a confluence of several attributes, including food quality, menu variety, atmosphere, food-quality consistency, and waiting time. For each potential improvement in service design, managers must estimate the marginal change in satisfaction or repeat purchase that would result from a given change in the operational standard. In order to assess the performance of a contract catering service in relation to its competitors, Johns and Tyas (1996) developed a questionnaire analogous to the SERVQUAL instrument of Parasuraman, Zeithaml and Berry (1986). Johns and Tyas (1996) indicated that although reliability criteria for the instrument were encouraging, the factor structure identified by previous researchers was found not to be present in the catering industry. Furthermore, other considerations such as food and the attitudes of staff played a more important part in the meal experience. Fu and Parks (2001) pointed out that there is evidence that two of three senior patrons express dissatisfaction with service because of mistreatment by restaurant employees. No quantitative research has addressed the influence of service quality on older diners' behavioral intentions. Therefore, they conducted a research to investigate the relationship between service quality dimensions and restaurant loyalty among elderly customers. The SERVQUAL instrument was adopted and some new attributes regarding food quality and healthy food were added to comprise the survey questionnaire of their study. Their major findings were that friendly service and individual attention were more important factors than tangible aspects of service in influencing elderly customers' behavioral intentions.

Although the SERVQUAL theory has been widely and successfully used in measuring service quality, researchers have proposed that it has limitations, including

issues relating to measuring scale (Lewis & Mitchell, 1990) and service-quality dimensions (Brown, Churchill, & Peter, 1993).

## Customer Satisfaction

### Definition of Customer Satisfaction

Customer satisfaction (CS) is treated as fundamental to the marketing concept as the notion of satisfying the needs and desires of customers (Spreng, MacKenzie, and Olshavsky, 1996). The definition of CS varies throughout the marketing literature. Oliver (1981) defined satisfaction as an “evaluation of the surprise inherent in a product acquisition and/or consumption experience”. Hunt (1977) defined satisfaction as an “evaluation rendered that the product experience was at least as good as it was supposed to be”. Howard and Sheth (1969) suggested that satisfaction was “the buyer’s cognitive state of being adequately or inadequately rewarded for the sacrifice he has undergone”. Patterson (1993) described customer satisfaction as the paramount marketing outcome. Zeithaml and co-author (1996) explained customer satisfaction is a function of the expectations that the consumer brings to the service encounter and of his or her subsequent evaluations of service quality.

TABLE 1

SUMMARY OF SERVQUAL APPLICATION IN HOSPITALITY RESEARCH

Authors	Methods	Findings
Lee and Hing (1995)	<ul style="list-style-type: none"> <li>Assessing the usefulness and application of the SERVQUAL instrument in measuring and comparing service quality within the fine dining sector of the restaurant industry.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrating how inexpensively and easily the instrument can be used to identify the strengths and weaknesses of restaurant's services so that the weak aspects of service can be improved and their marketing efforts can be refined.</li> </ul>
Stevens, Knutson, and Patton (1995)	<ul style="list-style-type: none"> <li>Drafting DINSERV from the concept of SEVQUAL and LODGSERV to assess customers' perceptions of service quality over three types of restaurants.</li> </ul>	<ul style="list-style-type: none"> <li>Developed a DINESERV scale for determining how consumers view a restaurant's quality. A total of 29-item DINESERV scale comprises service-quality standards that fall into 5 same categories of SERVQUAL.</li> </ul>
Heung, Wong, and Qu (2000)	<ul style="list-style-type: none"> <li>Adopting DINSERV instrument to compare the service quality of four types of airport- restaurant; Thirty-three service-quality items in 3 ways: as they relate to desired service, to adequate service and perceived actual service</li> </ul>	<ul style="list-style-type: none"> <li>Restaurants at the Hong Kong airport provide service that exceeds the travelers' basic expectations for adequate service. However, those restaurants do not exceed travelers' desired service levels.</li> </ul>
Richard, Sundaram, and Allaway (1994)	<ul style="list-style-type: none"> <li>Investigating the effect of service quality on choice behavior in the home pizza delivery market. Twenty-two items of the SERVQUAL plus six items measuring the pizza delivery service were included.</li> </ul>	<ul style="list-style-type: none"> <li>Results suggested that the dimensions of outcome, empathy, responsiveness, and reliability dimensions are important determinants of choice behavior.</li> </ul>
Bojanic and Rosen (1994)	<ul style="list-style-type: none"> <li>Using the SERVQUAL instrument in a chain restaurant with a diverse clientele and a varied menu</li> <li>Measuring expectations before and after customers' dining experiences</li> </ul>	<ul style="list-style-type: none"> <li>The results identified dimensions Similar original SERVQUAL instrument. The difference was that empathy was divided into two dimensions. Six dimensions was found: knowing the customer, reliability, and assurance were the most significant determinants.</li> </ul>
Dube, Renaghan, and Miller (1994)	<ul style="list-style-type: none"> <li>Adding food quality items into the SERVQUAL scale for measuring service quality in restaurants</li> </ul>	<ul style="list-style-type: none"> <li>Customer satisfaction with dining in a restaurant results from a confluence of food quality, menu variety, atmosphere, food-quality consistency, and waiting time.</li> </ul>
Johns and Tyas (1996)	<ul style="list-style-type: none"> <li>Adding food quality items into the SERVQUAL scale for measuring service quality in contract foodservice</li> </ul>	<ul style="list-style-type: none"> <li>Reliability criteria for the instrument were encouraging.</li> <li>Food quality played an unimportant part in the meal experience.</li> </ul>
Fu and Parks (2001)	<ul style="list-style-type: none"> <li>Adding food quality and healthy food items into the SERVQUAL scale for measuring service quality based on older diners' perceptions.</li> </ul>	<ul style="list-style-type: none"> <li>Two of three senior patrons express dissatisfaction with service because of mistreatment by restaurant employees. Friendly service and individual attention were more important factors than tangible aspects of service in influencing senior customers' behavioral intentions.</li> </ul>

There is general agreement that customer satisfaction should be conceptualized as a multi-dimensional construct (Yi, 1990). In this context, several dimensions have received considerable attention. Examples of studies on the multi-constructed characteristics of CS include satisfaction judgment with the produce itself (LaBarbera and Mazursky, 1983); CS's relationship to the evaluation of produce performance such as the dollar value of the product (Ramsey and Sohl, 1997); and CS's focus on the interpersonal interaction with sales personnel/agency (Ostrom and Iacobucci, 1995).

In summary, customer satisfaction is the consumer's overall judgment, including service features, the service product, sales personnel, or other situational variables. Customer satisfaction occurs when customers either confirm their pre-purchased expectations for a purchased service or positively disconfirm (exceed) their expectations regarding purchased services, resulting in some level of post-purchase affect towards the experience (Cardozo, 1965).

### Customer Satisfaction Theory

Customer satisfaction includes expectations, disconfirmation and performance amongst others (Oliver and DeSarbo, 1988). Expectancy disconfirmation is divided into two processes, the first being the comparison of the experienced performance of the product or service with the prior expectations. Disconfirmation can be negative when experienced performance is worse than expected or positive when performance is better than expected. When performance is as expected, the result of the comparison is called confirmation. A certain satisfaction level already existed which is maintained by

confirmation, earned by the delight of positive disconfirmation and decreased by the disappointment of negative disconfirmation.

Performance has already mentioned as the actual customer's experience of the product or service. The question Oliver and DeSarbo (1988) pose is whether the effect of performance overwhelms the respondents' tendencies such as expectation, disconfirmation, equity, and attribution. For instance, the idea that performance is less psychological than expectations is disputable, as performance evaluation has a strong subjective element as it is based on perception, especially where services are concerned. It is very difficult for a consumer of financial services to objectively assess performance when there is a high level of intangibility; it is merely a question of perception. It is harder for consumers to evaluate service offerings as the service industry is less capable of producing predictably different offering and it is easier to judge differentiated offerings.

Folkes (1988) states that consumers purchase products and services because they infer a causal relationship, in other words they expect certain results from the products and services they purchase. A consumer will have certain expectations which are related to the level of input required. If these expectations are not met then the consumer will not feel that a fair deal was reached and will consequently not be satisfied. Bolton and Drew (1994) depict structural relationships among customer assessments, service operations and outcomes in which attribution and equity are linked to satisfaction.

Oliver (1980) originally presented a model in which the antecedents of satisfaction are expectations and disconfirmation, the expectancy disconfirmation model which was generally adopted at that stage. In this model, disconfirmation is the most immediate

influence on satisfaction. Churchill and Suprenant (1982) explicitly included performance in the model as an antecedent of satisfaction and included effects of expectations and performance on disconfirmation and effects of expectations on performance. Tse and Wilton (1988) confirmed the direct effect of perceived performance on satisfaction.

Johnson and Fornell (1991) discard the disconfirmation concept in favor of the concept that expectations and perceived performance directly affect satisfaction. One of their arguments is that customer experience with products and services should result in a general increase in perceived satisfaction and this can not be explained strictly on the basis of disconfirmation. Also they wish to develop a parsimonious framework which captures primary psychological process. They introduce individual differences and product category differences in the model as having a direct effect on expectations and perceived performance tends to be the single determinant of satisfaction. Effects of expectations on satisfaction should increase as experience increases because the expectations presumably increase in accuracy and confidence.

Oliver (1993) extended the traditional customer satisfaction/dissatisfaction (CS/D) model to include affect as a determinant of satisfaction. It is interesting to note his finding that disconfirmation (a cognitive element) is the most influential of variables tested in relationship to satisfaction. The variables he tested were attribute (dis)satisfaction, affect and disconfirmation.

Woodruff et al. (1983) also include experience in their analysis of disconfirmation. Expectations are substituted by experience-based norms as the standard for comparison of a brand's performance. Oliver (1981) also treats expectations as a norm or base-line



around which satisfaction judgment are made. Such judgments therefore have an effect on the evaluation of performance.

The previous discussion would suggest that there has been a movement from the expectancy disconfirmation model to the expectations, performance, and experience model. This, however, is not totally accurate as to this day there are researchers that hold on to disconfirmation, supporting this concept with empirical evidence (e.g. Oliver, 1993).

Zeithaml et al. (1988) presented their well-known conceptual model of service quality in which a variety of factors affect the delivery of service quality. Communication and control process to manage employees are at the centre of their model. The gap between expected service and perceived service depends on the delivery of service quality on the one hand and recommendation, personal needs and past experience on the other hand.

### Measurement of Customer Satisfaction

Oliver (1981) introduced the expectancy-disconfirmation model for studies of customer satisfaction in the retail and service industry. Expectancy-disconfirmation theory posits that customers form their satisfaction with a target product or service as a result of subjective (or direct) comparisons between their expectations and perceptions. Customers are directly asked to provide their perceptions or evaluations of the comparisons, using a “worse than/better than expected” scale. The resulting perceptions

are conceptualized as a psychological construct called “subjective disconfirmation“. The expectancy-disconfirmation model asserts that customer satisfaction is a direct function of subjective disconfirmation. That is, the size and direction of disconfirmation determine, in part, the level of satisfaction. When “confirmation” occurs, customers are believed to remain neither satisfied nor dissatisfied. Both expectations and perceptions also have been found to influence customer satisfaction and subjective disconfirmation under various circumstances (Churchill and Surprenant, 1982).

The expectancy-disconfirmation model differs from SERVQUAL in several fundamental aspects. First, it attempts to explain and theorize a consumption process, whereas SERVQUAL purports to describe (or “merely measure perceived service quality at a given point in time, regardless of the process...” Parasuraman et al., 1994b, p.112) perceived service quality. Second, the expectancy model measures disconfirmation directly (i.e., subjectively), whereas SERVQUAL does it indirectly (i.e., arithmetically). Although the two models pursue different measurement methods, their conceptual thesis is virtually identical. Nevertheless, the subjectively measured disconfirmation is specified as a construct of disconfirmation in the expectancy model, but the arithmetically derived disconfirmation becomes perceived service quality in SERVQUAL. While the distinction between these two constructs is not clear, Oliver (1997) suggested a potential integration of the two constructs within the expectancy-disconfirmation framework. Another notable difference between the expectancy and SERVQUAL models is in the key criterion variables. Customer satisfaction is the ultimate criterion variable in the expectancy model, while SERVQUAL targets service quality as its core variable. Oh and Parks (1997) provide a further elaboration on differences between the two models. Similar to

the case of SERVQUAL, researchers have questioned the validity of expectation measures associated with the expectancy-disconfirmation model. Miller (1977) found that when asked of expectations, customers elicited several different kinds of expectations. These included expectations of ideal, minimum, predicted, and normative performance. Therefore, depending upon the type of expectations measured, the strength of its relationship with other constructs in the model has often differed significantly. Unlike SERVQUAL's objective comparison approach, however, the subjective comparison (i.e., disconfirmation) method of the expectancy model has demonstrated its role in consumer decision making and resulted in general acceptance by marketing researchers.

### Customer Perceived Value

Customer value can be broadly defined as “the customer’s overall assessment of the utility of a product based on perceptions of what is received and what is given” (Zeithaml, 1988). A number of researchers have investigated the role of customer value in consumption contexts. For example, Zeithaml (1988) provided evidence supporting an influential role of value in consumers’ purchase decision making. According to the means-end model proposed by Zeithaml (1988), perceived value is a direct antecedent of a purchase decision and a direct consequence of perceived service quality. Dodds et al. (1991) conceptualized perceived value as a tradeoff between perceived quality and perceived psychological as well as monetary sacrifice. Their model shows that perceived value is a direct antecedent of consumer purchase intention. More recently, Woodruff (1997) laid out a customer value hierarchy model in which customer value was viewed as

a hierarchically structured construct at levels of consumption goals, consequences, and attributes. According to Woodruff, customer value resides in every stage of customers' expectancy-disconfirmation process. Slater (1997) and Parasuraman (1997) provided support for the role of customer value in understanding consumer behavior.

Recently, the hospitality literature has reported research on customer values. Based on economic value and consumer behavior theories, Jayanti and Ghosh (1996) formulated perceived value as a direct consequence of perceived quality as well as of price-based transaction and acquisition utilities. A subsequent investigation of their hypotheses in the hotel industry supported the role of value for understanding hospitality customers. Bojanic (1996) also examined the relationship of customer value with price, quality, and satisfaction. However, Bojanic's empirical tests of the relationships in four lodging market segments produced somewhat mixed results.

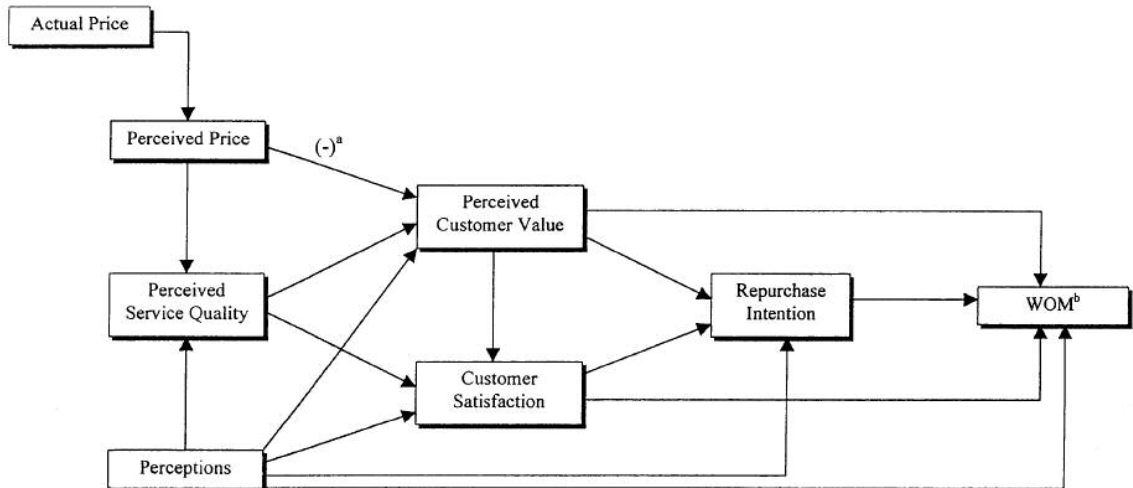
#### Integration of Customer Satisfaction, Perceived Value, and Service Quality

Customer satisfaction is fundamental to the practice of consumer sovereignty. For foodservice providers, customer satisfaction leads to favorable results, such as higher rates of customer perceived service quality and perceived value, repurchased intentions, and word-of-mouth endorsement (Oh and Parks, 1997). Thus satisfaction actually affects the outcome of foodservice practices. For these reasons customer satisfaction assessment has become an integral part of foodservice organizations' strategic processes. Customers' perceptions of company's performance have been found to affect positively on perceived service quality, customer satisfactions, repurchased intentions, and word-of-mouth

endorsement (Oh and Parks, 1997). The perception of value plays a very significant role in determining customer satisfaction. As Naumann (1995) reported that superior value of a product/service represents a significant competitive advantage for the firm in building profits and customer satisfaction. As Oh (1999) indicated that perceived quality, value, customer satisfaction, repurchase intention, and word of mouth endorsement are positively correlated with each other, which means that customers may perceive a high level of satisfaction and would like to return and recommend their experience to friends or family when they perceive a high level of quality and value. In other words, customer satisfaction leads to a higher rate of customer intention, positive word of mouth and higher profits. Customer satisfaction has become known as an important factor for the success of service businesses. As Dube et al. (1994), Lee and Hing (1995), Johns and Tyas (1996), Oh and Jeong (1996), Zeithaml et al. (1996), Oh (1999; 2000), Fu and Parks (2001), and Tam (2004) reported that satisfying customers is especially important because it encourages repeat business and fosters word-of-mouth advertising.

Oh (1999) conducted a study to assess the role of customer value within the existing service quality and customer satisfaction framework. Focusing primarily on customers' post-purchase decision-making process, the study examined the relationship of customer value with price, perceptions of performance, service quality, customer satisfaction, and intentions to repurchase and to recommend. Oh (1999) proposed a model, as shown in Fig. 1, integrating key variables from studies of service quality, customer satisfaction, and customer value to studying and understanding the purchase decision-making process of hospitality consumers. Fig. 1 presents a model proposed by Oh (1999), focused mainly on the post-purchase decision process. Arrows in the model indicate causal directions.

Several important features are as follows. First, the proposed model incorporated the key variables discussed above such as perceptions, service quality, consumer satisfaction, and customer value. In addition, intentions to repurchase and to recommend to others were included in the model, as was the effects of actual and perceived prices. Second, the model tentatively excluded the expectations construct for several reasons: (a) its measurement has been problematic; (b) a simultaneous consideration of expectations, perceptions, and service quality may cause multicollinearity as reflected in the SERVQUAL approach (Oh and Parks, 1997); and (c) the present model focuses on a transaction-specific post-purchase decision-making process that does not include a longitudinal process of attitude change (i.e., the revision process of expectations). Third, to avoid potential redundancy in conceptualizing subjective and objective disconfirmation constructs, the proposed model included only a subjective measure of disconfirmation in the name of perceived service quality. Inclusion of both objective and subjective disconfirmation concepts in the same model could cause conceptual redundancy. Another point to note is that repurchase intention is modeled as a direct consequence of perceptions, value, and satisfaction. Finally, word-of-mouth (WOM) communication intention is conceptualized as a direct, combined function of perceptions, value, satisfaction, and repurchase intention.



Note: Arrows indicate hypothesized causal effects.

<sup>a</sup> The hypothesized relationship is negative; all the other causal paths are hypothesized to be positive.

<sup>b</sup> Word-of-mouth communication intention.

Fig 1. A Proposed Model of Service Quality, Customer Value, and Customer Satisfaction (Oh, 1999, p. 72)

Oh's (1999) findings indicated that the proposed and integrated model may be a useful framework for understanding consumer decision processes as well as evaluating company performance more completely. In particular, customer value is an important variable (or construct) to be considered in service quality and consumer satisfaction studies or vice versa. Furthermore, service quality and customer value in combination may completely mediate perceptions toward customer satisfaction. In addition, perceived price has a negative impact on customer value. Perceived price was found to have no relationship with perceived service quality.

## Purchase Intention

To understand the determinants of consumer's purchase intentions could bring more successful in business operation. Scholars have attempted to understand the influence of consumer characteristics on the purchase intention. Two types of characteristics commonly studied are demographic characteristics (LaBay and Kinnear, 1981) and personality traits.

Gender differences in attitudes and behavior have been extensively researched in general psychology and the business literature. Studies show that women are more motivated by non-economic goals than men (Chaganti, 1986) and have a smaller threshold for business expansion than men (Cliff, 1998). Studies in finance also show that men engage in risk taking behavior more than women (Hinz, et al., 1997), show more overconfidence (Lundeberg, et al., 1994), and rely on themselves more for making decisions (Lewellen, et al., 1977). In an extensive review of recent literature, (Eagly, 1995) concludes that psychologists "are in general agreement that their meta-analytic findings yield evidence of differences". And (Powell and Ansic, 1997) conclude that the "one gender difference which is persistently found in both the general and business specific literature is a lower preference for risk amongst females". These gender-related attitudinal and behavioral characteristics suggest that the likelihood to purchase in the foodservice market will also vary among men and women.

Age affects people's attitudes and behavior (Beatty and Smith, 1987). As people age, they show greater reluctance to adopt new technologies (Gilly and Ziethaml, 1985), become more cautious, and seek greater certainty in their decisions, thus increasing their



commitment to their existing behavioral patterns. The elderly also exhibit more negative perceptions toward new technologies (Pommer, et al., 1980). As such, they have been shown to be less likely to use credit cards and automated teller machines.

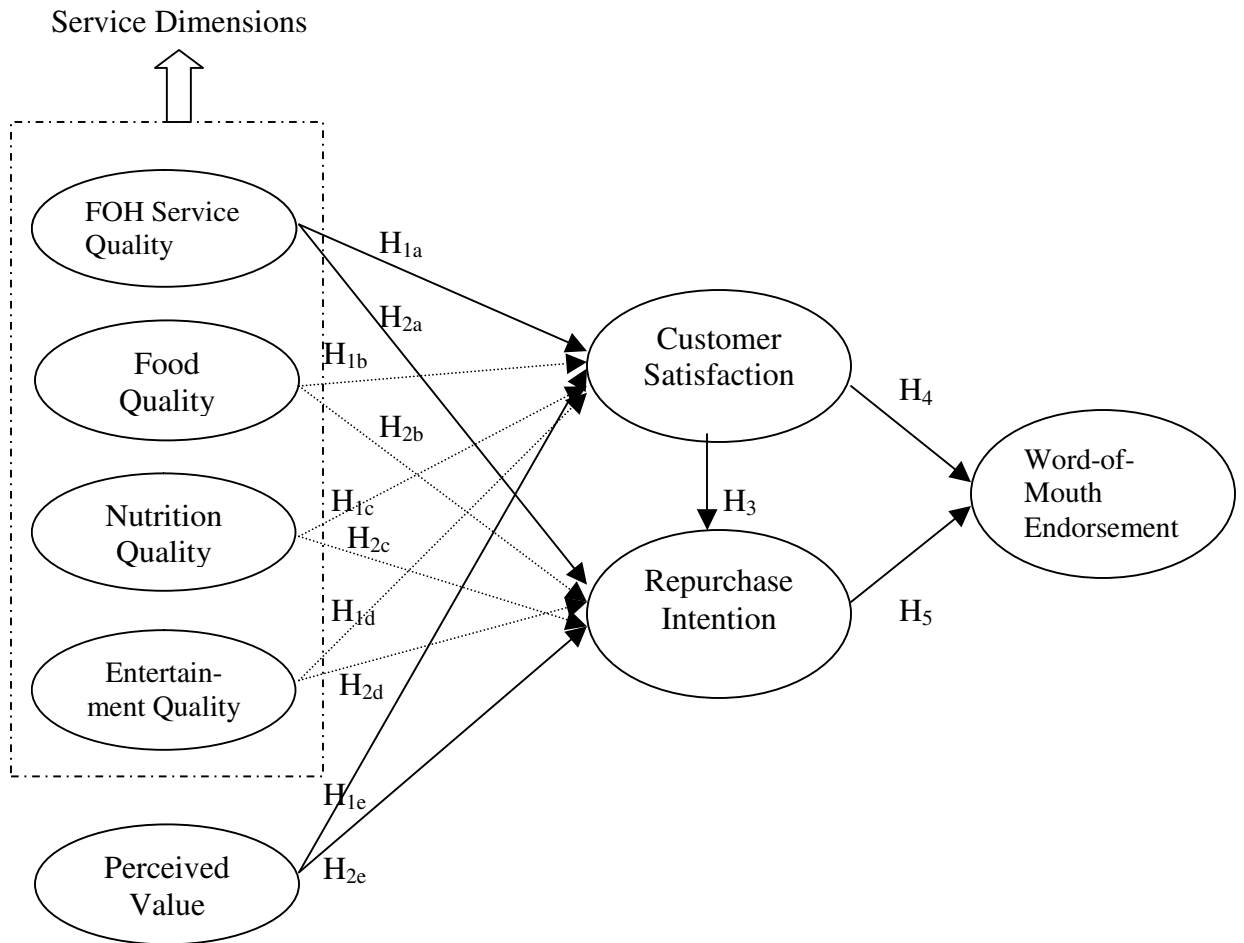
Income is closely related with the opportunity cost of time. As income increases, the perception of the value of time changes. Economic studies indicate that high-income consumers will exhibit a high valuation of time (Stigler, 1961). The opportunity cost of time associated with making a purchase in the foodservice market may thus influence the intention to purchase in the foodservice market. As such, people with a higher income will prefer the speed because of the time saving may save more money.

## Conceptual Framework

### The Model of the Senior Citizen's Purchasing Process in the Foodservice Market

From the previous review of the literature, many hospitality researchers, such as Dube et al. (1994), Lee and Hing (1995), Johns and Tyas (1996), Oh and Jeong (1996), Oh (1999; 2000), Fu and Parks (2001), and Tam (2004), found that service quality and customer perceived value highly correlate to customer satisfaction and customer return behavior which will lead to an increased level of WOM endorsement in the hospitality market. As shown in Figure 2, this study proposed a theoretical model to confirm the existing theories among three different restaurant sectors (quick service, casual dining, and fine dining), and focus on the perceptions of the senior citizens. In addition, based on the literature, how the factors of food quality, nutrition quality, and entertainment

quality impact the senior citizen’s dining satisfaction and repurchase intention will be identified. In this relationship model, the solid lines represent the relationships that will be confirmed among three restaurant sectors and focus on the perceptions of the elderly. The dotted lines represent the hypothesized relationships that will be identified and anchored in the perceptions of the elderly.



1. The solid lines represent the relationships that will be confirmed among three restaurant sectors and focus on the perceptions of the elderly.
2. The dotted lines represent the relationships that will be identified and anchored in the perceptions of the elderly.

Fig. 2 A Model of the Older Diner’s Purchasing Process in the Foodservice Market

## Hypotheses Development

Hypothesis 1 ( $H_{1n}$ ): The higher the restaurant's service dimensions and value as perceived by the older diners, the higher the dining satisfaction of the older diners, specifically:

$H_{1a}$ : The higher the FOH service quality as perceived by the older diners, the higher the dining satisfaction of the older diners.

$H_{1b}$ : The higher the food quality as perceived by the older diners, the higher the dining satisfaction of the older diners.

$H_{1c}$ : The higher the nutrition quality of food as perceived by the older diners, the higher the dining satisfaction of the older diners.

$H_{1d}$ : The higher level the entertainment service as perceived by the older diners, the higher the dining satisfaction of the older diners.

$H_{1e}$ : The higher the value as perceived by the older diners, the higher the dining satisfaction of the older diners.

Hypothesis 2 ( $H_{2n}$ ): The higher the restaurant's service dimensions and value as perceived by the older diners, the higher the repurchase intention of the older diners, specifically:

$H_{2a}$ : The higher the FOH service quality as perceived by the older diners, the higher the repurchase intention of the older diners.

$H_{2b}$ : The higher the food quality as perceived by the older diners, the higher the repurchase intention of the older diners.

$H_{2c}$ : The higher the nutrition quality of food as perceived by the older diners, the higher the repurchase intention of the older diners.

$H_{2d}$ : The higher level the entertainment service as perceived by the older diners, the higher the repurchase intention of the older diners.

$H_{2e}$ : The higher the value as perceived by the older diners, the higher the repurchase intention of the older diners.

Hypothesis 3 ( $H_3$ ): The higher the dining satisfaction as perceived by the older diners, the higher the repurchase intention of the older diners.

Hypothesis 4 ( $H_4$ ): The higher the dining satisfaction as perceived by the older diners, the stronger the intention of the older diners to recommend the particular foodservice product to others.

Hypothesis 5 ( $H_5$ ): The higher the repurchase intention of the older diners, the stronger the intention of the older diners to recommend the particular foodservice product to others.

Hypothesis 6 ( $H_6$ ): There are significant differences of the older diner's perceptions of the restaurant's service attributes and customer perceived value among the three restaurant sectors (quick service, casual dining, fine dining).

## CHAPTER III

### RESEARCH METHODOLOGY

A descriptive questionnaire survey was conducted in this study. Data were collected by regular mail. The main focus of this study is to confirm the existing theories of the customer dining behavior in the mature market. In addition, this study considered adding the new factors such as food quality, nutrition quality, and entertainment quality that potentially affect the customer dining satisfaction and repurchase intention into the existing theories for studying the dining behaviors of the senior citizens. An effective scale for measuring the senior citizens' perceptions of the restaurant's services in terms of food quality, nutrition quality, FOH service quality, entertainment quality, and customer perceived value were produced by this study. The relationships regarding the senior citizens' perceptions of the restaurant's services and their purchasing behaviors in the foodservice market were identified and compared among three different restaurant sectors as well.

## Research Design

The planning and development of this research began in the fall of 2004 and were continued through the summer of 2005. In the beginning of this period, a review of literature was conducted; sample selection and data collection procedures were determined. A self-administered questionnaire was designed, and data analysis techniques were selected. In order to clarify the statement of the survey questionnaire, a pilot study was conducted. At the middle of February 2005, the data collection process was administered by conducting a regular mail survey. Data analysis and the description of findings were started in March 2005. The study was finished in June 2005.

## Sampling

Since this study investigates the dining behaviors in the mature market, it is more reliable if the information is directly gathered from the perceptions of the senior citizens. Therefore, the target population for the survey of this study was comprised of senior citizens, aged 55 or older, who lived in the U.S. Since this study invited the directors of senior centers to help for the survey administration, their suggestions on the quantity of survey were considered to encourage their participation in this study. The senior center mentioned in this study is a nonprofit agency providing activities and services to older adult and is dedicated to helping seniors live meaningful lives of dignity, enjoyment and useful purpose. These senior centers are different from nursing homes, retirement communities, or any kinds of residential establishments for older adult. After discussing

with the directors in both the Stillwater senior center and Oklahoma City senior center, a total of thirty surveys were distributed to senior visitors across a 5-day period, by giving six surveys daily.

A two-stage sampling strategy was used in this study. The first step was to randomly select a total of twenty senior centers from the four regions of the United States (Houghton Mifflin Co., 1987), which are Northeast, West, Midwest, and South (see Appendix B). In this stage, three states were randomly selected from each of the four US regions by using the table of random numbers (Snedecor & Cochran, 1967). To use the random number table, first number all of the states on each region. For example, say that there are 12 states in each region. Then, with closed eyes, pick a number by randomly dropping a finger on the random number table. Check that the last two digits of the selected number are between 01 and 12. If yes, use that as the first sample element. If not, keep going until such a number is found. Then, go back to the random number table, and continue the selecting process until the next number between 01 and 12 is found. That is our second element. The same process continues until three states from each of the four US regions are found. Then, a total of five senior centers were randomly selected from the list of yellowpages.com in the three selected states in each region by using the table of random numbers (Snedecor & Cochran, 1967). The same selecting process, used in selecting the states, was used here. It's important to note that the director of each selected senior center was contacted by phone to check for the qualification and willingness of participation before it was included in the list of participants.

The second step, randomly selected a total of six hundred senior visitors ( $N=600$ ), a number which is larger than the recommended sample size ( $N=400$ ) by Krejcie and

Morgan (1970), from the US senior centers over a 5-day period (from Monday through Friday). A systemic sampling strategy was adopted to randomly choose participants from the selected senior centers. A total of six questionnaires were filled out by each  $N^{th}$  visitor to each of the selected senior centers over a 5-day period. The number “ $N$ ” was based on the outcome of the pilot study. The decision of the sample size was based on the table used to determine sample size by Krejcie and Morgan (1970). Krejcie and Morgan generated the numbers that were based on a formula originally developed by the United States Office of Education. For a given population size ( $N$ ), the table of determining sample size indicates the sample size ( $S$ ) needed for the sample to be representative, assuming one is going to survey a random sample. However, the numbers shown in the table of determining sample size are simply suggested minimums. In order to be more confident with the selected sample, it is strongly recommended to obtain a larger sample than the recommendation shown in the table of determining sample size (Krejcie & Morgan, 1970).

### Instrument Development

A three-section self-administered questionnaire (see Appendix C) was developed to identify the senior citizens’ perceptions of the dining experience in three different restaurant sectors (quick service, casual dining, and fine dining). Section one was designed to measure the participant’s perceptions of the restaurant’s services in terms of food quality, nutrition quality, FOH service quality, and entertainment quality along with the customer perceived value. This section started with two questions asking the



participants for the visiting frequency of a restaurant and the personal average check. Following these questions, the participants were randomly assigned to rate either the quick service, casual dining, or fine dining restaurant that they most frequently patronized on 29 measurement items. The responses of this measurement were scored using a 5-point Likert scale (1=Much worse than expected, 2=Somewhat worse than expected, 3=Same as expected, 4=Somewhat better than expected, 5=Much better than expected). The 29 measurement items were both drawn from existing theories and self-created questions based on the literature and the discussions with the hospitality professors having expertise in restaurant operations, registered dietitians, and statistics professors, and modified to suit foodservice and the senior citizen's situation. Within the 29 measurement items, the measurements regarding the restaurant's FOH service quality were based on the SERVQUAL theory and were drawn from an extensive review of the literature (Stevens, Knutson, and Patton, 1995; Lee and Hing, 1995; Heung, Wong and Qu, 2000; Johns and Tyas, 1996; Fu and Parks, 2001; Lee, Kim, Hemmington and Yun, 2004). A total of 9 items for measuring FOH service quality that was frequently adopted by the previous studies were selected and included in the questionnaire of this study. The 6 measurement items for the food quality and the 6 measurement items for the nutrition quality were selected as a result of both a literature review (Johns and Tyas, 1996; Meyer, 1997; Fu and Parks, 2001) and discussions with the hospitality professors and registered dietitians. The 4 measurement items for the customer perceived value were drawn from the scales of Johns and Tyas (1996) and Meyer (1997). The measurement items of the entertainment quality (4 items) were self-created questions based on the literature (Williams, 1996; "Brumback", 2004) and the discussions with the hospitality professors.

The list of the source for the measurement development of this section is shown in the Table of the Appendix D.

In section two, each five measurement items was used to measure the customer satisfaction, repurchase intention, and WOM endorsement. The 5-point Likert scale (1=Very unsatisfied; 2=Unsatisfied; 3=Somewhat satisfied; 4= Satisfied; 5=Very Satisfied) was used to measure the customer satisfaction. The repurchase intention and the WOM endorsement were scored by another 5-point Likert scale (1=Very impossible; 2=Impossible; 3=Somewhat possible; 4=Possible; 5=Very possible).

Section three inquired about the participant's demographic information and their dining-out behaviors including: 1) the types of restaurant they most frequent patronized 2) frequency of restaurant patronage 3) average check per person 4) size of household 5) geographic profile of residence 6) limitation of residence on visiting certain types of restaurants 7) driving status 8) Meals on Wheels attendance 9) gender 10) age and 11) income level.

### Pilot Study

A pilot study was administered to a representative group of senior citizens who visited the senior center of Stillwater at Oklahoma State over a 5-day period, three hospitality professors, and one statistics professor. Their comments were used to revise and clarify the statements in the survey.

## Survey Administration

The collection of survey data was conducted from the middle of February 2005 through the middle of March 2005. The directors of the selected senior centers were contacted by phone to check for the qualification and willingness of participation before the survey packages were mailed to them. A total of 20 out of 98 contacted directors indicated willingness to participate in this study. A survey package including a cover letter, thirty questionnaires, and a reply envelope was mailed by a regular mail to each of the twenty directors. In order to get a balanced response for the three restaurant sectors (quick service, casual dining, and fine dining), each of the thirty questionnaires, including an equal amount of questionnaires with a randomly arranged order, asked individuals to rate the quick service, casual dining, or fine dining restaurant that they most frequently patronized. The directors were asked to randomly distribute six questionnaires daily to every fifth senior visitor over a 5-day period. A follow-up reminder was mailed to each of the directors in two weeks.

## Data Analysis

The data analysis of this study was organized into five stages, as shown in Fig. 3, using descriptive and inferential statistics techniques. Data were coded and analyzed by using the Statistical Packages for Social Sciences (version 11.0.1, 2001, SPSS Inc., Chicago, IL) and LISREL version 8.5. The data were ruled out if the participants indicated a very rare experience of dining out, inappropriate age, or incomplete information.

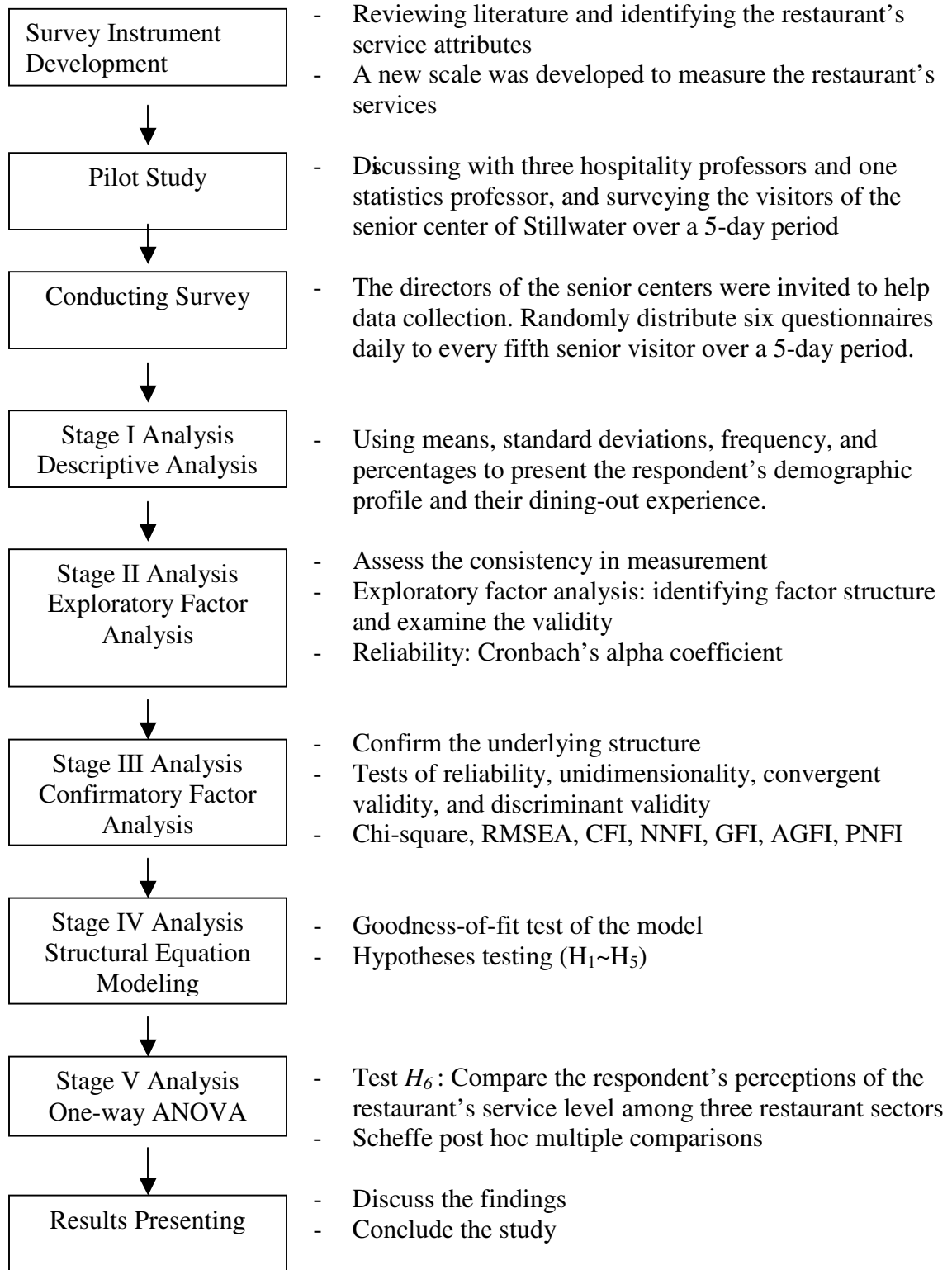


Fig. 3 Frame of the Research and Data Analysis Procedures

### Stage I – Descriptive Analysis

The first stage of the data analysis used means, standard deviations, the techniques of frequency, and percentages to present the respondent's frequency and experience of dining-out and their demographic profile.

### Stage II – Exploratory Factor Analysis

The second stage of the data analysis conducted an exploratory factor analysis (EFA) to identify the factor structure for measuring the restaurant's services and the customer perceived value for the senior citizens, and check the validity and the reliability of the scale. The decision to consider a factor as significant is identified by a factor loading greater than 0.5 and an eigenvalue equal to or greater than 1. Cronbach's alpha coefficient was used to test the reliability of the scale.

### Stage III – Confirmatory Factor Analysis

Confirmatory factor analysis is a kind of multivariate statistical method in which the primary purpose is to confirm the underlying structure in a data matrix. The third part of the data analysis employed a confirmatory factor analysis (CFA) to confirm the factor structure for measuring the restaurant service and the customer perceived value for the senior citizens, and check the validity and reliability of the measuring scale. The adequacy of the measurement model was evaluated based on criteria of overall fit with

data, content validity, unidimensionality analysis, convergent validity, discriminant validity, and reliability. Content validity ensures that the measure includes an adequate and representative set of items describing the concept. To ensure content validity, the lists of attributes of the survey questionnaire were selected after (1) an extensive literature review, (2) interviews with faculty members having expertise in restaurant operations and statistics, and (3) a pilot test and asking respondents to evaluate the appropriateness of the measuring instruments. The Cronbach's alpha coefficient was used to test the reliability of the scale. The generally agreed-upon lower limit for Cronbach's alpha coefficient is .60 ~.70 (Hair, Anderson, Tatham, & Black, 1998). In addition, conducting a confirmatory factor analysis using structural equation modeling can test the construct validity. For the unidimensionality analysis, when the items of a scale estimate one factor then the scale is unidimensional. A good fit of the measurement model, measured by the goodness of fit index (GFI), indicates that all items load significantly on one underlying latent variable. A GFI of 0.90 or higher for the model indicates that there is no evidence of lack of unidimensionality. Convergent validity is the extent to which different approaches to measurement of the construct yield the same results. The most commonly used way to assess convergent validity is to consider each item in the scale as a different approach to measure the construct. Convergent validity is checked using the Bentler-Bonett coefficient ( $\Delta$ ) (Bentler and Bonett, 1980). Discriminant validity is the degree to which measures of different scales of the survey instrument are unique from each other. Discriminant validity exists when the proportion of variance extracted in each construct (AVE) exceeds the square of the coefficient representing its correlation with other constructs (Fornell and Larcker, 1981).

Confirmatory factor analysis allows manifest variables to be free to load on specific factors. The model is then evaluated by statistical means to determine the adequacy of its goodness of fit to the data (Byrne, 1998). Specifically, the researcher can determine whether or not a pattern of correlations for a set of observations is consistent with a specific theoretical formulation. In this study, the goodness of fit testing was conducted by using several criteria, including chi-square test, root mean square error of approximation (RMSEA), Tucker-Lewis index (TLI/NNFI), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), parsimony normed fit index (PNFI), and comparative fit index (CFI). This confirmatory factor analysis was conducted using LISREL 8.54, the most appropriate analytic tool for CFA (Hair, Anderson, Tatham, & Black, 1998).

#### Stage IV – Structural Equation Modeling (SEM)

To test hypothesis 1 to hypothesis 5, the fourth part of the data analysis identified the structural relationships between the service dimensions (food quality, nutrition quality, entertainment quality, and FOH service quality), customer perceived value, dining satisfactions, repurchased intentions, and WOM endorsement in the three different restaurant sectors (quick service, casual dining, fine dining) as perceived by the senior citizens. The proposed model was path analyzed via the Maximum Likelihood estimator of LISREL 8.54 by using the variance-covariance matrix of the measured variables as input. This path analysis technique enables estimating simultaneously multiple regression equations in a single framework. All direct and indirect relationships in the model were

estimated simultaneously. Thus, the method allows all the interrelationships among the variables to be assessed in the same decision context. In order to test the fitness level of the model, the goodness-of-fit measures was included in the analysis.

#### Stage V – One-way Analysis of Variance (ANOVA)

The fifth part of the data analysis compared the respondent's perceptions of the restaurant's service attributes, perceived value, dining satisfaction, repurchase intention, and WOM endorsement among three restaurant sectors. A one-way Analysis of Variance (ANOVA) was conducted to determine the significance in differences to test the hypothesis 6. The Scheffe post hoc multiple comparisons will be conducted to test all possible pair-wise differences in a set of means, while the results of the one way ANOVA analysis indicate significant differences among the data sets.



## CHAPTER IV

### RESULTS AND DISCUSSION

Results of the data analysis are presented in this chapter. First, characteristics of the sample and descriptive analysis for each construct are presented. Second, the results of the reliability and validity testing are reported to assure the quality of survey scale and data. Third, results of the comparisons of the senior citizens' perceived service levels among three restaurant sectors are identified. Fourth, results of exploratory and confirmatory factor analysis are presented to verify the underlying structure of the senior citizen's purchasing process in foodservice. Fifth, results of model estimation are discussed, followed by detailed results of hypothesis tests. Finally, the discussions of the major findings from this study are presented.

The purpose of this study is to investigate the senior citizens' perceptions of the restaurant's services and their purchasing behaviors among three restaurant sectors (quick service, casual dining, and fine dining). The specific objectives of this study are to:

- 1) identify the senior citizens' dining-out behaviors (such as favorite restaurant type, frequency of dining-out, and average expenditure of dining-out)
- 2) propose an effective scale for measuring the restaurant's services in terms of food quality, nutrition quality, entertainment quality, and front of the house (FOH) service quality along with the customer perceived value for senior citizens

- 3) identify whether the senior citizens' perceived service levels in the foodservice market differ among the quick service, casual dining, and fine dining restaurant
- 4) identify how the senior citizens' perceptions of the restaurant's service qualities including food quality, nutrition quality, entertainment quality, and FOH service quality along with the customer perceived value influence their dining satisfaction and repurchase intention
- 5) identify whether a high level of dining satisfaction will increase a repurchase intention and a positive WOM endorsement as perceived by senior citizens
- 6) identify whether the senior citizens will develop a stronger intention to recommend the particular foodservice product to others (WOM endorsement) when they intend to revisit the particular foodservice product (repurchase intention)
- 7) propose a relationship model to study and understand the senior citizens' perceptions on restaurant's services and their purchasing behaviors

### Results of the Pilot Study

A pilot study was administered to a representative group of senior citizens who visited the senior center of Stillwater at Oklahoma State. Before conducting the pilot survey, some statements of the survey scale were revised according to the comments of three hospitality professors and one statistic professor. A total of 147 questionnaires were distributed to the senior visitors of Stillwater senior center over a 5-day period (from Monday through Friday). Their most frequent comments such as increasing the print size

and clarifying the definitions for each restaurant sector were adopted to revise and clarify the statements in the survey. Furthermore, a total of 147 responses collected in a 5-day period implied that there were about 29 senior visitors per day, who could be invited to participate in the survey. Therefore, the decision of systematic sampling strategy was made for every fifth visitor to be invited as a survey participant. Six participants a day were invited yielding a total of 30 finished surveys in each of the twenty selected senior centers.

### Descriptive Analysis Results of Survey and Respondent's Profile

#### Response Rate

Six hundred surveys were distributed to six hundred senior citizens ( $N=600$ ) of the twenty senior centers in the United States. Of this, an equal amount of two hundred questionnaires asked individuals to rate the quick service, casual dining, or fine dining restaurant that they most frequently patronized. As shown in Table 2, a total of 477 questionnaires were collected. This yielded a 79.50% raw response rate. Among the 477 senior citizens investigated, 34 of them were younger than 55 years of age and 14 of them did not fill out the questionnaires completely. This result yielded 429 usable questionnaires which resulted in a 71.50% adjusted response rate. Among the 429 usable questionnaires, 126 (29.37%) questionnaires were rated for the fine dining restaurant, 129 (30.7%) questionnaires were rated for the casual/family dining restaurant, and 174 (40.56%) were rated for the quick service restaurant.

TABLE 2  
RESPONSE RATE

Descriptions	Number and Percentage
(A) Sample size	600
(B) Surveys returned	477
(C) Raw response rate <sup>1</sup>	79.50%
(D) Unqualified respondents	34
(E) Incomplete questionnaires	14
(F) Number of unusable surveys <sup>2</sup>	48
(G) Percent number unusable <sup>3</sup>	10.06%
(H) Net number usable <sup>4</sup>	429
(I) Adjusted (Net) response rate <sup>5</sup>	71.50%
(J) Number and percent <sup>6</sup> of rating fine dining restaurant	126 (29.37%)
(K) Number and percent <sup>7</sup> of rating casual/family dining restaurant	129 (30.07%)
(L) Number and percent <sup>8</sup> of rating quick service restaurant	174 (40.56%)

Notes: 1: B/A            5: H/B  
           2: D+E            6: J/H  
           3: F/B            7: K/H  
           4: B-F            8: L/H

Demographic Profile of Respondents

The demographic characteristics of the respondents are shown in Table 3. Among the 429 respondents investigated, there were more female respondents (65.5%) than male respondents (34.5%). The gender proportion of this study was consistent with the

TABLE 3

DEMOGRAPHIC PROFILE OF RESPONDENTS (*N*=429)

Gender	Number	%*
Male	148	34.50
Female	281	65.50
Total	429	100.00
<hr/>		
Age		
55~64	137	31.93
65~74	166	38.69
75~84	102	23.78
85 or older	24	5.59
<hr/>		
Income		
Less than \$30,000	119	27.74
\$30,000~\$49,999	214	49.88
\$50,000~\$69,999	66	15.38
\$70,000 or more	30	7.00
<hr/>		
Household Size		
Single	165	38.46
2	192	44.76
3	57	13.29
4 or more	15	3.50
<hr/>		
Environment of residence		
A metropolitan area	162	37.76
Suburban area around a metropolitan area	147	34.27
Small city or town	96	22.38
Countryside, rural	24	5.59
<hr/>		
Driving		
Yes	318	74.13
No	111	25.87

\*The percentages in this table are based on the total usable sample (429).

outcome of similar research that found more than two-third of the senior respondents to be female (Fu and Parks, 2001).

About 38.69% of the respondents were between 65 and 74 years old, 31.95% of them were between 55 and 64 years old, and 23.78% of the respondents were between 75 and 84 years old. There were few respondents (5.59%) who were 85 or older.

The most frequent level of annual income reported by the senior respondents was between \$30,000 and \$49,999, which accounted for almost 50% of the respondents. The second most frequent level of annual income was below \$30,000 (27.74%), followed by \$50,000~\$69,999 (15.38%). The least amount of respondents (7.00%) reported an annual income of more than \$70,000.

In terms of size of the household, 192 (44.76%) senior respondents indicated double occupancy in a household and 165 (38.46%) senior respondents indicated that they lived alone. A total of 57 (13.29%) senior respondents reported 3 persons in a household and 15 (3.50%) senior respondents reported 4 or more persons in a household.

An examination of the respondents' geographic profiles showed that the respondents resided in various types of communities. There were respondents living in a metropolitan area, 165 (38.46%); a suburban area around a metropolitan, 147 (34.27%); a small city or town, 96 (22.38%); and countryside or rural area, 24 (5.59%). It is important to note that more than 90% of the respondents indicated that their residence locations do not limit their patronage for a certain type of restaurant. Only one out of ten respondents indicated that they had geographic limitation for visiting a certain type of restaurant: 5.8% of them were limited in patronizing fine dining, 3.6% of them were limited in patronizing casual dining, and 1.1% of them were limited in visiting quick service restaurants. The majority

of respondents (74.13%) reported that they still drive a car, while 25.87% of respondents indicated that they do not drive a car.

Overall Dining Out Frequency and Average Check

As shown in Table 4, almost 78% of the 429 senior respondents reported that they dine out at least once a month, while 60.9% of them dine out at least once per two weeks, and about 37% of them dine out at least once per week.

The majority (40.6%) of their personal average checks fell in the range of \$10 or below, followed by \$11-\$15 (31.5%), \$16-\$20 (14.0%), \$21-\$25 (9.8%), and \$26 or more (4.2%).

TABLE 4

OVERALL DINING-OUT FREQUENCY AND CHECK

Frequency Level of Dining Out	%*	Personal Average Check	%*
Once/wk.	37.1	\$10 or below	40.6
Once/2 wks.	23.8	\$11-15	31.5
Once/mo.	16.8	\$16-\$20	14.0
Once/2 mos.	17.5	\$21-\$25	9.8
Very rare	4.9	\$26 or more	4.2

\* The percentages are based on the total usable sample (429).

### Preference of Restaurant Type

As shown in Table 5, the majority of the senior respondents (73.43%) indicated that they visit casual dining restaurants most frequently, followed by quick service restaurants (20.98%) and fine dining restaurants (5.59%). This result was consistent with the previous findings (Lahue, 2000) in showing that the casual dining restaurant was the most popular restaurant type for the senior citizens. In addition, this finding was also consistent with the NRA report (Fintel, 1990) that consumers older than 60 tend to dine at casual dining restaurants, especially self-service cafeterias or buffets, more than fast food restaurants.

TABLE 5

#### RESPONDENT'S PREFERENCE OF RESTAURANT TYPE

Restaurant Type	Number of Frequent Visitor	%*
Fine Dining	24	5.59
Casual Dining	315	73.43
Quick Service	90	20.98

\*The percentage in this table is based on the total usable sample size (429).

### Dining Out Profile By Age Group

Table 6 shows the respondents' dining-out profiles by each age level. For the age group of 55 to 64 years old, the first and second most frequent levels of dining-out



frequency were “once per week”, which accounted for 38.8% of this age group and “once per two weeks”, which accounted for 26.3% of this group. A large majority (78.9%) of this group indicated that they dine out at least once a month. For the age group of 65 to 74 years old, more than 75% of them reported that they dine out at least once a month, while 26.5% of them dine out once per two weeks and about 35% of them dine out once per week. A notable finding was that dining-out frequency declined with age from about 35% of “once per week” and 61.5% of “at least once per two weeks” for senior citizens 55 to 74 years old to below 20% and 38% respectively for senior citizens 75 and older. This result showed that age variable may affect dining-out frequency. The younger senior citizens seemed to dine out more frequently than the older senior citizens.

Except for the age group of 85 years and older, about 41% of each age group reported that the most frequent level of average check was “\$10 or below”. The other average check levels listed in descending order of frequency to all groups, except the group of 85 years and older, were “\$11-\$15”, “\$16-\$20”, “\$21-\$25”, and “\$26 or more.” For most of the respondents, as the average check level rose, the frequency of expense decreased. However, this rule was not applicable to the senior citizens aged 85 and older. For this older group, the most frequent level of average check was “\$11-\$15” (75%), followed by “\$21-\$25” (12.5%) and “\$10 or below” (12.5%).

For the preference of restaurant type, the age groups of “75 to 84” (88.2%) and “85 and older” (87.5%) had a higher percentage rate in patronizing casual dining restaurants compared with the other age groups. The age group of 65 to 74 years old had a higher percentage (26.5%) rate in patronizing quick service restaurants and the group aged 55 to 64 had a higher percentage (8.8%) rate in patronizing fine dining restaurants than the

other groups. A notable finding was that the patronizing percentages for casual dining restaurants increased from 36% for the 55 to 64-year-old group and 46% for consumers 75 and older in 1989 (Fintel, 1990) to 66.4% and 88.2% respectively in 2005. This indicates that the popularity of casual dining for these age groups has increased 1.5 times over the past 15 years.

TABLE 6  
RESPONDENTS' DINING-OUT PROFILE BY AGE GROUP (N=429)

Age Level	Level of Frequency	Percentage*	Personal Average Check	Percentage*	Type of Restaurant	Percentage* of Patronage
55-64 (n=137)	Once/wk.	35.8	\$10 or below	42.3	Fine Casual Quick	8.8 66.4 24.8
	Once/2 wks.	26.3	\$11-15	29.2		
	Once/mo.	16.8	\$16-\$20	10.9		
	Once/2 mos.	15.3	\$21-\$25	6.6		
	Very rare	5.8	\$26 or more	10.9		
65-74 (n=166)	Once/wk.	34.9	\$10 or below	42.8	Fine Casual Quick	5.4 68.1 26.5
	Once/2 wks.	26.5	\$11-15	26.5		
	Once/mo.	13.9	\$16-\$20	16.3		
	Once/2 mos.	17.5	\$21-\$25	12.7		
	Very rare	7.2	\$26 or more	1.8		
75-84 (n=102)	Once/wk.	19.6	\$10 or below	41.2	Fine Casual Quick	0 88.2 11.8
	Once/2 wks.	18.6	\$11-15	32.4		
	Once/mo.	39.2	\$16-\$20	17.6		
	Once/2 mos.	21.6	\$21-\$25	8.8		
	Very rare	1.0	\$26 or more	0		
85, more (n=24)	Once/wk.	12.5	\$10 or below	12.5	Fine Casual Quick	12.5 87.5 0
	Once/2 wks.	25	\$11-15	75.0		
	Once/mo.	29.2	\$16-\$20	0		
	Once/2 mos.	33.3	\$21-\$25	12.5		
	Very rare	0	\$26 or more	0		

Note: \* The percentages are based on the sample size (n) of each age group.

### Dining Out Profile By Income Level

According to the data shown in Table 7, the percentages of dining-out frequency increased with income from 35.1% in the “once per week” frequency for incomes less than \$30,000 to 46.7% for incomes of \$70,000 or more. Moreover, the total dining-out percentages for the levels of once a month or more also increased from a cumulative percentage of 75.6% for incomes less than \$30,000 to a total of 80.3% for incomes of \$70,000 or more. Based on this finding, it is determined that a higher income may increase the dining-out frequency of senior citizens.

On the other hand, the income level seemed to have no impact on the size of the average check and the type of restaurant patronage. A large majority of respondents indicated that casual dining restaurants were their preference. Therefore, it was not surprising that a personal average check of below \$15 was the primary range reported by a large majority of senior respondents. Comparing the popularity of restaurant types among the four income groups of this study, the respondents with an income of \$30,000 to \$49,999 (80.8%) preferred to patronize casual dining restaurants more than the other groups, while the respondents with an income of \$50,000 to \$69,999 (36.4%) had a higher percentage in patronizing quick service restaurant and the respondents with an income of \$70,000 or higher preferred to patronize fine dining restaurant more than the other groups.

TABLE 7

## INCOME LEVELS VS. FREQUENCY OF DINING OUT, AVERAGE CHECK, AND TYPE OF RESTAURANT VISITED

Levels of Income	Frequency Levels of Dining Out	%*	Levels of Average Check	%*	Type of Restaurant	Frequency* of Patronage
\$0~\$30,000 (n=119)	Once/week	35.1	\$10 or below	47.1	Fine Casual Quick	6.7 68.9 24.4
	Once/two weeks	21.2	\$11-15	28.6		
	Once/month	19.3	\$16-\$20	16.0		
	Once/two months	21.0	\$21-\$25	7.6		
	Very rare	3.4	\$26 or more	0.8		
\$30,000~\$49,999 (n=214)	Once/week	35.5	\$10 or below	32.7	Fine Casual Quick	4.7 80.8 14.5
	Once/two weeks	27.1	\$11-15	37.4		
	Once/month	15.0	\$16-\$20	13.6		
	Once/two months	17.8	\$21-\$25	12.6		
	Very rare	4.7	\$26 or more	3.7		
\$50,000~\$69,999 (n=66)	Once/week	39.4	\$10 or below	63.6	Fine Casual Quick	4.5 59.1 36.4
	Once/two weeks	24.2	\$11-15	9.1		
	Once/month	16.4	\$16-\$20	13.6		
	Once/two months	10.9	\$21-\$25	9.1		
	Very rare	9.1	\$26 or more	4.5		
\$70,000 or more (n=30)	Once/week	46.7	\$10 or below	20.0	Fine Casual Quick	10.0 70.0 20.0
	Once/two weeks	20.0	\$11-15	50.0		
	Once/month	13.6	\$16-\$20	10.0		
	Once/two months	16.4	\$21-\$25	0		
	Very rare	3.3	\$26 or more	20.0		

\*The percentages in this table are based on the sample size (n) of each income group.

### Dining Out Frequency By Household Size

The results presented in Table 8 describe the impact of household size on the frequency of dining out by showing a descending order on the cumulative dining-out percentage from single household to a household with four or more persons. The respondents with a smaller household tended to dine out more frequently than the respondents with a larger household. This finding was consistent with the Knutson and

Patton's (1993) finding that convenience was one of the important reasons the older diners eat out in a restaurant since they don't think cooking at home is an economical way to live with only one or two people in a household. Preparing a variety of food for only one or two people may not be more practical or economical than for three or more people. Moreover, the dining-out expense for three or more people was generally higher than for one or two people, which may bring another economic pressure to the larger household.

TABLE 8

DINING OUT FREQUENCY BY HOUSEHOLD SIZE

Household Size	Frequency Levels of Dining Out	Cumulative Percentage*
Single (n=165)	At least once/wk.	42.4
	At least once/2 wks.	66.0
	At least once/mo.	78.7
	At least once/2 mos.	96.9
2 (n=192)	At least once/wk.	34.9
	At least once/2 wks.	57.8
	At least once/mo.	78.6
	At least once/2 mos.	93.7
3 (n=57)	At least once/wk.	33.3
	At least once/2 wks.	57.6
	At least once/mo.	75.4
	At least once/2 mos.	96.5
4 or more (n=15)	Once/week	20.0
	Once/two weeks	46.7
	Once/month	60.0
	Once/two months	86.7

\*The percentage is based on the sample size (n) of each household group.

### Dining Out Frequency By Driving and Non-Driving

As shown in Table 9, the cumulative percentages in the “Driving” column were moderately higher than those in the “Non-Driving” column. Therefore, the ability in driving may moderately impact senior citizens’ frequency of dining out.

TABLE 9

#### DINING-OUT FREQUENCY BY DRIVING AND NON-DRIVING

Frequency Levels of Dining-Out	%* of Driving	%* of Non-Driving
At least once/wk.	38.1	34.2
At least once/2 wks.	63.9	52.2
At least once/mo.	80.3	70.2
At least once/2 mos.	95.7	93.6
Very rare	4.3	6.4

\* The percentages in this table are cumulative percentages based on the total usable sample size (N=429).

### Dining Out Experience of Frequent Visitors

As discussed earlier, the majority of the senior respondents (73.43%) indicated that they visited casual dining restaurants most frequently, followed by quick service restaurants (20.98%) and fine dining restaurants (5.59%). As shown in Table 10, which was consistent with the previous findings (Lahue, 2000), the casual dining restaurant was the most popular restaurant type for the senior citizens. A notable finding was that the percentage of seniors who eat at family or casual style restaurants at least once a month

increased from 40% in 2000 (Lahue, 2000) to 61.6% in 2005 according to the finding of this study. This result implied that the popularity of a casual dining restaurant in the mature market continues to grow.

For the casual dining restaurant, the majority of frequent visitors were ages 65 to 74 years old (35.9%), followed by ages 55 to 64 (28.9%) and ages 75 to 84 (28.6%) years old. More than 83% of the frequent visitors patronized casual dining at least once a month, while 39% of them visited at least once a week and 19% of them patronized once per two weeks. Furthermore, the majority of the frequent senior visitors (40%) reported that their average checks were \$11- \$15 per person in this type of restaurant. About 31% of them spent \$10 or below per person and 28.6% of them spent \$16 or above per person in casual dining restaurants.

For the quick service sector, the most frequent visitors were ages 65 to 74 years old (48.9%), followed by ages 55 to 64 (37.8%) and ages 75 to 84 (13.3 %) years old. The majority of the frequent senior visitors (73.3%) indicated that they visited quick service restaurants at least once a month. But about 27% of them visited once per two months or rarely. In this sector, 83.3% of the frequent senior visitors spent \$10 or below per person and 16.7% spent \$11 - \$ 25 per person. None of them spent \$26 or above in the quick service restaurants.

For the fine dining sector, few respondents (5.59%) indicated that they visited fine dining restaurants frequently. Unlike the frequent visitors of casual dining and quick service, half of the frequent visitors of fine dining restaurants were ages 55 to 64 years old, followed by ages 65 to 74 years old (37.5%) and ages 85 years old and older (12.5 %). Within this minority of senior frequent visitors, it's interesting to note that all of

them (100%) indicated that they visited fine dining restaurants at least once a month, while half of them visited once a week and more than 37.5% of them visited once per two weeks. For their average checks, the majority of them (50%) spent \$16 to \$25 per person and 37.5% of them spent more than \$25 per person. Only 12.5% of them had an average personal check of \$11 to \$15 and none of them spent below \$11 in their average personal check.

TABLE 10  
DINING-OUT EXPERIENCE OF FREQUENT VISTORS

Type of Restaurant	Number and % <sup>1</sup>	Age Level	% <sup>2</sup>	Frequency of Dining Out	% <sup>2</sup>	% <sup>3</sup>	Average Check	% <sup>2</sup>
Fine Dining	24 (5.59%)	55-64	50.0	once/wk.	50	2.8	\$0 - \$10	0
		65-74	37.5	once/2 wks.	37.5	4.9	\$11-15	12.5
		75-84	0	once/mo.	12.5	5.6	\$16-\$20	25
		85, more	12.5	once/2 mos.	0	0	\$21-\$25	25
				Very rare	0	0	\$26 or more	37.5
Casual Dining	315 (73.43%)	55-64	28.9	once/wk.	39.0	28.7	\$0 - \$10	31.4
		65-74	35.9	once/2 wks.	19.0	42.7	\$11-15	40.0
		75-84	28.6	once/mo.	25.7	61.6	\$16-\$20	16.2
		85, more	6.7	once/2 mos.	8.6	67.9	\$21-\$25	9.5
				Very rare	7.6	5.5	\$26 or more	2.9
Quick Service	90 (20.98%)	55-64	37.8	once/wk.	40.0	8.4	\$0 - \$10	83.3
		65-74	48.9	once/2 wks.	20.0	12.6	\$11-15	6.7
		75-84	13.3	once/mo.	13.3	15.4	\$16-\$20	3.3
		85, more	0	once/2 mos.	6.7	16.8	\$21-\$25	6.7
				Very rare	20	4.2	\$26 or more	0

Notes: 1: The numbers represent the sample of frequent visitor and the percentages are based on the total sample size (N=429).

2: The percentages in this column are based on the sample size of each group.

3: The percentages in this column are cumulative percentages of each group and are based on the total sample size (N=429).



## Descriptive Analysis Results for the Attributes of the Questionnaire

A total of 429 survey responses were analyzed in this section. Descriptive analyses were performed on all attributes of service, satisfaction, repurchase intention, and WOM endorsement in the questionnaire. These descriptive analyses include means and standard deviations.

### Descriptive Analysis Results for Service Attributes

As Table 11 represented, nine variables were measured as exogenous variables of the FOH service quality; six variables were measured as exogenous variables of the food quality; six variables were measured as exogenous variables of the nutrition quality; four variables were measured as exogenous variables of the customer perceived value; four variables were measured as exogenous variables of the entertainment quality. Overall, the best quality category was food quality, followed by FOH service quality, customer perceived value, and entertainment quality as perceived by senior citizens. The nutrition quality had the lowest score from the senior citizen's ratings. The results were based on a five-point scale.

For the FOH service quality, the average score was moderately high, with a mean of 3.49 (s.d. = 1.03), meaning most of the senior customers considered the quality of FOH service to be moderately higher than what they had expected. In this category, the convenient operating hours had the best performance and the clarification of service time (telling you when order will be taken and served) had the worst performance as

considered by the senior customers. In the category of food quality, the average score was almost the same as the result of the FOH service quality, with a mean of 3.50 (s.d. = 1.03), meaning most of the senior customers considered the food quality of restaurant to be moderately higher than what they had expected. Most of the senior customers perceived the best performance of a restaurant in this category was when “a variety of food is offered” and the worst performance in this category was when “a reduced portion size meal with a reduced price” is available. The senior customers gave an average rating of 3.11 (s.d.=1.14) in restaurant’s nutrition quality, meaning that the level of nutrition quality was the same as they expected. As perceived by the senior customers, the restaurants had a best performance in providing a balanced and healthy food choice and a worst performance in providing nutritional information to customers than the other items in this category. The average score of the customer perceived value was 3.33 (s.d.=0.93), meaning that it had the same quality as they expected in this category. Comparing the item scores of this category, most of the senior customers thought that the restaurants performed best in giving them good value for their money and worst in providing a senior discount. Most of the senior customers considered that the quality of entertainment (mean=3.18; s.d.= 1.03) was the same quality level as they expected. In this category, background music had the best score and the availability of an entertainment facility had the worst score.

TABLE 11

## MEANS AND STANDARD DEVIATION FOR THE ATTRIBUTES OF THE QUESTIONNAIRE

Code	Variables	Means*	Standard Deviation
<i>FOH Service Quality</i> <sup>a</sup> (9)			
SQ 1	Neat and professional appearance of staff	3.42	.99
SQ 2	Dining area is attractive and comfortable	3.55	.93
SQ 3	Staff is very willing to help	3.41	1.12
SQ 4	Provide prompt and quick service	3.46	1.00
SQ 5	Staff convey comfortable and confident	3.62	1.02
SQ 6	Staff is sensitive to your needs and wants	3.45	1.01
SQ 7	Operating hours are convenient to you	3.69	1.07
SQ 8	Quickly corrects anything wrong	3.56	1.06
SQ 9	Telling you exactly when the order will be taken and served	3.29	1.01
<b>Average Score</b>		<b>3.49</b>	<b>1.03</b>
<i>Food Quality</i> <sup>a</sup> (6)			
FQ 1	Food is hygienically prepared and served	3.55	0.98
FQ 2	Food served at a proper temperature	3.51	1.02
FQ 3	Food is attractive	3.57	1.04
FQ 4	Choices of food meet customer's needs	3.54	0.97
FQ 5	Availability of reduced portion size with a reduced price	3.14	1.13
FQ 6	A variety of food is offered	3.66	1.02
<b>Average Score</b>		<b>3.50</b>	<b>1.03</b>
<i>Nutrition Quality</i> <sup>a</sup> (6)			
NQ 1	Choices of food meet customer's needs	3.00	1.15
NQ 2	Food low sugar or sugar-free is available	3.02	1.22
NQ 3	A low fat meal is available	3.13	1.14
NQ 4	A low cholesterol meal is available	3.13	1.17
NQ 5	Food low in salt or no salt is available	3.05	1.22
NQ 6	The choice of food is balanced and healthy	3.36	0.91
<b>Average Score</b>		<b>3.11</b>	<b>1.14</b>
<i>Perceived Value</i> <sup>a</sup> (4)			
PV 1	The price is reasonable	3.32	0.84
PV 2	The price is valuable for what you received	3.30	0.85
PV 3	The restaurant gives customers good value for money	3.40	0.90
PV 4	The restaurant provides senior discount	3.29	1.11
<b>Average Score</b>		<b>3.33</b>	<b>0.93</b>
<i>Entertainment Quality</i> <sup>a</sup> (4)			
EQ 1	Background music is suitable to atmosphere	3.28	0.98
EQ 2	Restaurant provides entertainment services for special events	3.21	1.04
EQ 3	Entertainment facilities are available	3.00	1.09
EQ 4	The restaurant offers socialization area for customers	3.22	1.01
<b>Average Score</b>		<b>3.18</b>	<b>1.03</b>

table continues

TABLE 11  
MEANS AND STANDARD DEVIATION FOR THE ATTRIBUTES OF THE  
QUESTIONNAIRE

Code	Variables	Means*	Standard Deviation
<i>Customer Satisfaction</i> <sup>b</sup> (5)			
CS 1	How satisfied are you with the overall food quality you received?	3.69	0.88
CS 2	How satisfied are you with the overall nutrition quality on food you received?	3.59	0.82
CS 3	How satisfied are you with the overall entertainment quality you received?	3.36	1.05
CS 4	How satisfied are you with the overall table side service quality you received?	3.59	0.86
CS 5	How satisfied are you with the overall value you received for the price you paid?	3.60	0.87
<b>Average Score</b>		3.57	0.90
<i>Repurchase Intention</i> <sup>c</sup> (5)			
RI 1	How likely will you re-visit the restaurant due to its food quality?	3.78	1.05
RI 2	How likely will you re-visit the restaurant due to its food nutrition quality?	3.80	0.89
RI 3	How likely will you re-visit the restaurant due to its entertainment services?	3.24	1.20
RI 4	How likely will you re-visit the restaurant due to its table side service quality?	3.64	1.01
RI 5	How likely will you re-visit the restaurant due to the overall value you received for the price you paid?	3.83	0.94
<b>Average Score</b>		3.66	1.02
<i>WOM Endorsement</i> <sup>c</sup> (5)			
WE 1	How likely will you recommend the restaurant to others due to its food quality?	3.85	0.95
WE 2	How likely will you recommend the restaurant to others due to its food nutrition quality?	3.67	1.02
WE 3	How likely will you recommend the restaurant to others due to its entertainment quality?	3.29	1.11
WE 4	How likely will you recommend the restaurant to others due to its table side service quality?	3.59	1.08
WE 5	How likely will you recommend the restaurant to others due to the overall value you received for the price you paid?	3.80	1.04
<b>Average Score</b>		3.64	1.04

\*Five-point scale: <sup>a</sup>1 = much worse than expected; 5 = much better than expected; <sup>b</sup>1 = very unsatisfied; 5 = very satisfied for measuring customer satisfaction; <sup>c</sup>1= very impossible; 5= very possible

### Descriptive Analysis Results for the Attributes of Satisfaction, Repurchase Intention, and WOM Endorsement

Five items were used to measure each the customer satisfaction level, repurchase intention, and WOM endorsement on a five-point scale. Table 11 represents the summary of means and standard deviations for each item in the categories of customer satisfaction, repurchase intention, and WOM endorsement. The customer satisfaction was fair, with a mean score of 3.57 (s.d.=0.9), meaning most of the senior customers were somewhat satisfied with the restaurant's services. The average score of repurchase intention was 3.66 (s.d.=1.02), meaning that the possibility of re-visiting the restaurants was fairly possible. The WOM endorsement was the same as the results of previous categories, with a fair average score of 3.64 (s.d.=1.04). Most of the senior customers reported that they were likely to recommend to others the restaurants that they themselves patronized.

### Exploratory Factor Analysis

A total of 429 usable survey responses were analyzed in this section. Factor analysis was used to condense the information contained in these attributes and to confirm the notion that distinct dimensions existed for senior citizens. To assess the validity and reliability of each construct, factor analysis and reliability testing were used. Twenty-nine restaurant service attributes were factor analyzed. Utilizing the DATA REDUCTION function of the Statistical Package for Social Sciences (SPSS, 2001), an exploratory factor analysis (EFA) was performed on all 29 restaurant service

characteristics to determine possible underlying factors. Initially, a Spearman rank-order, inter-item correlation matrix was calculated for these items.

To test the appropriateness of factor analysis, two statistics were used to test if the factor analysis was suitable for this study. First the Kaiser-Meyer-Olkin (KMO) overall measure of sampling adequacy (MSA) was calculated as 0.909 which is meritorious (Kaiser, 1974). Since the KMO was above 0.80, the variables are interrelated and they share common factors. In addition, the communalities range from 0.51 to 0.94 with an average value above 0.72, suggesting that the variance of the original values were fairly explained by the common factors. Then Barlett's Test of Sphericity was conducted, yielding a significant Chi-Square value in order to test the significance of the correlation matrix ( $\chi^2=10481.18$ ,  $df=325$ ,  $Sig.=.000$ ). Both tests indicated that factor analysis was appropriate for this study (Hair, Anderson, Tatham, & Black, 1998).

After the viability of the factor analysis was determined, a Principal Component Analysis (PCA) with a varimax rotation was completed. The varimax, rather than quartimax rotation, was adopted, because the investigators expected to find several dimensions of equal importance in the data. Items with a factor loading of 0.50 or higher were clustered together to form constructs and all factors with eigenvalues greater than 1 were retained. This procedure may help to decrease multicollinearity or error variance correlations among indicators in the confirmatory factor analysis of the measurement model. Such errors should be avoided as much as possible in structural equation modeling procedures (Bollen, 1989).

As a result of this procedure, three items regarding the "availability of reduced portion size with a reduced price" (FQ5), "senior discount" (PV4), and "balanced and

healthy food choice” were removed (N6). A clean structure with relatively higher loadings on the appropriate factors was derived. Most variables loaded heavily on one factor, reflecting a minimal overlap among factors and showing that all factors were independently structured. As shown in Table 12, four stable factors with eigenvalues greater than one, and explaining 71.7% of the variance, were derived from the analysis. Based on the results of exploratory factor analysis, two original proposed factors-FOH service quality and food quality-were combined as a new factor.

The contents of the four factor dimensions were analyzed and named as follows: *FOH service and food, nutrition, entertainment, and perceived value* (see Table 12). The *quality of FOH service and food* factor had the highest eigenvalue (11.999), and represented 46.149% of the explained variance. The second highest eigenvalue was the *nutrition* factor. This value of 3.624 represented 13.938% of the explained variance in the sample. The *entertainment* factor had the third highest eigenvalue (1.733), and represented 6.666% of the explained variance. The last factor was the *perceived value*. Its eigenvalue value of 1.292 represented 4.970% of the explained variance in the sample. The total variance explained by the four factors was 71.723%.

The *FOH service and food* factor included 14 attributes related to the five service aspects of SERVQUAL and food quality. For the Tangible aspect, two attributes included in this factor were “neat and professional appearance of staff” and “attractive and comfortable dining area”. Two attributes regarding the Responsiveness aspect were “staff is very willing to help” and “provide prompt and quick service”. One attribute belonging to the Assurance aspect was “Staff makes you feel comfortable and confident”. The attributes of “staff is sensitive to your needs and wants” and “operating hours are

convenient” belonging to the Empathy aspect were included in this factor. Two attributes regarding the Responsiveness aspect were “quickly corrects anything wrong” and “restaurant tells you exactly when the order will be taken and when the food will be served”. For the food quality aspect, five attributes included were “food is attractive”, “food served at a proper temperature”, “food is hygienically prepared and served”, “a variety of food is offered”, and “choices of food meet customer’s needs”.

The *nutrition* factor included five attributes which were the availability of “a low cholesterol meal”, of “a low salt or no salt meal”, of “a low fat meal”, of “a low sugar or sugar-free meal”, and of “nutrition information on food”.

The *entertainment* factor included the four following attributes: “entertainment facilities are available”, “entertainment service is provided”, “socialization area for customers is offered”, and “background music is suitable to atmosphere”.

The *perceived value* factor included three attributes which were “the price is valuable for what you received”, “the price is reasonable”, and “restaurant gives customers good value for their money”.

### Reliability Test

A reliability test was used to assess the consistency in measurement of the results. As Hair, Anderson, Tatham, and Black (1998) suggested, the Cronbach’s Alpha coefficient is the most popular index of the reliability for a multi-item scale. It was used to assess the internal homogeneity existing among the items scale in this study. The



TABLE 12

## SUMMARY OF EXPLORATORY FACTOR ANALYSIS

Factor Name	EV <sup>1</sup>	PV <sup>2</sup>	CV <sup>3</sup>	Component Variables	Factor Loading
FOH service and food	11.999	46.149	46.149	Food is attractive	0.870
				Staff makes you feel comfortable and confident	0.851
				Opening hours are convenient for you	0.835
				Quickly corrects anything wrong	0.833
				Food served at a proper temperature	0.806
				Food is hygienically prepared and served	0.806
				Staff is sensitive to your needs and wants	0.805
				Dining area is attractive and comfortable	0.773
				Staff is very willing to help	0.753
				Provide prompt and quick service	0.752
				Neat and professional appearance of staff	0.744
				A variety of food is offered	0.726
				Choices of food meet personal needs	0.717
				Restaurant tells you exactly when the order will be taken and served	0.568
Nutrition	3.624	13.938	60.087	Food low in salt or no salt is available	0.875
				A low cholesterol meal is available	0.870
				A low fat meal is available	0.847
				Food low sugar or sugar-free is available	0.835
				Nutrition information on food is provided	0.690
Entertainment	1.733	6.666	66.753	Entertainment facilities are available	0.835
				Provides entertainment services	0.774
				Offer socialization area for customers	0.695
				Background music is suitable to atmosphere	0.640
Perceived value	1.292	4.970	71.723	The price is valuable for what you received	0.910
				The price is reasonable	0.902
				Gives customers good value for money	0.707

Notes: 1: Eigenvalue 2: Percent of Variance 3: Cumulative Variance

coefficient alpha estimates for the multi-item scales used in this study are presented in Table 13.

Reliability coefficients (Cronbach's Alpha) were computed for the items that formed each factor. The reliability coefficients for the four factors: FOH service and food, nutrition, entertainment, and perceived value, were 0.96, 0.93, 0.83, and 0.91, respectively. In addition, a reliability test was run for the constructs of customer satisfaction, repurchase intention, and WOM endorsement. The reliability test results for the five customer satisfaction attributes showed that one item was not significantly inter-correlated: (CS3) how satisfied you are with the overall entertainment quality you received. The reliability coefficient for customer satisfaction was 0.90. The reliability test results for the five repurchase intention elements showed that one item was not significantly inter-correlated: (RI4) how likely you will be to re-visit the restaurant due to its table side service quality. The reliability coefficient for repurchase intention was 0.79. Finally, the reliability test results for the five elements representing WOM endorsement showed that two items were not significantly inter-correlated: (WE2) how likely you will be to recommend the restaurant to others due to its food nutrition quality and (WE4) how likely you will be to recommend the restaurant to others due to its table side service quality. The reliability coefficient for WOM endorsement was 0.73.

As Table 13 shows, all alpha coefficients for the data exceed the minimum standard for reliability of 0.7 recommended by Nunnally (1978) for basic research. Thus, the results indicate that these multiple measures are highly reliable for measuring each construct.

TABLE 13

## THE RELIABILITY COEFFICIENTS FOR DERIVED FACTORS

Factor	Number of Cases	Number of Items	Cronbach's Alpha
Quality of FOH Service and Food	429	14	0.96
Nutrition Quality	429	5	0.93
Entertainment Quality	429	4	0.83
Perceived Value	429	3	0.91
Customer Satisfaction	429	4	0.90
Repurchase Intention	429	4	0.79
WOM Endorsement	429	3	0.73

## Confirmatory Factor Analysis

To access the measurement properties of the survey instrument, a confirmatory factor analysis was conducted to test the adequacy of the measurement model. The proposed measurement model was estimated by using LISREL 8.54. The adequacy of the measurement model was evaluated based on criteria of overall fit with data, content validity, unidimensional analysis, convergent validity, discriminant validity, and reliability.

According to Anderson and Gerbing (1988), confirmatory measurement models should be evaluated and re-specified before measurement and structural equation models are examined simultaneously. Thus, before testing the measurement model, each construct in the model was analyzed. Items that had a low factor loading less than 0.50

were dropped from the analysis. Information derived from the previous exploratory factor analysis, reliability test, and confirmatory factory factor analysis of the model constructs led the researchers to conclude that the eleven items SQ9, FQ5, NQ6, PV4, EQ2, CS3, RI1, RI4, WE2, WE3, and WE4 may be inappropriate for use. Most of these items were indicators newly developed by the researchers for the proposed research model. Therefore, it is possible for these items to have lower factor loadings and thus lower the constructs' empirical reliability. As a consequence, the researchers re-specified the model with these eleven items deleted. The final eight-factor model was then tested with the remaining 33 items. Table 14 shows the measurement properties of all eight constructs. All the factor loadings were fairly high and significant at an alpha level of 0.01.

Using LIREL 8.54, a maximum likelihood confirmatory factor analysis was undertaken to analyze an eight-factor model and to assess the overall fit of the eight-factor model. The eight-factor model is composed of FOH service quality, food quality, nutrition quality, customer perceived value, entertainment quality, customer satisfaction, repurchase intention, and WOM endorsement. For assessing the goodness-of-fit, chi-square analysis, root mean square of approximation error (REMSA), comparative fit index (CFI), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), and parsimony normed fit index (PNFI) were performed. The results showed that the chi-squared value for the model is 1292.94 for a degree of freedom of 467 ( $p < 0.01$ ). A ratio chi-square to degree of freedom of no more than four-to-one is considered to be a good fit of the model (Matsueda, 1982). Therefore, value of 2.77 is indicative of a good fit of the model. The root mean squared error of approximation (REMSA) is 0.01, the comparative

TABLE 14

STANDARDIZED MEASUREMENT COEFFICIENTS  
AND *t*-VALUES RESULTING FROM CFA

<i>Construct &amp; Indicators</i>	<i>Standardized Loading (t-value)</i>
<i>FOH Service Quality (SQ)</i>	
SQ 1	0.52 (10.73)
SQ 2	0.54 (11.35)
SQ 3	0.56 (11.81)
SQ 4	0.56 (11.64)
SQ 5	0.62 (13.25)
SQ 6	0.60 (12.80)
SQ 7	0.57 (12.09)
SQ 8	0.62 (13.17)
<i>Food Quality (FQ)</i>	
FQ 1	0.61 (12.96)
FQ 2	0.61 (13.00)
FQ 3	0.64 (13.64)
FQ 4	0.55 (11.41)
FQ 6	0.54 (11.08)
<i>Nutrition Quality (NQ)</i>	
NQ 1	0.53 (10.52)
NQ 2	0.61 (12.28)
NQ 3	0.61 (12.17)
NQ 4	0.64 (13.02)
NQ 5	0.62 (12.40)
<i>Perceived Value (PV)</i>	
PV 1	0.65 (12.65)
PV 2	0.66 (12.86)
PV 3	0.58 (11.09)
<i>Entertainment Quality (EQ)</i>	
EQ 1	0.57 (10.21)
EQ 3	0.50 (9.68)
EQ 4	0.57 (10.23)
<i>Customer Satisfaction (CS)</i>	
CS 1	0.59 (11.72)
CS 2	0.60 (12.02)
CS 4	0.58 (11.52)
CS 5	0.58 (11.58)
<i>Repurchase Intention (RI)</i>	
RI 2	0.54 (10.93)
RI 3	0.75 (15.46)
RI 5	0.51 (10.21)
<i>WOM Endorsement (WE)</i>	
WE 1	0.64 (11.25)
WE 5	0.55 (10.06)

Notes:  $\chi^2=1292.94$ ,  $df=467$ ,  $\chi^2/df=2.77$ , GFI=0.96, AGFI=0.95, CFI=1.0, PNFI=0.86, RMSEA=0.01

fit index (CFI) is 1.00, the goodness-of-fit index (GFI) is 0.96, the adjusted goodness-of-fit index (AGFI) is 0.95, and the parsimony normed fit index (PNFI) is 0.86. All statistics support the overall measurement quality.

### Constructs Reliability and Validity Tests

For assessing the extent to which the measure was free from systematic error, tests of content validity, unidimensionality, reliability, convergent validity, and discriminant validity were implemented to assess the goodness of the measure.

#### Content Validity

Content validity ensures that the measure includes an adequate and representative set of items describing the concept. The lists of attributes used to measure the FOH service quality, food quality, nutrition quality, entertainment quality, customer perceived value, customer satisfaction, repurchase intention, and WOM endorsement were selected after (1) an extensive literature review, (2) interviews with faculty members having expertise in restaurant operations and statistics, and (3) a pilot test and asking respondents to evaluate the appropriateness of the measuring instruments. It was evident that these research procedures ensured the high content validity of the measurement instrument.

### Unidimensionality Analysis

A scale has to be unidimensional in order to have reliability and construct validity (Gerbing and Anderson, 1988). Multidimensional construct, which aids with content validity, is acceptable as long as the scales are unidimensional. When the items of a scale estimate one factor then the scale is unidimensional. A good fit of the measurement model, measured by the goodness of fit index (GFI), indicates that all items load significantly on one underlying latent variable. A GFI of 0.90 or higher for the model indicates that there is no evidence of lack of unidimensionality. As shown in Table 15, the GFI indices for all the scales are higher than the recommended level of 0.90. These results suggest that all eight scales are unidimensional.

### Reliability

Reliability is the degree of dependability, consistency, or stability of a scale (Gatewood and Field 1990). Unidimensionality does not provide a direct assessment of construct reliability. The reliability is assessed in terms of Cronbach's Alpha coefficient. The reliability coefficients shown in Table 15 are all greater than 0.70, which indicates that the scale is reliable.

### Convergent Validity

Convergent validity is the extent to which different approaches to measurement of construct yield the same results. The most commonly used way to assess convergent

validity is to consider each item in the scale as a different approach to measure the construct. Convergent validity is checked using the Bentler-Bonett coefficient ( $\Delta$ ) (Bentler and Bonett, 1980). The Bentler-Bonett coefficient ( $\Delta$ ) is the ratio of the difference between the chi-square value of the null measurement model and the chi-square value of the specified measurement model to the chi-square value of the null model. As shown in Table 15, the Bentler-Bonett coefficients ( $\Delta$ ) for all eight constructs are greater than 0.90, meaning that strong convergent validity of scale was demonstrated.

TABLE 15  
ASSEMENT OF UNIDIMENSIONALITY, RELIABILITY AND CONVERGENT  
VALIDITY

<i>Construct</i>	<i>No. of items</i>	<i>Unidimensionality Goodness of fit index (GFI)</i>	<i>Reliability Cronbach's <math>\alpha</math></i>	<i>Convergent Validity Bentler-Bonett <math>\Delta</math></i>
FOH Service Quality	8	0.98	0.94	0.95
Food Quality	5	0.96	0.92	0.96
Nutrition Quality	5	0.95	0.93	0.98
Perceived Value	3	0.96	0.91	0.95
Entertainment Quality	3	0.94	0.81	0.91
Customer Satisfaction	4	0.95	0.90	0.93
Repurchase Intention	3	0.95	0.73	0.94
WOM Endorsement	2	0.93	0.83	0.96

#### Discriminant Validity

Discriminant validity is the degree to which measures of different scales of the survey instrument are unique from each other. Discriminant validity exists when the proportion of variance extracted in each construct (AVE) exceeds the square of the coefficient representing its correlation with other constructs (Fornell and Larcker, 1981).



As shown in Table 16, correlation coefficients are estimated from LISREL 8.54 and all were significant at the .01 level. In addition, all AVE exceed .50, showing the construct validity.

TABLE 16  
MEASURE CORRELATIONS, THE SQUARED CORRELATIONS, AND AVE

<i>Measure</i>	Correlation among Latent Variables (Squared) <sup>a</sup>								<i>AVE</i> <sup>b</sup>
	<i>SQ</i>	<i>FQ</i>	<i>NQ</i>	<i>PV</i>	<i>EQ</i>	<i>CS</i>	<i>RI</i>	<i>WE</i>	
FOH Service Quality (SQ)	1.00								.91
Food Quality (FQ)	.93 (.86)	1.00							.90
Nutrition Quality (NQ)	.39 (.15)	.38 (.14)	1.00						.74
Perceived Value (PV)	.50 (.25)	.55 (.30)	.46 (.21)	1.00					.75
Entertainment Quality (EQ)	.50 (.25)	.48 (.23)	.68 (.46)	.40 (.16)	1.00				.69
Customer Satisfaction (CS)	.49 (.24)	.55 (.30)	.45 (.20)	.70 (.49)	.53 (.28)	1.00			.58
Repurchase Intention (RI)	.45 (.20)	.53 (.28)	.53 (.28)	.38 (.14)	.63 (.40)	.77 (.59)	1.00		.66
WOM Endorsement (WE)	.34 (.12)	.39 (.15)	.29 (.08)	.51 (.26)	.36 (.13)	.68 (.46)	.87 (.76)	1.00	.83

a. Correlation coefficients are estimated from LISREL. P<.01, all were significant at .01 level. b. All AVE exceed .50, showing the construct validity.

The results of the confirmatory factor analysis provided support for the reliable measurement of the model, which enabled the researchers to go ahead and test the hypotheses of this study.

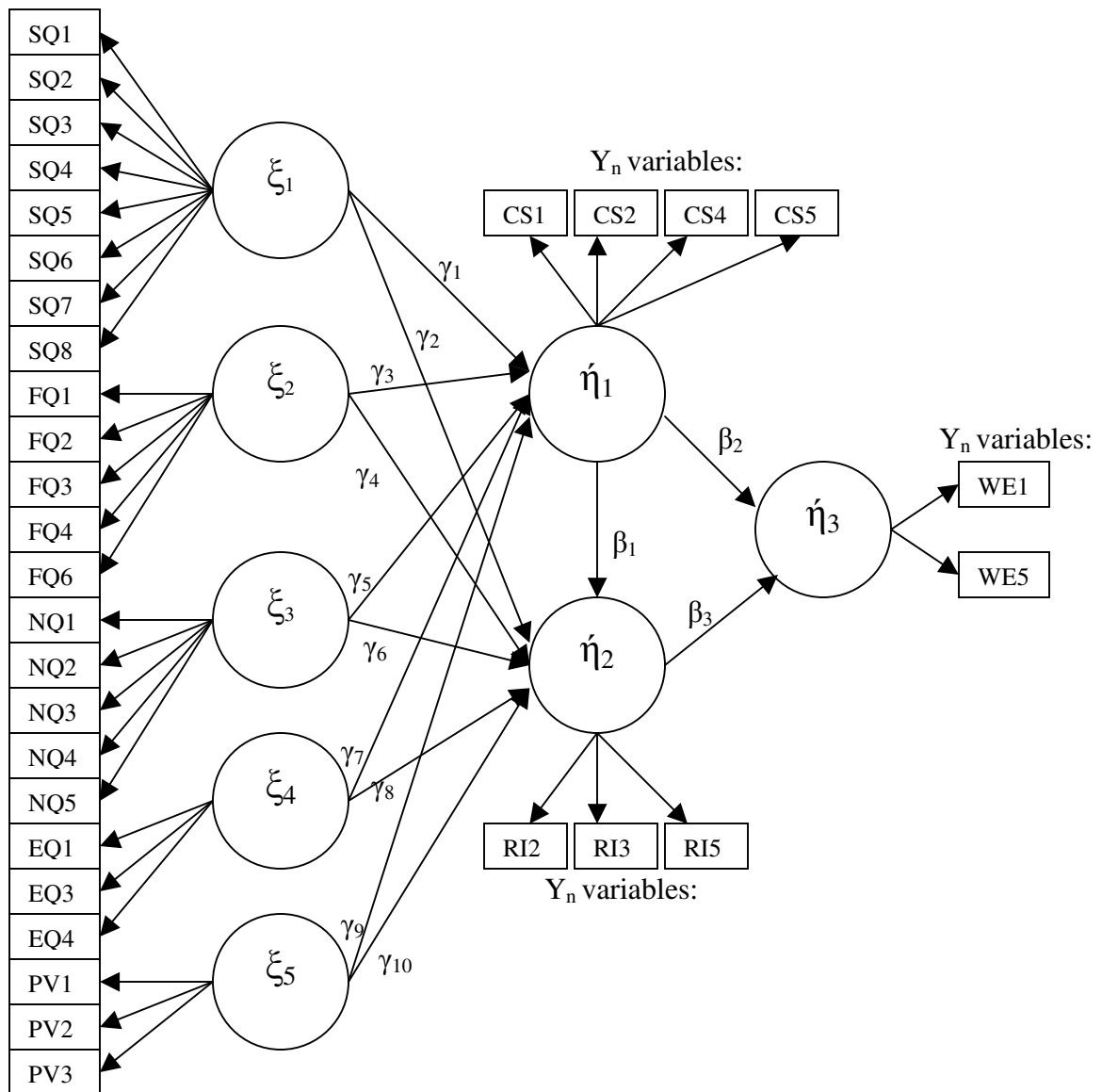
## Structural Equation Modeling

Structural equation modeling (SEM) was performed to test the hypothesized model using LISREL 8.54. SEM is known as latent variable analysis or causal modeling as it provides parameter estimates of the direct and indirect links between observed variables. In Figure 4, boxes represent manifest or measured variables, whereas circles indicate latent or unobserved variables.

As shown in Figure 4, the model's exogenous variables ( $\xi_n$ ) were measured by X variable. There are eight indicators used for the construct of FOH service quality ( $\xi_1$ ); five indicators used for the construct of food quality ( $\xi_2$ ); five indicators used for the nutrition quality construct ( $\xi_3$ ); three indicators used for the construct of entertainment quality ( $\xi_4$ ); three indicators used for the construct of customer perceived value ( $\xi_5$ ). Similarly, the model's endogenous variables ( $\eta_n$ ) were measured by Y variable. Four indicators measured the construct of customer satisfaction ( $\eta_1$ ), three indicators measured the construct of repurchase intention ( $\eta_2$ ), and two indicators measured the construct of WOM endorsement ( $\eta_3$ ). The  $\gamma_n$  parameters indicate the size and direction of the causal influence from  $\xi_n$  to CS ( $\eta_1$ ) and RI ( $\eta_2$ ). Also, the  $\beta_n$  parameters indicate the size and direction of the causal influence from CS ( $\eta_1$ ) to RI ( $\eta_2$ ) and WE ( $\eta_3$ ), and from RI ( $\eta_2$ ) to WE ( $\eta_3$ ).

The hypothesized model resulted in a good fit with  $\chi^2=1313.48$ ,  $p=.00$ ,  $df =472$ ,  $\chi^2/df=2.78$  ( $<3$ ), CFI = 1.00 ( $>0.9$ ), REMSA=.001 ( $<0.10$ ), GFI=0.96 ( $>0.9$ ), AGFI=0.95 ( $>0.9$ ), NNFI=1.02 ( $>0.9$ ). All the model-fit indices exceeded their respective common acceptance levels, indicating that the model fit the data well.

X<sub>n</sub> variables:

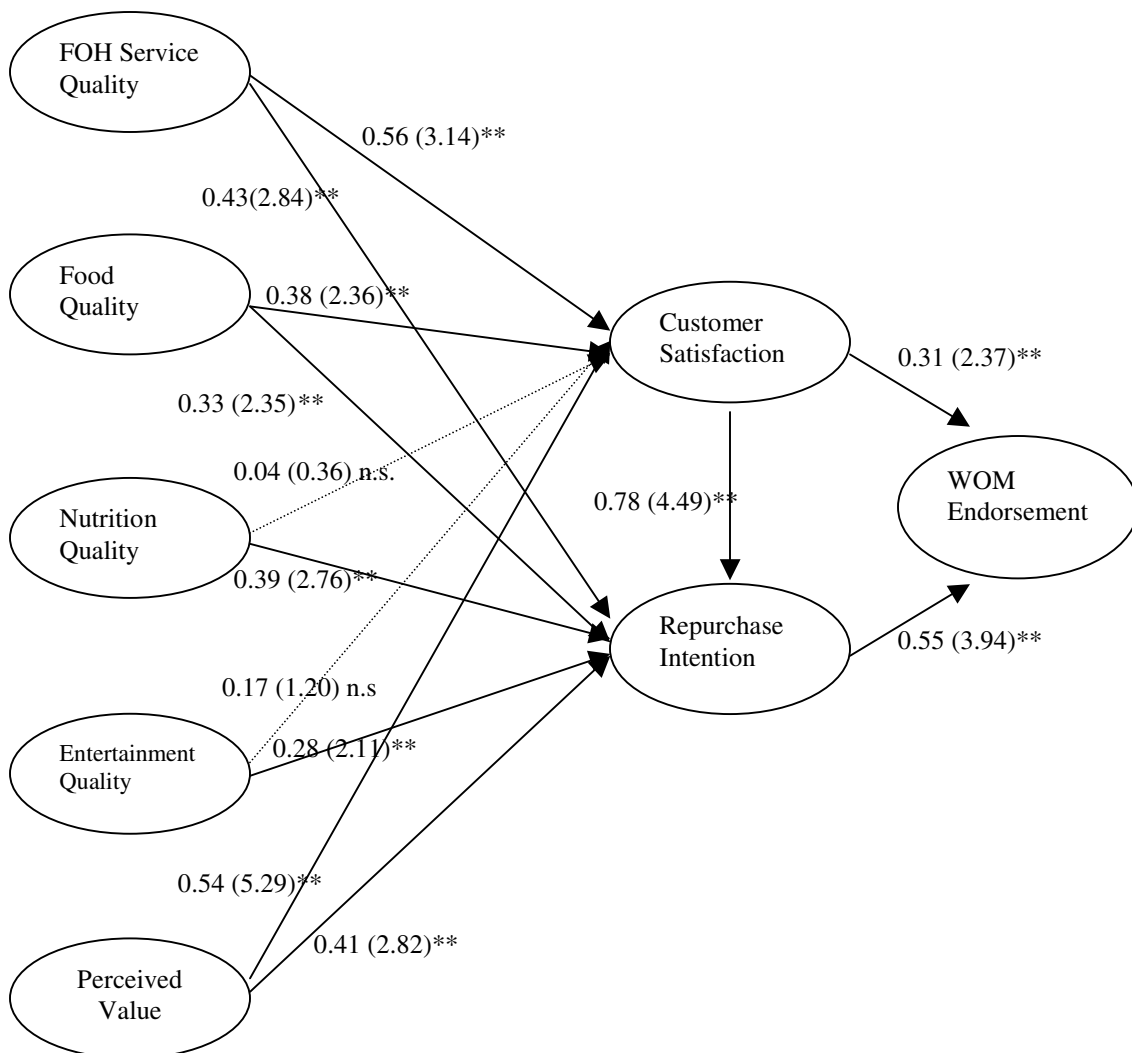


$\xi_1$  = FOH Service Quality (SQ);  $\xi_2$  = Food Quality (FQ);  $\xi_3$  = Nutrition Quality (NQ);  $\xi_4$  = Entertainment Quality (EQ);  $\xi_5$  = Perceived Value (PV);  $\eta_1$  = Customer Satisfaction (CS);  $\eta_2$  = Repurchase Intention (RI);  $\eta_3$  = WOM Endorsement (WE)

Fig. 4 Hypothesized Model of Relationships among Key Variables

## Hypotheses and Paths Testing

The statistical significance of all the structural parameter estimates was examined to determine the validity of the hypothesized paths. The path coefficients calculated for the estimated model are shown in Figure 5. Table 17 lists the structural parameter estimates and the hypothesis testing results.



$\chi^2=1313.48$ ,  $p=.00$ ,  $df =472$ ,  $\chi^2/df=2.78$ , CFI = 0.98, REMSA=.001, GFI=0.96, AGFI=0.95, NNFI=0.97; \*\* $p<.01$ ; Solid line: significant relationship; Dashed line: non-significant relationship.

Fig. 5 Standardized Parameter Estimates for Purchasing Model in Foodservice

TABLE 17

## STRUCTURAL PARAMETER ESTIMATES FOR HYPOTHESIZED MODEL

<i>Causal path</i>	<i>Hypothesis</i>	<i>Standardized Coefficient</i>	<i>t-value</i>	<i>Assessment (P &lt; .01)</i>
SQ → CS	H <sub>1a</sub> (+)	0.56	3.14	Significant
FQ → CS	H <sub>1b</sub> (+)	0.38	2.36	Significant
NQ → CS	H <sub>1c</sub> (+)	0.04	0.36	N.S.
EQ → CS	H <sub>1d</sub> (+)	0.17	1.20	N.S.
PV → CS	H <sub>1e</sub> (+)	0.54	5.29	Significant
SQ → RI	H <sub>2a</sub> (+)	0.43	2.84	Significant
FQ → RI	H <sub>2b</sub> (+)	0.33	2.35	Significant
NQ → RI	H <sub>2c</sub> (+)	0.39	2.76	Significant
EQ → RI	H <sub>2d</sub> (+)	0.28	2.11	Significant
PV → RI	H <sub>2e</sub> (+)	0.41	2.82	Significant
CS → RI	H <sub>3</sub> (+)	0.78	4.49	Significant
CS → WE	H <sub>4</sub> (+)	0.31	2.37	Significant
RI → WE	H <sub>5</sub> (+)	0.55	3.94	Significant

Note:  $\chi^2_{(472)}=1313.48$ ,  $p=.00$ ,  $\chi^2/df=2.78$ , CFI = 0.98, REMSA=.001, GFI=0.96, AGFI=0.95, NNFI=0.97

Results of Testing Hypotheses 1 and 2 ( $H_{1n}$  and  $H_{2n}$ )

Hypotheses 1 ( $H_{1n}$ ) and 2 ( $H_{2n}$ ) predict a positive relationship between the five exogenous variables (FOH service quality, food quality, nutrition quality, entertainment quality, and perceived value) toward customer satisfaction (CS), repurchase intention (RI), and specified by  $H_{1a}$ ,  $H_{1b}$ ,  $H_{1c}$ ,  $H_{1d}$ ,  $H_{1e}$ ,  $H_{2a}$ ,  $H_{2b}$ ,  $H_{2c}$ ,  $H_{2d}$ , and  $H_{2e}$ . The analytical results supported all of Hypotheses 1 and 2, except for  $H_{1c}$  and  $H_{1d}$ .

$H_{1a}$  and  $H_{2a}$ . The  $H_{1a}$  was supported ( $t=3.14$ ,  $p<.01$ ), meaning that the service quality in terms of the SERVQUAL theory was considered a substantial factor in predicting senior citizen's dining satisfaction. This result was consistent with the previous findings (Lee and Hing, 1995; Stevens, Knutson and Patton, 1995; Heung, Wong and Qu, 2000;

Richard, Sundaram and Allaway, 1994; Bojanic and Rosen, 1994; Dube, Renaghan and Miller, 1994; Johns and Tyas, 1996; Fu and Parks, 2001). In addition, the results indicated that senior citizen's repurchase intention was positively predicted by the service quality of the SERVQUAL theory as well, which leads to the acceptance of the  $H_{2a}$  ( $t=2.84, p<.01$ ). This result was also consistent with the findings of Dube, et al. (1994) and Fu and Parks (2001).

$H_{1b}$  and  $H_{2b}$ . The food quality factor's relationship to customer satisfaction in foodservice industry has been tested by several researchers (Dube et al., 1994; Johns and Tyas, 1996; Heung, Wong and Qu, 2000; Fu and Parks, 2001). However, not all previous findings supported the food quality as a significant factor positively affecting customer satisfaction. The finding of this study supported the  $H_{1b}$ , indicating that the effect of food quality on customer satisfaction was positively significant ( $t=2.36, p<.01$ ) as perceived by senior citizens. Furthermore,  $H_{2b}$ , with a significant coefficient ( $t=2.35, p<.01$ ), predicts a positive relationship between food quality and senior citizen's repurchase intention, suggesting that when a senior citizen perceived a good food quality from a restaurant, he/she would be likely to re-visit that restaurant. Both of the above findings were consistent with the findings of Dube et al. (1994) and Fu and Parks (2001).

$H_{1c}$  and  $H_{2c}$ . For customer satisfaction, the effect of nutrition quality on customer satisfaction was not significant ( $t=0.36, p<.01$ ), thus, the  $H_{1c}$  was rejected. The possible reasons as to why senior citizens did not consider nutrition quality a factor of dining satisfaction could be inferred from the survey results of this study. These results show that, senior citizens rated nutrition quality as the least contributing factor to their foodservice industry experience. However, they indicated that they were satisfied with

the overall nutrition quality they received from the foodservice providers. This result implies that senior citizens may consider nutrition issue as a goal that foodservice providers should move toward, and it is not an important factor influencing dining satisfaction level for them. Furthermore, according to this survey, the respondents reported that the healthful food choices were usually not provided by foodservice providers, which may cause the customers to have a lack of experience in evaluating the nutrition quality among foodservice providers. On the other hand, insufficient training in nutrition is one of the main barriers to practicing healthful food preparation in foodservice establishments, and the average chefs' nutritional knowledge was not of an ideal level according to previously reported findings (Middleton, 2000; Reichler and Dalton, 1995). Most restaurants were lacking skills in the preparation of healthful food and would like to put more effort into the other services they think their customers are concerned with. Therefore, the importance of nutrition issues was usually hidden by foodservice providers and the request of nutritional quality was ignored by consumers. For repurchase intention, the  $H_{2c}$  was supported ( $t=2.76, p<.01$ ) and predicts that, as senior citizens perceive the nutrition quality from a restaurant increasing, the repurchase intention will also increase. As found from this study, senior citizens determined that healthful food choices were not popularly provided in restaurants. This finding implies that restaurants may be able to recruit more senior customers and raise their revenue by offering healthful food items.

$H_{1d}$  and  $H_{2d}$ . The entertainment factor was rarely found when measuring customer satisfaction in the restaurant industry, especially for measuring and assessing older diners' perceptions. The result of this study suggested that the effect of entertainment

quality on senior citizen's dining satisfaction was not significant ( $t=1.20$ ,  $p<.01$ ), which leads to the rejection of the  $H_{1d}$ . However, the senior citizens indicated that the entertainment quality could be a factor affecting their re-patronage in restaurants. Thus, the  $H_{2d}$  with a significant coefficient ( $t=2.11$ ,  $p<.01$ ) was supported. According to the result of this study, the senior citizens did not think entertainment services would play a substantial role in influencing their dining satisfaction, but would be a factor affecting their repurchase intention. The consumer's request on dining services, especially the entertainment services, may vary in terms of time, purposes, preferences, fillings, etc. This finding implies that entertainment services are not always a demand of senior citizens, but affect how often they might re-visit a restaurant, especially if the restaurant provides certain entertainment services they might need, such as in the case of a special event.

$H_{1e}$  and  $H_{2e}$ . The  $H_{1e}$  was accepted ( $t=5.29$ ,  $p<.01$ ), indicating that the effect of customer perceived value on customer satisfaction was significant. Thus, when a senior citizen perceived a quality value from a restaurant, his/her satisfaction with the restaurant would positively increase. Moreover, the customer perceived value was also found to be a positive determinant in predicting the repurchase intention for senior citizens, which led to the acceptance of the  $H_{2e}$  ( $t=5.29$ ,  $p<.01$ ). These findings were also consistent with the findings of Bojanic (1996), Oh and Parks (1997), Naumann (1995), and Oh (1999).



### Results of Testing Hypotheses 3, 4, and 5

$H_3$  and  $H_4$ . Hypotheses 3 ( $H_3$ ) and 4 ( $H_4$ ) predict a positive relationship between customer satisfaction (CS) toward repurchase intention (RI) and WOM endorsement (WE). The finding of this study supported the  $H_3$  ( $t=4.49$ ,  $p<.01$ ) indicating that as customer satisfaction increases, the repurchase intention also increases as perceived by senior citizens. Furthermore,  $H_4$ , with a significant coefficient ( $t=2.37$ ,  $p<.01$ ), predicts a positive relationship between customer satisfaction and WOM endorsement. Senior citizens would be likely to recommend a restaurant to others if they experienced a high level of dining satisfaction.

$H_5$ . Hypothesis 5 ( $H_5$ ) predicts a positive relationship between repurchase intention (RI) and WOM endorsement (WE). The analytical results supported  $H_5$ , with a significant path coefficient of 0.55 ( $t=3.94$ ,  $p<.01$ ), indicating that when senior citizens have the intention to re-patronize a restaurant, they would be likely to recommend the restaurant to others.

The findings from the  $H_3$ ,  $H_4$  and  $H_5$  of this study were consistent with the previous findings of Oh and Parks (1997) and Fu and Parks's (2001).

### ANOVA Analysis

The respondents were asked to rate the 29 factors according to what their perceived quality levels of FOH service, food, nutrition, entertainment, and customer perceived value would be. However, the results of exploratory and confirmatory factor analyses

suggested 24 reliable and appropriate attributes in measuring restaurant service level for senior citizens. Therefore, this section compared the mean scores for each of the 24 factors across all three restaurant sectors by using One-way Analysis of Variance (ANOVA). The results, presented in Table 18, showed that fine dining restaurants received 19 leading factor scores in attractive and comfortable dining area, comfortable and confident in dealing with staff, a variety of food offered, attractive food, quickly corrects anything wrong, choices of food meet customer's needs, prompt and quick service, hygienically prepared and served food, staff willingness to help, sensitive to customer's needs and wants, suitable background music, neat and professional appearance of staff, availability of low fat meals, availability of low cholesterol meals, availability of food with low or no salt, availability of accommodating area for customer socialization, availability of low sugar or sugar-free meals, availability of nutrition information, and availability of entertainment facilities (this factor has the same score as the casual dining sector). Casual dining restaurants led the other types of restaurant in 2 factors: reasonable price and customer received valuable price. Quick service sector led in 3 factors: convenient hours, food served at a proper temperature, and good value for their money.

Regarding the service levels that senior citizens perceived they had actually experienced, the ANOVA test showed that at least two types of restaurants were significantly different in senior citizens' perceptions on 12 of the 24 quality attributes at  $p \leq 0.05$ . Thus, the  $H_0$  failed to be rejected. The 12 attributes, shown in Table 18, for which we found significant differences between at least two types of restaurants were: attractive and comfortable dining area, prompt and quick service, feeling comfortable and

confident in dealing with food providers, quickly correcting anything wrong, attractive food, food choices meet customer needs, availability of low fat meals, availability of low cholesterol meals, availability of food with low or no salt, reasonable prices, the price is valuable for what you received (quality of item matches price paid), and suitable background music.

To assess which pair of restaurants showed the significant differences just mentioned, we administered the Scheffe post hoc multiple comparisons. Of the 12 attributes that showed significant differences between at least two types of restaurants, senior citizens perceived that fine dining restaurants achieved significantly higher levels of 9 quality attributes than quick-service restaurants and 4 quality attributes than casual dining restaurants did. In addition, casual dining restaurants achieved significantly higher levels of 2 quality attributes than fine dining restaurants. Based on this finding, it was concluded that senior citizens' perceptions for the service performance and perceived value are essentially different in the different restaurant sectors.

We identified 12 quality attributes for which senior citizens have common perceptions across all three restaurant sectors. Those quality factors include such attributes as: professional appearance and service attitude of food providers, convenient hours, food safety, a variety of food choice, and good perceived value. These attributes could be considered the fundamental features of restaurant customers' satisfaction.

Table 19 shows a summary of research results for the hypotheses of this study.

TABLE 18

## RESPONDENTS' PERCEIVED SERVICE LEVELS OF RESTAURANTS

	Mean Scores			Significance
	Fine Dining (n=126)	Casual Dining (n=129)	Quick Service (n=174)	
<i>Variables that are significant (p .≤ 05)</i>				
Dining area is attractive and comfortable	3.81	3.56	3.36	F>Q
Restaurant provides prompt and quick service	3.62	3.51	3.31	F>Q
Staff makes you feel comfortable and confident	3.81	3.67	3.43	F>Q
Restaurant quickly corrects anything wrong	3.74	3.56	3.43	F>Q
Food is attractive	3.79	3.49	3.47	F>Q
Food choices meet customer needs	3.74	3.42	3.48	F>C
Low fat meals are available	3.48	3.09	2.91	F>C, F>Q
Low cholesterol meals are available	3.45	2.98	3.00	F>C, F>Q
Food with low or no salt is available	3.36	2.93	2.91	F>C, F>Q
The price is reasonable	3.14	3.42	3.38	F<C
The price is valuable for what you received	3.12	3.47	3.31	F<C
Background music is suitable to the dining atmosphere	3.52	3.33	3.07	F>Q
<i>Variables that are not significant</i>				
Staff has a neat and professional appearance	3.43	3.49	3.36	
Staff is very willing to help	3.55	3.35	3.36	
Staff is sensitive to your needs and wants, rather than relying on policies and procedures	3.52	3.51	3.36	
The operating hours are convenient to you	3.69	3.64	3.74	
Food is hygienically prepared and served	3.69	3.47	3.52	
Restaurant serves food at a proper temperature	3.43	3.53	3.55	
A variety of food is offered in the establishment	3.81	3.60	3.59	
Nutrition information on food is provided	3.10	2.93	2.98	
A low sugar or sugar-free meal is available	3.14	3.05	2.91	
Restaurant gives customers good value for money	3.36	3.37	3.45	
Entertainment facilities are available, e.g., music, big TV screen for sport games or movie	3.02	3.02	2.97	
The restaurant offers accommodating area for customer socialization	3.33	3.12	3.22	

Note: Scores are based on a Likert-type scale of 1 = much worse than expected to 5 = much better than expected.

TABLE 19

## SUMMARY OF RESEARCH RESULTS OF HYPOYHESES

	<i>Hypotheses</i>	<i>Result</i>
H <sub>1a</sub>	The higher the FOH service quality as perceived by the older diners, the higher the dining satisfaction of the older diners.	Supported
H <sub>1b</sub>	The higher the food quality as perceived by the older diners, the higher the dining satisfaction of the older diners.	Supported
H <sub>1c</sub>	The higher the nutrition quality of food as perceived by the older diners, the higher the dining satisfaction of the older diners.	Not Supported
H <sub>1d</sub>	The higher level the entertainment service as perceived by the older diners, the higher the dining satisfaction of the older diners.	Not Supported
H <sub>1e</sub>	The higher the value as perceived by the older diners, the higher the dining satisfaction of the older diners.	Supported
H <sub>2a</sub>	The higher the FOH service quality as perceived by the older diners, the higher the repurchase intention of the older diners.	Supported
H <sub>2b</sub>	The higher the food quality as perceived by the older diners, the higher the repurchase intention of the older diners.	Supported
H <sub>2c</sub>	The higher the nutrition quality of food as perceived by the older diners, the higher the repurchase intention of the older diners.	Supported
H <sub>2d</sub>	The higher level the entertainment service as perceived by the older diners, the higher the repurchase intention of the older diners.	Supported
H <sub>2e</sub>	The higher the value as perceived by the older diners, the higher the repurchase intention of the older diners.	Supported
H <sub>3</sub>	The higher the dining satisfaction as perceived by the older diners, the higher the repurchase intention of the older diners.	Supported
H <sub>4</sub>	The higher the dining satisfaction as perceived by the older diners, the stronger the intention of the older dinners to recommend the particular foodservice product to others.	Supported
H <sub>5</sub>	The higher the repurchase intention of the older diners, the stronger the intention of the older dinners to recommend the particular foodservice product to others.	Supported
H <sub>6</sub>	There are significant differences of the older diner's perceptions of the restaurant's service attributes and customer perceived value among the three restaurant sectors (quick service, casual dining, fine dining).	Supported

## CHAPTER V

### CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

In the first section of this chapter, the study findings were summarized through the eating out behaviors of senior citizens, the results of the hypotheses testing, the differences of the dining experience among three different restaurant sectors as perceived by senior citizens, and the model of senior citizen's purchasing process in foodservice. The implications of the research findings to existing theories were discussed in the second section. The third section of this chapter discussed the applications of the study's findings in the foodservice operation. Discussion of the limitations of the present study and suggestions for future study directions were presented in the final section of this chapter.

#### Conclusions

Retaining customers in the foodservice industry has become a primary goal of hospitality marketing. Many researchers developed customers' repurchasing behavior models by conducting conceptual and empirical studies. The general agreement in those repurchasing models had to do with a positive relationship between customer satisfaction and word-of-mouth endorsement.

Numbers of studies have revealed that the senior age group may contribute significantly to the foodservice industry in terms of their spending power and spare time. For a more successful operation in the mature market, it is vital to identify the older diner's purchasing behaviors and the factors driving their dining behaviors. Furthermore, refining the existing theories to meet the changes in socioeconomic conditions and customer's purchasing behaviors in today's hospitality market is necessary to the hospitality study. Although many studies have been done in measuring customer's purchasing behaviors, including service quality, customer perceived value, customer satisfaction, repurchase intention and word-of-mouth (WOM) endorsement in foodservice industry, only a few of them have examined the effects from the older diner's standpoint and have been anchored in three restaurant sectors (quick service, casual dining, fine dining). In addition, only a limited number of studies allowed for measuring and assessing older diner's specific perceptions such as food quality, nutrition quality, and entertainment quality. Therefore, the purpose of this study is to investigate the older diner's perceptions of the restaurant's services and their purchasing behaviors in three restaurant sectors (quick service, casual dining, fine dining). The specific objectives of this study are to:

- 1) identify the senior citizens' dining-out behaviors (such as favorite restaurant type, frequency of dining-out, and average expenditure of dining-out)
- 2) propose an effective scale for measuring the restaurant's services in terms of food quality, nutrition quality, entertainment quality, and front of the house (FOH) service quality along with the customer perceived value for senior citizens

- 3) identify whether the senior citizens' perceived service levels in the foodservice market differ among the quick service, casual dining, and fine dining restaurant
- 4) identify how the senior citizens' perceptions of the restaurant's service qualities including food quality, nutrition quality, entertainment quality, and FOH service quality along with the customer perceived value influence their dining satisfaction and repurchase intention
- 5) identify whether a high level of dining satisfaction will increase a repurchase intention and a positive WOM endorsement as perceived by senior citizens
- 6) identify whether the senior citizens will develop a stronger intention to recommend the particular foodservice product to others (WOM endorsement) when they intend to revisit the particular foodservice product (repurchase intention)
- 7) propose a relationship model to study and understand the senior citizens' perceptions on restaurant's services and their purchasing behaviors

### Summary of Findings

This study accomplished all of the objectives listed above. Some important information regarding senior citizen's dining out behaviors has been explored or updated in this study. The primary objective of this study was to develop an effective and reliable scale for measuring the restaurant's service levels for senior citizens. This objective was met by developing a combined measure including service quality of front of the house, food quality, nutrition quality, entertainment quality, and customer perceived value. The



results show that reliability and validity were very strong in assessing the unique variance of each construct.

One of the other main objectives of this study was to develop a more robust model of the older diner's purchasing process in the foodservice market. This was fulfilled by investigating the relationship among eight factors including: FOH service quality, food quality, nutrition quality, customer perceived value, entertainment quality, customer satisfaction, repurchase intention, and WOM endorsement. The findings confirm previous researchers' suggestions in three restaurant sectors and focused on the effects from the older diner's standpoint. Furthermore, the findings explored older diner's specific perceptions on food quality, nutrition quality, and entertainment quality in the foodservice market. The model had a good fit and resulted in strong construct and discriminant validity.

Finally, the structural equation modeling employed in this study contributed to performing a robust hypothesis testing, especially when several theoretical constructs underlie several latent variables. Thus, this analysis outperforms other types of data analysis such as regression models. Although this study has several limitations, the overall findings are very valuable to the foodservice industry.

This study provides empirical evidence in the foodservice industry. The findings of this study can be summarized as follows.

### Overall dining out behaviors of senior citizens

- (a) About 78% of the senior citizens dine out at least once a month, while 60.9% of them dine out at least once per two weeks, and about 37% of them dine out at least once per week. The majority (40.6%) of their personal average checks fell in the range of \$10 or below.
- (b) The majority of the senior citizens (73.43%) visited casual dining restaurants most frequently and the popularity of casual dining restaurants in the mature market continued growing.
- (c) Age variable may affect dining-out frequency. The younger senior citizens seemed to dine out more frequently than the older senior citizens.
- (d) For most of the age groups, as the average check level rose, the frequency of expense decreased.
- (e) The popularity of casual dining restaurants for the 55 to 64-year-old group and 75 and older has increased 1.5 times over the past 15 years.
- (f) A higher income may increase the dining-out frequency for senior citizens, whereas, income level does not impact the size of average check and the type of restaurant patronage.
- (g) The senior citizens with a smaller household tended to dine out more frequently than the respondents with a larger household.
- (h) The ability in driving may moderately impact senior citizens on the frequency of dining out.

- (i) The majority of frequent visitors of the casual dining and quick service restaurant were ages 65 to 74 years old. However, the most frequent visitors of fine dining restaurant were ages 55 to 64 years old.

#### Senior Citizen's Perceptions on Restaurant's Service Level

- (a) Overall, the quality levels of restaurant's services were moderately higher than the levels that senior citizens expected. The best quality category was food quality, followed by FOH service quality, customer perceived value, and entertainment quality. The nutrition quality had the lowest score from the senior citizens' ratings.
- (b) Overall, most of the senior citizens were moderately satisfied with the restaurant that they had experienced, with a fair willingness to re-visit and recommend the restaurant to others.

#### A Reliable and Effective Scale

- (a) This study developed an effective and reliable scale for measuring the restaurant's services in terms of food quality, nutrition quality, entertainment quality, and FOH service quality along with the customer perceived value for senior citizens.
- (b) The scale includes 5 factors and is tested by 24 items, as shown in the Table 20.

TABLE 20

THE EVALUATION SCALE OF RESTAURANT'S SERVICE LEVEL

<i>Construct &amp; Indicators</i>
<i>FOH Service Quality (SQ)</i>
Neat and professional appearance of staff
Dining area is attractive and comfortable
Staff is very willing to help
Provide prompt and quick service
Staff makes you feel comfortable and confident
Staff is sensitive to your needs and wants
Operating hours are convenient to you
Quickly corrects anything wrong
<i>Food Quality (FQ)</i>
Food is hygienically prepared and served
Food served at a proper temperature
Food is attractive
Food choices meet customer's needs
A variety of food is offered in the establishment
<i>Nutrition Quality (NQ)</i>
Nutritional information on food is provided
Food low sugar or sugar-free is available
A low fat meal is available
A low cholesterol meal is available
Food low in salt or no salt is available
<i>Perceived Value (PV)</i>
The price is reasonable
The price is valuable for what you received
The restaurant gives customers good value for money
<i>Entertainment Quality (EQ)</i>
Background music is suitable to atmosphere
Entertainment facilities are available
The restaurant offers socialization area for customers

Note: This scale is based on a five-point scale: 1 = much worse than expected; 5 = much better than expected

### The Results of Hypothesized Model

The results of model testing are summarized as follows:

- (a) The service quality in terms of the SERVQUAL theory was considered a substantial factor in predicting senior citizen's dining satisfaction. This result was consistent with the previous findings (Lee and Hing, 1995; Stevens, Knutson and Patton, 1995; Heung, Wong and Qu, 2000; Richard, Sundaram and Allaway, 1994; Bojanic and Rosen, 1994; Dube, Renaghan and Miller, 1994; Johns and Tyas, 1996; Fu and Parks, 2001). Senior citizen's repurchase intention was also positively predicted by the service quality of the SERVQUAL theory, which was consistent with the finding of Fu and Parks (2001).
- (b) The effect of food quality on customer satisfaction was positively significant as perceived by senior citizens. In addition, when a senior citizen perceived good food quality from a restaurant, he/she was likely to re-visit that restaurant. Both of the above findings were consistent with the findings of Fu and Parks (2001).
- (c) The effect of nutrition quality on customer satisfaction was not significant. However, as senior citizens perceived the nutrition quality increasing at a restaurant, the repurchase intention also increased.
- (d) The effect of entertainment quality on senior citizen's dining satisfaction was not significant. However, the senior citizens indicated that the entertainment quality could be a factor in their re-patronage in restaurants.

- (e) The effect of customer perceived value on customer satisfaction was significant. Moreover, the customer perceived value was also found to be a positive determinant in predicting the repurchase intention for senior citizens.
- (f) There is a positive relationship between customer satisfaction (CS) toward repurchase intention (RI) and WOM endorsement (WE). Also, there is a positive relationship between repurchase intention (RI) and WOM endorsement (WE).

#### Comparisons of Perceived Service Levels among Restaurant Sectors

The comparisons of the senior citizens' perceived quality levels of the restaurant services showed that at least two types of restaurants were significantly different in the service levels that senior citizens perceived they had actually experienced. In addition, fine dining restaurants received more leading factor scores than casual dining and quick service restaurants. We concluded that senior citizens' perceptions of the service performance and perceived value are essentially different in the different restaurant sectors. As shown in Table 19, fine dining restaurants achieved significantly higher levels of 9 quality attributes than quick-service restaurants and 4 quality attributes than casual dining restaurants did. Casual dining restaurants achieved significantly higher levels of 2 quality attributes than fine dining restaurants did.

A total of 12 quality attributes were identified for which senior citizens have common perceptions across all three restaurant sectors. These attributes can be considered the fundamental features of restaurant customers' satisfaction.

## Implications

This study has provided empirical evidence for the development of customer's purchasing and repurchasing behaviors involving quality of service, customer perceived value, customer satisfaction, repurchase intention, and word-of-mouth endorsement. The measurement method for customer satisfaction confirmed Oliver's (1981) expectancy-disconfirmation theory for studies of customer satisfaction. In this study, respondents were directly asked to provide their perceptions or evaluations of the comparisons, using a "worse than/better than expected" scale. The results indicated that the adequate measurement model was a good fit with the data.

The outcome structure of the construct of FOH service quality in this study has provided strong support to Parasuraman, Zeithaml and Berry's (1988) SERVQUAL theory. The five service aspects of SERVQUAL, including tangible, responsiveness, assurance, empathy, and responsiveness, have been included in the instrument of this study after the strict processes of statistical analysis. The results indicated that these multiple measures are highly reliable for measuring the constructs. The instrument structure of the FOH service quality applied in this study confirmed the previous research methods of Lee and Hing (1995), Stevens, Knutson and Patton (1995), Richard, Sundaram and Allaway (1994), and Bojanic and Rosen (1994).

The food quality factor's relationship with customer satisfaction in the foodservice industry has been tested by several researchers (Johns and Tyas, 1996; Heung, Wong and Qu, 2000; Fu and Parks, 2001). However, not all previous findings supported the food quality as a significant factor positively affecting customer satisfaction. The finding of

this study provided strong support that the effect of food quality on customer satisfaction was positively significant.

The present study also explored the influences of the quality of nutrition and entertainment on senior citizen's purchasing behaviors toward the foodservice market, which could contribute valuable literature to the hospitality research.

The proposed model of this study provided strong empirical support to the model of purchase decision-making process proposed by Oh (1999). Senior customers' perceptions of the FOH service quality, food quality, nutrition quality, entertainment quality, and perceived value can be used to explain their post-purchase behaviors, including customer satisfaction, repurchase intention, and word-of-mouth endorsement. Once a senior customer perceived a increasing level in a restaurant's FOH service quality, food quality, and entertainment quality, his/her satisfaction level and repurchase intention toward the restaurant were positively affected. The mediating effect of customer satisfaction was evident when noted that senior customers form repurchase intention and word-of-mouth endorsement when they actually experience positive outcomes from the service delivery process. However, the results of this study indicated that while the nutrition quality and entertainment quality only played a role positively affecting senior customer's repurchase intention, they would not have any effect on their dining satisfaction.

The findings of this study conceptualize that service quality, which includes the quality of FOH service, food, nutrition, and entertainment along with the customer perceived value are the important antecedents of customer satisfaction, repurchase intention, and word-of-mouth endorsement in the mature market. These findings have



not yet been studied in the previous hospitality research, thereby broadening the latitude of service quality theory and its applicability.

### Recommendations

The findings of this study can help foodservice operators in their operation and strategic plan of marketing. The attributes used and developed in the survey scale of this study can be considered reliable indicators of customer purchasing behavior and can be a training guideline for restaurant service.

Senior citizens were found frequently dining out in this study. Some previous findings even found that this group spent more per capita on food away from home than the national average (Lahue, 2000). The younger senior citizens seemed to dine out more frequently than the older senior citizens. The age group of ages 55 to 74 years old could especially be a focus of restaurant marketing. According to the findings of this study, the popularity of casual dining restaurants in the mature market has increased 1.5 times over the past 15 years and is still growing. This type of restaurant is highly recommended to maintain or enhance its service level by following the guidelines (see Table 19) developed in this study.

To serve the aging group, restaurants can find directions for the improvement of service quality and their strategic plan of marketing from this study. Operators of the foodservice who are trying to understand their senior customers must measure not only service quality in the front of the house, but also food quality and customer perceived value, because they play a substantial role in predicting senior citizens' dining decisions.

Ignoring any one of them may weaken their dining satisfaction and intentions to repurchase and recommend the services to others. The attributes presented in the survey scale of this study can be considered reliable indicators of those factors. For example, a convenient opening hour, such as week day afternoon, is in high demand from the senior citizens. In addition, foodservice providers should train their employees to be sensitive to the special needs and wants of senior customers. Managers should train their staff to be professional, confident with a neat appearance, and treat the senior customers with courtesy and respect.

For food quality, offering a variety of food choices and ensuring the food is attractive to customers were the most common concerns of the senior citizens. Furthermore, ensuring the food is hygienically prepared and served was highly demanded by this mature age group. Therefore, chef's training should place importance on the creativity of menu design and food presentation. In addition, kitchen managers should ensure that food handlers repeatedly practice safe food preparation at the foodservice work site. A good method for ensuring food safety is to implement the system of Hazard Analysis and Critical Control Point (HACCP) into the foodservice work site.

Offering healthful food choices, such as low fat, cholesterol, salt, and sugar is also of great significance to this aging group. Nutrition quality was not found to be an important factor affecting senior citizens' dining satisfaction. However, ignoring it may reduce repeat business and intent to recommend the restaurant to others. Recently, the health food issues in the foodservice industry have been discussed more than ever, especially in the fast food industry. Therefore, we recommend that foodservice providers enhance their chef's skills and practices in healthful food preparation. In addition, the

hands-on practice of healthful food preparation should be incorporated into the curriculum of hospitality education. The government should play a role in consulting and guiding the foodservice industry toward healthful food preparation. As a food safety and sanitation problem is viewed as a hazard capable of causing food-borne illness outbreaks, issues concerning healthful food preparation can be viewed as a long-term health hazard. Both of these should be treated equally important in foodservice regulatory policies.

Similarly, although entertainment services were not found to be an important factor affecting senior citizens' dining satisfaction, ignoring it may reduce the senior citizens' intentions to repurchase and recommend the services to others. Services such as appropriate background music, availability of entertainment facilities (e.g., music and big TV screens) and accommodating area for customer socialization should be considered the fundamental entertainment services for senior citizens. Finally, providing a senior discount opportunity and reducing the portion size of a meal with a reduced price are also ideas received well by the senior citizens.

Having the services discussed above may generate a large increase in customer satisfaction and repurchase intention, and help in achieving the financial goal of a foodservice establishment. Again, this study provides restaurants directions for the improvement of service quality and marketing strategies to serve this aging group.

#### Limitations of Study

The measuring method of the survey was based on the participant's experience. Although the methodology is well established, participants answering the questions based

on their memory may bias the results. Ideally, one should conduct the survey right after the participant finishes the meal at the restaurant site. In addition, the multiple sampling processes used in this study may cause bias in the sample.

The other concern is that this study's results cannot be compared directly with those of other research studies, as there is virtually no previous research into measuring three restaurant sectors at once. In addition, nutrition quality and entertainment quality within the three restaurant sectors were measured, making it difficult to draw comparisons due to a lack of related literature.

#### Future Research

Further studies could examine a restaurant's service quality for a particular restaurant sector using a larger sample. The results would be useful for restaurant planning and differentiation. In addition, further research is needed to measure the relationship of overall satisfaction and behavioral intention to the senior citizens' perceptions of the service quality of a particular restaurant sector. The results of such studies could identify the determinant service attributes to help ensure senior citizens' dining satisfaction and purchasing behaviors in different restaurant sectors.

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## APPENDIXES

APPENDIX A

COVER LETTER

## COVER LETTER FOR MAILING SURVEY

February 15, 2005

Dear Sir/Madam:

We are interested in learning your dining-out experience of the restaurant's service quality. The findings would be valuable to ensure the restaurant's service quality for senior citizens.

You were selected because **you** are experienced in dining in restaurants. Since we only sent this survey to a limited group, your response is crucial to the success of this research.

Would you be kind enough to take 10 minutes to complete the enclosed questionnaire and return it in the enclosed business reply envelope by **March 5, 2005**. If you would like a summary of our results, please write only your return address, no name please, on the back of the business reply envelope.

Your participation in this survey is strictly **voluntary**. There is **no penalty** for refusal to participate and you are free to withdraw your consent and participation in this project at any time without penalty. Your responses will be remained **anonymous and confidential**. Data will be stored in the personal computers that are isolated from any networks and accessible only to the principal investigators. The data will be temporarily kept no more than one year for analysis purpose and destroyed completely as soon as data is analyzed. The findings will be reported in a doctoral dissertation and remained for further research study.

If you have any further questions, please contact the researcher, Shih-Ming Hu at (405)332-0795 (shihming.hu@okstate.edu) or Dr. Jerrold K. Leong (leong@okstate.edu).

For information on subjects' right, please contact Dr. Sue C. Jacobs, IRB Chair, 415 Whitehurst Hall, 405-744-1676.

Thank you for your valuable time and insight to enhance restaurant service quality for senior citizens. We look forward to receiving your response in the near future.

Sincerely,

Shih-Ming Hu  
Ph.D. Graduate Student  
School of Hotel and Restaurant Administration  
Oklahoma State University

Jerrold K. Leong  
Associate Professor

APPENDIX B

TABLE OF THE US REGION

TABLE OF THE U.S. REGION

<i>MIDWEST</i>	<i>NORTHEAST</i>	<i>WEST</i>	<i>SOUTH</i>
North Dakota	Maine	Washington	Delaware
South Dakota	Vermont	Oregon	Maryland
Nebraska	New Hampshire	California	Virginia
Kansas	New York	Nevada	West Virginia
Minnesota	Massachusetts	Idaho	North Carolina
Iowa	Connecticut	Utah	South Carolina
Missouri	Pennsylvania	Arizona	Georgia
Wisconsin	New Jersey	Montana	Florida
Illinois		Wyoming	Kentucky
Michigan		Colorado	Tennessee
Indiana		New Mexico	Alabama
Ohio		Alaska	Mississippi
		Hawaii	Arkansas
			Louisiana
			Oklahoma
			Texas

Source: Houghton Mifflin Company (1987), Boston, Massachusetts

APPENDIX C

SURVEY QUESTIONNAIRE

**The Survey of the Senior Citizens’  
Dining Out Experience in the Foodservice Market**  
(Sample of Quick Service)

**Section I. Measurements of Dining Experience in Restaurants**

A. How often do you visit a restaurant?

- at least once per week     once per 2 weeks     once per month  
 once per 2 months     very rare

B. How much money per person do you usually spend in the restaurant?

- \$10 or below     \$ 11- \$15     \$16 - \$ 20     \$21 - \$25     \$26 or above

C. Please mark the response that properly represented your perception on each statement for the **Quick Service** restaurant (such as fast food restaurant) that you most frequently patronize by using the following scale.

- 1=Much worse than expected**                      **4=Somewhat better than expected**  
**2=Somewhat worse than expected**            **5=Much better than expected**  
**3=Same as expected**

<i>Statement</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. Staff has a neat and professional appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The dining area is attractive and comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Staff is very willing to help, e.g., correct errors in bill, assist with allergy to food additive, hang up your coat, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The establishment provides prompt and quick service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The service provider makes you feel comfortable and confident in your dealing with them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The service provider is sensitive to your individual needs and wants, rather than always relying on policies and procedures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The operating hours of the establishment are convenient to you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. The establishment quickly corrects anything that is wrong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. The establishment tells patrons exactly when the order will be taken and when the food order will be served	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Food is hygienically prepared and served	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The establishment serves the food at a proper temperature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. The food is attractive, such as good smell, taste, and appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. The choices of food allow guests to meet their personal needs, e.g., availability of the soft-textured food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. A reduced portion size with a reduced price is available on the menu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. A variety of food is offered in the establishment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. Nutrition information on food is provided, e.g., calories, fat, salt, carbohydrate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<b>1=much worse than expected</b>	<b>4=somewhat better than expected</b>				
<b>2=somewhat worse than expected</b>	<b>5=much better than expected</b>				
<b>3=same as expected</b>					
<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
17. A low sugar or sugar-free meal is available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. A low fat meal is available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. A low cholesterol meal is available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. Food low in salt or no salt is available	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. The choice of food is balanced and healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. The price is reasonable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. The price is valuable for what you received	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. The restaurant gives customers good value for money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. The restaurant provides a senior discount	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Background music is suitable to the dining atmosphere	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. The restaurant provides entertainment services for special events or birthday celebrations, e.g., staff singing for celebrating, special games, or gifts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Entertainment facilities are available, e.g., music, big TV screen for sport games or movie, supervised children's playgrounds, leisure facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. The restaurant offers accommodating area for customer socialization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section II. Overall Questions

A. Please mark the response that properly represented your perception on each statement for the **Quick Service** restaurant (such as fast food restaurant) that you most frequently patronize by using the following scale.

**1= Very Unsatisfied**  
**2= Unsatisfied**  
**3= Somewhat satisfied**

**4= Satisfied**  
**5=Very Satisfied**

<b>Statement</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1. How satisfied you are with the overall food quality you received?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How satisfied you are with the overall nutrition quality on food you received?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How satisfied you are with the overall entertainment quality you received?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How satisfied you are with the overall table side service quality you received?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. How satisfied you are with the overall value you received for the price you paid?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



B. Please mark the response that properly represented your perception of each statement for the **Quick Service** restaurant (such as fast food restaurant) that you most frequently patronize by using the following scale.

- 1=Very impossible**                      **4= Possible**  
**2=Impossible**                         **5=Very possible**  
**3=Somewhat possible**

Statement	1	2	3	4	5
1. How likely you will be to re-visit the restaurant due to its food quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. How likely you will be to re-visit the restaurant due to its food nutrition quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. How likely you will be to re-visit the restaurant due to its entertainment services?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. How likely you will be to re-visit the restaurant due to its table side service quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. How likely you will be to re-visit the restaurant due to the overall value you received for the price you paid?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. How likely you will be to recommend the restaurant to others due to its food quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. How likely you will be to recommend the restaurant to others due to its food nutrition quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. How likely you will be to recommend the restaurant to others due to its entertainment quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. How likely you will be to recommend the restaurant to others due to its table side service quality?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. How likely you will be to recommend the restaurant to others due to the overall value you received for the price you paid?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Section II. Dining-Out and Demographic Profile

A. What type of restaurant do you most frequently visit? (Please choose only **One**)

- Quick Service (such as fast food restaurant)
- Casual Dining or Family Restaurant (such as mid-scale restaurants including steak house, cafeteria, buffet, or franchised restaurants, e.g., Chili's, Applebee, Red Lobster, or T.G.I. Friday; average check between \$11 and \$25)
- Fine Dining (upscale or full service restaurants; average check more than \$25)

B. How often do you visit the restaurant that you most frequently visit?

- at least once per week
- once per 2 weeks
- once per month
- once per 2 months
- very rare

C. How much money per person do you usually spend in the restaurant that you most frequently visit?

- \$10 or below    \$ 11- \$15    \$16 - \$ 20    \$21 - \$25    \$26 or above

D. How many persons in your household?    1    2    3    4 or above

E. What type of city environment do you currently live? (Please check only one)

- A metropolitan area  
 Suburban area around a metropolitan area  
 Small town or city not in a metropolitan area  
 Countryside, rural

F. Does your living community limit the opportunity to visit a certain type of restaurant?

- No  
 Yes, what type?    Quick Service    Casual Dining    Fine Dining

G. Do you currently drive a car?    Yes    No

H. Do you currently have the “Meals on Wheels” service?    Yes    No

I. Please indicate your gender:    Male    Female

J. Please indicate your age?    54 or below    55~64    65 ~74    75 ~84

85 or above

K. Which of the following best describes your current annual household income, before taxes?

- Less than \$30,000    \$60,000~\$69,999  
 \$30,000~\$39,999    \$70,000 or more  
 \$40,000~\$49,999  
 \$50,000~\$59,999

\*\*\*\*\* THANK YOU \*\*\*\*\*

APPENDIX D

SOURCE TABLE OF SURVEY ATTRIBUTES

## SOURCE TABLE OF SURVEY ATTRIBUTES

Attribute \ Sources	(1)*	(2)*	(3)*	(4)*	(5)*	(6)*	(7)*	(8)*	(9)*	Origin	Grouping
Staffs with neat and professional appearance	•	•	•	•	•	•			•	(10)*	Tangible
Attractiveness of dining area	•		•		•				•	(10)*	Tangible
Has a deco in keeping with its image and price range	•		•							(10)*	Tangible
Has a menu that are easy readable	•		•		•					(10)*	Tangible
Has a visually attractive menu that reflects the restaurant's image	•	•	•							(10)*	Tangible
Has visually attractive parking areas and building exteriors	•	•								(10)*	Tangible
Has a dining area that is comfortable and easy to move around in	•		•		•				•	(10)*	Tangible
Has rest rooms that are thoroughly clean	•		•							(10)*	Tangible
Has comfortable seats in the dining room	•		•							(10)*	Tangible
Have modern-looking equipment. eg: dining facilities.		•		•		•				(10)*	Tangible
Clean dining area			•		•					(10)*	Tangible
Clean dining equipment			•							(10)*	Tangible
Staff to be ever willing to help, eg: error in bill, allergic to food additive, hang up your coat, etc.	•	•		•		•			•	(10)*	Responsive -ness
During busy times has employees shift to help each other maintain speed and quality of service	•	•	•	•	•					(10)*	Responsive-ness
During busy times has employees shift to help each other maintain speed and quality of service	•	•	•	•	•					(10)*	Responsive-ness
Provides prompt and quick service	•	•		•	•	•			•	(10)*	Responsive-ness
Give extra effort to handle your special request	•		•							(10)*	Responsive-ness
has employees who can answer your questions completely	•		•							(10)*	Assurance
Makes you feel comfortable and confident in your dealing with them	•	•	•	•		•			•	(10)*	Assurance
Has personal who are both able and willing to give you information about menu items, their ingredients, and method of preparation	•									(10)*	Assurance
Seems to give employees support so that they can do their jobs well; teamwork	•		•		•					(10)*	Assurance
Makes you feel personally safe with the service and food	•		•		•					(10)*	Assurance
Has personal who seem well-trained, competent, and experience	•	•	•	•	•	•				(10)*	Assurance
Polite and courteous employees			•	•		•				(10)*	Assurance
Staffs to communicate in a friendly and personal manner										(10)*	Assurance
Have knowledgeable employees to answer customers' questions										(10)*	Assurance
Staffs are sensitive to your individual needs and wants, rather than always relying on policies and procedures	•	•	•	•	•				•	(10)*	Empathy

table continues

## SOURCE TABLE OF SURVEY ATTRIBUTES

Attribute \ Sources	(1)*	(2)*	(3)*	(4)*	(5)*	(6)*	(7)*	(8)*	(9)*	Origin	Grouping
Make you feel special and valued	•		•		•					(10)*	Empathy
Anticipates your individual needs and wants (attention)	•	•	•		•	•				(10)*	Empathy
Staffs are sympathetic and reassuring if something is wrong	•		•	•		•				(10)*	Empathy
Seems to have the customers' best interest at heart, eg: sufficient portions given, staffs are not too pushy with their suggestive selling	•	•	•	•	•	•				(10)*	Empathy
Operating hours convenient to all their customer		•	•	•	•	•			•	(10)*	Empathy
Willing to handle special requests			•							(10)*	Empathy
Staffs care about guest			•							(10)*	Empathy
The host greeted you at timely manner; friendly					•					(10)*	Empathy
Serve you in the time promised	•	•	•	•	•	•				(10)*	Reliability
Quickly corrects anything that is wrong	•		•		•				•	(10)*	Reliability
Is dependable and consistent	•	•	•							(10)*	Reliability
Provide an accurate guest check	•	•	•	•	•	•				(10)*	Reliability
Serve your food exactly as you ordered it	•	•	•	•	•	•				(10)*	Reliability
Tell patrons exactly when services will be performed, eg, when order will be taken or when food order will be served		•		•	•	•			•	(10)*	Reliability
The quality of the food					•		•			(5)*	Food Quality
Appearance of the food is attractive						•	•		•	(6)*	Food Quality
Food is hygienically prepared and served						•			•	(6)*	Food Quality
They serve the food at correct temperature						•			•	(6)*	Food Quality
Customer can always find something they like on the menu						•	•			(6)*	Food Quality
They serve good portions						•				(6)*	Food Quality
The food tastes good						•	•		•	(6)*	Food Quality
They offer a good choices of dish						•	•			(6)*	Food Quality
They regularly change the selection of dishes they offer						•				(6)*	Food Quality
The food they serve is fresh						•				(6)*	Food Quality
The choices of food allow guests to meet their religious needs							•			(7)*	Food Quality
The choices of food allow guests to meet their personal needs, eg: available of soft-textured food for weak teeth									•	New	Food Quality
The food smells good									•	New	Food Quality
Food with a reduced portion size in a reduced price is available on the menu									•	New	Food Quality
A variety of food is offered									•	New	Food Quality
Availability of healthy food					•					(6)*	Nutrition
The choice of food is balanced and healthy						•			•	(6)*	Nutrition
Information on fat in food is available							•			(7)*	Nutrition
Nutrition information on food products is posted, eg: calories, fats, sugar, salt							•		•	(7)*	Nutrition

table continues

## SOURCE TABLE OF SURVEY ATTRIBUTES

Attribute \ Sources	(1)*	(2)*	(3)*	(4)*	(5)*	(6)*	(7)*	(8)*	(9)*	Origin	Grouping
Information on calories in food is available							•			(7)*	Nutrition
The availability of low sugar or sugar-free meals								•	•	(8)*	Nutrition
Availability of low fat meals								•	•	(8)*	Nutrition
The availability of low cholesterol meals								•	•	(8)*	Nutrition
The availability of food with low in salt or no salt								•	•	(8)*	Nutrition
Staffs give you suggestions on the nutritious items they do provide										New	Nutrition
The price is reasonable							•		•	(7)*	Price value
Price is OK for what you get							•		•	(7)*	Price value
They give customers good value for money						•			•	(6)*	Price value
They provide senior discount								•	•	(8)*	Price value
Background music is suitable to the dining atmosphere									•	New	Entertainment
Provide entertainment to guests' special events, birthday, or annual ceremony, eg: staffs singing and dancing for celebrating, special games or gifts									•	New	Entertainment
The availability of entertainment facilities, e.g., music, big TV screen for sport games or movie, supervised children's playgrounds, leisure facilities									•	New	Entertainment
Offering the accommodating area for customer socialization									•	New	Entertainment

\*(1) = Stevens, et al. (1995); (2) = Lee and Hing (1995); (3) = Heung, et al. (2000); (4) = Lee, et al. (2004); (5) = Fu and Parks (2001); (6) = Johns and Tyas (1996); (7) = Meyer (1997); (8) = Knutson et al. (1993); (9) = This study; (10) = SERVQUAL

APPENDIX E

APPROVAL FORM FOR RESEARCH INVOLVING HUMAN SUBJECTS





## VITA

Shih-Ming Hu

Candidate for the Degree of  
Doctor of Philosophy

Thesis: A STRUCTURAL EQUATION MODEL OF THE SENIOR CITIZENS'  
PURCHASING PROCESS IN FOODSERVICE: CONSIDERING THE  
QUALITY OF FOOD, NUTRITION, SERVICE AND ENTERTAINMENT IN  
FOODSERVICE ENVIRONMENT

Major Field: Human Environment Sciences

### Biographical:

Personal Data: Born in Changhua, Taiwan, March 4, 1968

### Education:

Bachelor of Science in Food Science	National Pingtung University of Science & Technology, Taiwan	June 1993
Master of Science in Hotel & Foodservice Management	Florida International University, Miami, FL	Dec. 1999

Completed the requirements for the Doctor of Philosophy degree with a major in Human Environment Sciences at Oklahoma State University, Stillwater, Oklahoma in July 2005.

### Professional Experience:

Advanced Manager	New Palace Restaurant, Taiwan	2000 - 2001
Assistant Manager	Seven Seas Motel, Miami, FL	1999 - 2000
Night Auditor	Seven Seas Motel, Miami, FL	1998 - 1999
Marketing Manager	Wei-Dan Food Co., Taiwan	1995 - 1997
Director	Military Foodservice, Army Division 284	1993 - 1994
Kitchen Supervisor	Wan-Hua Restaurant Chain, Taiwan	1987 - 1988

### Academic Experience:

Doctoral Teaching Associate	HRA, Oklahoma State University, OK	2003 - 2005
Director of Culinary Training	Da-Ching Vocational School, Taiwan	2001 - 2002
Director of Department	Department of F & B, Da-Ching, Taiwan	2001 - 2002
Instructor of Food Safety	Department of Health, Changhua, Taiwan	2001 - 2002

Professional Memberships: Council of Hotel, Restaurant and Institutional Educators