A STUDY OF CUSTOMER SATISFACTION, RETURN

INTENTION, AND WORD-OF-MOUTH

ENDORSEMENT IN UNIVERSITY DINING

FACILITIES

By

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CHAPTER I

INTRODUCTION

Background

The college student market is growing and influencing the expansion of university foodservices. According to the National Center for Education Statistics, the number of college students is expected to increase to 16 million by 2007. To satisfy them, university and college foodservice operations need to provide a variety of options and deliver fresh, healthy and tasty food.

The increasing number of enrollment has forced the Department of Residence to build more residential halls and provide abundant options for on campus dining. With all these choices, students are given the freedom to choose where and what they want to eat. The National Restaurant Association's annual Industry report forecast showed that the foodservice contractors' continued penetration of the primary and secondary education markets will help the non-commercial foodservice industry grow by 4.3% in sales in 2005. Colleges and universities will lead all major segments by 5.4% in sales growth. The foodservice as a whole, will grow to $476 billion in sales, and account for 47% of the U.S. food dollar. According to On campus Hospitality (2003), with regards to college market potential, the spending power of college students is more than $90 billion. The increase in spending power through this entity of college students will then lead to the

growth of revenue for dining facilities. Therefore, it is important for foodservice operators to acknowledge the wants and needs of their students in order to satisfy them and at the same time retain its market power in the industry.

University foodservice is expanding by adapting new concepts and moving towards the commercial foodservice trend. They are offering more food options and extending their operation hours just to capture the student market. Commercial foodservice and non-commercial foodservice are parallel, and they have the same goals – each entity desires to make a profit and exceed their customer's expectations. Therefore, the researcher believes that the selected independent variables, which were known as important to commercial foodservice research, are also important to the university foodservice perspective.

Customer satisfaction is often used as an indicator of whether customers will return to a restaurant. While there is no guarantee of a satisfied customer's repeat visit, it is almost certain that an unsatisfied customer will not return. Numerous research studies have shown that customer satisfaction is an important topic for foodservice managers. A high level of customer satisfaction leads to an increase in repeat patronage, brand loyalty, as well as recruiting new customers by enhancing an organization's reputation. Other than customer satisfaction, most of the research also shows that the most important factors influencing a consumer's decision when choosing a restaurant are food quality, service quality, value, cleanliness, and whether their food is prepared to order.

Among all the possible determinants of customer satisfaction in restaurants, studies have found that food quality is rated as the most powerful predictor of customer intent to return. Pettijohn, Pettijohn, and Luke (1997) studied fast food restaurant

customer satisfaction where they found that food quality had the highest mean among all the variables. Even though Shoemaker's (1998) study about university foodservice did not use food quality to predict the customer's intention to return, it did show that food quality had the highest rating among all of the variables which was used in the market segmentation study. Therefore, it is logical to surmise that customer satisfaction with a university's food quality is influential in determining intentions to return.

Other than food quality, the restaurant's physical setting may also affect customer satisfaction and return intentions. Sulek and Hensley (2004) proved that atmosphere of the dining area was a significant predictor of satisfaction in the overall dining experience. University dining facilities have begun to emphasize décor, music, and lighting as a selling point to customers. This helps to create an expectation of the dining experience. Hence, it is rational to believe that the customer's perceptions of service quality and a restaurant's atmosphere may be influential in determining their return intentions.

In addition to atmosphere, service quality has been found to be a significant factor in determining customer satisfaction and their return intentions. Yuksel and Yuksel (2002) found that service quality had the most significant effect on dining satisfaction at the aggregate market level. Qu (1997) also discovered that service quality was significantly related to the customer's return intention. Kivela, Inbakaran, and Reece (2000) found that convenience is also a significant issue in determining return intentions. Shoemaker (1998) discovered that a short walking distance from the class or office was the main concern for most undergraduate students. Thus, the researcher believes that convenience is another factor to be considered, especially for students.

Price and value is also an important factor. A study by Qu (1997) regarding determinant factors and choice intention for dining at Chinese restaurants found that price and value was significantly related to the customer's satisfaction and their intention to return. Furthermore, Shoemaker (1998) found that students considered reasonable price an important variable when deciding where to eat. As a result, the researcher believes that price and value is a critical factor to be included in this study in determining the customers' satisfaction and their return intention.

University foodservice is growing rapidly and operators are trying to meet the diverse needs and wants of the students. Even though the literature supports the idea that food quality, atmosphere, service quality, convenience, and price and value are predictors of customer satisfaction, few studies have been done to investigate these factors in relation to university foodservice facilities. Thus, the lack of studies in this area is the driving factor behind this current research study. The results of the study may provide operational insight for the university foodservice directors and managers, namely identifying those influencing factors used to improve the operational efficiency of the dining units. Also, the study will provide foodservice directors and managers a conceptual insight into methods for improving delivery systems to meet the needs of the customers. Ultimately, the study can also pinpoint those attributes the customers' deem important, allowing the foodservice directors and managers to focus on those attributes that will make the greatest impact on customer satisfaction. Therefore, the researcher believes exploring this topic will contribute to the overall college and university foodservice industry.

Significance of the Study and Research Purpose

University dining facility operators need to be more aware of the relative influence of various foodservice-attributes in determining customers' intention to return. With all the options available, students can use their meal plan anywhere on campus, not only in the dining facility, but also in the convenience stores. Also, mandatory meal plans on college and university campuses can enhance a steady source of income for a foodservice department, securing good value and leveraging their purchasing volume. Therefore, it is important for foodservice operators to know what their customers' satisfaction level ought to be and how to retain their patronage. The researcher hopes that the study will benefit the university foodservice operators in providing best practices as well as provide a contribution to the body of knowledge, useful to the academician in hotel and restaurant management programs. This research will aim to support these benefits in terms of food quality, atmosphere, service quality, convenience, and price and value.

The objectives of this study are:

1) To explore those attributes that customers perceive as "meet their expectation level" in their selection of a university dining facility

2) To determine the influence of food quality, atmosphere, service quality, convenience, and price and value on customer satisfaction, return intention, and word-of-mouth endorsement.

Organization of the Study

This research includes five sections. Section one presents the introduction; components of the introduction include the background and purpose of the research. Section two consists of a review of literature. The methodology in section three explains the research instrument, data collection, and data analysis. The fourth section shows the results of the findings and the last section, section five includes the conclusion, discussion of the limitations to the research, and suggestions for future research.

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| Introduction | Attributes Selection | Customer Satisfaction | Return Intention |

Methodology

Results and Findings

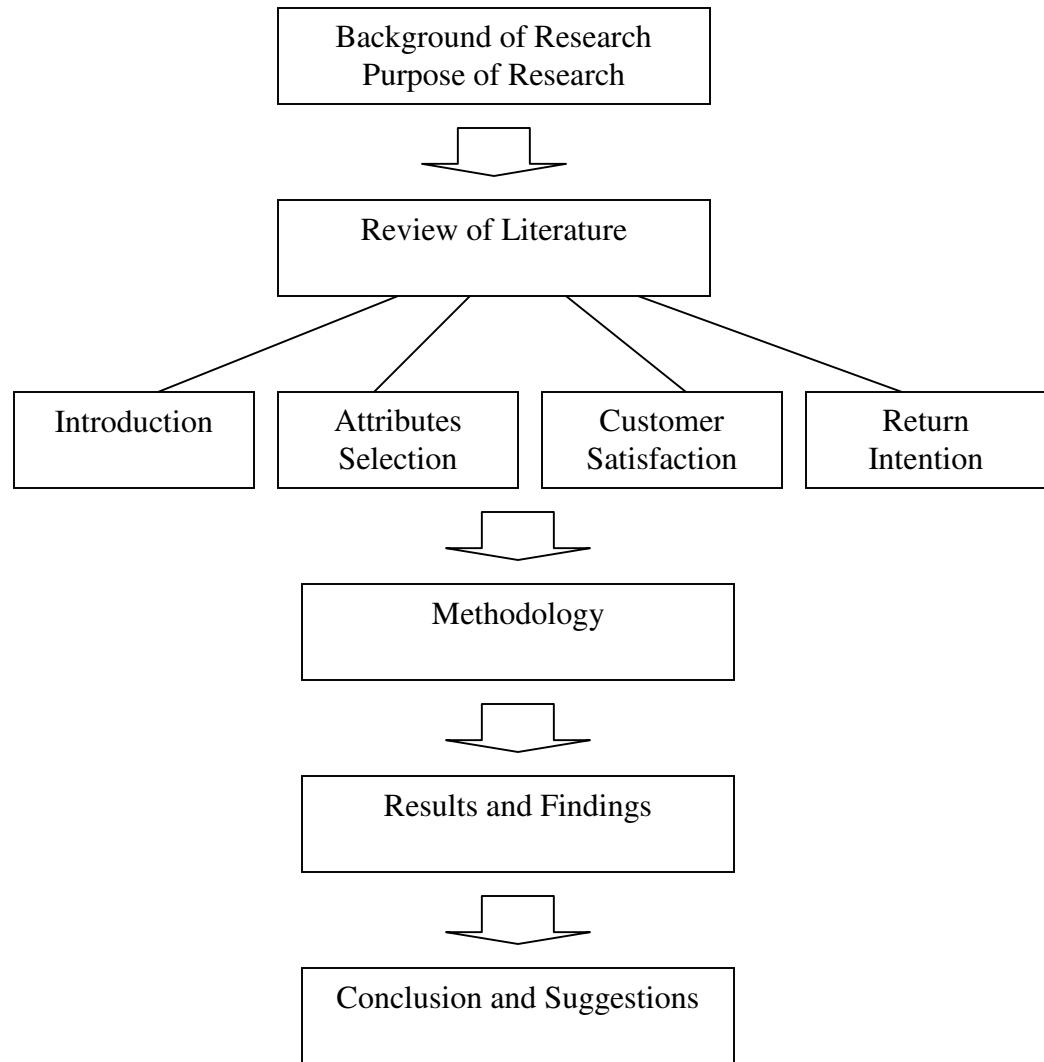Conclusion and Suggestions

Figure 1. Organization of the Study

CHAPTER II

REVIEW OF LITERATURE

Introduction

Numerous studies (Qu, 1997; Kivela, Reece & Inbakaran, 1999; Pettijohn, Pettijohn & Luke, 1997; Lee, 2004) have shown that food quality, atmosphere, service quality, convenience, and price and value have a favorable effect on dining satisfaction and return intention as it has been related to increase sales, revenue, and customer loyalty. However, according to Lee (2004), dining environment, price and nutrition information, and employee competency are considered the most influential factors in determining college student's satisfaction level.

Interestingly enough, restaurants or university dining facilities are generally assumed to be in the business of only selling food. They are mainly retailers of a "foodservice experience." Yuksel and Yuksel (2002) mentioned that food plays a key part but by no means is the only part in satisfying the customer. Previous studies reported that restaurant service was a blend of tangible and intangible components. The service encounter is an individually experienced process where production and consumption activities take place at the same time. There is a concept called "moments of truth" that occurs between customers and the service providers. A "moment of truth" can be defined as the "time and place" and the "when and where" the service provider has the opportunity to show the customer the quality of its service. Therefore, what happens in

these interactions will obviously have a significant impact on consumer satisfaction within service organizations.

In addition to assessing customer satisfaction in foodservice industry, it is also essential to find out which restaurant or dining attributes are most important to customers. Therefore, in the following section, the researcher will present the attributes selection according to the literature review.

Attributes Selection

It is generally accepted that multi-attribute scale is appropriate for use in measuring customer satisfaction in restaurants (Stevens, Knutson, & Patton, 1995; Kivela, Reece, & Inbakaran, 1999; Qu, 1997). A study by Dube, Renaghan, & Miller (1994) used attribute importance scores to find out the relative importance of various upscale restaurants' attributes to determine customers' repeat purchase intentions. The authors theorized that customer satisfaction in restaurants is a function of multiple elements of the dining experience. They found that all of the elements studied, such as atmosphere, helpful server, attentive server, menu variety, waiting time, consistent food, and tasty food, had a significant influence on diners' intent to return to the restaurant. However, the elements had different importance scores that varied based on patrons' type of dining occasion. Pleasure diners were less sensitive to the waiting time but cared about menu variety, while business diners were less concerned about menu variety but cared

about waiting time. However, tasty food, attentive service, and atmosphere were ranked with high importance whether the patron was dining for a business or pleasure occasion.

Mattila (2001) studied about emotional bonding and restaurant loyalty. Her study on the casual-dining restaurant indicated that customers' emotional bonding with the service provider is strongly linked to their future purchase intentions. The study also indicated that the top three reasons the respondents gave for patronizing their target restaurant were food quality, service, and atmosphere. Furthermore, value for money and convenient location were also important motivations for the respondents in the low-commitment group.

A study conducted by Pettijohn, Pettijohn & Luke (1997) determined which restaurant attributes were most important in contributing to customer satisfaction of fast food restaurant patrons. They found that food quality was rated as most important, followed by cleanliness and value. Menu variety and store atmosphere were ranked as least important. These findings were significant because they helped fast food restaurant managers use their resources to make improvements on the store elements considered most influential in determining customer satisfaction.

Qu (1997) studied Chinese restaurant patrons in order to find out which restaurant attributes were most critical in their selection of a Chinese restaurant and which attributes were most influential in predicting their intent to return to the restaurant. He found that the same four restaurant dimensions were significant in customer selection of a Chinese restaurant and repeat patronage intention. These dimensions included food and environment, service and courtesy, price and value, and location advertising and promotion.

Lee (2004) studied college student's perception and preference of brand name foodservice in university dining operations. Her results indicated that dining environment, competency of employee, quality of menu and food selection, and price and nutrition information had an influence on the college students' overall satisfaction level. Dining environment was the most influential dimension in determining colleges' students' overall satisfaction level.

As service quality continues to be a major part of foodservice business practices, it is important to be able to measure service quality and to research its effectiveness. After an extensive review of the literature for the foodservice industry, this study draws on the most relevant foodservice studies and foodservice attributes which are applicable to the university foodservice.

Food Quality

Some studies have found that customer satisfaction with a restaurant's food quality is a powerful predictor of customer intent to return to a given restaurant (Oh, 2000; Qu, 1997; Pettijohn, Pettijohn, & Luke, 1997). In studies of both fast food restaurants (Pettijohn, Pettijohn, & Luke, 1997) and Chinese restaurants (Qu, 1997), food quality was ranked as one of the most important determinants of a customer's decision to return to a given restaurant. Pettijohn, Pettijohn, and Luke (1997) found that food quality was the most important dimension in determining satisfaction. This element is significantly more important than any other dimension such as cleanliness, value, price, and convenience, which ranked second, third, fourth, and fifth.

Lee (2004) conducted a study to determine college students' perception of brand name foodservice quality, the overall satisfaction level of college students, and the perception of brand name foodservice at Big Twelve Schools in the Midwestern region. After examining the data, the study indicated that "quality of food" was ranked the second, among the twelve variables, which accounted for 87%. Also, Aramak "Current Trends In Campus Dining" conducted a survey in 2002 on 2,300 full-time college students. The results indicated that food quality was deemed important, and nearly 70% of the students said they would eat on campus more often if the food quality improved (Hume, Perlik, Sheridan & Yee, 2002).

Mattila (2001) conducted a study related to emotional bonding and restaurant loyalty on the casual-dining restaurants. Her study indicated that food quality was the most important reason for the respondents to patronize their target restaurant.

Sulek and Hensley (2004) conducted a case study related to a full-service restaurant. They discovered that of all the components in a full-service restaurant, food quality is the most important. Although a customer evaluates multiple attributes when determining food quality, he or she is really judging three general food characteristics - namely safety, appeal, and dietary acceptability.

Soriano's (2002) study mentioned that quality of food and fresh ingredients were the reason why customers return to a restaurant. Soriano also found that quality of food was significantly ($P < 0.05$) more important than any other attribute. The most important reason for customers' intention of return to the restaurant was the quality of food. This result is consistent with the traditional concept that quality of food is still the most important reason for the general population of the restaurant being studied.

Clark and Wood (1996) studied consumer loyalty in the restaurant industry. In their study, respondents were asked to choose five of the factors, which were range of food, quality of food, price of food, atmosphere, and speed of service.

The respondents were asked to rank them using a Likert scale, ranging from 1 (very satisfactory) to 5 (very unsatisfactory) in terms of their general importance in choosing a restaurant. The study surveyed 31 respondents, in which only 20 respondents provided usable responses; 19 of the respondents ranked quality of food as the most important variable related to restaurant choice. Therefore, it is critical to include food quality in this study.

Atmosphere

In service settings such as restaurants and hotels, the atmosphere in which the service takes place may be crucial in determining the customer's perception and satisfaction with the service encounter (Bitner, 1992). Soriano (2002) mentioned that the importance of a comfortable atmosphere will continue to increase with time. Therefore, the most important thing is design and concept.

According to Purdue University, they are serving 66% more customers than it anticipated at its new Fred and Mary Ford Dining Court, which offers students a restaurant-like atmosphere and with a varied menu. The ambience of the facility, which decorated with upscale furniture, colors, and finishes, is the major factor that keeps students coming back to the dining facility (FoodService Director, 2005). The University of Tampa, Florida reported that their customer counts went up to 85% after the renovation of one residence dining hall (FoodService Director, 2003).

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Yuksel and Yuksel's (2002) study about tourist satisfaction with restaurant service stated that "service environment holds a central role in shaping the nature of customers' behavior, their reactions to places and their social interactions." "Customers are likely to

spend their time and money in an establishment where the service environment prompts a feeling of pleasure."

Auty's (1992) study about consumer choice and segmentation in the restaurant industry found that image and atmosphere were ranked fourth among the eight variables. Auty (1992) concluded that, after food type, quality, and price, atmosphere then becomes the main way of making a distinction between alternatives. Thus, literature on atmosphere attributes provides a clear reasoning into why this attributes is a part of the study.

Service Quality

Many studies have quoted the importance of service quality in determining customer satisfaction with a service encounter (Stevens, Knutson, & Patton, 1995; Qu, 1997; Pettijohn, Pettijohn, & Luke, 1997). In restaurant settings, service quality has been found to be important in determining customer satisfaction and return intention as well. Qu (1997)'s survey of Chinese restaurant patrons found that the service and courtesy dimension was second only to the food and environment dimension in determining customer probability of returning to a given restaurant. In addition, the results of a study of ambient restaurant patrons in Hong Kong, confirmed that the service quality

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dimension contributed strongly to customer intent to return to a given restaurant (Kivela, Inbakaran, & Reece, 2000).

In the study of customer expectation factors, Soriano (2002) found that after quality of food, quality of service was ranked the second most important factor in determining the customer's decision to return to the restaurant. Then, the study of the measurement of tourist satisfaction with restaurant service, a segment-based approach indicated that there were different segments seeking different benefits (Yuksel & Yuksel, 2002). Yuksel and Yuksel (2002) mentioned these differences and proved that service quality had the most significant effect on dining satisfaction at the aggregate market level. Based on the previous literature, the researcher believes it is important to include service quality in this study.

Convenience

Providing appropriate food services in a campus setting is increasing important due to more demanding customers; students have less time to go off-campus when they need to eat (Klassen, Trybus, & Kumar, 2005). Klassen, Trybus, & Kumar (2005) studied about planning food services for a campus setting. Their results indicated that most students prefer short walking distance for a quick meal or snack, and the students tend to eat close to the building they are in. Also, Mattila's (2001) study indicated that convenient location was an important motivation for respondents in the low-commitment group.

Kivela, Inbakaran and Reece (2000) conducted a research in various theme restaurants in Hong Kong. They categorized telephone reservations and parking under

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convenhience. In this study, Kivela, Inbakaran, & Reece tested reservations and parking with logistic regression analysis, which resulted in a significant level of model improvement ($P< 0.001$).

Shoemaker (1998) studied about a strategic approach to segmentation in university foodservice. After analyzing the data with cluster analysis, the study indicated that "short walking distance to classes and offices" was grouped under convenience of location, with a mean of 8.37.

According to Towson University at Maryland, extended service hours seemed to have had a positive impact on the Newell dining hall's volume. Since increasing their service hours, they have managed to attract new diners, including faculty and staff (FoodService Director, 2003). On the other hand, the Foodservice Department at Michigan State University in East Lansing, reported that convenience, variety and off-campus options increased participation and sales. The department's mission is to provide convenience, value and a variety of dining options to more than 43,000 students on campus. The school in 2002 enjoyed a 6.5% year-over-year increase in meal plan enrollment (Sheridan, 2003). As a result, the researcher believes convenience is important in determining customer satisfaction.

Price and Value

The majorities of customers tend to visit restaurants not only because of good food, quality service and a pleasant service environment, but also because they feel the price they are paying represents value for money (Yuksel & Yuksel, 2002). Value may have a different meaning to different individuals. It might be considered as low price, or

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whatever the consumer wants in a product, or the quality the consumer gets for the price and/or value is what the consumer gets for what they give (Yuksel & Yuksel, 2002).

In Klassen, Trybus, & Kumar's (2005) study about planning food services for a campus setting at California State University, Northridge, their results showed that price is the most important criterion, with 62 percent of the respondents choosing price. Even though most of the food outlet's pricing is discounted, students still consider price when making a decision.

In Soriano's (2002) study about customer expectation factors in restaurants, he stated that the price to be paid for a service determines the level of quality to be demanded. Customers have raised their expectations with regard to quality and good service, while seeking a better value for their money. In this study, Soriano (2003) found that service and value of meal are equally important when compared with all the other factors.

Zeithaml (1987) argues that price is irrelevant to service quality and therefore not a quality attribute. However, according to Johns and Howard (1998), based on the present evidence, customers definitely regarded price and value considerations as part of the "service bundle." Consequently, the researcher deem price and value is essential to include in the study.

Customer Satisfaction

Yuksel and Yuksel's (2002) study about tourist satisfaction with restaurant service found that customer satisfaction is an important topic for both researchers and

managers. It is because a high level of customer satisfaction will leads to an increase in repeat customers. Being able to judge customers' satisfaction levels and to apply that knowledge are critical starting points for ascertaining and maintaining long-term customers retention and competitiveness. Moreover, Yuksel and Yuksel (2002) mentioned that the majority of satisfaction theories state that satisfaction is a relative concept, always judged in relation to a standard.

The selection of an appropriate standard of comparison for use in a research, however, represents a dilemma for both managers and researchers. This is partly because there is not sufficient research evidence available to respond precisely to what comparison standard customers use in different situations. Different forms of service standards have been proposed in the marketing and consumer behavior literature; with the exception of predictive expectations, other standards have received little empirical research in the tourism and hospitality literature. There is also limited understanding of whether the use of different comparison standards, yields different results in terms of satisfaction as it applies to the university foodservice system.

According to Oh and Jeong (2000), even though the notable progress in customer satisfaction research has been made and there is a significant demand for research from the industry, customer satisfaction has remained seriously under-researched in the hospitality industry. Furthermore, studies applying customer satisfaction models are rarely found in the foodservice industry. Thus, in this developing stage of hospitality customer satisfaction research, more tests and applications of the customer satisfaction models seems appropriate.

Return Intention

Weiss (2003) conducted a research study to find out the relationship between restaurant attribute satisfactions and return intention in U.S Theme restaurants. The study concluded that customer satisfaction with restaurant attributes is influential in predicting repeat purchase behavior (intent to return). Also, the study's empirical results indicating that customer satisfaction with the theme restaurant attributes, food quality and atmosphere, were influential in determining customer's return intention.

Lee (2004) studied about college student's perception of brand name food service quality and the overall satisfaction level of college students in university at the Midwestern region. The findings indicated that dining environment and competency of employees were the most influential dimension of intention to revisit a brand name foodservice in a university dining service. Steven et al (1995) also indicated that high customer satisfaction level of service quality leads to the prepense to revisit the dining unit. Therefore, the researcher believes return intention is valuable to be included in this study.

Word-of-Mouth Endorsement

Word-of-mouth communication simply involves people sharing their assessment of their experiences. Word-of-mouth communication, which relates both to positive and negative evaluations of service encounters, has been shown to influence other people's purchase behavior. Positive word-of-mouth communication is reported to emerge from

satisfying service encounters, while negative communication generally emerges from dissatisfying encounters (Susskind, 2002).

Struebing (1996) mentioned that a new academic study shows that revenue streams can be generated from attracting new customers via word-of-mouth recommendations, increasing the percentage of retained customers, and increasing spending or usage by existing customers. Rust (1996) stated that managers tend to believe that an overall increase in revenue will result only by increasing advertising and promotional efforts. His study also mentioned that word-of-mouth recommendations from friends, family, and colleagues who are satisfied with a company have a measurable impact on sales.

Ranaweera and Prabhu (2003) conducted a research study to examine the combined effects of customer satisfaction and trust on customer retention and positive word-of-mouth (WOM). Data from a large-scale survey of fixed line telephone users in the United Kingdom confirmed that both satisfaction and trust have strong positive association with customer retention and positive word-of-mouth. Therefore, the researcher believes it is significant to include word-of-mouth endorsement in this research study.

Research Hypothesis

The study investigated ten hypotheses, which were stated below:

H_1: Overall satisfaction scores differ with regards to gender.

H_2: Overall satisfaction scores differ with regards to types of meal plan.

H_3: Overall satisfaction scores differ with regards to age group.

H_4: Food quality is positively related to customer satisfaction.

H_5: Atmosphere is positively related to customer satisfaction

H_6: Service quality is positively related to customer satisfaction.

H_7: Convenience is positively related to customer satisfaction.

H_8: Price and value is positively related to customer satisfaction.

H_9: Customer satisfaction is positively related to return intention.

H_{10}: Customer satisfaction is positively related to word-of-mouth endorsement.

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The Conceptual Model

The previous reviews of the literature have shown that service quality and atmosphere, food quality, price and value and convenience are highly correlated to customer satisfaction and customer return intention. As shown in Figure 2, the existing theories will be confirmed among the dining facilities with thirty seven options. Also, based on the literature, how the factors of food quality, atmosphere, service quality, convenience, and price and value influence the student's dining satisfaction will be identified.

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 ┌──────────────┐
 │ Food Quality │
 └──────────────┘          H₄
 ┌──────────────┐    H₅                    H₉         ┌──────────────┐
 │  Atmosphere  │                                     │    Return    │
 └──────────────┘                                     │   Intention  │
 ┌──────────────┐    H₆    ┌──────────────┐           └──────────────┘
 │Service quality│         │   Customer   │
 └──────────────┘          │ Satisfaction │
                    H₇     │              │           ┌──────────────┐
 ┌──────────────┐          └──────────────┘           │  Word-of-    │
 │  Convenience │                                     │    mouth     │
 └──────────────┘    H₈              H₁₀              │  endorseme   │
 ┌──────────────┐                                     └──────────────┘
 │ Price and Value│
 └──────────────┘
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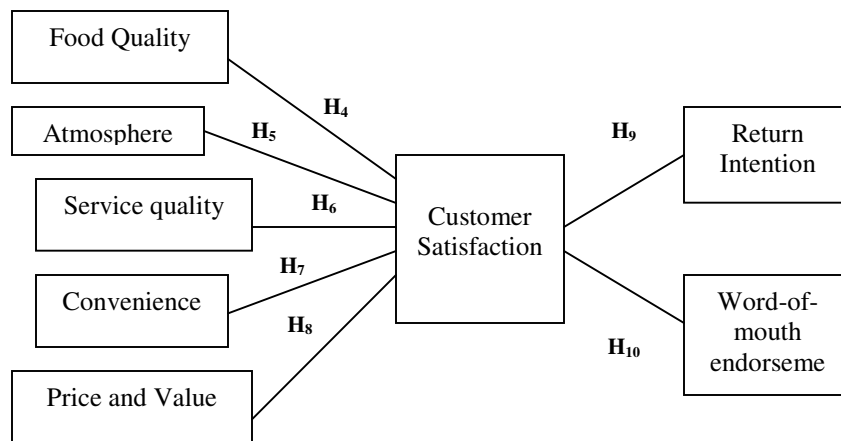
Figure 2 – The Institutional DINESERV Model

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CHAPTER III

RESEARCH METHODOLOGY

Introduction

The review of literature indicated that limited information was available regarding the food quality, service quality, atmosphere, price and value, and convenience in university dining facilities, and how these factors have an influence on customer satisfaction, return intention, and word-of-mouth endorsement. This chapter describes the research design, research instrument, sampling, and data analysis used in this study.

Research Design

The research design of the study entailed descriptive research. According to Gay (1992), "Descriptive research involves collecting data in order to test hypotheses or to answer questions concerning the current status of the subjects of the study." Closed-ended web survey questionnaires were used in this study because they were more convenient for the participants to answer and for the researcher to interpret the respondent's results.

The Research Instrument

In order to ensure the validity of the variables in the questionnaire, the researcher conducted a focus group study with four experts:

1. Dr. Bob Huss, Director of the Residential Life at Oklahoma State University.

2. Dr. Woo Gon (Woody) Kim, Assistant Professor of the School of Hotel and Restaurant Administration at Oklahoma State University.

3. Dr. Bill Ryan, Associate Professor of the School of Hotel and Restaurant Administration at Oklahoma State University.

4. Dr. Jerrold Leong, Associate Professor of the School of Hotel and Restaurant Administration at Oklahoma State University.

A questionnaire instrument was developed based on the results of the focus group discussion, an annual survey from the Department of Residential Life at Oklahoma State University and the relevant literature by the previous study.

The questionnaire consisted of three parts. The first part was designed to measure demographic information. The demographic information included gender, ethnicity, designation, age, types of meal plan, and a dining facility they dined at two or more times in the past week.

The second part was aimed at identifying customers' perceptions about food quality, atmosphere, service quality, convenience, and price and value and their expectation level. The twenty-two questions were identified based on the literature review and the annual survey from the Department of Residential Life. The researcher

revised and added ten more attributes in the previous annual survey in the hopes of increasing the accuracy of the questionnaire.

The researcher adapted eleven items, overall food quality, taste of food, eye appeal of the food, nutrition content of the food, variety of menu options, cleanliness of facilities, dining room environment, service hours, and convenient location, from the Residential Life annual survey. Four items, level of comfort in the dining, dining staff's knowledge about food, parking convenience, and reasonable price item, were adapted from Kivela, Reece, and Inbakaran's (1999) "Dining Experience Survey" and modified to suit the university foodservice area. Two items, staff appearance and attentive staff were selected from "The DINESERV Per Interview" survey (Steven, Knutson, & Patton, 1995) and three items, friendly dining managers, short walking distance, and good value for the price were chosen from Shoemaker's (1998) research study and modified to fit the research purpose. One item, appropriate portion size was selected from the study of Yuksel & Yuksel's (2002); and the last item, overall value of the dining experience was decided based on the focus group discussion. The respondents were asked to respond on a five-point scale. The descriptors ranged from "much worse than I expected (1)," "Just as I expected (3)," to "much better than I expected (5)."

The third section requested the respondents to rate their overall evaluation on the dining facility and their return intention. The first three questions asked about respondent's satisfaction level of the dining facility, quality of service, and their dining experience. Two questions were adapted from Kim (in press) and one question was from Residential Life's survey. Then, three questions ask about respondent's word-of-mouth endorsement, were adapted from Kim, Han, and Lee (2001). The last three questions

asked about respondent's return intention. Three questions were adapted from Kivela, Reece, and Inbakaran (1999). This section called for a rating on a scale of 1 to 5, with 1 representing very low and 5 representing very high.

A cover letter was carefully drafted to enhance the response rate which stated the importance of the study and the confidentiality of the responses. A research faculty was invited to review the questionnaire instrument to improve the comprehensiveness and clarity. There were some changes in the wording of the instrument as a result of the review.

Sampling

The target population for this study was students from the freshman level to the graduate level who were enrolled at Oklahoma State University in the spring semester of 2005. Since this is the Oklahoma State University annual dining survey, with the collaboration from the Department of Residential Life at Oklahoma State University, a stratified sampling method, a probability sample that is distinguished by a two step produce, was used to choose the sample. In a stratified sample, the parent population is divided into mutually exclusive and exhaustive subsets, and a simple random sample of elements is chosen independently from each group of subset (Churchill & Brown, 2004). Therefore, stratified samples are usually representative of the population.

Fifty percent of meal plan holders, which were 3500 participants, and ten percent of non-meal plan holders, which equal 1600 participants, were chosen to participate in this study. Putting together the list for the dining survey was extraordinarily tricky. To

obtain the e-mail addresses for the meal plan holders, the Residential Life department

only needed the e-mail addresses of those meal plan holders who have used their meal

plan during the semester in progress, and whose meal plan balance is greater then zero.

The meal plan data includes ID number but not names. The Residential Life department

used a program that matched an ID number for each name and then switched to a web-

based, manual-lookup system to see if the match was correct. Finally, if they could not

find an email address for a meal plan holder, they had to omit that participant from the

list.

For the non-meal plan holders, the department started with a list of ID numbers

from the card reader system where the meal plan field is blank; participants could be an

employee, a student, or both. The Residential Life department had a program that picked

up home addresses for the possible participants. If they had a home address in Stillwater,

Perry, Perkins, Glencoe, Ripley, Fairfax, Pawnee, Red Rock, Marland, Yale, Coyle,

Langston, Morrison, Orlando, Piedmont, Kingfisher, Edmond, Spencer, Harrah, Guthrie,

or Nichols Hills and were flagged as an employee or student, then they were included in

the survey population. After that, they searched for email addresses for the non-meal plan

holder participants. The Residential Life department had to determine participants'

residency and email address status before they could make the random selection of 10%.

Once the residency and email address fields were satisfactory, they used the wed-based

randomizer program to select the records for the survey.

When they used the web-based randomizer, located at

http://www.randomizer.org, they entered:

1.   A total number of records in the pool to be selected from

2.   The number of records the department wanted to select

3.   A sort order

4.   A delimiter

Next they clicked the button to do the selection and the results of the selection came back as a series of integers separated by commas. They dragged across the series of numbers returned by the randomizer and copied the list back to Focus Program, (FoxPro) for Windows, version 2.6a, where the department had a program that took the contents of the Windows clipboard and pasted it into a text file.

The final list was in the form of a text file, with one record per line, according to the format required by the contract survey company. When the department uploaded the list to the contract survey company website, it did a quick check to find any names where the first or last name was blank or only one letter. It also reported any duplicate records. When it reported the faulty records, they returned to Focus Program (FoxPro), fixed the problem if possible (or deleted the record if it could not be fixed or if it was a duplicate), and created a new text file to upload. Eventually, all the faulty records were fixed and the data were accepted by the contract survey company website.

After obtaining the names and email addresses, an invitation e-mail along with the cover letter was sent to all the selected respondents on May 10, 2005 to May 24, 2005 to participate in a web survey on university foodservice customer satisfaction. With the development of the Internet, using e-mail or web survey is very easy to access, by simply clicking on the appropriate buttons to indicate their answers. Also, using a web survey can save a lot of time, postage, and to prevent the return survey to lost in the mail.

Data Analysis

Data was processed and analyzed by the Statistical Package for the Social

Sciences Window Version 11.5 (SPSS) program. In order to achieve the objective of the

study, different statistical tests, such as frequency, mean, independent sample t-test factor

analysis, one-way analysis of variance (ANOVA), and multiple regressions, were used.

First, descriptive statistics employing frequency and mean were used. Frequency

was first computed to examine demographic and behavioral characteristics of the

respondents. The mean score of the 22 attributes were ranked. Second, independent

sample t-test and one-way ANOVA was used to identify if there is any difference

between overall satisfaction and demographic (gender and age group) and behavioral

variables (types of meal plan).

Third, factor analysis was employed to identify underlying dimensions of the

student's expectations towards food quality, atmosphere, service quality, convenience,

and price and value in the university foodservice. These factors were used to determine

their return intention and word-of-mouth endorsement to the university dining facilities.

To assess the reliability of measure, Cronbach's alpha was calculated to test the reliability

of each variable retained in each factor. Only items with eigenvalues equal to or greater

than one and a factor loading of 0.5 or above was retained (Hair et al, 1998). The Kaiser-

Meyer-Olkin (KMO) measure of sampling adequacy (MSA) and the Bartlett Test of

Sphericity were used to the appropriateness of applying factor analysis.

Finally, based on the underlying dimensions (factors) derived from the factor

analysis, multiple regression analysis was used to predict and examine the strength of

associations between dependent and independent variables (Hair et al., 1998). In this

study, multiple regression analysis was employed to measure the relative impact of

Institutional DINESERV Dimensions on customer satisfaction; and the impact of

customer satisfaction on return intention, and word-of-mouth endorsement.

CHAPTER IV

ANALYSES & RESULTS

Response Rate

Four thousand six hundred and fifty nine (4,659) respondents were randomly selected
and contacted to participate in the survey. Seven hundred and seventy (770)
questionnaires were returned, indicating a response rate of 16.53%. Some incentives such
as DVD player and dining gift certificates were to encourage the respondents to
participate in this study and in the hopes of increasing the response rate. Of the 770
respondents, 489 were student meal plan holders, 69 were faculty or staff meal plan
holders, and 212 respondents had no meal plan.

Characteristics of the Respondents

As shown in Table 1, the sample consisted of 330 male respondents (42.9%) and
440 female respondents (57.1%). Among the 770 respondents, 621 respondents were
white American, 54 respondents were other, 41 respondents were Native American
Indian, 19 respondents were African American, 13 respondents were multiracial, 12
were Asian American, and 10 respondents were of Latino/Chicano/Spanish origin.

Forty seven percent (46%) of the respondents were freshman and sophomore students, thirty-five percent (34%) of the respondents were junior and senior students, and about eighteen percent (20%) of the respondents were graduate students, non-degree students, and faculty or staff. About 74% of the respondents were aged between 17-22 followed by the age group of 23-30 and 31 or above, which accounted for 14% and 12%, respectively.

The behavior of characteristics of respondents is described in Table 2. All the respondents were asked to answer questions about the types of meal plan they have, and the facility they dined in two or more times during the past week. The results indicated that 489 respondents had student meal plan, 69 respondents had faculty/staff meal plan; 212 of the respondents do not have any meal plan, and they used cash or charged it to their bursar account when they dined on campus. Sushi bar at the Student Union, Twenty-Something Two at the Student Union, and Blair Java Dave's were the most popular among the 37 options. Seventy-eight (10%) of respondents indicated that they had dined two or more times at Sushi Bar at the Student Union in the past week, sixty-two (8%) respondents went to the Twenty-Something Two at the Student Union two or more times in the past week, and fifty-four (7%) of respondents showed that they had dined at Blair Java Dave's two or more times in the past week. Each respondent were asked to choose one dining facility to evaluate, but the researcher aggregated the data and analyzed it as a whole to better represent the university dining facilities. Figure 3 will give a better illustration on behavioral characteristics of respondents.

Table 1 - Demographic Characteristics of Respondents

Variables	Frequency	Percentage (%)
Gender		
Male	330	42.9
Female	440	57.1
Ethnicity		
Multiracial	13	1.7
African American	19	2.5
Native American Indian	41	5.3
Asian American	12	1.6
Latino/Chicano/Spanish origin	10	1.3
White American	621	80.6
Other	54	7.0
Classification		
Freshman	207	26.9
Sophomore	146	19.0
Junior	163	21.2
Senior	98	12.7
Graduate Student	63	8.2
Non-degree Student	1	0.1
Faculty/Staff	92	11.9
Age		
17-19	231	30.0
20-22	335	43.5
23-25	78	10.1
26-30	32	4.2
31 and above	94	12.2

Table 2 - Behavioral Characteristics of Respondents

Variables	Frequency	Percentage (%)
Meal Plan Type		
Student Meal Plan	489	63.5
Faculty/Staff Meal Plan	69	9.0
No Meal Plan- Cash or Bursar	212	27.5
Facility in which you dined more than twice in the past week		
Blair Java Dave's	54	7.0
Blair Fast Break C-Store	4	0.5
Blair Freshens	12	1.6
KD-20 Something C-Store	2	0.3
SU-20 Something Two	62	8.1
Pattillo's	8	1.0
The Library Java Dave's	7	0.8
Stout Coffee	42	5.5
SU – Wok n Pho	40	5.2
SU – Pistol Pizza	24	3.1
SU – Grill	30	3.9
SU – All Most Home	37	4.8
SU – Chick-Fil-A	33	4.3
SU – Sushi Bar	78	10.1
Sushi with Gusto	12	1.6
SU – Catering	8	1.0
KD – Taco Mayo	5	0.6
KD – Pistol Pizza	35	4.5
KD – All you care to eat	30	3.9
KD – All Night Grill	31	4.0
SPW – Lunch	11	1.4
SPW – Service Station	30	3.9
SPW – Little Bakery	22	2.9
The Market – AYCE	33	4.3
The Market – Squawkers	15	1.9
The Market – Gourmet Galley	19	2.5
The Market – Hard Wok Grill	24	3.1
The Market – Java Dave's	9	1.2
Aggie Bread Company	3	0.4
Laundry Mart	12	1.6
Taylor's	6	0.8
West Side Café	7	0.9
State Room	18	2.3
Dairy Bar	8	1.0
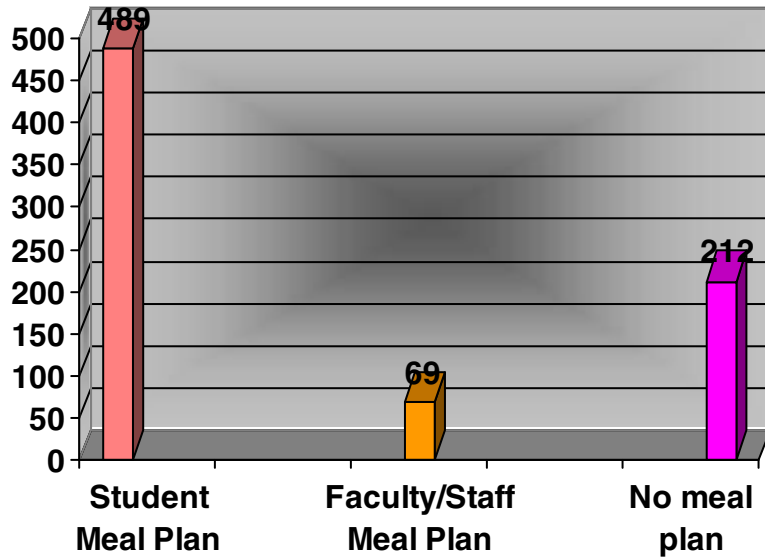
Types of meal plan

Facility that dined 2 or more times
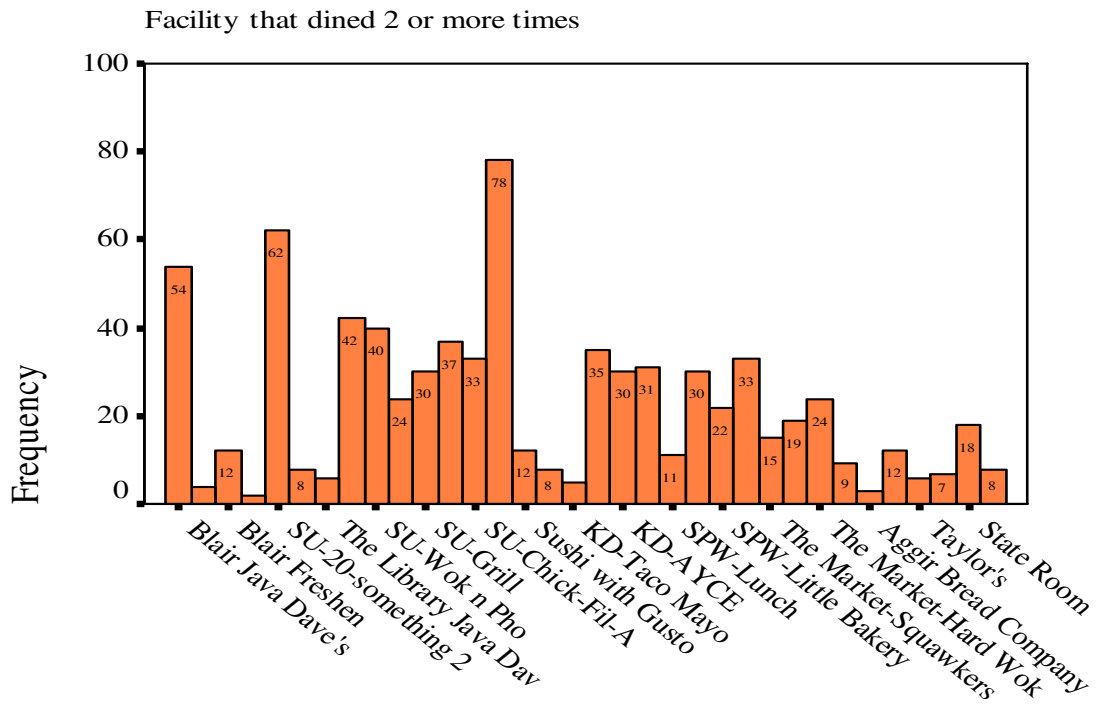
Facility that dined 2 or more times

Figure 3 - Behavioral Characteristics of Respondents

Attributes of Institutional DINESERV Dimensions

The objective of identifying the respondents' expectations level with the attributes of Institutional DIVESERV was achieved through mean rating of 22 attributes listed in Table 3. To assess the respondents' expectation level, the Institutional DINESERV attributes were measured by asking the respondents to rate the 22 attributes on a five-point Likert scale: 1 = "much worse than I expected" to 5 = "much better than I expected."

Table 3 highlights the mean scores and the ranking of student's expectations level about the 22 attributes. The higher mean scores indicate that the attributes exceeded the respondent's expectations; while the lower mean scores indicate the attributes did not meet the respondent's expectations. The ranking indicated that most of the attributes were just above the midpoint of the scale. This indicated that these 22 attributes met the respondent's expectation level, but did not exceed their expectations.

The overall mean score was 3.23. Those attributes such as convenient location, short walking distance, dining room environment, friendly dining manager, taste of food, and level of comfort in the dining room were considered "met the student's expectation" level. All of the attributes were rated 3.35 or higher.

There were several attributes rated below average. They were parking convenience, reasonable price item, and good value for the price. Their mean ratings ranged from 2.81 to 2.75.

Table 3 - Mean Ratings of the Attributes

Institutional DINESERV Dimensions (N=883)	Mean	Standard Deviation
Convenient location	3.54	0.919
Short walking distance	3.51	0.949
Dining room environment	3.40	0.884
Friendly dining manager	3.38	0.919
Taste of food	3.38	0.842
Level of comfort in the dining	3.37	0.846
Overall quality of food	3.34	0.867
Cleanliness of facilities	3.33	0.860
Overall value of the dining experience	3.32	0.869
Eye appeal of the food	3.32	0.837
Appropriate portion size	3.30	0.932
Service provided by staff	3.29	0.919
Staff appearance	3.28	0.891
Attentive staff	3.26	0.936
Variety of menu options	3.22	1.010
Freshness of the food	3.23	0.907
Dining staff's knowledge about food	3.21	0.880
Service hours	3.13	1.027
Nutritional content of the food	3.00	0.981
Good value for the price	2.81	1.128
Reasonable price item	2.75	1.122
Parking convenience	2.75	1.101
Overall Mean	3.23	0.94

Significant Difference Among Gender, Types of meal plan, and Age Group in

Overall Satisfaction

To examine how college students perceived overall satisfaction level by gender, an independent sample t-test was used. As shown in Table 4, the results indicated that there is no significant difference between male and female in overall satisfaction level of Institutional DINESERV Dimensions. Therefore, Hypothesis 1 is not supported.

Hypothesis 1: Overall satisfaction scores differ with regards to gender.

Table 4 - Overall Satisfaction by Gender

	Gender			
	Male (N= 330)	Female (N= 440)		
Variable	Mean		t-value	Sig.
Overall Satisfaction	3.46	3.53	-1.056	0.079

* $p \leq 0.05$

One-way ANOVA was used to determine whether there was any significant mean difference in the overall satisfaction level on types of meal plan and the age group. Table 5 shows the result of the overall satisfaction and types of meal plan of the respondents. The ANOVA Test showed that there was a significant difference between the overall satisfaction and types of meal plan. Tukey's post hoc test was used to discover the difference between groups. Faculty/staff meal plan holders had a higher mean difference compared with the rest of the categories.   Therefore, the result supports Hypothesis 2.

Hypothesis 2: Overall satisfaction scores differ with regards to types of meal plan.

Table 5 - One-way ANOVA (Overall satisfaction and types of meal plan)

Characteristic	Factor		Categories			F value	P value
			Student meal plan	No meal plan	Faculty/staff meal plan		
Overall Satisfaction	Types of meal plan	N	489	212	69	17.66	0.000
		Mean	3.44	3.47	4.04		
		SD	0.804	0.657	0.824		

$p \leq 0.05$

Table 6 - One-way ANOVA (Age Group and Overall Satisfaction)

Characteri-stic	Factor		17-19	20-22	Categor-ies 23-25	26-30	31 and above	F value	P value
		N	231	335	78	32	94	5.369	0.000*
Overall satisfaction	Age group	Mean	3.45	3.42	3.53	3.55	3.85		
		SD	0.857	0.790	0.810	0.584	0.791		

$p \leq 0.05$

Hypothesis 3: Overall satisfaction scores differ with regards to the age group.

Table 6 shows the result of the age group and overall satisfaction of the respondents. Tukey's post hoc test was conducted in order to assess which age group showed the significance difference. The results indicated that respondents at the age group 31 and above had a higher mean difference. Hence, the result supports Hypothesis 3.

The Factor Analysis

To determine whether the data were appropriate for factor analysis, the data set was examined to ensure that the variables were not inter-correlated and that the variables were grouped properly. Bartlett's test of sphericity (using a chi-square test) was applied to test for inter-correlation, and Kaiser-Meyer Olkins (KMO) measure of sampling adequacy was used to make sure that the variables were grouped properly. For data to be appropriate for factor analysis, the results of the Bartlett's test should be significant and the KMO value should be greater than .50. In the study, the value of KMO was .924, which was marvelous (Kaiser, 1974), and verified that the use of factor analysis was appropriate in the study. Bartlett test of sphericity value (χ^2) was 11362.496, with the overall significance of the correlation matrix of .000, indicating that the data were suitable for factor analysis.

Varimax rotation, a method of orthogonal rotation that centers on simplifying the factor matrix by maximizing variance and producing conceptually pure factors, was applied. The criteria for the number of factors to be extracted were based on eigenvalue, percentage of variance, significance of factor loading, and assessment of structure. A loading cut-off on 0.50 was adopted in this study. Only the factors with eigenvalue equal to or greater than 1 were considered as significant. The solution that accounted for at least 50% of the total variance was regarded as a satisfactory solution.

After analyzing the data with Principal Component Analysis of factor analysis with a VARIMAX rotation, 19 variables with a factor loading of .50 or greater were retained and it grouped the 18 variables into 5 groups. Four variables were reduced from

the original 22 variables because only factor loadings equal or greater than 0.5 were considered acceptable in a factor analysis (Hair et al., 1998). The first factor was labeled as "Food Quality." It involved four variables and explained 20.12% of the variance in the data, with an eigenvalue of 3.82. It consisted of overall quality of the food, taste of the food, freshness of the food, and eye appeal of the food. The second factor was labeled as "Service Quality." It included staff appearance, attentive staff, service provided by staff, staff's knowledge about food, and friendly managers. It explained 18.9% of the variance, with an eigenvalue of 3.59.

The third factor was labeled as "Price and Value", with four variables – good value for the price, appropriate portion size, reasonable price item, and overall value of the dining experience. It had an eigenvalue of 3.03 and total variance explained was 15.97%. The fourth factor was labeled as "Atmosphere." It included cleanliness of facilities, dining room environment and level of comfort in the dining. It explained 12.16% of the variance, with an eigenvalue of 2.31. Finally, the fifth factor was labeled as "convenience" With an eigenvalue of 1.92; this factor explained 10.11% of the variance. It consisted of two variables – convenient location and short walking distance. The researcher named these five factors as Institutional DINESERV Dimensions.

Table 7 – Factor Analysis – Institutional DINESERV Dimensions

Factor and Variables	Varimax Rotated Loading					Communality
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	
F1 – Food Quality						
Overall quality of the food	0.84					0.84
Taste of food	0.85					0.84
Eye appeal of the food	0.78					0.76
Freshness of the food	0.72					0.72
F2 – Service Quality						
Staff appearance		0.69				0.71
Attentive staff		0.86				0.84
Service provided by staff		0.85				0.86
Staff's knowledge about food		0.66				0.66
Friendly dining managers		0.63				0.56
F3 – Price and Value						
Good value for the price			0.86			0.86
Appropriate portion size			0.73			0.71
Reasonable price item			0.88			0.88
Overall value of the dining experience			0.52			0.74
F4 – Atmosphere						
Cleanliness of facilities				0.57		0.65
Dining room environment				0.85		0.89
Level of comfort in the dining				0.81		0.86
F5 – Convenience						
Convenient location					0.90	0.89
Short walking distance					0.91	0.89
						Total Variance explained
% of Variance explained	20.12	18.90	15.97	12.12	10.11	77.22
Cronbanch's Alpha	0.9126	0.8962	0.8954	0.8644	0.8833	
Eigenvalue	3.82	3.59	3.03	2.31	1.92	

Note: Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA): 0.924
Bartlett's Test of Sphericity" X^2 = 11362.496, significance at p=.000

The Regression Analysis

To investigate whether the Institutional DINESERV Dimensions could be an influence on customer satisfaction, the customer satisfaction score was regressed against the summated scale of the five dimensions derived from the factor analysis. Then, to find out whether satisfaction could be an influence on customer return intention and word-of-mouth endorsement, the return intention score and word-of-mouth endorsement score were regressed against the summated scale of the customer satisfaction score.

Table 9 describes the results of the regression analysis of the Institutional DINESERV Dimensions as independent variables with the customer satisfaction as the dependent variable. The coefficient of determination (R^2) of 0.653 indicated that 65.3% of the variance in the customer satisfaction was explained by the Institutional DINESERV Dimensions. The R of independent variables, Institutional DINESERV Dimensions, on the dependent variable, customer satisfaction is 0.808, which represents that the respondents had a positive and high satisfaction level with food quality, service quality, price and value, convenience, and atmosphere. The F-ratio of 287.545 was significant ($p \leq 0.01$).

To detect the presence of multicollinearity, the variance inflation factor (VIF) is calculated and presented in Table 9. The value of variance of inflation (VIF) indicated that there was no multicollinearity. All the five underlying dimensions, food quality, service quality, price and value, convenience, and atmosphere appear to be significant independent variables that influence the customer satisfaction in the university dining facilities. In other words, when we consider the relationship between satisfaction and the

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Institutional DINESERV Dimensions, all the five underlying dimensions are found to be important constructs in the Institutional DINESERV Dimensions. Therefore, the result supports Hypothesis 4, 5, 6, 7 and 8.

Hypothesis 4: Food quality is positively related to customer satisfaction.

Hypothesis 5: Atmosphere is positively related to customer satisfaction.

Hypothesis 6: Service quality is positively related to customer satisfaction.

Hypothesis 7: Convenience is positively related to customer satisfaction.

Hypothesis 8: Price and value is positively related to customer satisfaction.

Table 9 – Determinants of Satisfaction

Dependent variable:	Customer satisfaction
Independent variables:	Institutional DINESERV Dimensions
Multiple R =	0.808
R^2 =	0.653
Adjusted R^2 =	0.651
Standard error =	0.482
F =	287.545

Independent Variable	b	Beta	t	Sig.	VIF
Constant	3.500		201.721	0.000**	
Food Quality	0.438	0.537	25.206	0.000**	1.00
Service Quality	0.346	0.425	19.939	0.000**	1.00
Price and Value	0.296	0.364	17.059	0.000**	1.00
Convenience	0.161	0.198	9.291	0.000**	1.00
Atmosphere	0.091	0.112	5.246	0.000**	1.00

** $p \leq 0.01$

Table 10 – Determinant of Return Intention

Dependent variable:	Return intention
Independent variable:	Customer satisfaction
Multiple R =	0.754
R^2 =	0.569
Adjusted R^2 =	0.568
Standard error =	0.588
F =	1012.945

Independent Variable	b	Beta	t	Sig.	VIF
Constant	0.93		9.945	0.000**	
Customer Satisfaction	0.83	0.754	31.827	0.000**	1.00

** $p \leq 0.01$

Hypothesis 9: Customer satisfaction is positively related to return intention.

Table 10 explains the results of the regression analysis of customer satisfaction as an independent variable with the return intention as the dependent variable. The coefficient of determination (R^2) of 0.569 showed that 56.9% of the variance in the return intention was explained by the customer satisfaction factor. The R of independent variable (customer satisfaction) on the dependent variable (return intention) is 0.754, which represents that the respondents had high return intention with the customer satisfaction factor, which also indicated that the high satisfaction level will lead to respondent's return intention. The F-ratio was significant ($p \leq 0.01$).

The variance inflation factor (VIF) is calculated and presented in Table 8 to detect the presence of multicollinearity. The value of variance of inflation (VIF) showed that there was no multicollinearity. Customer satisfaction seems to be a significant independent variable that influences the customer return intention in the university dining

facilities. In other words, when we consider the relationship between return intention and satisfaction, customer satisfaction has a strong impact in determining their return intention. Students who have a high satisfaction level towards the university dining facilities also have a high return intention. Thus, the result supports Hypothesis 9.

Table 11 explains the results of the regression analysis of customer satisfaction as an independent variable with the word-of-mouth endorsement as the dependent variable. The coefficient of determination (R^2) of 0.695 showed that 69.5% of the variance in the word-of-mouth endorsement was explained by the customer satisfaction factor. The R of independent variable (customer satisfaction) on the dependent variable (word-of-mouth endorsement) is 0.834, which represents that the respondents had a high word-of-mouth endorsement with the customer satisfaction factor, which also indicated that a high satisfaction level will lead to respondent's positive word-of-mouth. The F-ratio of 1749.474 was significant ($p \leq 0.01$).

The value of variance of inflation (VIF) for each variable indicated that there was no multicollinearity. Customer satisfaction appears to be a significant independent variable that influences the customer word-of-mouth endorsement in the university dining facilities. In other words, when we consider the relationship between word-of-mouth and satisfaction, customer satisfaction has a critical influence in determine their positive or negative word-of-mouth. It also showed that students' who have high satisfaction level towards the university dining facilities will provide positive word-of-mouth to the dining facilities as well. Hence, the result supports Hypothesis 10.

Table 11 – Determinant of Word-of-Mouth Endorsement

Dependent variable:	Word-of-mouth endorsement
Independent variable:	Customer satisfaction
Multiple R =	0.834
R2 =	0.695
Adjusted R2 =	0.695
Standard error =	0.523
F =	1749.474

Independent Variable	b	Beta	t	Sig.	VIF
Constant	0.09		0.106	0.915	
Customer Satisfaction	0.97	0.834	41.827	0.000**	1.00

** $p \leq 0.01$

Hypothesis 10: Customer satisfaction is positively related to word-of-mouth endorsement.

Based on the coefficient of each independent variable, one can assess the impact of each variable on the dependent variable. From Table 9, it could be noted that the variable "Food quality" was the most important determinant factor in explaining college student's overall satisfaction; it has the highest coefficient value (0.438), as well as the t-value (25.206). Service quality (Beta = 0.346), price and value (Beta = 0.296), convenience (0.161), and atmosphere (0.091) followed in importance. Since all the dimensions turned out to be significant, the coefficient value is important. In addition, it would indicate that the student's satisfaction level with food quality, service quality, price and value, convenience and atmosphere have a complete relationship with each other.

In summary, overall satisfaction, defined from the three underlying attributes, has shown a significant positive effect in determining student's return intention and word-of-mouth endorsement. Institutional DINESERVE Dimensions are found positively related

to customer satisfaction. The results also indicated that a high satisfaction level will lead

to a high return intention and positive word-of-mouth endorsement.

CHAPTER V

CONCLUSION

Research Summary and Implications

As the perceptions on importance of customer satisfaction have grown in the business world, studies on customer satisfaction have been constantly performed. This study determined the influence of Institutional DINESERV Dimensions on customer satisfaction, return intention, and word-of-mouth endorsement in the university dining facilities at Oklahoma State University. The results of descriptive statistics showed that gender distribution was 42.9% of male and 57.1% of female. About 81 percent of the respondents were white American, and 46 percent of the respondents were freshman and sophomore. About 74 percent of the respondents were categorized in the age group of 17 to 22. Sixty four percent (64%) of the respondents were holding student meal plan, nine percent (9%) of the respondents were holding staff/faculty meal plan, and twenty eight percent (28%) of the respondents with no meal plan. The respondents were asked to choose the facility they dined in twice or more during the past week, the results showed that Sushi Bar at the Student Union ranked the first, Twenty-Something Two at the Student Union ranked the second, and Blair Java Dave's ranked the third among the 37 options.

Hypotheses 1 - 3 were established to examine any differences of respondents' overall satisfaction scores with regards to demographic (gender and age group) and behavioral variables (types of meal plan). When comparing the overall satisfaction among male and female, the results indicated that there was no significant difference among male and female respondents. But when comparing the overall satisfaction with types of meal plan, the results indicated that there is a significant difference between faculty/staff meal plan holders and student meal plan holders, and faculty/staff meal plan holders and no meal plan holders. The researcher believes faculty/staff meal plan holders will have higher overall satisfaction mainly because they have been treated differently in the dining facilities compared with the students. Faculty or staff has a recognizable status in the university, and therefore, might be treated with more respect and courtesy by the employees when they dined on campus. Also, students who are in their freshman year are required to stay on campus and buy a meal plan; and staff who work in the university foodservice facilities and the residential life department are given a forty dollar meal plan per week. Therefore, when comparing with staff or faculty, students do not have many options in selecting dining places, while staff or faculty have freedom to choose their dining options. In other words, those staff and faculty who selected university dining facilities would be the people who prefer to eat at the university dining.

The age group of 31 and above showed a higher satisfaction scores compared with the rest of the age group. Most of the faculty/staff and graduate students were being categorized in the age group of 31 and above. Therefore, the age group of 31 and above will have higher overall satisfaction mostly because they prefer to dine on campus. Furthermore, faculty/staff mostly have one hour for their lunch break, convenient location and short walking distance of the dining facilities might have some influence on their overall satisfaction as well.

The purpose of this study was to explore those attributes that customers perceive as "meet their expectation level" in their selection of a university dining facility, and to determine the influence of food quality, service quality, atmosphere, price and value, and convenience on customer satisfaction, return intention, and word-of-mouth endorsement. The attributes such as convenient location, short walking distance, dining room environment, friendly dining manager, taste of food, and level of comfort in the dining room were rated by the respondents as "meet their expectation." Most of the students prefer not to walk too far, have their meal or snack in a comfortable dining environment, and enjoy the taste of their food at the same time. The mean ranking indicated that most of the attributes were just above the midpoint of the scale. This indicated that these 22 attributes met the respondent's expectation level, but did not exceed their expectations. Therefore, the foodservice operators should try their best to improve all the attributes in order to exceed the student's expectations.

After analyzing the data with Principal Component Analysis of factor analysis with a VARIMAX rotation, 18 variables with a factor loading of .50 or greater were retained and it grouped the 18 variables into 5 factors, and the researcher named these five factors

as Institutional DINESERV Dimensions. Hypothesis 4 - 8 were to find the relationship between food quality, service quality, price and value, convenience, and atmosphere with customer satisfaction. When analyzing the Institutional DINESERV Dimensions with customer satisfaction by multiple regression, all dimensions, food quality, service quality, price and value, convenience, and atmosphere, showed a significant effect on customer satisfaction. Since all five dimensions have a critical impact on customer satisfaction, the foodservice operators should pay more attention; continue to improve themselves in every aspect of their operation in order to exceed their customer's expectation.

This study clarified that food quality has the most critical impact in determining customer satisfaction. Overall quality of the food, taste of food, freshness of the food, and eye appeal of the food were classified under food quality dimension. The improvement of eye appeal of the food might help the foodservice operators achieve or exceed customer satisfaction and return intention. This result supports the previous findings of Pettijohn, Pettijohn, & Luke (1997) and Sulek & Hensley (2004).

After food quality, came the service quality dimension, which includes staff appearance, attentive staff, service provided by the staff, staff's knowledge about food, and friendly dining managers; price and value dimension, good value for the price, appropriate portion size, reasonable price item, and overall value of the dining experience. The atmosphere dimension includes cleanliness of facilities, dining room environment, and level of comfort in the dining room, and the convenience dimension includes convenient location and short walking distance. The foodservice operators should consider improving the service quality, the price and value, the convenience, and the atmosphere in order to meet their customer's expectation. Furthermore, the

foodservice operators should greet their customers in a polite manner, maintain the dining facilities, keep the building clean, and have reasonable pricing to help increase customer satisfaction. In addition, with a good transportation system on campus, students can easily access the dining facilities on campus. Therefore, the convenience dimension may be a "salient" or "striking point" dimension in the mind of most students. Foodservice operators might take the convenience dimension into consideration before they open any new outlets.

Hypothesis 9 and hypothesis 10 were to find the relationship between customer satisfaction with return intention and word-of-mouth endorsement. When analyzing the customer satisfaction with return intention, and word-of-mouth endorsement by multiple regression, the results showed a significant effect on both return intention and word-of-mouth endorsement. Weiss's (2003) study also concluded that customer satisfaction with restaurant attributes in influential in predicting customer's return intention. Also, Ranaweera and Prabhu (2003) study on customer satisfaction and trust confirmed that both satisfaction and trust have strong positive association with customer retention and positive word-of-mouth. As a result, the researcher believes higher customer satisfaction will increase higher return intention and provide positive word-of-mouth endorsement to the university dining facilities.

This result provide a good implications to the foodservice operators that they have to meet or exceed their customer expectation in order to satisfied their customers, increase their return intention, and increase word-of-mouth endorsement as well.

Recommendations

These findings suggest some important implications for university foodservice operators. First, the university dining managers should recognize the student's characteristics such as age group and types of meal plan that have an impact on campus dining. The foodservice managers should pay more attention to the age group of 17 to 25, student meal plan holders, and no meal plan holders because they are less satisfied compared with the age group 31 and above and faculty/staff meal plan holders. The results of the study indicated that age group 31 and above and faculty/staff meal plan holders have higher overall satisfaction. Thus, to improve in this area, the managers can enhance their service quality by dealing with their customers in a more polite and friendly manner, and try to meet their needs and exceed their expectations to increase their overall satisfaction towards the university dining facilities.

Even though food quality, service quality, price and value, convenience, and atmosphere showed a positive effect in determining customer satisfaction, university foodservice operators should continue to maintain the cleanliness of the facilities, level of comfort, the dining room environment, and train their employeeswell so they can deliver a better service to the students, staff, faculty, and even the walk-in customers. The foodservice operators should continue to improving allthe dimensions in order to exceed their expectation. Besides, a sanitation management program and foodservice guiding principles are the best practices in order to provide and deliver high quality food. Another important implication for foodservice operators is that they should carefully design cafeteria interior and exterior to deliver a relaxed and comfortable dining

atmosphere to attract the new customers and retain the return customers. Not only is this good for their business, but it strengthen the customer loyalty as well.

Campus operators and foodservice managers need to understand that overall satisfaction levels based on the Institutional DINESERV Dimensions could be an influencing factor to enhance the customer's satisfaction level, their return intention, and word-of-mouth endorsement. The foodservice operators and management team can always use the customer survey to observe whether the Institutional DINESERV Dimensions attributes meet the students, faculty, and staff's satisfaction level. It is enormously important to generate revenue through management efforts as this could lead to an increase in customer's return intention by enhancing the university dining's reputation. Moreover, the customers who are satisfied with their dining experience are more likely to return to the facilities, and also provide positive word-of-mouth endorsement. Therefore, the most important implication is to increase their customer's satisfaction, keep them happy and keep them returning to the university dining facilities. Improving customer satisfaction, return intention, and word-of-mouth endorsement in the university dining facilities not only can strengthen customer loyalty; it also can increase the dining facility's reputation, sales and revenue in the long run.

Limitations and Future Research

The present study has some limitations, and the recognition of these should help refine future research efforts. First, the study is limited in that the one university studied is not representative of all the universities across the country. Second, the survey questionnaire was sent during finals week; the students may not have taken it seriously when they filled out the survey, and some of them may not have had time to respond to the survey questionnaire.

For the future research, more related attributes can be added into the Institutional DINESERV Dimensions to make the survey more precise and more applicable to the foodservice industry. Longitudinal studies should be recommended over time; other variables such as expenditures data may be used to replace the current dependent variables. Different customers have different perceptions and expectations towards food quality, service quality, price and value, convenience, and atmosphere. Therefore, implementation of this study to the restaurant industry might yield different results, which might be beneficial to the industry.

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APPENDIXES

Oklahoma State University Institutional Review Board

Date: Thursday, May 05, 2005

IRB Application No   HE0555

Proposal Title: A Study of Institutional DINESERV Dimension on Customer Satisfaction,
                        Return Intent, and Word-of-Mouth Endorsement in University Dining Facilities

Reviewed and   Exempt
Processed as:

Status Recommended by Reviewer(s): Approved   Protocol Expires: 5/4/2006

Principal
Investigator(s

Yen Nee (Christy) Ng   Woody Kim
247 N. Univ. Place Apt. 30   210 HES West
Stillwater, OK 74075   Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.
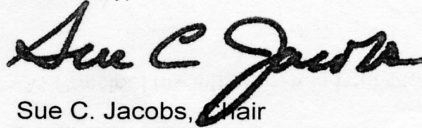
☑ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, emct@okstate.edu).

Sincerely,

Sue C. Jacobs, Chair
Institutional Review Board

Dear Participants,

  May I take a few minutes of your time? I am Yen Nee (Christy) Ng, Master of Science student in the College of Human Environmental Sciences at Oklahoma State University, majoring in Hospitality Administration. This survey is designed to evaluate the customer satisfaction and return intent in university dining facilities. This survey will enable the researcher to make suggestions to improve dining services in Oklahoma State University. Your voluntary participation in this survey is greatly appreciated. Your opinions and comments will be a great value to me. The completion of this survey implies consent to all conditions.

  The data collected will be kept strictly confidential and anonymous. At no time will your name be reported along with any of your responses. All the responses will be aggregated, summarized, and analyzed for University Dining Services at Oklahoma State University. If you have any questions regarding this research, please feel free to contact me, Yen Nee (Christy) Ng, at 405-742-2603. For inquiry about rights as a research participants, feel free to contact Dr. Carol Olson, Institutional Review Board Chair, 415 Whitehurst Hall, Oklahoma State University, Stillwater, Oklahoma 74078 at 405-744-1976.

Thank you for your consideration.

Sincerely,

Yen Nee (Christy) Ng	Woo Gon (Woody) Kim, Ph.D,
Graduate Student	Assistant Professor
Oklahoma State University	Oklahoma State University
College of Human Environmental Sciences	College of Human Environmental Sciences
School of Hotel & Restaurant Administration	School of Hotel & Restaurant Administration
Email: christy.ng@okstate.edu	Email: kwoo@okstate.edu
Phone: 405-742-2603	Phone: 405-744-8483

Oklahoma State University Dining Study

Section 1

Which one of these statements best applies to you?
Please check one box only

Gender
○ Male   ○ Female

U.S Ethnic Group or Nationality
○ Multiracial
○ African American
○ American Indian
○ Asian American
○ Latino/Chicano/Spanish origin
○ White American
○ Other

Designation
○ Freshman
○ Sophomore
○ Junior
○ Senior
○ Graduate Student
○ Non-Degree Student
○ Faculty/Staff

Age
○ 17 – 19 years old
○ 20 – 22 years old
○ 23 – 25 years old
○ 26 – 30 years old
○ 31 and above

What meal plan do you currently have?
○ Student Meal Plan
○ Faculty/Staff Meal Plan
○ No meal plan, cash or Bursar charges

Please choose a facility in which you dined two or more times in the past week.

○ Blair Dining (all you care to eat including the Euro Kitchen, pizza, sandwiches, and grill)
○ Blair Java Dave's
○ Blair Fast Break Convenience Store
○ Blair Freshens
○ Custom Catering
○ Twenty Something Convenience Store in Kerr/Drummond
○ Twenty Something Two Convenience Store in Student Union
○ Pattillo's in Kamm, Peterson/Friend
○ The Library Java Dave's
○ Stout Coffee
○ Student Union – Wok n Pho
○ Student Union – Pistol Pizza
○ Student Union – Grill
○ Student Union – All Most Home
○ Student Union – Chick-Fil-A
○ Student Union – Sushi Bar
○ Sushi with Gusto
○ Student Union – Catering
○ Kerr/Drummond – Taco Mayo
○ Kerr/Drummond – Pistol Pizza
○ Kerr/Drummond – All you care to eat
○ Kerr/Drummond – All Night Grill
○ SPW Service Station (Lunch)
○ SPW Service Station (Dinner)
○ SPW Little Bakery
○ The Market Buffet all you care to eat
○ Squawkers at the Market
○ Gourmet Galley at the Market
○ The Hard Wok Grill and the Market
○ Java Dave's at the Market
○ Aggie Bread in Griffith's Community Center
○ Laundry Mart
○ Sidewinder at Vet Med
○ Taylor's
○ West Side Café
○ State Room
○ Dairy Bar

Section 2

Based on your answer above, to what level did it meet your expectation?

Please choose only ONE answer.

		Much Worse *Than I expected*			*Much Better* *Than I expected*	
Food Quality						
1.	Overall quality of food	1	2	3	4	5
2.	Taste of food	1	2	3	4	5
3.	Eye appeal of the food	1	2	3	4	5
4.	Freshness of the food	1	2	3	4	5
5.	Nutritional content of the food	1	2	3	4	5
6.	Variety of menu options	1	2	3	4	5
Atmosphere						
7.	Cleanliness of facilities	1	2	3	4	5
8.	Dining room environment	1	2	3	4	5
9.	Level of comfort in the dining	1	2	3	4	5
10.	Staff appearance	1	2	3	4	5
Service Quality						
11.	Attentive staff	1	2	3	4	5
12.	Service provided by staff	1	2	3	4	5
13.	Dining staff's knowledge about food	1	2	3	4	5
14.	Friendly dining manager	1	2	3	4	5
Convenience						
15.	Service hours	1	2	3	4	5
16.	Convenient location	1	2	3	4	5
17.	Short walking distance	1	2	3	4	5
18.	Parking convenience	1	2	3	4	5
Price and Value						
19.	Good value for the price	1	2	3	4	5
20.	Appropriate portion size	1	2	3	4	5
21.	Reasonable price item	1	2	3	4	5
22.	Overall value of the dining experience	1	2	3	4	5

Please rate your overall evaluation.

23. To what degree would you rate your overall satisfaction with this dining facility?
Very Low   *Very High*
    1   2   3   4   5
24. To what degree would you rate your level of satisfaction with the quality of service?
Very Low   *Very High*
    1   2   3   4   5
25. To what degree would you rate your level of satisfaction with the overall dining experience?
Very Low   *Very High*
    1   2   3   4   5
26. To what degree would you tell your friend/family member about your dining experience?
Very Low   *Very High*
    1   2   3   4   5
27. To what degree would you recommend this dining facility to a close friend?
Very Low   *Very High*
    1   2   3   4   5
28. To what degree would you tell others positive things about this dining facility?
Very Low   *Very High*
    1   2   3   4   5
29. To what degree would you rate your intent of return to the same dining facility?
Very Low   *Very High*
    1   2   3   4   5
30. To what degree would you rate your intentions to visit the UDS facility again?
Very Low   *Very High*
    1   2   3   4   5
31. To what degree would you rate your definite return intention?
Very Low   *Very High*
    1   2   3   4   5

Overall Satisfaction

32. Overall, how satisfied are you with your dining experience on the OSU campus?
Very satisfied   *Very dissatisfied*
    1   2   3   4   5

The survey is now complete. Thank you very much for your time and participation.

VITA

Yen Nee Ng

Candidate for the Degree of

Master of Science

Thesis: A STUDY OF CUSTOMER SATISFACTION, RETURN INTENTION, AND WORD-OF-MOUTH ENDORSEMENT IN UNIVERSITY DINING FACILITIES

Major Field: Hospitality Administration

Biographical:

Education: Received Bachelor of Science in Marketing and Finance from Oklahoma State University, Stillwater, Oklahoma, May 2001. Completed requirements for Master of Science degree, Oklahoma State University, July 2005.

Experience: Employed by Oklahoma State University, Residential Life as dining graduate assistant from 2002 to 2005; employed by Ritz-Carlton Malaysia as liaison intern for summer 2004.

Memberships: OSU Chapter The National Honor Society of Kappa Omicron Nu