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ASSESSING CUSTOMER EXPECTATIONS OF INFORMATION PROVIDED ON RESTAURANT MENUS: A CONFIRMATORY FACTOR ANALYSIS APPROACH

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Improper presentation of information on restaurant menus can lead to customer dissatisfaction, a loss of profitability, and could influence the ultimate failure of a restaurant operation. Although restaurateurs and customers do agree that information on restaurant menus is important, debate exists on what specific information should be provided. Currently, supporters argue for the provision of nutritional information, while critics question the ability of customers to interpret nutritional information on restaurant menus correctly. This present study, therefore, analyzes responses from 276 restaurant customers to examine information expectations of restaurant menus. A model called Customer Information Expectation of Restaurant Menus (CIERM) was developed using the guidelines set forth in the Truth-in-Menu Law and tested using a confirmatory factor analysis approach. The study found that CIERM is influenced by the factors nutrition information, product information, and food preparation. The study concludes with results, discussion, and recommendations based on the findings.

KEYWORDS: *Truth-in-Menu Law; information; customer expectations; perceived customer value; customer attitudes; restaurant menus; restaurant customers; confirmatory factor analysis; structural equation modeling*

At the end of the 20th century, Muller (1999) contended that the restaurant business in the 21st century would require a customer-driven focus with restaurateurs being expected to meet or exceed customer expectations. By 2003, these words were perhaps never truer than in the landmark case of *Pelman vs. McDonald's Corporation*. Dubbed the "McDonald's obesity case," the quick-service restaurant company was accused of endangering customer health through deceptive advertising. The plaintiffs, who filed suit in 2002, contended that McDonald's and two of its restaurants in the Bronx, New York, failed to disclose clearly and conspicuously the ingredients and effects of its food, much of which is high in fat, salt, sugar, and cholesterol (Wald, 2003). The plaintiffs further argued that they believed

McDonald's was healthy and as such made their children consume McDonald's meals at least three times a week. The plaintiffs also alleged that McDonald's should be held accountable for their teenage daughter's obesity, heart disease, diabetes, high blood pressure, and elevated cholesterol. Pelman contended that the processing of McDonald's food made it more dangerous than a customer would have reason to expect. Therefore, McDonald's had a duty toward its customers to make the risks associated with the consumption of their food items public (Smith, 2003; Wald, 2003).

In 2004, judgment was awarded to McDonald's Corporation with the judge stating that it was not the court's role to protect customers from their own excesses. However, the negative publicity to the restaurant corporation and the continued debate regarding the responsibility of the restaurant business to disclose the nutrition content of its menu resulted in McDonald's deciding to clearly display nutrition facts on its product packaging (QSRmagazine.com, 2005). In addition, McDonald's donated \$2 million to research and educational initiatives aimed at educating teenagers on childhood obesity and Type 2 diabetes (QSRmagazine.com, 2006). Although these efforts are commendable, McDonald's is still embroiled in the obesity lawsuit, as the case was reinstated on appeal (QSRmagazine.com, 2006).

As the lawsuit continues, some restaurants have had patrons sign waivers promising not to file an obesity-related lawsuit before consuming calorie-laden menu items (Holt, 2003). Furthermore, in an effort to help protect customers from misleading advertisements, especially the nutritional content of food items, several state legislators have proposed bills that would mandate the disclosure of the nutritional content of restaurant food items. Under the proposed Menu Education and Labeling (MEAL) bill, fast food and other chain restaurants with 20 or more outlets would be forced to display the calorie, fat, and sodium content of each menu item (House of Representatives, 2004). The MEAL bill would require that restaurants provide customers with the necessary nutrition information, allowing for the customer to make more informed food choices. The MEAL bill would be applicable only to standard menu items offered by chains and would not apply to special orders and daily or continually changing specials. State legislature in Maine, New Jersey, and New York are seeking to apply similar principles to smaller establishments, including chain restaurants with 10 or more locations nationally (CSPI Newsroom, 2005).

The National Restaurant Association staunchly opposes such legislation that would mandate the disclosure of nutritional information (Frumkin, 2004), contending that food choice should be the customers' decision and not the determination of the federal government to decide what customers eat. Countering, the National Restaurant Association further argued that a lack of exercise is just as responsible, if not more responsible, for the growing obesity trend faced by American customers (Frumkin, 2003). Critics on both sides have argued for and against restaurant menus carrying nutrition and food content labels similar to the ones used on supermarket products. However, while this debate has continued to rage, research is needed to more accurately determine customer information expectations of restaurant menus.

Given this background, this study builds on previous work by Mills and Clay (1999, 2000, 2001) and Nesmith, Mills, and Almanza (2002). These studies investigated customer attitude toward restaurant menus and customer knowledge of the Truth-in-Menu Law. This current research explores customer information expectations of restaurant menus (CIERM). Specifically, guidelines set forth in the Truth-in-Menu Law are used to develop factors and test a model of CIERM. Results of the model development process are presented. The study concludes with recommendations based on study findings.

CUSTOMER INFORMATION EXPECTATIONS

Understanding customer information expectations, viewed as the interpretation process by which customers make sense of the restaurant environment, is an integral part of the success of a restaurant establishment. According to Merriam-Webster's Online Dictionary (2005), customers are "persons having some specified distinctive characteristics that purchase a service or commodity." These distinctive characteristics, when applied to restaurant customers, include religious beliefs, susceptibility to illness due to chronic conditions, age, and allergies, as well as other self-motivating dietary choices (Mills & Clay, 2001). Members of high-risk populations, such as the elderly and those who suffer from diseases and ailments, face the possibility of severe illness or even death if they consume too high a concentration of any given ingredient due to false nutritional claims. Conditions such as diabetes, high cholesterol, high blood pressure, cancer, ulcers, HIV, hypothyroidism, and acute viral hepatitis restrict customer intake of certain ingredients (Bonifazi, 1999; Mienville & Robeson, 2000). Compounding these distinctive characteristics is the fact that customers today are living in an increasingly information-intensive environment. Deciphering which information to assimilate and ultimately trust is a constant battle for customers.

This increase in health-conscious customers have changed the amount and quality of information desired on restaurant menus (Carange, Conklin, & Lambert, 2004; Thomas & Mills, 2006). From as early as 1988, Granzin and Bahn began discussions on nutrition and its sustainable effect on customer choice to patronize and purchase restaurant foods. Prior to their study, stories regarding inappropriate representations of food items on restaurant menus existed but was not common. Furthermore, existing food laws did not address the issue of menu misrepresentations. A host of invalid nutrition and health claims by restaurateurs in the ensuing years sparked various lawsuits such as *State of California v. High Tech Burrito* where the defendant exaggerated health benefits of its foods and *Brooks v. On the Border Cafes* where an unidentified Muslim family sued the restaurant after discovering that their beef tacos contained pork, which violated the family's religious dietary restrictions (Melendy, 1997; Ruggless, 1994). Such customer concerns regarding restaurant menus led to the conclusion that the Food and Drug Administration (FDA) did not have an enforceable policy for food labels and the menu claims made by restaurateurs (Calfee & Pappalardo, 1991; Hutt, 1986; Keystone Center, 1996; Porter & Earl, 1990; Scarlett, 1992). A brief historic

report of cases involving misrepresentation on restaurant menus is presented in Table 1.

Researchers have since argued that, as a part of customer service, restaurants should feel a social responsibility to inform their customers of the nutritional content of food items that may be detrimental to their health or contrary to their beliefs (Granzin & Bahn, 1988; Hayes, 2004). Customer information expectations based on incorrect menu representations can lead to illusions regarding the value of product offerings. If the perceived expectation of, for example, the quality, the quantity, and the nutritional value of a menu item is not met or exceeded, then the customer may not return to that restaurant. Customer expectations are reflective of the physical component of a product as well as the concept the customer holds of that product (Walters, 1978). The image a customer retains about a product depends partially on how that product is interpreted.

As documented in the marketing literature, customer decision-making is guided by high-order mental constructs such as perceived satisfaction, value, trust, and commitment (Dwyer, Schurr, & Oh, 1987; Moorman, Deshpande, & Zaltman, 1993; Morgan & Hunt, 1994). To be positively perceived as well as to satisfy customers and be competitive, restaurateurs must ensure that they truthfully represent their products. Previous research concerning customer satisfaction primarily dealt with exceeding customer expectations measured after the service encounter (Bolton & Drew, 1991; Gaster, 1995; Kangis & Passa, 1997; Oliver, 1981) as well as exploring the gap between customer expectations and the performance of the product or service provider. Jones, McCleary, and Lepisto (2002) and Landis (1999) state that the key to customer satisfaction is adding value or exceeding expectation at every step of the customer's experience with an organization. The first opportunity to exceed expectations during the dining experience lie in the presentation of the menu that consists of pictures, item descriptions, and potentially the nutritional information contained on the menu.

The National Restaurant Association notes that meeting or exceeding customer expectations of quality and information are keys to a restaurant company's success (Frumkin, 2004). Providing nutritional information on restaurant menus has been gaining in popularity. The number of customers that pay attention to the content of their food items has also increased along with the number of persons on special diets such as Atkins and South Beach, vegans, vegetarians; the number of persons with health conditions such as diabetes, heart disease, and obesity; and those with allergies. For these reasons, some customers expect restaurants to provide information on sugars, carbohydrates, meat products, cholesterol, fat, sodium, portion size, calories, and fiber content (Thomas & Mills, 2006). Customers also desire information about the origin of their food items, the genetic altering of food items, and any hidden ingredients or substitutions. For persons who have come to expect such information to be provided, the absence of nutritional information can be a source of customer dissatisfaction (Bolton & Drew, 1991; Kangis & Passa, 1997).

Landis (1999) described four major goals for improving customer expectations through logistics: (a) improve service, (b) provide faster delivery, (c) deliver

Table 1
Media Reports and Cases of Customer Problems with Restaurant Menus

Year	Restaurant	Truth-in-Menu, Deceptive Advertising Incident
1971	Old Country Diner	Coca-Cola Company took the Old Country Road Diner to court contending that there were 34 instances where an agent of Coca Cola ordered a Coke and received something other than Coca-Cola (The Coca-Cola Company v. Old Country Road Diner, 1971).
1978	McDonald's Corp.	<i>California v. McDonald's</i> : A city attorney charged that the fast food company's placemats advertised that "maple" syrup and "fresh" orange juice was served on the premises. The city attorney claimed that the syrup served by McDonald's was in fact an imitation and not pure and that the orange juice was frozen rather than fresh (Jefferies, 1990).
1994	On The Border Cafes	<i>Brooks v. On The Border Cafes</i> (1994): An unidentified Muslim family sued On The Border Cafes after discovering that the restaurant's beef tacos contained pork, which violated the family's religious dietary restrictions (Ruggless, 1994). The case was settled out of court.
1997	Wendy's	Wendy's had to re-evaluate its Garden Veggie Pita and its nutritional brochure that listed the product as vegetarian after complaints that the product contained gelatin, a beef by-product (Zuber, 1999).
1997	Uno Restaurant Corp	<i>Federal Trade Commission v Uno Restaurant Corp. et al.</i> : The FTC alleged that Uno's menu advertised nine new low-fat thin crust pizzas called "Thinzettas." Six of the items contained from 14 to 36 grams of fat per serving, which is higher than the FDA regulations, making the advertisements by the company false and misleading. The case was settled with Uno Restaurant Corp. amending its claims based on recommendations by the FTC (Goliath, 2005).
1997	High Tech Burritos	<i>State of California v. High Tech Burrito</i> : The company was sued by state and local prosecutors alleging that High Tech Burritos had exaggerated the health benefits of its foods. Prosecutors also cited that the company failed to react swiftly to new amendments in the Nutrition Labeling and Education Act laws. The penalty was \$95,000 in fines and the forced removal of all references to its food being heart healthy and meeting guidelines set by the American Heart Association (Melendy, 1997).

(continued)

Table 1
(Continued)

Year	Restaurant	Truth-in-Menu, Deceptive Advertising Incident
1999	Marie Callender's Inc.	<i>Livingston v. Marie Callender's Inc.</i> : Marie Callender's, Inc. advertised that their soup was "made from the freshest ingredients, from scratch every day," but it contained MSG. This was not disclosed to the patron who then became ill (Association of Trial Lawyers of America, 1999).
1999	Taco Bell	A customer alleged that his religious beliefs had been violated when he was served a beef burrito instead of the bean burrito he had ordered ("Where's the beans," 1998). Taco Bell Corp. settled the lawsuit for over \$144,000.
1999	Denny's Restaurant	A Denny's Restaurant in Montana was served with a complaint from two Muslims who were served pork products hidden in their meals (Hotel Online, 1999).
2001	McDonald's	McDonald's faced several lawsuits due to inaccurate information on restaurant menus. McDonald's advertised its signature french fries as a vegetarian item free from animal by-products. In January 2001, it was determined that the french fries were infused with a beef flavoring before being cooked in vegetable oil. This is a violation of the religious beliefs of Hindus who do not consume beef products (Goodstein, 2001).
2002	Pizza Hut	There was a class action lawsuit on behalf of 15 million vegetarians and 1 million Hindus throughout the United States wherein the plaintiffs claimed that Pizza Hut used beef products in its "Veggie Lover's" pizza (Legal Monitor, 2002).
2003	McDonald's	McDonald's reneged on a promise to reduce and ultimately eliminate the trans fat in its cooking oil. To settle a lawsuit against them, McDonald's gave \$7 million to the American Heart Association and pledged to spend more money informing its customers about the "delay" (Foodnavigator.com, 2004).
2004	Kentucky Fried Chicken	The Federal Trade Commission charged KFC Corporation with making false claims about the nutritional value and healthiness of its chicken. KFC Corporation also claimed that their products were in compliance with popular fad diets (Consumer Affairs.com, 2005). It was proven that these claims were fraudulent, and KFC was forced to stop making the claims.
2005	Tony's Vineyard	The Commerce Commission fined Tony's Vineyard \$3,000 for breaching the Fair Trading Act after a customer complained that many of the items they advertised on their Web site were not available and others were not available for the advertised price (Commerce Commission, 2005).

quality products, and (d) supply products in useable condition. Adapted to information and nutritional labeling on restaurant menus, the four goals can be stated as (a) provide nutritional information on restaurant menus to improve perceived service, (b) increase the efficiency of communication, (c) deliver accurate menu item content, and (d) assist customers to make more informed decisions. To ensure the feasibility of these goals, restaurateurs need to discover the balance between customer expectations, demand, and potential profitability (Fu & Parks, 2001; Michaelson, 1995). Restaurateurs gain a competitive edge and a significant return on their restaurant menu investment by focusing on customer expectations and value, thereby building an actual emotional bond with the customer (Butz & Goodstein, 1996; Kano, Seraku, Takahashi, & Tsuji, 1996). An emotional bond leads the customer to buy repeatedly or, better yet, exclusively from that restaurant, to recommend that restaurant to friends and family, and to withstand the allure of other providers. Establishing this bond requires that the menu from description to actual consumption regularly meets or exceeds that customer's expectations.

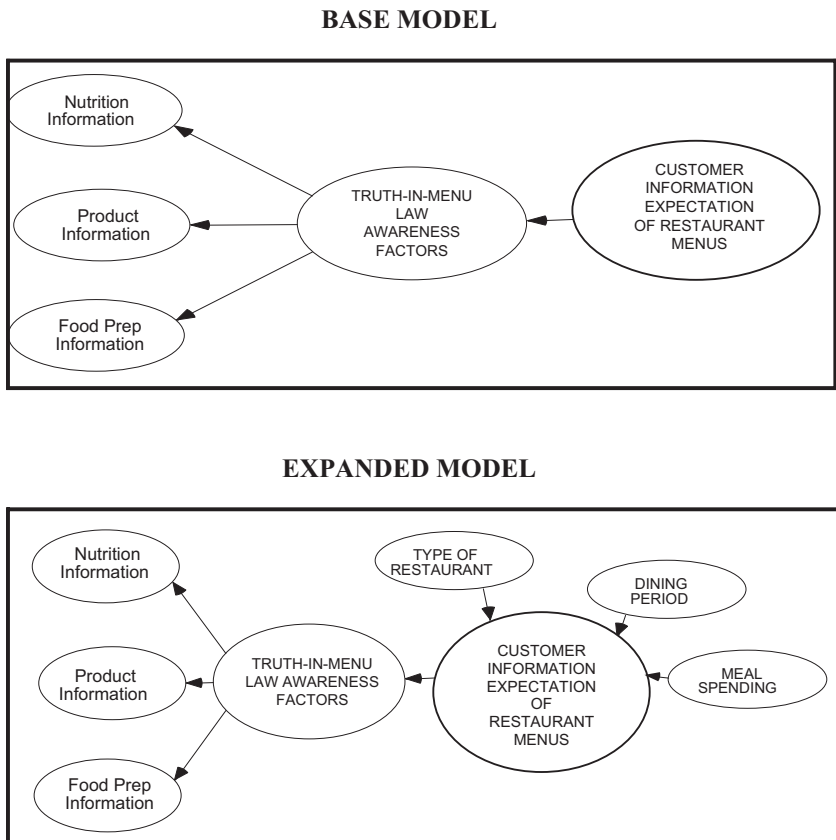
Studies such as those of Almanza and Hsieh (1995), Burton and Biswas (1993), Jensen and Kesavan (1993), and Nelson, Almanza, and Jaffe (1996) have shown how attitudes can positively change, whether directly or indirectly, as customers became more aware of proper nutrition. For restaurant establishments that currently provide nutritional information, appropriately presenting this information was of considerable significance. Results from studies by Almanza and Hsieh (1995) and Mattila (2002) showed that customers view attractiveness, ease of use, and clear presentation as the most important factors relating to nutritional labeling on restaurant menus. However, Nelson et al. (1996) determined that people read nutritional information out of curiosity but many do not truly understand the information presented. Therefore, divulging nutritional information on restaurant menus does not directly translate to an increased knowledge or awareness of food content by customers. It is interesting that even though some customers viewed the provision of nutritional content information on restaurant menus as a mere showpiece, they still considered the availability of such information important (Almanza & Hsieh, 1995; Nelson et al., 1996).

Restaurant customers have, nonetheless, developed a level of rationale expectation of restaurants, with the primary expectation being that any food sold should at a minimum be safe to consume. However, although it is understood that customers want pricing information and menus that are aesthetically pleasing, it is still unclear what type of information they desire and view as important on restaurant menus. There is need for further research in customer expectations concerning what customers deem standard versus nonessential additional information on restaurant menus.

MODEL DEVELOPMENT

The CIERM model, shown in Figure 1, was developed based on a review of related literature that guided the study. The model proposed that CIERM is a

Figure 1
Customer Information Expectation of Restaurant Menu Model



function of the guidelines offered by the Truth-in-Menu Law, which are as follows: (a) availability of nutrition information on the menu, (b) product information presented on the menu, and (c) availability of food preparation information on the menu. A review of the Truth-in-menu Law and CIERM model concepts follow.

Basics of the Truth-In-Menu Law

The FDA passed the Truth-in-Menu Law in 1997 to protect customers from fraudulent restaurant practices primarily regarding nutritional content, health claims, serving size, geographic origin of foods, quantity, quality of the food product, methods of preparation, representation of merchandising terms, and misbranding (Jefferies, 1990). Specifically, impermissible activities as it applies to the misbranding of food items and stated as key components of Section 403 of the Federal Food, Drug, and Cosmetic Act include the following:

“Food item labeling is false or misleading in any particular form (section 403(a)(1) of the Act),

Establishment offers item for sale under the name of another food (section 403(b) of the Act),

Label fails to bear the common or usual name of the food (section 403(i) of the Act)

Fails to give an accurate statement of the quantity of the contents in terms of weight, measure, or numerical count

Information required to appear on labels under authority of this Act is not prominently placed thereon with such conspicuousness (as compared with other words, statements, designs, or devices in the labeling) in a manner easily understood by customers.”

Violations and criticism of the Truth-in-Menu Law as an aid for monitoring restaurant menus, however, continue as some restaurants use menus only as a vehicle for representing various food items available for consumption. Menus generally are prepared by professional marketers according to aesthetic appeal rather than net quantity, quality, composition, substitution, and health and nutritional claims (Zosiuk, 2000). Further complications arise within the actual limitations of the Truth-in Menu Law, which does not require a listing of ingredients used in food preparation and does not cover disclosures on foods that are known causes of allergic reactions, potentially dangerous foods, and genetically engineered foods.

Availability of Nutrition Information on Restaurant Menus

Originally, according to the *Federal Register*, the Truth-in-Menu legislation was designed to help increase the American customer’s ability to pair diet and health (Broiheur, 1996). However, with the increase in the number of obesity cases in the United States, the current focus of legislation is to reduce the prevalence and effects of obesity. Currently, the law provides customers with safeguards as to the quality of the information provided by restaurateurs (U.S. Food and Drug Administration, 2006). The Truth-in-Menu Law requires that nutritional claims must meet FDA standards wherein low fat must have fewer than 3 grams of fat in a standard half cup serving, cholesterol-free must not be confused with fat-free, low in fat does not mean low in calories, and nutrition information must be provided on request. However, full nutrition information and laboratory analysis are not required. Likewise, not all menu items are affected by the law—only those that makes claims (U.S. Food and Drug Administration, 2006).

Finding a middle ground between the Truth-in-Menu Law regulations, the desires of customers, and the management of the restaurant experience is difficult. The National Restaurant Association (2006) stated that healthier food options are hard to sell and that many healthy options have failed in the marketplace.

For example, Burger King first market-tested veggie burgers in the late 1980s, only to abandon the healthy option effort due to poor sales. In the early 1990s, Burger King tried teaming up with Weight Watchers to offer frozen meals, but that effort again did not succeed. Realizing the internal struggle of customers in deciding what they wanted versus what they needed nutritionally, Burger King decided to focus on “giving people what they want” (Begun, 2005). Customers agreed with this approach and responded that they do go to Burger King primarily for the burgers (Reuters Health, 2003). Noting the company’s failure to offer quality healthier items, Burger King decided that providing items focused on taste would be better for the 18% of the population that eat quick-service food about 5 times a week (Begun, 2005). According to Begun, hard-core quick-service food eaters, although smaller in number, is responsible for nearly half of all sales. This strategy took Burger King from being a company on the decline in the late 1990s to a company on the rise in 2006.

Previous research by Francese and Marple (1994) found that increased nutritional value of an item can present a negative image as it relates to taste. Jensen and Kesavan (1993) studied the effects of advertising on customer attitudes toward nutrition and found that although advertising increased customer awareness and fostered positive attitudes toward nutrition, advertising did not directly influence the overall consumption of healthier items. Jensen and Kesavan also concluded that because providing nutritional information did stimulate change in awareness and attitude, it could indirectly affect final consumption choice. Burton and Biswas (1993) claimed that nutritional labeling that includes cholesterol, saturated fat, calories, and fiber content could potentially have an impact on perceptions of nutritive value, which could have a carry-over effect on the likelihood to purchase. The growing severity of the obesity problem, caused the European Union to consider a wide range of strict laws and regulations aimed at forcing the quick-service and junk food industries to accurately describe their products in a customer-friendly manner (Rosenthal, 2005). The European Union also considered banning advertisements of unhealthy products that targeted children and the action hero or celebrities who endorsed that product but ignored the product’s high sugar and cholesterol content (“Ruby Tuesday retreats on nutrition info,” 2005; Zuber, 1999).

In this study, we therefore hypothesized that customer information expectations is a function of nutrition information as described by the Truth-in-Menu Law. Nutrition information is a function of three items: fat, calorie, and sodium information that are provided on restaurant menus.

Availability of Product Information on Restaurant Menus

Restaurant menus are designed to present items in a manner that is appealing to the customer in an attempt to induce sales (Zosiuk, 2000). In doing so, some menus accentuate the positive or alluring aspects of a menu item and ignore the disclosure of harmful features. Such violations, for example, included charges leveled against Kentucky Fried Chicken Corporation (KFC) in 2005 by the Federal Trade Commission for falsely advertising nutritional value, weight-loss

Table 2
Truth-in-Menu Law
Food and Product Information Representation

Representation	Menu Example
Quantity	Bowl of Fish Chowder 16 oz, clearly distinct from a cup of soup 4 oz.
Quality	Our burgers contain 100% pure ground beef, no added fat, and no extenders.
Price	10% service charge is applied to all bills. Drinks without ice cost \$1.00 extra.
Brand names	Sodas include Coca-Cola and Sprite.
Product identification	Maple flavored syrup may be substituted for maple syrup in times of nonavailability.
Points of origin	We sell only Florida orange juice.
Means of preservation	Apple juice from frozen concentrate.
Merchandising terms	Kosher meat available.
Visual presentation	Six batter fried shrimp as depicted on menu.
Food preparation	All cakes are prepared from scratch.

Source: U.S. Food and Drug Administration, 2006.

benefits, and compatibility with fad diets of their menu items (Consumer Affairs.com, 2005). KFC's advertisement claimed that two pieces of original recipe chicken breast were healthier than a Burger King Whopper in some nutrient categories, but the advertisement neglected to disclose that in some nutritional categories, two pieces of original recipe chicken breasts were unhealthier than a Burger King Whopper.

The Truth-in-Menu Law requires that food and product information must meet FDA standards. Collectively, food and product information provided on restaurant menus should clearly provide information on quantity, quality, price, brand names, product identification, points of origin, means of preservation, merchandising terms, visual presentation, and food preparation. Menu examples of the meaning of these terms are provided in Table 2. It must be noted here that the Truth-in-Menu Law does not specifically provide separate sections for product and food preparation information as hypothesized in our model. However such distinctions are made to more clearly develop a factor structure for the CIERM model.

Concerns regarding Truth-in-Menus are not only an issue for the American customer but have become a major subject in European restaurants as well. According to the Food Standards Agency (FSA; 2000), a British-based organization, customers are concerned about misleading marketing on labels, menus, and advertisements. In a survey conducted by the FSA marketing slogans and strategies that used the words *pure*, *natural*, *fresh*, *traditional*, *authentic*, *original*, and *country-style* were evaluated for accuracy and truth (Food Standards Agency, 2000, 2006). The FSA found that 75% of those surveyed were confused about the words used on food labels. Approximately two thirds (62%) of customers

who ate in restaurants thought menu descriptions in some restaurants and drive-through services were misleading or lacking in information (Food Standards Agency, 2000). The European Commission conducted a qualitative survey on customer attitudes and expectations toward nutritional labeling and found that customers in 28 European countries are confused as to the differences between nutritional information and marketing claims on restaurant food products (European Public Health Alliance, 2005). Such misleading advertisements on restaurant menus may result in decreased perceived value of a restaurant and its menu choices. Therefore, restaurateurs must first determine what customers expect of the business and the core product often described and displayed in the restaurant's menu.

In this study, we hypothesized that customer information expectations is also a function of product information as described by the Truth-in-Menu Law. *Product information* is a function of four items that are provided on restaurant menus: harmful ingredients, methods of preservation, brand names, and points of origin.

Availability of Food Preparation Information on Restaurant Menus

Restaurants have begun to put food preparation information on their menus. The increase in the health consciousness of customers has led to the desire for healthier cooking methods in restaurant food preparation (Carange et al., 2004). Thomas and Mills (2006) hypothesized that providing cooking methods gives a customer an indication of both the health benefits of an item as well as the amount of time it will take to prepare that item. However, providing standardized information on a menu has very low feasibility when ingredients are seasonal, regional, and market varied. This request is further complicated when customers demand different means of preparation, portion sizes, and substitutions.

Corporations with international establishments have faced the consequences of improperly promoting nutrition and product information. These corporations found that the regulations related to the inferred health benefits of food items internationally were different than those in the United States. In Australia, New Zealand, and some European countries, claims were forbidden or only permitted after review by a national regulatory board (Williams, 2005). In Australia, for example, a government-funded commission put pressure on McDonald's to remove a chicken sandwich advertised as having been grilled when, in actuality, the item was precooked, steamed, and had machine-generated grill marks (Zuber, 1999). New Zealand has taken a proactive approach in the battle to improve the health and welfare of food customers (New Zealand Nutrition Foundation, 2006). In a joint effort with the Ministry of Health and other health promotion agencies, schools, and the media, a nonprofit organization called the New Zealand Nutrition Foundation accepted the task of promoting nutrition education. In New Zealand, fines levied for menu misrepresentation also extend to misleading and outdated information on restaurant Web sites (Commerce Commission, 2005).

The ability of restaurants to ensure that the product they advertised is the product sold can be a challenge as menus increasingly become more diverse (Barnes, 2004). In addition, some restaurants argued that the listing of main ingredients found in their dishes went too far and could lead to the divulging of trade secrets for signature menu items ("Ruby Tuesday retreats on nutrition info," 2005). Furthermore, providing such information has proven to be very costly. According to the Center for Science in the Public Interest, the cost of analyzing a standard menu item was \$220, while the cost to determine the caloric makeup of an item ranged from \$50 to \$100 (Krisberg, 2004). These costs could potentially put a restaurant out of business, depending on the size and the diversity of their menu. After a year of providing the complete nutritional composition of their signature items, Ruby Tuesday's found the task to be too daunting and felt the information scared customers away from their high-calorie, high-fat, and high-profitability signature items ("Ruby Tuesday retreats on nutrition info," 2005).

In this study, we further hypothesized that customer information expectations is a function of food preparation information as described by the Truth-in-Menu Law. Food preparation information is a function of four items that are provided on restaurant menus: cooking methods, quality, quantity, and ingredients. Figure 2 shows the hypothesized first-order model for CIERM.

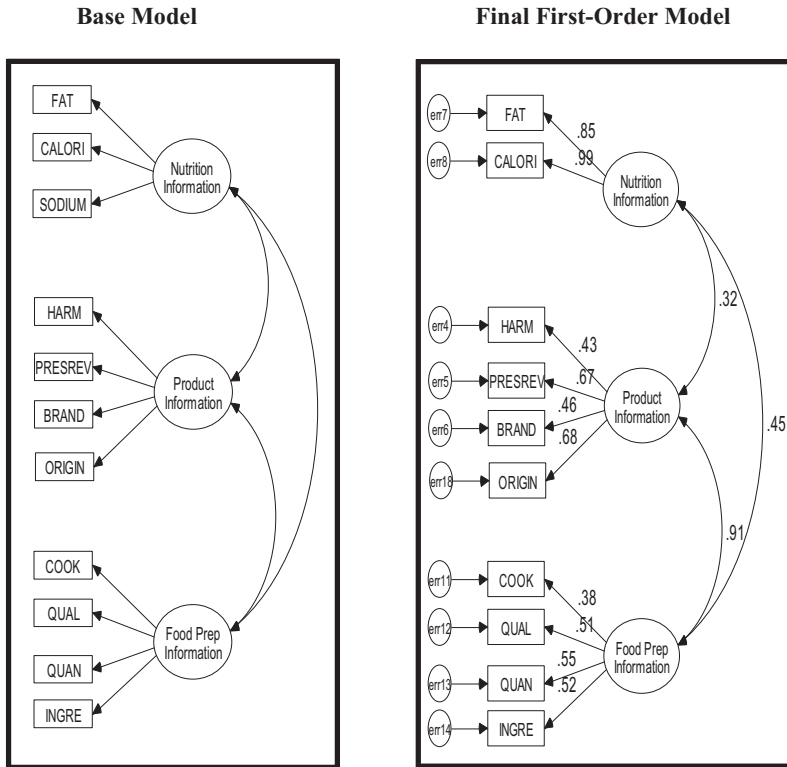
Expanding the CIERM Model

It must be noted that customers consider a myriad things when deciding to choose a food item. Thomas and Mills (2006) found that the time of day, cost, and/or perceived value of the food item greatly affect a person's food choice. These factors have an indirect affect on the amount of money a person is willing to spend. For instance, in the United States, a person expects to spend more money on dinner than on lunch or breakfast due to the fact that the number of courses consumed during dinner is larger than in the other dining periods. The perceived value of food items could also be determined by the type of restaurant establishment. With the increase in perceived value that accompanies some types of establishment comes an expectation of more information about the food items. As such, the CIERM model was also expanded to investigate the effect of money spent when dining (meal spending), type of restaurant, and dining period (breakfast, lunch, or dinner) on customer expectations of restaurant menus. The expanded CIERM model is shown in Figure 1.

METHOD

To determine customer expectations of restaurant menus, using the guidelines inherent in the Truth-in-Menu Law, a survey instrument was developed. After obtaining the appropriate human participants' exemption approval, a pilot test was conducted using a convenience sample of 30 respondents obtained from a southern American public university. Based on results of the pilot study, the finalized instrument consisted of seven questions with various subsections.

Figure 2
First-Order Confirmatory Factor Models of Customer Information
Expectations of Restaurant Menus



Note: $\chi^2 = 60.54$; $df = 32$; $p = .002$; GFI = 0.96; AGFI = 0.93; CFI = 0.96; RMSEA = 0.057.

Question 1 sought to identify how often customers dined out for each meal period (breakfast, lunch, dinner, and snack). Question 2 asked participants to select the type of restaurants they patronized in six categories (fast-food, fine dining, deli, theme concept, family-style, bar and grill), while Question 3 asked participants to describe their average spending per meal period (breakfast-spend, lunch-spend, dinner-spend, and snack-spend). Question 4 was divided into three sections and used a 4-point rating scale ranging from *not important* to *extremely important*. The first section asked participants to rate the importance of nutrition information (fat, calories, and sodium) on restaurant menus. Section 2 asked participants to rate the importance of product information on descriptive claims of brand identification, points of origin, preservation methods, and potential dangerous foods such as allergy to peanuts. Section 3 asked respondents to rate the importance of food preparation information on restaurant menus, including cooking methods, quality of ingredients, quantity of major

ingredients, and the information on ingredients in menu items. The remaining three questions focused on the demographics of the participants (age, gender, and residence). A copy of the questionnaire is provided in Appendix 1.

After evaluating the merits of Web-based data collection (based on Dillman, 2000; Fitzgerald, 2000; Mills, Morrison, & Ismail, 2002; Weible & Wallace, 1998), the seven-question survey instrument was administered online to a population of American restaurant customers. The listserv group represented persons with an interest in restaurants and persons with nonrestaurant interests. Managers in the listserv groups responded by sending e-mail messages containing the Web address of the survey to their members who, in turn, completed the Web survey. The survey was posted for a period of 4 weeks with a follow-up electronic mail message sent in the 3rd week. Returned instruments were reviewed and the data verified.

RESULTS

Normality, collinearity, descriptive, and exploratory factor analysis tests were performed using Statistical Packages for the Social Sciences (SPSS 10.0). Cronbach's alpha, used to determine reliability, as a measure of internal consistency was .79. The CIERM model was tested using Confirmatory Factor Analysis (CFA). Analysis of Moment Structure (AMOS 4.0), a Structural Equation Modeling (SEM) program, was used to perform first-order, second-order, and third-order CFA testing of the CIERM model. Prior to data collection, an initial benchmark of 200 cases was determined for CFA and SEM (Loehlin, 1992), with a revised minimum of 275 to meet the 15 cases per measured variable criteria for SEM (Bentler & Chou, 1987; Holter, 1983; Loehlin, 1992; Stevens, 1996). Of the 330 questionnaires returned, 276 were usable. Duplicates as well as individuals who were not residents of the United States were removed from the data. Descriptive analysis of the data revealed that 62% of the participants surveyed were female. Thirty percent of the population was in the 21-34 age group, 27.7% in the 35-44 age group, 28.5% in the 45-54 age group, and 8.8% in the 55 and older age group. The data showed no departures from normality or multicollinearity between items.

Exploratory Data Analysis

Given the a priori assumptions of the research model, an initial principal component analysis (PCA) was conducted in two stages primarily as a data-cleaning task. The items were not free to load on all factors as with the traditional heuristic theory-generating approach to exploratory factor analysis, which is appropriate when the researcher has a weak literature base (Kim & Mueller, 1978). PCA was first conducted separately on each factor. The factors were then tested, as they are proposed as representing their respective second-order factor, to determine if any items loaded on more than one factor. The initial PCA procedure produced factor loadings ranging from 0.50 to 0.93. All Eigenvalues were greater than 1. The total variance explained ranged 36%, from 41% to 76%

for the various factors. The Kaiser-Meyer-Olkin measure of sampling adequacy was greater than the recommended 0.50, while the Bartlett's test of sphericity were significant at the $p < .0001$ level for all factors. Based on results of the initial exploratory data analysis, all items in the model representing the various constructs were included in the CFA model.

Confirmatory Factor Analysis of the Base CIERM Model

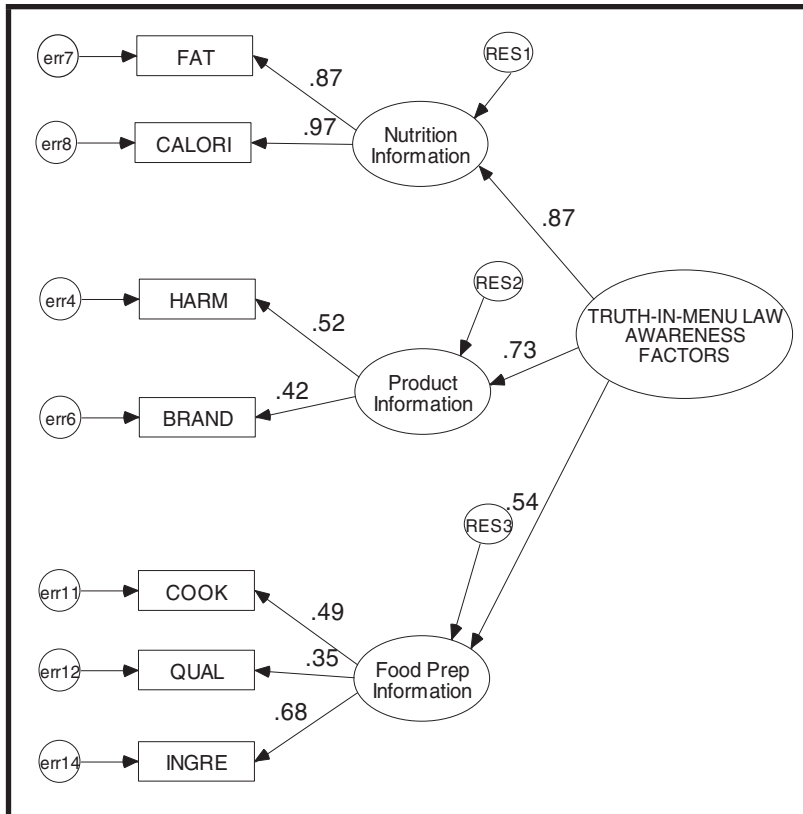
As the data are continuous, the maximum likelihood estimation procedure with covariance matrix method was used to perform the analysis. For each stage of the CFA process, individual parameters in the model were assessed for feasibility and statistical significance of the parameter estimates. In assessing the model as a whole, chi-square, the related degrees of freedom, and the p value were reported at each stage of the analysis. In addition, absolute indexes of fit—the goodness-of-fit index (GFI), the adjusted goodness-of-fit (AGFI), and the comparative fit index (CFI)—were reported. GFI, AGFI, and CFI values that are greater than 0.90 indicate models with a good fit. The final index reported in the analysis is the root mean square error of approximation (RMSEA), where values less than 0.05 indicate good fit; values as high as 0.08 represent reasonable errors of approximation in the population (Browne & Cudeck, 1993; Hu & Bentler, 1995). Results of the CFA analysis follow.

The initial first-order CFA model CIERM produced a good model fit but displayed some unusually large standardized residual covariances (greater than 2.58; see Figure 2). The residual covariances indicate that the CFA model was initially unstable and would need to be modified to be acceptable. The modification indices revealed that the model fit would be improved and more acceptable if the item (SODIUM) was removed from the mode resulting in the final first-order model that fitted the data well with model statistics of $\chi^2 = 60.54$, $df = 32$, $p = .002$, GFI = 0.96, AGFI = 0.93, CFI = 0.96, and RMSEA = 0.057. All items were significant at the $p = .0001$ level. Results of the first-order CFA model building process are shown in Figure 2.

In the second-order CFA, in which covariation among the first-order factors (nutrition information, product information, and food preparation information) can be fully explained by their regression on the second-order or higher order factor (Truth-in-Menu Law Awareness Factors), model fitting produced $\chi^2 = 65.63$, $df = 19$, $p = .0001$, GFI = 0.95, AGFI = 0.90, CFI = 0.92, and RMSEA = 0.09, which indicated that the model fit the data well. To achieve this final second-order model fit statistics, two items—information on preservation methods (PRESERV) and information on quality of ingredients (QUAL)—were removed based on the modification indices. Results of the second-order CFA model building process are shown in Figure 3.

The third-order factor model was next tested where covariation among the second-order factors (nutrition information, product information, and food preparation information) are fully explained by their regression on the third-order factor (CIERM). A final model fit was produced with $\chi^2 = 33.57$; $df = 13$; $p = .001$; GFI = 0.97; AGFI = 0.93; CFI = 0.93; RMSEA = 0.07, whereby the

Figure 3
Second-Order Confirmatory Factor Model of Customer Information
Expectations of Restaurant Menus



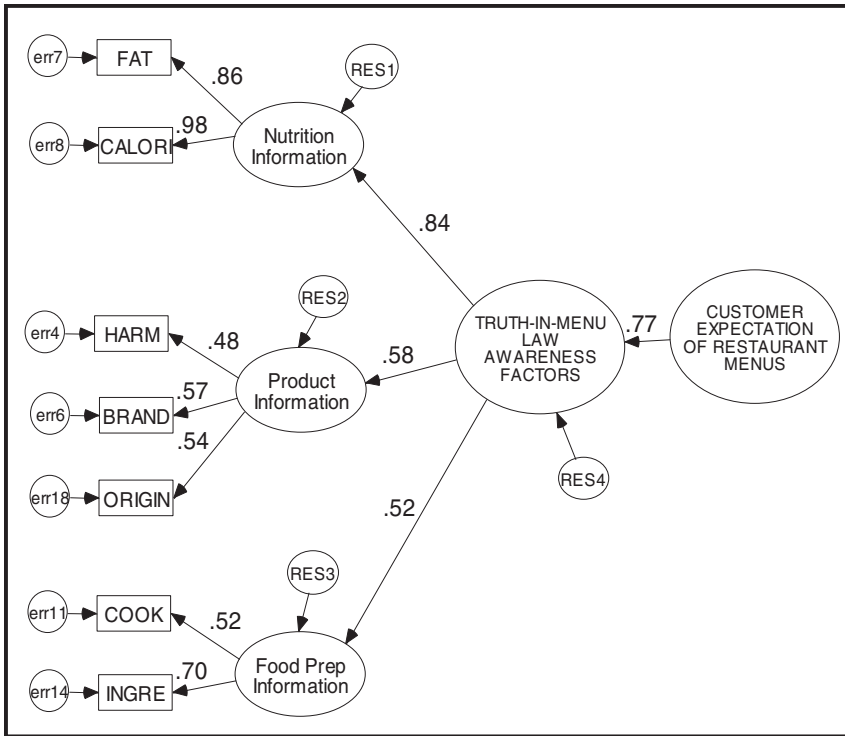
Note: $\chi^2 = 65.63$; $df = 19$; $p = .0001$; GFI = 0.95; AGFI = 0.90; CFI = 0.92; RMSEA = 0.09.

item (information on quantity of menu item [QUAN]) was removed based on the modification indices to achieve final model fit. All standardized estimates were substantively reasonable and statistically significant at the $p = .0001$ or .001 level. CIERM was found to be a function of Truth-in-Menu Law awareness factors (0.77). The final third-order factor model with standardized estimates is shown in Figure 4.

Expanded CIERM Model Testing

The impact of type of restaurant, dining period, and meal spending on customer expectations of restaurant menus was then examined. Model fit was achieved with the removal of the construct type of restaurants, which showed unusually large standardized estimates. Final model fit for the expanded model

Figure 4
Third-Order Confirmatory Factor Model of Customer Information
Expectations of Restaurant Menus



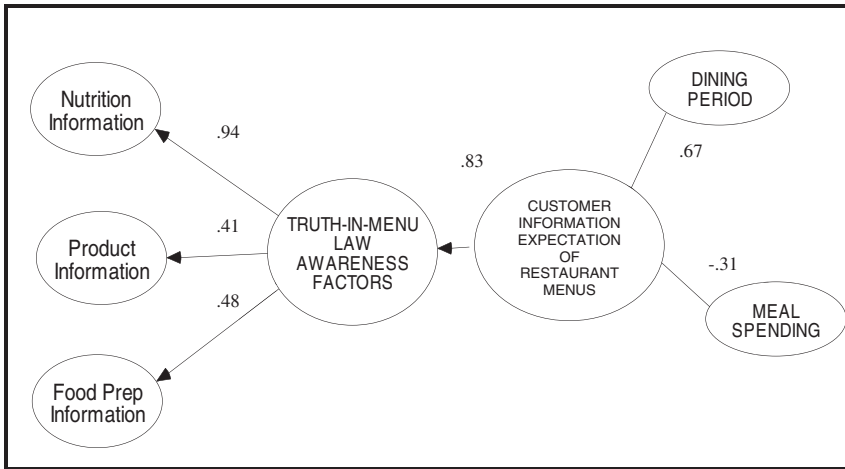
Note: $\chi^2 = 33.57$; $df = 13$; $p = .001$; GFI = 0.97; AGFI = 0.93; CFI = 0.93; RMSEA = 0.07.

was $\chi^2 = 179.66$; $df = 74$; $p = .001$; GFI = 0.92; AGFI = 0.88; CFI = 0.87; RMSEA = 0.07, indicating that the model fit the data reasonably well. All parameter estimates in the model were significant at the $p = .001$ level. Dining period was found to influence customer expectations (0.67). Of the four dining periods (breakfast, lunch, dinner, and snack) explored in the study, lunch was the most important dining period (0.63) for study respondents. An inverse relationship was noted between meal spending and CIERM (-0.31), indicating that the lower the spending, the less customers expect of information provided about restaurant menu choices. The final CIERM model is shown in Figure 5.

DISCUSSION, RECOMMENDATIONS, AND CONCLUSIONS

What are the CIERM? This study found that although customers may not know the Truth-in-Menu Law itself, customers were aware of the components

Figure 5
Final Customer Information Expectation of Restaurant Menu Model



Note: $\chi^2 = 179.66$; $df = 74$; $p = .001$; GFI = 0.92; AGFI = 0.88; CFI = 0.87; RMSEA = 0.07.

of the law and do use these components when choosing restaurant menu items. In the CIERM model, respondents in this study expected restaurant menus to provide nutritional information (.84) and information on calories (.98) and fat (.86). These findings were consistent with current trends reported in the media (Park, 2005; Smith, 2003). In using the Truth-in-Menu Law as a base for construct identification, the present study found that customers expected product information (.58) and food preparation information (.52). Most important to customers in food preparation information was the availability of information on the ingredients used to make the menu item (.70), while brand information (.57) was most important when providing product information. These findings support Wansink, Painter, and Van Ittersum's (2001) contention that descriptive menu labels increase sales by 27% and improve customers' attitudes toward the food, toward the restaurant, and intentions of returning. However, we note here that the findings of this study does not imply that supplying nutritional information would increase or affect item selection.

Although restaurant customers in this study did desire disclosure of nutritional information concerning fat and calories, there was less concern for other information that affects the nutritional content of menu items. Surveyed customers did not feel that the disclosure of the quantity of items was necessary, which was interesting due to the high importance customers normally place on value. Furthermore, it could be inferred that restaurant customers have come to expect for meal portion sizes to continually increase in size or expect larger portions and as such do not see this as an information-critical factor. A possible

explanation for the exclusion of certain factors from the CIERM model could be that restaurant customers are unable to put this information into perspective. For example, customers may not know how much sodium they are to consume on a daily basis, and thus attempting to consider this information when choosing a menu item may add stress to the dining experience and interfere with the quality of the experience. This also may be an explanation for why information regarding sodium (nutritional information), preservatives (product information), origin of food (product information), and quantity of food (food preparation information) were not considered necessary on restaurant menus by respondents in the present study, and thus we see the low statistical ranking of these factors and their ultimate exclusion from the final model.

In the expanded CIERM model, the study found that dining period and meal spending affected CIERM, with lunch being the most significant period. An inverse relationship was found regarding meal spending, suggesting that the lower the cost of the meal, the less customers expected of the restaurant menu in terms of presenting nutrition, product, and food preparation information. These findings indicate that perhaps customers hold the image that cheaper menu items are not as healthy as pricier food items. Conversely, the more customers pay for a menu item, the more they expect these menu items to meet exacting standards regarding availability of nutrition information and food preparation.

It is apparent by the demand for nutritional information that customers desire what is best for them; however, as evidenced by the steady increase in health complications related to diet, this desire for nutritional information does not necessarily translate to customers acting out on these desires. In other words, customers wanting to see the content of their menu item choice does not mean that they will let undesirable information deter them from a desired food item. This is one possible explanation for the increased demand for nutritional information—the subsequent providing of such information by some establishments—yet the continued overindulgence in high fat, high cholesterol, and high calorie food items. Customers are eating a larger portion of their meals away from home, causing them to lose control of their diets. This fact has not altered the way they eat when they dine out due to the overriding feeling that customers are not willing to sacrifice taste for health and may not care for information that would interfere with the enjoyment of their meal.

So what should restaurateurs do? We recommend an approach that involves more focus on restaurants understanding their primary customer base. In an attempt to understand the different types of restaurant customers, Health Focus, a Pennsylvania marketing firm, categorized health conscious restaurant customers (90%) into five attitudinal groups based on the earnestness of their concern for nutrition (Bosanko, 1993). The five attitudinal groups were labeled *managers*, *investors*, *healers*, *disciples*, and *strugglers*. Managers, who represented the majority of persons in the Health Focus study, were customers that looked for short-term results and chose foods that enhanced their mental and

physical condition. The second largest group was titled the *investors* who were found to eat for future health and did not need warnings from doctors or friends to eat a nutritious diet. Healers, normally 50 years of age and older, were persons who suffer from chronic diseases caused by damage from a nutritionally ill-spent youth and are in need of major lifestyle changes to improve their health. Disciples were highly committed to healthy eating and were likely to eat meat substitutes and soy products, avoiding meat totally.

The overriding sentiment gathered from the current study population seems to support the designation strugglers. Strugglers are described as persons who were eight times more likely to describe their diet as unhealthy. This segment is under the age of 40 and would like to eat healthier. This label is also appropriate, given that that densest part of our sample population fits into this age range. Currently, there has been a great push for restaurants to provide nutritional information, leading restaurateurs to believe customers desired what was best for them. However, as evidenced by the steady increase in health complications related to diet, the desire for nutritional information does not translate to customers actually making good choices from menus accordingly. In other words, customers wanting to see the nutritional content of their menu item choice did not mean that they would let undesirable information deter them from a desired food item. This was one possible explanation for the increased demand for nutritional information and the subsequent provision of such information by some establishments, yet the continued overindulgence in high-fat, high-cholesterol, and high-calorie food items.

Even though the CIERM model fits the data well and provides a theoretically consistent set of findings, there may be other equivalent models that fit the data equally well. Researchers in the nutritional labeling of restaurant menus realm could consider testing alternative models that could be generated from measures in the current model. Researchers also could investigate how customers would like to see nutritional information formatted on restaurant menus. In addition, one must note that the present study was limited in scope, as the study surveyed Internet customers who were members of specific listserv groups. Future studies could replicate the model using a non-Internet sample and using strategic random sampling methods to increase the generalizability of the study. However, the proposed CIERM model may be well suited for studying customer expectations of restaurant menus and could serve as a diagnostic tool for restaurants to determine weak aspects of their menus in need of improvement.

In closing, restaurateurs must be encouraged to make menus as accurate as possible to limit liability that can result from false menu claims. Restaurant customers truly enjoy dining out and the experience that comes with it; however, feelings of euphoria can quickly become negative due to inaccurate information presented on a restaurant's menu. Restaurant owners do well to speak with customers about menu items to make corrections and ensure that they are indeed meeting their needs.

APPENDIX

Menu Analysis Questionnaire

Dear Customer,

We would like to know your opinion on the availability of nutrition and other information provided on restaurant menus. This questionnaire should take approximately 5 minutes to complete. All questions are important. Please try to answer them all.

1. Please indicate how often you dine out for each meal period.

Meal Period:	0 Times per Week	1-2 Times per Week	3-4 Times per Week	5-6 Times per Week	7 or More Times per Week
Breakfast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lunch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Indicate the types of restaurants in which you dine at least once per month.
(Check all that apply.)

Type of Restaurants	Check Box
Quick-service restaurants (McDonald's, Taco Bell, Subway, etc.)	<input type="checkbox"/>
Chain restaurants (On the Border, Denny's, TGI Fridays, etc.)	<input type="checkbox"/>
Theme restaurants (Hard Rock Cafe, Planet Hollywood, etc.)	<input type="checkbox"/>
Fine dining (Formal dress code enforced)	<input type="checkbox"/>
Bar and grill	<input type="checkbox"/>
Grocery deli	<input type="checkbox"/>
Entertainment restaurants (Restaurants featuring live music or entertainment)	<input type="checkbox"/>
Other: Please indicate <input style="width: 150px;" type="text"/>	<input type="checkbox"/>

3. Please indicate how much money you spend on average for each meal period you dine out. (Check only box for each meal period.)

Meal Period:	Under \$5.00	\$5.00 - \$9.99	\$10.00 - \$19.99	\$20.00 - \$29.99	Over \$30.00
Breakfast	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lunch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How important would each of the following be to you in deciding which menu items to choose? Please check only one box for each item from (1 = *not important* to 4 = *extremely important*).

Questions:	1	2	3	4
Availability of information on fat and cholesterol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on calorie content of the meal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on all ingredients in menu items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Server knowledge of restaurant menu items	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on harmful foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX (CONTINUED)

Availability of information on sodium content	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on specific brand names used in food preparation (e.g., Coca Cola vs. Pepsi)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on cooking methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on the quality of foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on the quantity of foods (e.g., 6oz. of steak or 3 chicken fingers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on Points of Origin (e.g., Using the phrase Florida Orange Juice)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Availability of information on means of preservation (e.g., made fresh daily vs. frozen foods)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How important is visual presentation when choosing menu items?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. What is your age? ☐ Under 21 ☐ 21-34 ☐ 35-44 ☐ 45-54 ☐ 55 or older

9. What is your gender? ☐ Female ☐ Male

10. Where do you currently reside? ☐ U.S. resident ☐ International

Thank you for your co-operation.

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