

THE INFLUENCE OF CHINESE CULTURAL VALUES ON FOOD SAFETY TRAINING  
ATTITUDES AND BEHAVIORS AMONG CHINESE OWNERS OF CHINESE  
RESTAURANTS IN THE U.S.

by

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AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Hospitality Management and Dietetics  
College of Human Ecology

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

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## Abstract

Foodborne illnesses are a challenge, especially in ethnic restaurants partly because of differences in food handling practices and ethnic cultures. Chinese restaurants, representing the largest number of ethnic restaurants in the U.S., have unique food safety challenges. This study investigated variables including Chinese cultural values (CCVs) that influence U.S. Chinese restaurateurs' behavioral intention regarding food safety training.

The qualitative study, individual interviews with 20 Chinese restaurateurs, found 17 major CCVs that are important to participants. Most participants felt satisfied with previous health inspections, but several expressed difficulty with understanding health inspectors' instructions and the reports. A limited number of participants provided food safety training mainly because it was required by law. Lack of money, time, labor, energy, and perceived needs for food safety training were major obstacles to providing food safety training in Chinese restaurants.

The quantitative study assessed behavioral intention to provide food safety training and the influencing factors including CCVs using the instrument developed based on the qualitative study. Sample included 500 Chinese restaurateurs across the U.S., and 261 provided usable data. Among 17 CCVs, respondents perceived "courtesy" ( $6.95 \pm 0.24$ ), "respect" ( $6.87 \pm 0.47$ ), and "harmony" ( $6.85 \pm 0.41$ ) as most important. The opinions of customers ( $5.74 \pm 1.71$ ), family members ( $5.73 \pm 1.60$ ), and business partners ( $5.49 \pm 1.57$ ) were considered most important. Barriers to providing food safety training included employees' physical exhaustion ( $5.89 \pm 1.58$ ), employees' learning capabilities ( $4.80 \pm 1.97$ ), and financial resources ( $4.56 \pm 2.19$ ). Of five CCV factors identified, CCVs pertaining to customer relations ( $\beta = 0.133, p < .05$ ) and interpersonal relations ( $\beta = 0.320, p < .001$ ) were significantly associated with behavioral intention to provide food safety training. Additional factors influencing food safety training intention were, personal influence ( $F_{change} = 3.98, p < .05$ ), perceived barriers ( $F_{change} = 6.42, p < .05$ ), and past experiences ( $F_{change} = 21.78, p < .001$ ). Among participants, the males ( $t = 2.97, p < .05$ ) valued customer relations, whereas the females ( $t = 5.52, p < .001$ ) valued interpersonal relations. Chinese restaurateurs with bachelor's degrees or higher ( $F = 5.905, p < .01$ ) had greater intentions to provide food safety training than others. Manual-based food safety training ( $6.17 \pm 1.23$ ) in Chinese ( $6.13 \pm 1.33$ ) was preferred by the respondents. Future research should evaluate if

recommendations from this study have positive influences on food safety training at Chinese restaurants.

**Words:** 345

**Key words:** attitudes, barriers, Chinese cultural values, food safety training, past experiences, training methods

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## **Dedication**

I dedicate my dissertation work to my family: My father, Zhanguo Liu, my mother, Huimin Bian and my husband, Xin Li for their unconditional love and support. Thank you all for being there for me.

This study is also dedicated to my grandparents, who have never allowed me to believe that it could not be done.

## Chapter 1 - INTRODUCTION

The racial/ethnic minority population in the U.S. has increased significantly in recent decades, with more than 28% of Americans belonging to a racial/ethnic minority group (U.S. Census, 2010). At the same time, Asian Americans have become one of the fastest growing populations among all racial/ethnic minority groups in the U.S. The Asian population in the U.S. changed significantly from 1980 to 1990, with an increase of 96%, and again from 1990 to 2000, with an increase of 63% (Le, 2011). Ortman and Guarneri (2011) also stated that the Asian population has continually increased from 3.6 % of the total U.S. population in 2000 to 4.6 % in 2010 and is expected to reach over 8% by 2050. According to the U.S. Census (2010), about fifteen million of the total population of the U.S. identify themselves as Asian.

There are six major Asian-American ethnic groups in the U.S.: Asian Indian, Chinese, Filipino, Japanese, Korean, and Vietnamese. Among these groups, the Vietnamese were the fastest growing group from 1980 to 1990, followed by Pakistanis and Asian Indians from 1990 to 2000 (Le, 2011). However, since 2000, Chinese Americans have become the largest, fastest-growing Asian-American ethnic group, accounting for 22.6% of the total Asian American population in the U.S. (Le).

After immigrating to the U.S., ethnic minority groups usually experience the initial hardship of adapting to cultural, political, and economic changes in their new social environment (Nguyen, 2008). Most immigrants need to deal with their unfamiliarity with U.S. culture, values, and regulations in the workplace as well as with potential discrimination against ethnic minority groups. The adaptation process for adults may be more difficult and take longer than it might for the younger generations (Nguyen). This may be a reason why many immigrants maintain biculturalism, meaning that they keep their own ethnic culture while slowly adopting the culture of their new country (Cherry, 2000).

When immigrants continuously experience a foreign culture and start changing their cultures, acculturation occurs (Redfield, Linton, & Herskovits, 1936). Gordon (1964) defines acculturation as the process of adopting the values, customs, norms, attitudes, and behaviors of the majority culture. Acculturation has a big impact not only on the culture of immigrants but also on the current, mainstream culture. For example, Chinese immigrants still follow certain principles developed from Chinese traditional culture in their community. Researchers have



found that Chinese culture is most influenced by Confucianism and “Ex-Communism” (Inglehart & Welzel, 2005, p.111). The three major elements that make up the value system of modern Chinese culture are traditional culture, communist orthodoxy, and Western values (Mok & DeFranco, 1999). Pye (1972) found that Confucianism has the most influence on Chinese culture—it forms the foundation of the Chinese cultural tradition and provides the basic norms for Chinese interpersonal behavior.

As the ethnic minority population increases, more Americans are being exposed to, and becoming interested in food from different cultures. Indeed, Howell (2005) states that the demand for ethnic foods will increase by 50% over the coming decades, reaching \$75 billion in sales. The majority of ethnic restaurants are owned by Asian and Hispanic immigrants. As of 2009, 15% of all independent restaurants were owned by Asians and 8% by Hispanics (NRA, 2009). Chinese food has become one of America’s favorite ethnic cuisines, as evidenced by the nearly 46,000 Chinese restaurants in the U.S., twice the number of McDonald’s restaurants (Chinese Restaurant News, 2007). Over 90% of Americans have tried Chinese food, and 63% eat Chinese food monthly (George, 2001).

Patil, Cates, and Morales (2005) concluded that consumer food safety knowledge and practices are considerably different across demographic categories, such as socioeconomic and cultural ones. Therefore, although the management concern of cultural difference applies to all restaurants, the increasing number of Chinese restaurants and the cultural differences between Chinese and Americans may present unique food safety challenges. For example, some Chinese restaurant owners/operators insist that inspectors sometimes misinterpret what they see in a busy kitchen due to different cooking methods (Linsk & Sitaramiah, 2000).

Food safety is not only a management concern, but also affects consumers’ restaurant choices. Previous studies have confirmed that food safety is one of the top five attributes affecting customers’ restaurant choices (Liu & Jang, 2008). The majority of customers indicated that they would not return to a restaurant that has poor hygiene, even if the food quality and prices were good (Mori, 2005; Worsfold, 2006). These findings suggest that ensuring food safety at a restaurant is essential not only for public health but also for customer loyalty and, eventually, the success of the establishment (Grindy, 1998).

Food safety in restaurants has been recognized as a serious concern, given that 60% of reported cases of foodborne outbreaks occur after consuming food from restaurants (Hedberg et

al., 2006). Foodborne outbreaks occurring in restaurants often involve a large number of people getting ill by eating food from one source. For example, in Pennsylvania in 2003, more than 600 restaurant consumers in a single restaurant were infected with hepatitis A after eating green onions (Wheeler et al., 2005). Chinese restaurants are not immune to these risks. Recently, a Chinese restaurant in U.K. was fined almost £65,000 (approximately \$100,000) after 50 customers reported getting ill (Food Safety Net, 2010).

Although reductions have been noted regarding food safety risks in the U.S., foodborne illnesses remain a common problem, especially among ethnic restaurants (CDC, 2011). The U.S. Centers for Disease Control and Prevention (CDC) report that foodborne outbreaks associated with ethnic foods increased from 3% in 1990 to 11% in 2000, having been caused mostly by Mexican, Italian, and Asian foods (Simonne, Nille, Evans, & Marshall, 2004). The CDC (2011) estimates that approximately 48 million illnesses are caused by foodborne illness, resulting in 128,000 hospitalizations and 3,000 deaths in the U.S. each year. Norovirus, nontyphoidal *Salmonella* spp., *Clostridium perfringens*, and *Campylobacter* spp. have been identified as the top pathogens causing most illnesses (58%) (Scallan et al., 2011). However, there are still more than 38 million foodborne illnesses, 70,000 hospitalizations, and 1,600 deaths for which causes have not been confirmed (CDC, 2011).

Improperly controlling the temperature of potentially hazardous foods, cross-contamination, and employee hygiene were the top concerns in ethnic-restaurant operations (Mauer et al., 2006). Environmental cleanliness was also identified as one area in which Chinese restaurants needed to improve (Liu & Jang, 2009). However, although ethnic restaurant operators were willing to learn proper food safety practices, they did not completely understand the importance of food safety or its relevance to their establishments (Rudder, 2006).

The results of ethnic-restaurant inspections also identified other food safety challenges (Kwon, Roberts, Shanklin, Liu, & Yen, 2010). Kwon et al. indicated that ethnic restaurants were more frequently inspected and had a greater number of critical and non-critical violations than non-ethnic restaurants. Time and temperature control, physical facility maintenance, protection from contamination, hand hygiene, proper use of utensils, and demonstrated knowledge were identified as the most frequently violated practices in ethnic restaurants. Thus, researchers contend that food safety training for independent ethnic restaurants is needed (Kwon et al.). However, little is known about food safety training and operators' behavior with regard to

providing such training; therefore, it may be critical to investigate owners' or operators' behaviors regarding food safety training in ethnic restaurants.

This study proposes to explore variables that influence the behavioral intention of Chinese restaurant owners/operators in terms of providing food safety training programs in Chinese restaurants in the U.S. More specifically, Chinese cultural values and their influences on the behaviors of Chinese restaurant owners/operators to provide food safety training were investigated. Also the study investigated other variables, such as attitudes, personal influence, perceived barriers, and past experiences related to safe food handling, food safety inspection, and food safety training that may explain Chinese restaurant owners/operators' behaviors regarding food safety training in Chinese restaurants. By identifying the variables that explain behaviors with regard to providing food safety training in Chinese restaurants, food safety educators may find strategies for increasing or improving food safety training and food safety practices in Chinese foodservice establishments.

### **Statement of Problem**

Several food safety training programs are available for restaurants in the U.S. ServSafe®, developed by the National Restaurant Association Educational Foundation, is the most widely used food safety training program. Roberts et al. (2008) confirmed that a 4 hr ServSafe® food safety training session improved knowledge and food safety behavioral compliance in terms of hand washing, using thermometers, and handling work surfaces. However, Roberts et al. found that improved knowledge alone did not increase behavior intention to handle food properly.

There are limited studies conducted that identified the influence of cultural values on food safety attitudes and that recognized the barriers of providing food safety training in Chinese restaurants. The participant sample in the study conducted by Roberts et al. (2008) did not include any ethnic restaurateurs due to their unwillingness to participate. Therefore, little is known about what food safety training is available in Chinese restaurants. Considering the increased demand for Chinese food and the wide availability of Chinese restaurants (Howell, 2005), research is needed to identify attitudes and barriers to providing food safety training in Chinese restaurants. The following research questions were explored in this study:

- Which Chinese cultural values influence Chinese restaurant operation?

- How do Chinese cultural values influence the behavioral intention of Chinese restaurant owners/operators with regard to providing food safety training?
- What are owners/operators' past experiences with food safety training in Chinese restaurants?
- How do Chinese restaurant owners/operators' past experiences impact their intention to provide food safety training?
- What other variables explain Chinese restaurant owners/operators' behaviors to provide food safety training in Chinese restaurants?
  - Potential variables that may be associated with behaviors to provide food safety training include attitudes toward safe food handling and food safety training; personal influence regarding the intention to provide food safety training; perceived barriers to providing food safety training in Chinese restaurants; and previous experience related to foodborne illnesses, health inspections, and food safety training.
- What is the preferred food safety training method and language of Chinese restaurant owners/operators?

### **Justification**

Mauer et al. (2006) identified improper food temperature, cross-contamination, and worker hygiene as the top three concerns in restaurant food safety management. These researchers also indicated that ethnic restaurants have similar food safety issues as non-ethnic restaurants. However, the food safety knowledge and attitudes toward food preparation, cooking and cooling procedures, and food storage of Chinese restaurant owners/operators may differ from that of non-ethnic restaurant owners/operators because of previous training and cultural differences. Roberts et al. (2008) found that Chinese restaurant employees did not receive food safety training in their operation due to such training not being provided by the owners/operators. Some researchers have expressed concerns that programs like ServSafe® may not address the specific food safety training needs of ethnic restaurants (Simonne et al., 2004). However, no research has been published that investigates attitudes, personal influence, perceived barriers, and past experiences regarding food safety training in Chinese restaurants. Therefore, there was a need to (a) explore Chinese cultural influences on the behaviors of Chinese restaurant

owners/operators to provide food safety training, (b) examine other factors that influence behaviors to provide food safety training in Chinese restaurants, and (c) investigate the preferred food safety training method and language in Chinese restaurants in order to increase and improve food safety training in these restaurants.

### **Purpose**

The purpose of the study was to investigate the variables that influence Chinese restaurant owners/operators' behaviors regarding food safety training in Chinese restaurants in the U.S.

### **Objectives**

The specific objectives of this study were:

1. To explore the Chinese cultural values that affect Chinese restaurant operations.
2. To explore the influences of Chinese cultural values on the behaviors of Chinese restaurant owners/operators with regard to providing food safety training.
3. To determine other variables that explain Chinese restaurant owners/operators' behaviors with regard to providing food safety training in Chinese restaurants.
4. To investigate the preferred food safety training method and language of Chinese restaurant owners/operators.

### **Significance of the Study**

The research began with a qualitative study to explore factors that influence owners/operators' behaviors regarding food safety training implementation in Chinese restaurants. In addition, the association between Chinese cultural values and behavioral intention regarding food safety training were investigated. Based on the findings of the qualitative study, a quantitative instrument was developed. Subsequently, a quantitative survey was conducted with Chinese restaurant owners/operators to assess relationships between/among variables and to further validate the instrument.

The results of this study had significant implications for both theoretical and practical applications. The study provided information about Chinese cultural values, past experiences regarding food safety training, factors that impact Chinese restaurant owners/operators' behavioral intentions regarding food safety training, and the preferred food safety training

method and language of Chinese restaurant owners/operators. Chinese restaurant owners/operators can utilize this data to recognize their needs for food safety training and to investigate ways of improving food safety practices in their restaurants. Understanding the influences of the Chinese cultural values of Chinese restaurant owners/operators and those of other factors on their behavioral intention to provide the food safety training will also help food safety educators develop a great number of efficient strategies for encouraging food safety training in these restaurants. The results of this research will contribute to the body of knowledge about Chinese cultural values and their influences on food safety training in Chinese restaurants.

### **Limitations of the Study**

This study is limited to Chinese restaurants in the U.S. Thus, the results cannot be generalized to other types of ethnic or non-ethnic restaurants in the U.S. or to restaurants located outside the U.S.

Furthermore, this study did not address non-response bias. Participation in this study was completely voluntary. The Chinese restaurant owners/operators who were willing to participate in this study may have been more aware of Chinese restaurants' needs regarding food safety training. As well, they may have felt more comfortable and confident discussing food safety implementation than did non-participating Chinese restaurant owners/operators. Therefore, employees of such foodservice establishments might already have had a great number of positive attitudes and better past experiences than those employees working in facilities that did not respond to our invitation.

Lastly, the Chinese cultural values may affect Chinese restaurant owners/operators' responses in the survey. For example, the perceived barriers to provide food safety training in restaurants among Chinese restaurant owners/operators may not evaluate as serious as restaurant owners of other types of restaurants due to their intention to protect "face."

## Definition of Terms

**Acculturation:** Acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups (Redfield, Linton, & Herskovits, 1936, p. 149).

**Chinese Cultural Values:** Confucianism influences the main part of the Chinese cultural values. “Trust, reciprocity, face, time, harmony, hierarchy, power distance, and long-term orientation” are identified as major Chinese cultural values (Anonymous, n.d., para. 1).

**Chinese Restaurant:** restaurant that specializes in Chinese cuisine (Allfoodbusiness.com, 2011).

**Ethnic minority:** a group that has different national or cultural traditions from the majority of the population (Thefreedictionary.com, 2011, “Ethnic minority,” para. 1).

**Ethnic Restaurants:** range from quick-service to upscale, usually include Americanized versions of ethnic dishes and/or authentic ethnic foods (Allfoodbusiness.com, 2011, “Ethnic Restaurants,” para.12).

**Food Safety Experts:** those who have performed many researches or provided many educations/presentations or had worked for reputable and reliable organizations for N years in food safety area.

**Foodborne illness:** diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food. Every person is at risk of foodborne illness (WHO, 2007, “Foodborne illness,” para. 2).

**Mexican Restaurant:** restaurant specializes in Mexican cuisine (Allfoodbusiness.com, 2011, “Mexican Restaurants,” para. 24).

**Potentially Hazardous Food:** Food in which microorganisms can grow rapidly. Potentially hazardous food has a history of being involved in foodborne illness outbreaks, has potential for contamination due to production and processing methods, and has characteristics that generally allow microorganisms to grow rapidly. Potentially hazardous food is often moist, contains

protein, and has a neutral or slightly acidic pH (National Restaurant Association Educational Foundation, 2004, p G-9).

**Restaurant:** A for-profit business establishment where meals or refreshments may be purchased (Merriam-Webster, 2011).

**ServSafe®:** a food safety training and certificate program administered by the National Restaurant Association. A ServSafe certificate is basically required by many restaurants for their management staff. It helps managers be fluent in food safety with ServSafe® products (ServSafe.com, 2011).



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## Chapter 2 - REVIEW OF LITERATURE

### The Chinese Population and Culture in the United States

#### *Demographics of the Chinese Population*

In recent decades, one of the significant changes in the U.S. population has been the rapid increase in the number of minority individuals, especially the increase of Asian Americans (Table 2-1). Chinese Americans are considered to be the oldest and largest ethnic group of Asian descent in the U.S. Their immigration and settlement history can be traced back to the late 1840s (Min & Kim, n.d.). According to the U.S. Census, more than 2.8 million Americans are Chinese, accounting for more than 1% of total U.S. population in 2000. California (980,000), New York (424,000), Texas (105,000), New Jersey (100,000), Massachusetts (84,000), Illinois (76,000), Washington (59,000), Hawaii (56,000), Pennsylvania (50,000), and Maryland (49,000) were the ten states with the highest Chinese populations in 2000. Among the large cities in the U.S., New York City (365,000), San Francisco (161,000), Los Angeles (74,000), Honolulu (69,000), and San Jose (58,000) have the most Chinese Americans.

**Table 2-1 2001 Statistical Abstract of the U.S. (2002 U.S. Census Bureau)**

Racial/Ethnic Group	Growth Rate (%), 1980-1990	Growth Rate (%), 1990-2000
White	4.09	5.08
Blacks	11.98	15.26
American Indians	35.44	14.42
Latinos/Hispanics	53.02	5.00
Asian Americans	96.13	63.24

The dramatic increase of the Chinese population in recent years is partially due to the increased number of Chinese students. According to a report from Opendoors 2010, 127,628 Chinese students came to the U.S. to pursue their educations during the 2009/2010 school year. Compared to the previous years, this was a 30% increase (Anonymous, 2011a).

## *Chinese Culture*

Kittler and Suchef (2004) state that culture is “broadly defined as the values, beliefs, attitudes and practices accepted by members of a group or community” (p. 5). It is passed from generation to generation through the language acquisition and socialization process. Enculturation is the process of adopting a specific condition of the environment into an original culture (Lyonga, 2011). After immigrants reached America, they adopted the culture of America in many social respects. Although American culture impacts those “new Americans” in many ways, their original culture influences every aspect of life, including the way people handle, cook, prepare, eat, and store foods (Lyonga). In addition, peoples’ perceptions of risks, cognition, and behaviors are significantly different based on their cultural backgrounds (Finucane, 2002).

Inglehart and Welzel (2005) divided the world into eight “cultural zones” based on cultural differences and religious traditions. These eight cultural zones are Confucian, Protestant Europe, English Speaking, Catholic Europe, Ex-Communist, South Asia, Latin America, and Africa. These researchers found that Chinese culture is most influenced by Confucianism and Ex-Communism. Additionally, Mok (1999) indicated that the three major elements that make up the modern Chinese cultural value system are traditional culture, communist orthodoxy, and Western values. Traditional Chinese culture includes Confucianism, Taoism, and Buddhism (Mok). Pye (1972) also stated that Confucianism has the most influence on Chinese culture, forms the foundation of the Chinese cultural tradition, and provides the basic norms for Chinese interpersonal behavior.

Confucianism has been studied many years and described in various ways. Yum (1988) stated that Confucianism is “a philosophy of human nature that considers proper human relationships as the basis of society” (p. 79). Fan (1995) stated that Confucianism is basically “the behavioral or moral doctrines that are based on the teaching of Confucius regarding human relationships, social structures, virtuous behavior and work ethics” (p. 2). According to Confucianism, the rules and regulations of social behavior are developed for every individual in order to manage the whole of society. There are Five Constant Virtues that were identified by Confucius: humanity, righteousness, propriety, wisdom, and faithfulness (Chen, 1986). Based on the Five Constant Virtues, five basic human relationships and principles for each relationship (called Wu Lun) are further defined by Confucius. These are:

- “sovereign and subject: loyalty and duty (or master and follower);
- father and son: love and obedience;
- husband and wife: obligation and submission;
- elder and younger brothers: seniority and modeling subject;
- friend and friend: trust.” (Fan, 1995, p. 3).

In order to ensure a harmonious society, certain behavioral principles must be followed in these relationships. Confucius perceived *li* and *jen* to be the results of practicing these principles. The principle of *li* suggests that people to act according to what their inner selves believe, rather than changing as the environment does (Fan, 1995). As the core Confucius concept, *jen* refers to people’s generosity and their ability to consider others’ feelings (Fan, 1995). It also identified Chinese society as collectivist, which distinguishes it from individualist Western societies (Hofstede, 1980). Some researchers have indicated that the Chinese are primarily collectivistic because they emphasize the group, not the individual (Everett, Stening, & McDonald, 1987; Hofstede & Bond, 1984; Hsu, 1985).

### ***Chinese Cultural Values***

Chinese cultural values and beliefs have been studied for many years, especially in business settings. Confucianism strongly influences Chinese cultural values. “Trust, reciprocity, face, time, harmony, hierarchy, power distance, and long-term orientation” are identified as major Chinese cultural values (Anonymous, n.d., para. 1).

“Trust” is a critical component to consider when Chinese people establish social networks. They do not trust outsiders, and Chinese people often establish trustful social networks with family members, relatives, friends, classmates, and colleagues.

“Reciprocity” is used for establishing relationships, or *guanxi*, between two parties. “Reciprocity” is a university concept, but it has particular salience in China. Under the principle of “reciprocity,” the one who first received a benefit will need to repay it in the future. For most people in China, a transaction will only take place when there is mutual benefit for both parties involved, and an exchange will only occur when it will benefit both of the parties. Therefore, “reciprocity” sustains a network relationship in business settings. Without “reciprocity,” established “*guanxi*” would disappear (Chen & Chen, 2004).

“Face,” meaning not disgracing oneself or one’s family, is another important element in Chinese culture (King, 1988) because it impacts interpersonal relations. Face not only makes Chinese people function properly within the community, but also represents a reputation that people build up during their lives (Huang, Davison, & Gu, 2011). In China, face can be classified into two types: “lian” and “mian-zi”. “Lian” represents an individual’s confidence and moral character. The loss of “lian” makes the person to function improperly and feel that he/she can no longer live in the world (King, 1988; Yau, 1988). “Mian-zi” emphasizes the prestige of the person, such as their reputation and the respect he or she has achieved through his or her life (Brunner, Chan, Sun, & Zhou, 1989; Lam & Wong, 1995). Both types of face are related with “guanxi”, which represents confidence regarding a relationship among persons or firms (Chow & Ng, 2004).

“Relationship” is another characteristic that Chinese people and their culture value. It indicates that once a relationship is established among Chinese people, it is unlikely to break. However, once a relationship is broken, it is very difficult to recover as well (Huang et al., 2011). In other words, long-term relationships are very important for Chinese people and their culture.

Though following the Confucian 'Doctrine of the Mean,' individuals prefer avoiding competition and conflict and maintaining harmony (Chen, 2002). “Harmony” plays a critical role in a two party relationship. Without harmonious relationships, face, trust, and reciprocity cannot be successfully continued, and “guanxi” will not be established (Chen & Chen, 2004).

“Tolerance” is an essential part of “harmony.” To avoid conflict, tolerance and patience are frequently used by Chinese people in business settings (Moise, 1995). Moise also indicated that Chinese people tend to avoid conflicts and prefer resolving issues in an ‘implicit and mild’ way. A direct conflict will hurt the relationship with the other party, especially when the other party is of a higher social status. Since Chinese people are more sensitive to the concepts of hierarchy and power distance than Americans, avoiding conflicts is applied more frequently among Chinese people than among Americans (Friedman, Chi, & Liu, 2006).

The Chinese Value Survey (CVS) was initially developed by Bond and a group of Chinese researchers and complemented with survey instruments by Rokeach (1973) and Schwartz (1992). CVS was designed for people whose Eastern life values are dominant and was used to evaluate their cultural values that were developed from the Confucian ethos within the setting of Chinese society (Matthews, 2000). Some examples of values found via the CVS are

respect for “tradition, humility, filial piety, and protecting one’s face” (Matthews, 2000, p. 117). Forty Chinese cultural values were adopted from the Chinese Culture Connection (1987) and are presented in Table 2-2.

**Table 2-2 Chinese Cultural Values and Chinese Value Survey Factors**

<b>CVS I Integrity &amp; Tolerance</b> (Development of self)	<b>CVSII Confucian Ethos</b> (Relationships with others)
<ul style="list-style-type: none"> <li>• Filial piety</li> <li>• Industry –working hard</li> <li>• Tolerance of others</li> <li>• Harmony with others</li> <li>• Humbleness</li>   <li>• Kindness (Forgiveness, compassion)</li> <li>• Knowledge (Education)</li> <li>• Self-cultivation</li> <li>• Sense of righteousness</li> <li>• Personal steadiness and stability</li> <li>• Sincerity</li> <li>• Patriotism</li> <li>• Persistence (Perseverance)</li> <li>• Patience</li> <li>• Adaptability</li> <li>• Prudence (Carefulness)</li> <li>• Trustworthiness</li> <li>• Courtesy</li> </ul>	<ul style="list-style-type: none"> <li>• Loyalty to superiors</li> <li>• Benevolent authority</li> <li>• Non-competitiveness</li> <li>• Keeping oneself disinterested and pure</li> <li>• Contentedness with one’s position in life</li> <li>• Being conservative</li> <li>• Protecting your “face”</li> <li>• Chastity in women</li> <li>• Having few desires</li> <li>• Respect for tradition</li> </ul>
<b>CVS III Loyalty to Ideals &amp; Humanity</b> (Social responsibility)	<b>CVSIV Moderation &amp; Moral Discipline</b> (Worldly wisdom)
<ul style="list-style-type: none"> <li>• Observation of rites and rituals</li>   <li>• Reciprocation of greetings and favors, gifts</li> <li>• Solidarity with others</li> <li>• Moderation, following the middle way</li> <li>• Ordering relationships by status and observing this order</li> <li>• Resistance to corruption</li> <li>• Patriotism</li> <li>• Thrift</li> <li>• Having a sense of shame</li> </ul>	<ul style="list-style-type: none"> <li>• Repayment of both the good and the evil that another person has caused you</li> <li>• A sense of cultural superiority</li>   <li>• Wealth</li> </ul>



Four factors have been identified based on the forty Chinese cultural values, including CVS I: integrity and tolerance, CVS II: Confucian ethos, CVS III: loyalty to ideals and humanity, and CVS IV: moderation and moral discipline (Matthews, 2000). These factors particularly represent the Confucian ethos. CVS I reflects the values of social stability, family bonding, and the importance of family; CVS II contains the values of the Confucian work ethic; CVS III includes the ideas of gentleness and compassion; CVS IV reflects moral restraint and a firm and disciplined stance (The Chinese Culture Connection, 1987).

### ***Chinese Immigration***

The official records show that the first Chinese immigrants came to the U.S. in the 18<sup>th</sup> century. However, Chinese people were in America even earlier (Anonymous, 2011a). Because of the California Gold Rush, a large number of immigrants reached the U.S. in the mid 1800's. The first Chinese immigrants were wealthy and successful; most of them were artisans, fishermen, and hotel and restaurant owners. They were hardworking and dependable, and therefore, the first Chinese immigrants were well received by the Americans, including the public, government officials, and employers (Anonymous, 2011b). By 1851, there were 25,000 Chinese working in California. Most of them were gathered in and around the "Gold Rush" area and San Francisco in groups (Anonymous, 2011b). As more people joined the previous groups and the Chinese population increased, Chinatowns were created as ethnic enclaves in large cities all over the U.S. (Anonymous, 2011b).

The Chinatown is recognized as the Chinese area of a city. One geographer stated that "[A] Chinatown in North America is characterized by a concentration of Chinese people and economic activities in one or more city blocks, which form a unique component of the urban fabric" (Lai, 1973, p. 101). As communities of Chinese people, Chinatowns in the U.S. have continuously received new immigrants and have become the centers of economic and social activities. The largest Chinatowns are located in San Francisco, New York, Los Angeles, Chicago, and Boston.

### ***Acculturation***

As the number of immigrants has significantly increased in recent decades, the cultures, values, and rules of immigrants have received more attention from mainstream society. The term "acculturation" was created by Redfield, Linton, and Herskovits (1936, p.149). They stated:

“acculturation comprehends those phenomena which result when groups of individuals having different cultures come into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups.” Dawson, Crano, and Burgoon (1996) described acculturation as “the process by which an individual becomes socialized into an unfamiliar culture” (p. 97). Gordon (1964) defined acculturation as the process of adopting the values, customs, norms, attitudes, and behaviors of the major culture. Acculturation not only has a large impact on the immigrants’ cultures, but also has an influence on the mainstream culture.

The concept of acculturation has been applied to many cross-cultural research studies. Previous studies have been conducted to assess the impact of acculturation on a specific ethnic group (Nguyen, 2008; Suinn, Khoo, & Ahuna, 1995). The Suinn–Lew Asian Self-Identity Acculturation Scale (SL–ASIA) is the scale most widely used to measure the similarities among Asian Americans with regard to acculturation factors: language, identity, friendship choices, behaviors, general/geographic background, and attitudes (Barry, 2001; Nguyen, 2008; Ownbey & Horridge, 1997; Suinn et al., 1992; Suinn, Khoo, & Ahuna, 1995).

The SL-ASIA has also been applied to many studies because it has been confirmed to have high reliability and validity with different Asian-American groups, such as Chinese, Japanese, Vietnamese, and Koreans. For example, Suinn et al. (1995) applied the SL-ASIA to explore the differences between Asians in Singapore and Asians in the U.S., and Nguyen (2008) conducted research on Vietnamese-Americans. Furthermore, the SL-ASIA has also been used in research on the behavioral intentions of acculturation, such as dining out, shopping, travel, etc. (Bojanic & Xu, 2005; Littrell et al., 2004). The results from those studies confirmed that acculturation had a significant influence on immigrants’ various behaviors.

The connection between food and culture has been studied by many researchers (Fieldhouse, 1995; Kuczarski & Cole, 1999; Kittle & Sucher, 2004). According to Kittle and Sucher (2004), culturally-based food-related habits and behaviors are the last tradition to change via the acculturation process. However, certain food-related behaviors must change immediately because of the lack of available traditional ingredients, costs, and cooking equipment. The process of changing food habits presents the unique challenge to immigrants’ food safety behaviors.

Kittle and Sucher (2004) state that people’s food choices and habits do not merely consist of taste, economic decision, variety, convenience, or well-being. Food preferences, methods of

cooking, food handling practices, and eating habits also have direct or indirect impacts on immigrants' food-related behaviors, which may influence their food safety behaviors and perceptions (Lyonga, 2010).

## **Restaurants in the United States**

### ***Ethnic Restaurants***

When immigrants came to the U.S., they adopted American culture, values, rules, and regulations, even American holidays. At the same time, they often introduced their own style of cuisine into America and began their careers in the restaurant industry (Carre & Carre, 2003; McEvoy, 2006). There are several reasons that explain why immigrant minorities prefer to work in the restaurant business. First, starting a restaurant does not require a large amount of investment (Li, 1982). Second, working in the restaurant industry does not require operators and employees to have a formal education or credentials, and job-related training is relatively easy (Koleva, n.d.). For example, the Restaurant Opportunities Center of New York reported that foreign-born workers account for 70% of the total restaurant employees in New York (Koleva, n.d.). Finally, in the metropolitan areas in the U.S., the demand for ethnic cuisine increases along with the growing ethnic population (Koleva, n.d.).

According to the U.S. Census Bureau (2008), ethnic minority groups accounted for 34.4% of the U.S. population in 2008. As the fastest and wealthiest growing population in the U.S., the Asian population has continually increased from 3.6% of the total population in 2000 to 4.6% in 2010 and is expected to reach over 8% of overall population by 2050 (U.S. Census Bureau). As the population becomes more diverse, more Americans have become interested in consuming different types of food, especially ethnic foods. Traditional ethnic cuisines, such as Italian, Mexican, and Cantonese Chinese, are now considered familiar and mainstream American foods by American customers (American Express Market Brief, 2009; Hensley & Bohm, 2000; Mills, 2000; Sloan, 2010). It was noted that the U.S. ethnic food market generated \$75 billion in sales annually, which contributed 65% of the revenue of the U.S. food service industry (Casella, Myers, & Mollman, 2009). Limited and full-service Mexican restaurants generated more than \$18 billion in profit in 2007 (White, 2008), and Asian restaurant owners have become the second largest ethnic minority group operating ethnic restaurants in the U.S. (U.S. Census Bureau, 2006a, 2006b).

Previous studies concluded that members of Generations X and Y (ages 18-34) who had grown up in metropolitan areas consumed Asian foods, such as Thai, Vietnamese, Korean, and Japanese, more often than older customers (Americans Express Market Brief, 2007; Carre & Carre, 2003; Hensley & Bohm, 2000; Mills, 2000; Mintel Oxgen Reports, 2009; Sloan, 2010). In addition, Americans Express Market Brief (2007) reported that more consumers were exposed to ethnic food at an early age and that Americans are more willing to consume ethnic foods than ever before. In the same research, 70% of customers order ethnic food at least “some of the time,” and 29% purchase ethnic foods at least “half of the time” (Americans Express Market Brief). Howell (2005) predicted that the demand for ethnic food will continue to increase in the coming decades.

### ***Chinese Restaurants***

Chinese restaurants have been in business within Chinese communities in the U.S. since the mid-19th century. Originally, only members of their community frequently patronized Chinese restaurants, but over time, more immigrants opened their businesses to mainstream American customers and adjusted flavors to meet the needs of those customers (Rande, 1996).

There are four styles of Chinese cuisine in the U.S. today: Cantonese, Mandarin, Hunan and Szechwan, and Shanghai styles (Lynn, 1990). The Cantonese style was the earliest style of Chinese cuisine that was introduced into the U.S. It is famous for stir-frying, steaming, and roasting a wide variety of ingredients with sauces in order to cook various dishes. The Mandarin style was originally developed from the region around Beijing and adopted by Chinese restaurants in America. Hunan and Szechwan style cuisine are famous for being hot and spicy, but they have also been modified to accommodate American tastes. The last type of cuisine is Shanghai style, which uses the unique cooking process of simmering meat in dark soy sauce (Lynn, 1990). According to the National Restaurant Association (1995), Chinese cuisine was perceived as having a great value for its price, being convenient for carryout, being rich in flavor, and being difficult to prepare at home.

Previous researchers who studied the Chinese restaurant business indicated that the existence of Chinese restaurants in the U.S. stimulates cultural interaction between Chinese immigrants and Americans (Chao, 1985; Zhang, 1999). A Chinese restaurant is not only a business establishment, but a social institution that influenced culture, values, and rules in the

U.S., and eventually, it became a part of American society (Zhang). Other studies explored the connection between Chinese culture and architecture in Chinese restaurants. Chao stated that the architectural revolution of Chinese restaurants in San Francisco between 1894 and 1984 was a consequence of cross-cultural interaction. Three separate periods of Chinese restaurant development were identified and served as landmarks of the socioeconomic adaption of Chinese people in the U.S. (Chao). Lu (1990) concluded that Asian immigrant businesses in the U.S. were willing to show ethnic characteristics and provided employment opportunities for immigrants from their own ethnic groups.

The U.S. Census estimated that the Asian population will grow from 14.1 million in 2010 to 34.4 million in 2050 (Ortman & Guarnei, 2009). Along with increases in the Asian population, the number of Asian restaurants has significantly increased and become one of the leading business sectors owned by the two largest ethnic minority groups in the U.S. (U.S. Census Bureau, 2006a, 2006b). As the first Asian cuisine introduced to America, Chinese food is considered one of America's favorite ethnic foods and accounts for a large segment of ethnic restaurants in America.

Riehle (1990) described the consumers of Chinese restaurants as being aged from 25 to 54, with an annual household income greater than \$25,000 and living in metropolitan areas. The menu variety, portion size, friendly employees, quality of service, and value for the money were identified favorably by patrons of Chinese restaurants (Gordon, 1992).

Chinese restaurants were quickly accepted by customers and performed well in the ethnic restaurant industry. According to a survey identifying the favorite ethnic foods in the U.S., which was conducted by Research Advantage Inc. in 1992, 84% of the people had tried Italian food, followed by 82% for Chinese food, 75% for Mexican food, 43% for French food, and 42% for Japanese food. During the past decade, ethnic foods have become more popular. According to a marketing survey conducted by Mintel International Group Ltd. (2009), the ethnic foods market reached \$2.2 billion in sales in 2009. Italian, Mexican, and Chinese foods maintained their popularity among ethnic foods in the U.S. restaurant industry.

The number of Chinese restaurants in the U.S. has continued to increase. Chinese Restaurant News (2007) stated that there are more than 46,000 Chinese restaurants in the U.S., which is twice the number of McDonald's restaurants. The annual sales of Chinese restaurants reached over \$20 billion in 2008, accounting for 5.0% of total food and drinks sales in the U.S.

(Chinese Restaurant News, 2007). Because of the fast development and expansion of the U.S. restaurant industry, Chinese restaurants have been facing competition from other restaurants, including other Asian restaurants, such as Indian, Japanese, Korean, Thai, and Vietnamese (Liu & Jang, 2008). However, Chinese cuisine still dominates the Asian restaurant market.

A study conducted in 2001 found that over 90% of Americans have tried Chinese food and that 63% eat Chinese food every month (George, 2001). The demand for ethnic food will continue increasing over the next decade (Howell, 2005). Most of the Chinese restaurants are operated as single-unit independently-owned foodservice operations (Chen & Bowen, 2001). Chinese restaurants are typically operated using family members as employees (Liu & Jang, 2009). Although limited, a few brands, such as P.F. Chang's China Bistro and Panda Express, are gaining popularity as Chinese chain restaurants in the U.S.

### ***Food Safety Issues in the United States***

According to the Centers for Disease Control and Prevention (CDC, 2011), foodborne diseases cause approximately 48 million illnesses, 128,000 hospitalizations, and 3,000 deaths in the U.S. each year. Along with the number of individuals affected by foodborne diseases, a significant economic burden caused by foodborne diseases is noted. Crutchfield and Roberts (2000) estimated that the annual cost of five foodborne pathogens, *Campylobacter* spp., *Salmonella*, nontyphoidal, *E.coli* O157:H7, *E.coli*, non-O157 STEC, and *Listeria monocytogenes*, was approximately \$6.9 billion. If all foodborne pathogens are included, the total annual estimated costs of related low productivity and medical expenses are \$10 billion to \$83 billion (U.S. Food and Drug Administration [FDA], 2009).

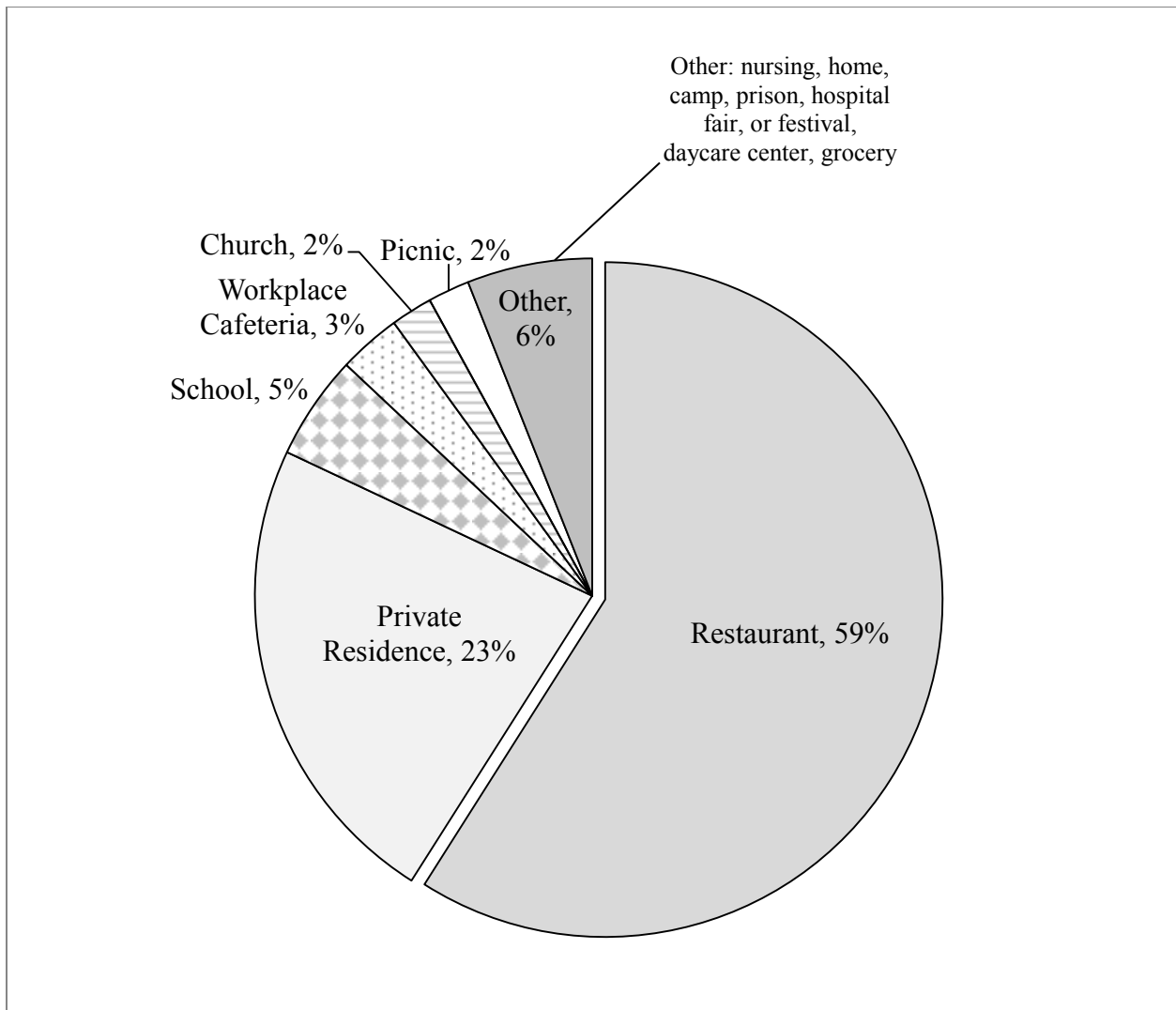
A foodborne illness is a disease that is transmitted to people by food. A foodborne illness outbreak is defined as “an incident in which two or more persons experience a similar illness resulting from the ingestion of a common food” (CDC, 1996, para. 2). Foodborne illnesses often present flu-like symptoms, such as nausea, vomiting, diarrhea, or fever, so many people may not recognize that the illness is caused by bacteria or other pathogens in food. Most foodborne illnesses are caused by microorganisms, such as bacteria, viruses, parasites, and fungi. Foodborne illness symptoms may occur any time from 2 to 6 hrs (*Staphylococcus aureus*) up to 6 weeks (virus Hepatitis A) after eating the contaminated food, depending on the type of microorganism (CDC, 2001). Some people are more vulnerable to foodborne illnesses than

others due to compromised immune systems. Such high risk populations include pregnant women, young children, those over 65, and those with chronic illnesses or compromised immune systems (CDC, 2001).

Since restaurants serve meals to a multitude of people, the magnitude of a foodborne illness in this context is usually greater than one in home-prepared food. Lynch, Painter, Woodruff, and Braden (2006) estimated that 60% of the total foodborne illness outbreaks were associated with food served in restaurants, followed by foods prepared in homes (23%), schools (5%), workplace cafeterias (3%), religious organizations (2%), and picnics (2%) (Figure 2-1). Similar results were reported from the 15,800 laboratory-diagnosed food-borne infections reported in 2004. The majority (58%) of the illnesses were associated with food served at restaurants (CDC, 2005; Environmental Health Updater, 2005). The NRA (2009) estimated that more than 130 million people purchase food from foodservice establishments daily, with 70 billion meals or snacks served annually. As more people dine out, the risk of foodborne illnesses increases.

Time/temperature abuse, poor personal hygiene of food handlers, and cross-contamination were identified as the top three common factors that led to foodborne illnesses (Collins, 1997). Most of the direct causes of foodborne illnesses are considered preventable, and proper training to ensure safe food handling practices is important to protect the public. Since more than 12 million individuals are employed in the foodservice industry as of 2010, the challenge of training them in safe food handling practices is significant and so are the risks of foodborne illness outbreaks in U.S. restaurants (NRA, 2010).

Although progress has been made in reducing foodborne illnesses, food safety issues continue to be a challenge in the restaurant industry in the U.S. Foodborne illnesses are a major cause of illness, death, and social and economic burden in the U.S. (Mead et al., 1999; Redmond & Griffith, 2005). Furthermore, food safety researchers stated that preventing foodborne illnesses was further challenged by (a) emerging pathogens, (b) an increasing global food supply, (c) increasing numbers of individuals in at-risk populations, (d) improper food handling, preparation, and storage practices among consumers, (e) insufficient training of food workers, and (f) a lack of food safety knowledge and education (Finch & Daniel, 2005; Kaferstein, Motarjemi, & Bettcher, 1997).



**Figure 2-1 Reported Foodborne Disease Outbreaks by Establishment Type. (Lynch et al., 2006).**

### *Ethnic Food Safety*

Howell (2005) reported that demand for ethnic foods would increase by 50% over the next decade and that ethnic food sales would reach \$75 billion. Among ethnic populations, Asians and Hispanics own the most restaurant operations, with 15% of total restaurant establishments being owned by Asians and 8% being owned by Hispanics (NRA, 2009). Ethnic restaurants are not exempt from foodborne illnesses. Previous studies have reported the increased concerns about food safety handling in ethnic restaurants (Kwon et al., 2010; Mauer et al., 2006).



For example, Kwon et al. found that Asian and Mexican, or Latin American, ethnic restaurants had significantly more critical violations and a greater number of inspections than non-ethnic restaurants. The five most prevalent violation categories associated with ethnic restaurants identified were (a) time and temperature control of potentially hazardous foods, (b) physical facility maintenance, (c) protection from contamination, (d) control of hands as a vehicle of contamination, and (e) food and non-food contact surface maintenance (Kwon et al.). Additionally, Mauer et al. (2006) concluded that ethnic-food establishments lacked ethnic-food safety resources, especially at the local level. The language barrier has been identified as a factor influencing food safety training implementation at ethnic restaurants (Mauer et al., 2006). Safe food-handling practices are the only way to prevent foodborne illnesses. Thus, it is important to develop safe food-handling practice guides that are culturally sensitive to ethnic restaurants and distribute them to ethnic restaurants.

### ***Foodborne Illness Outbreaks in Ethnic Restaurants***

As the demand for the ethnic food increased, total foodborne illness outbreaks related to ethnic foods increased from 3% in 1990 to 11% in 2000 (CDC, 2009). Simonne, Nille, Evans, and Marshall (2004) found that the majority of outbreaks were caused by consuming Mexican, Italian, and Asian foods and that 43% of these foodborne illness outbreaks were associated with food served in restaurants.

Despite the increased concerns over ethnic food safety, only a few studies have been conducted to explore food handling practices in ethnic restaurants. Many food safety experts indicated that ethnic restaurants lacked food safety information (Mauer et al., 2006). Improper food temperature, cross-contamination, and poor worker hygiene have been identified by these experts as the three most challenging practices at the local level ethnic food establishments (FDA, 2009; Mauer et al.).

### ***Perceptions of Food Safety Risk***

In general, an individual's perceptions of risks are influenced by multiple factors. For example, Dosman, Adamowicz, and Hrudefy (2001) concluded that household income, number of children, gender, age, and voting preferences were contributing factors related to a person's risk perceptions. For example, women were more concerned about food safety risks than men, and the more children there were in household, the more likely they were to perceive food safety

risks. The perceptions of food safety risks also differ based on individuals' characteristics. Demographic groups perceived food safety risks differently because individuals have different cultures, levels of knowledge, and behaviors regarding food safety practice (Dosman et al.).

In another study, customers' perceptions and confidence regarding food safety issues were tested by Jonge, Trijp, Renes, and Frewer (2007). Socio-demographic factors, such as gender, age, and educational level, have been recognized as impacting general consumers' confidence in food safety (Jonge et al., 2007). However, Buzby and Roberts (1999) argued that perceived levels of food safety risk not only varied among individuals with different socio-demographic characteristics, but also among individuals with a variety of cultures and geographic differences. These researchers identified reasons for different risk perceptions, such as unique food production practices for diverse groups and the availability of ways to protect or preserve food items (Buzby & Roberts).

An individual's perception of food safety risk is also influenced by past experiences of specific food hazards, knowledge or awareness of food hazards and risks, and cultural values, such as customs and religious beliefs, worldviews, and the availability of certain food ingredients (Breakwell, 2000; Finucane, 2002; Lin, Jensen, & Yen, 2005; Tucker, Whaley, & Sharp, 2006; Roseman & Kurzynske, 2006). Studies found that when consumers have experienced foodborne illnesses, their awareness, concern, and knowledge related to food safety increased (Fein, Lin, & Levy, 1995).

### **Food Safety Training**

According to the foodborne viral outbreaks reviewed by Koopmans and Duizer (2004), most cases of foodborne illnesses were associated with mishandled foods, and most cases were traced back to the infected individuals. The CDC (2000) also reported that more than 75% of the estimated 76 million cases of foodborne illness outbreaks were associated with improper food handling.

The CDC (2009) recommended educating restaurant employees regarding foodborne illness risks and prevention measures. Food safety training was found to be an effective way to improve food safety knowledge and food safety behavioral compliance related to hand washing, the use of thermometers, and the handling of work surfaces (Roberts et al., 2008). Researchers

have also reported that food safety training is effective in increasing sanitation inspection scores (Cotterchio, Gunn, Coffill, Tormey, & Barry, 1998; Kneller & Bierma, 1990).

Only 26% of independent ethnic restaurant operations provided food safety and personal hygiene training to their employees (Ram, Sanghera, Abbas, & Barlow, 2000). The training was not given to the employees unless it was required by law (Ram et al., 2000). A lack of resources, time constraints, and the attitudes of the employees were identified as barriers to providing food safety training to restaurant employees (Roberts et al., 2008; Youn & Sneed, 2002).

The language barrier was another contributing factor that reflects food safety training in ethnic restaurants (Mauer et al., 2006; Rudder, 2006). Additionally, some researchers have concluded that even when foodservice employees are trained in proper food handling practices and receive the knowledge needed to perform proper food safety practices, increased knowledge did not always reflect on the behavioral intention (Roberts et al., 2008).

### **Consumer Perceptions of Food Safety in Restaurants**

In general, consumers care about food safety, especially when eating at restaurants (Knight, 2007). A customer attitude survey indicated that more than half of customers in the United Kingdom were concerned about hygiene and cleanliness in restaurants (Food Standards Agency, 2005). Worsfold (2006) also found that nearly all consumers claimed food hygiene was a critical factor when deciding where to dine out, yet because it was difficult to find information regarding the hygiene standards of restaurants, aesthetics was the only measure of assessing the hygiene standards at restaurants. Some consumers claimed that if they could access information about hygiene standards of restaurants easily, they would dine out more often (Worsfold, 2006).

According to Liu and Jang (2008), environmental cleanliness and attentive services were the two areas in which Chinese restaurants need the most improvement. Additionally, Jang and Silkes (2009) concluded that the attributes related to Chinese restaurants were different from those of other restaurants and that Chinese restaurants need to improve six attributes: quality, freshness, digestibility, cleanliness, health, and attractiveness.

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## **Chapter 3 - METHODOLOGY**

### **INTRODUCTION**

The purpose of the proposed study was to investigate variables that influence Chinese restaurant owners'/operators' behaviors regarding food safety training in Chinese restaurants in the U.S. The specific objectives of this study were to explore the Chinese cultural values that affect Chinese restaurant operations, to explore the influences of Chinese cultural values on the behaviors of Chinese restaurant owners/operators in providing food safety training, to determine other variables that explain Chinese restaurant owners/operators' attitudes and behaviors regarding food safety training in their restaurants, and to investigate the most preferred food safety training method/language for Chinese restaurant owners/operators in their restaurants.

This chapter describes the sample selection process, instrument development, data collection, and statistical analysis procedures employed for both the qualitative and quantitative aspects of this investigation. Prior to contacting any research participants, the approval to use human subjects in research was obtained from the Institutional Review Board at Kansas State University.

### **QUALITATIVE STUDY**

According to Patton (2002), "qualitative methods permit inquiry into selected issues in great depth, with attention to detail, context, and nuance" (p. 29). One advantage of using qualitative methods in exploratory research is that the probing and open-ended questions provide participants the opportunity to respond in their own words, rather than forcing them to choose one of the fixed answers (Qualitative research methods, n.d.). Qualitative methods allow participants to generate responses that are meaningful or culturally salient for them, explore answers that are unanticipated by the research, and provide reactions that are "rich and explanatory in nature" (Qualitative research methods, n.d, p. 4).

Additionally, qualitative methods give the research the flexibility to explore initial participants' responses by asking why or how, which could encourage participants to elaborate on their answers (Qualitative research methods, n.d.). This study is designed to investigate variables that influence Chinese restaurant owners'/operators' behaviors regarding the provision of food safety training in Chinese restaurants in the U.S. With relatively little being learned

about this process via the literature review, there is little information on how to build a survey or to give direction for the construction of predetermined categories for references. Therefore, without a qualitative study, conducting a quantitative approach for this research is unsuitable (Everett, 1998; Silverman, 2000).

The purpose of conducting a qualitative study was to identify the core Chinese cultural values that influence Chinese restaurant operations and food safety training. Additionally, the aim was to explore attitudes, barriers, personal influence, and past experiences related to safe food handling and food safety training and to uncover some elements that may impede food safety training in Chinese restaurants in the U.S. Finally, the study investigated the most preferred food safety training method/language for Chinese restaurant owners/operators in Chinese restaurants and developed a tentative study model and survey instrument for subsequent quantitative research. Individual interviews, rather than focus groups, were utilized as the qualitative data collection method in order to minimize participants' embarrassment in front of other similar operators, who may be their direct competitors. Individual interviews should maximize participants' privacy, and their true feelings can be easily reflected by their answers (InterAction's Protection Working Group, n.d.).

### ***Participants***

Initially, participants were selected from a list of independent Chinese foodservice establishments obtained from online sources (ChineseMenu, n.d.). Only traditional, full service, non-buffet Chinese restaurants were selected in order to minimize variations due to different restaurant settings and the style of service. In this study, a large city is defined as a city with a population greater than 100,000, such as New York, NY, Los Angeles, CA, or Houston, TX. A small city is defined as a city with a population less than 100,000, such as Manhattan, KS, Gillette City, WY, or Boone, NC. One large city and one small city were randomly selected from the nine U.S. geographical regions defined by the U.S. Census Bureau (see Table 3-1). Additionally, another two large cities in the Pacific and New England regions were included in the study because they have more populations than the other regions. One Chinese restaurant owner/operator in each city was randomly contacted and asked to participate in this study. Therefore, 20 Chinese restaurant owners/operators were purposefully selected in order to reflect nationwide profiles. If the selected restaurant owners or operators refused to participate in the

study, a replacement was taken from the remaining establishments in the surrounding areas until 20 participants were obtained. Finally, individual interviews were conducted with 20 restaurant owners/operators in this study. Among 20 participants, 19 were conducted interview using Chinese and 1 was using English since the participant was born in a Chinese family in the U.S.

**Table 3-1 Distribution of Sampling Criteria of Full-Service Chinese Restaurants**

<b>ID</b>	<b>Geographic Location</b>	<b>City Type</b>
1	Pacific	Large
2		Large
3		Small
4	Mountain	Large
5		Small
6	West North Central	Large
7		Small
8	East North Central	Large
9		Small
10	West South Central	Large
11		Small
12	East South Central	Large
13		Small
14	Middle Atlantic	Large
15		Small
16	New England	Large
17		Large
18		Small
19	South Atlantic	Large
20		Small

### ***Question Development***

The interview questions were developed based on the Chinese Value Survey (CVS), the literature review, and input from three Chinese restaurant owners. More specifically, a convenient sample of three Chinese restaurant owners was asked to participate in interview question development to clarify the directions, content validity, and suitability of questions. Based on the feedback, all interview questions were modified as appropriate.

Several open-ended questions, including questions on Chinese cultural values and questions related to restaurant operations and food safety training, were asked to Chinese restaurant owners/operators during the individual interviews. Questions for Chinese restaurant owners/operators covered:

- Core Chinese cultural values that influence Chinese restaurant operations and food safety training
- Chinese restaurant owners/operators' attitudes related to safe food handling and food safety training
- Chinese restaurant owners/operators' attitudes towards health inspection and/or inspectors
- Chinese restaurant owners/operators' barriers to providing food safety training
- Chinese restaurant owners/operators' behavior in terms of providing food safety training
- Past experiences of Chinese restaurant owners/operators related to safe food handling and food safety training
- Past experiences of Chinese restaurant owners/operators about health inspection and/or inspectors
- Preferred food safety training methods

### ***Pilot Study***

Food safety experts and Chinese restaurant owners reviewed the interview questions for clarity and content validity. Food safety experts were defined as those who have been actively engaged in food safety research for the last 5 years or have worked for higher education and government organizations for at least 5 years in the food safety area. Prior to finalizing the interview protocols, a pilot study was conducted with three local Chinese restaurant owners/operators who had not participated in the development of interview questions. They were recruited by telephone invitation. If the selected owners or operators refused to participate in the study, replacements were taken from the remaining facilities in the surrounding areas until the target number of participants was obtained. Once three local Chinese restaurant owners/operators were committed to participate in the pilot study, no more telephone invitations were made.

Questions for the individual interview were translated into an official Chinese language, Mandarin, and pilot-tested for clarity and usability with a convenience sample of three Chinese owners/operators. Before conducting the pilot study, consent forms were provided to inform the participants that their identities, responses, and establishments would be kept confidential, that the results of the study will be presented in summary form only, and that they could withdraw

from participation without penalty at any time. The investigator served as the interviewer for each individual interview in order to direct the discussion consistently, allowing participants to have adequate time to speak and ensuring the use of appropriate and respectful language. A payment of \$20 was offered to compensate for participants' time and effort.

The interviews were audiotaped, transcribed in Chinese, and then translated into English. Themes and key topics from the transcribed interviews were identified and cross-checked by Chinese-speaking research assistants. After reviewing the interview content, the most salient questions were selected, revised, and identified for actual interviews with the study sample. Each interview started with general questions, which were followed by probing questions in order to capture the desired information. The interview questions were revised based on the pilot-test results as appropriate.

### ***Data Collection and Data Organization***

Individual interviews with owners/operators across the U.S. were conducted. Participants were contacted by telephone and asked to participate in a 45-minute interview with \$20 payment as incentive. An informed consent form was read by researchers via telephone. Participants were informed of the study objectives and guaranteed confidentiality before agreeing to be interviewed. Upon participant agreement, an interview was conducted, audio-recorded, and transcribed verbatim.

Interviews were conducted by a bilingual researcher by asking an identical set of questions. Participants were offered a choice of being interviewed in English or Mandarin. Chinese interviews were translated into English before any analyses were carried out. Each participant continued discussing each topic until no new ideas were generated. The probing technique was used to stimulate new ideas, elaborate comments, and clarify opinions.

Common themes were identified from the transcribed data by two researchers who coded each of the transcription independently. The codes were compared repeatedly and reconciled. Codes with the similar meanings were grouped together under the same categories. The coding was reviewed by two other researchers, who were not involved with this study to ensure the consistency of idea generation. Themes related to various Chinese cultural values; attitudes, past experiences, and perceived barriers related to health inspection and food safety training; and the most preferred food safety training methods and language in Chinese restaurants were identified.



The identified themes were used in the next stage of quantitative research instrument development.

## **QUANTITATIVE STUDY**

The purpose of the quantitative study was to assess behaviors of providing food safety training in Chinese restaurants in the U.S. by using the instrument developed in the qualitative study. More specifically, the survey was administered to explore Chinese cultural values and their influences on the behavior of Chinese restaurant owners/operators in terms of receiving and providing food safety training. Also, this study examined the relationships between/among potential variables and the behavior of Chinese restaurant owners/operators in terms of providing food safety training. The most preferred food safety training methods and language for Chinese restaurant owners/operators in Chinese restaurants were also identified.

### ***Model and Instrument Development***

Based on the results of individual interviews, an instrument and proposed research model were developed that estimates potential relationships among Chinese cultural values, attitudes, personal influence, perceived barriers, past experiences, and behaviors or other variables regarding food safety training. A questionnaire was established based on the proposed research model. All questions on the questionnaire were developed based on the constructs identified in the qualitative portion research.

Questions in each identified construct were formulated according to concepts established under each theme in the qualitative portion of the project. An initial group of formulated questions were constructed in order to build a foundation for the questionnaire. After the initial group of questions was generated, an evaluation process was applied to eliminate and reword questions as needed (DeVellis, 1991). Similar or repeating questions in each identified construct were eliminated or reworded. The elimination of questions was based on a lack of clarity and relevance or on similarity to other questions. Rewording of questions was needed to improve readability and clarity.

Likert-type scales were determined based on the literature review for each question in the questionnaire. A few general instructions were given at the beginning of the questionnaire. Specific instructions were placed where that information was needed in order to achieve better compliance with instructions. Font variations and visual techniques were applied to improve skip

pattern compliance, by using a different font for the skip directions to attract the respondent's attention (Chow, 2009).

The questionnaire included questions regarding respondents' Chinese cultural values and influences on their behaviors related to food safety training, their attitudes toward food safety training, others' personal influence on providing food safety training, their perceived barriers to providing food safety training, their past experiences with food safety training, and their most preferred food safety training methods and language. Demographic information about the establishments and participants were also included. All questions, except demographic questions, used Likert-type scales.

### ***Instrument Validation***

The initial questionnaire was reviewed by the food safety experts and Chinese restaurant owners to ensure face and content validity and the clarity of the directions. Face validity was ensured through a focus group (n=4), which included two graduate students with food safety and foodservice experience and two local Chinese restaurant owners/operators who were not included in any previous sections of this study. The focus group provided recommendations for questionnaire wording and flow. Some questions were eliminated to reduce duplication and shorten the length of the instrument (Byrd-Bredbenner, Wheatley, Schaffner, Bruhn, Blalock, & Maurer, 2007). The questionnaire was also be further refined by improving answer choice quality. Poorly functioning distracters, which were selected by few participants, were either modified to improve their plausibility or made more attractive (Byrd-Bredbenner et al.).

Content review was performed by distributing a copy of the questionnaire and review form to the food safety experts and two Chinese restaurant owners. Comments and additional questions about the instrument were summarized. The questionnaire then was translated into the official Chinese language, Mandarin, by bilingual researchers. In order to make sure the translation was correct, the Chinese version of the questionnaire was back-translated into English and compared with the original instrument. The original and back-translated instruments were reviewed by an panel of 20 English native speakers for consistency. Chinese translation was considered acceptable if the average rating of 5.0 (70%) or greater for each question on the 7-point Likert-type scale. Revisions were made according to the feedback from the food safety experts. Some questions could be translated word-for-word and reached 100% agreement and

**Table 3-2 Results on Back Translation**

Words/Phrases	短语	Level of Agreement
		Mean <sup>a</sup> ± SD
Courtesy	礼貌	5.50 ± 1.50
Reciprocity	互惠互利	5.55 ± 1.48
Thriftiness	节俭	5.08 ± 1.44
Diligence	勤奋	5.11 ± 2.14
improve employee food handling practices	提高员工处理食品的实践操作	5.67 ± 1.67
ensure my restaurant serve safe food	确保我餐厅提供安全的食物	6.08 ± 1.16
provide safe food to my customers	确保为客人提供安全的食物	5.83 ± 1.40
provide quality food to my customers	确保为客人提供高质量的食物	5.42 ± 1.73
I will offer food safety training to all employees if it is required by law.	如果法律有规定，我就会为我所有的员工提供食品安全培训。	5.92 ± 1.51
Having foodborne outbreaks in my restaurant would result in me 'lose face'.	我的餐厅发生食源性疾病会让我觉得很丢脸。	5.75 ± 1.42
I have enough staffs when employees are gone for food safety training.	当员工去参加食品安全培训时，我餐厅可以有足够的人手应付客人。	5.33 ± 1.61
By providing food safety training, my employees can adapt American's food safety practices.	提供食品安全培训可以确保员工适应美国食品安全的实践操作	5.58 ± 1.31
I try my best to follow health inspectors' recommendation no matter what they ask.	无论食品安全检查员要求什么，我都会尽我最大的努力去满足他们。	5.67 ± 1.37
I like to keep power distance with employees in the workplace.	我希望和员工在工作中保持距离。	5.58 ± 1.78
Having a good relationship with health inspectors will have a positive impact on food safety inspection.	和食品安全检查员搞好关系会对食品安全检查有正面影响。	5.60 ± 1.33
I agree with health inspectors' evaluation.	我同意食品安全检查员的评估。	5.92 ± 1.16
I don't think the health inspectors know about Chinese cooking.	我觉得食品安全检查员不懂中国烹饪技术。	5.25 ± 1.54

<sup>a</sup>Based on 7-point Likert-type scales with 7 being exactly the same and 1 being completely different.

were not evaluated for accuracy. Table 3-2 shows the final results of comparison between statements from the original and back-translated versions.

### ***Survey Participants***

The target population of this study was Chinese restaurant owners/operators who are currently operating independent, traditional, full-service Chinese foodservice establishments in the U.S. A list of Chinese restaurants was obtained through ChineseMenu.com, which is a sub-organization of Chinese Restaurant News. Chinese Restaurant News subscribers include owners and operators of Chinese restaurants. According to Chinese Restaurant News (n. d.), 46,756 Chinese restaurant operators in the U.S. regularly subscribe to that news magazine. Of these, 86.5% operate family-owned or independently owned businesses, 9% operate multi-unit stores, 2.7% operate chained or franchised businesses, and 1.8% operate takeout stations in supermarkets. Of those restaurants owned or operated by subscribers, 71% are traditional sit-down restaurants; 21% are fast food, carry-out, or delivery service; 6% are buffet restaurants; and 2% are catering or dim sum supply stores (Chinese Restaurant News, n.d.).

ChineseMenu.com lists the addresses, telephone numbers, fax numbers, and types of 7,152 Chinese restaurants from 48 states and Washington, DC. Among the 7,152 Chinese restaurants, 1,031 were operating independent, traditional, full-service Chinese foodservice establishments. The restaurants listed on the website are subscribers to Chinese Restaurant News who disclosed their contact information (ChineseMenu, n. d.). A total of 500 Chinese restaurants were randomly selected and contacted by mails, faxes, personal visits, or telephone calls, asking for their participation in the study. If the selected owners or operators refused to participate in the study, a replacement was taken from the remaining facilities until the target number of establishments was obtained. According to Dillman (2007), the completed sample size needed to model a population of 1 million with a 5% sampling error and an 80/20 split is 246. Since the researcher called to solicit participation, greater than 50% participate rate was expected reaching the necessary number of participants.

### ***Pilot Study***

Once translation was completed and verified for accuracy, the questionnaire was pilot-tested for inter-item reliability and the clarity of the directions. Twenty Chinese restaurant owners or operators from the local or surrounding areas were invited to complete the survey and

to provide feedback about the usability and the clarity of the directions. Inter-item reliability was evaluated using Cronbach's alpha analysis for each construct ( $\alpha \geq 0.70$ ). The questionnaire was revised based on the pilot-test results as appropriate. All constructs (CCVs, attitude, personal influence, perceived barriers, past experiences, and intention) achieved the acceptable Cronbach's alpha ( $\alpha \geq .70$ ) (Table 3-3). The final questionnaire in English and Chinese are available in Appendix C and D, respectively.

**Table 3-3 Reliability of Measurement (n=20)**

<b>Construct</b>	<b>Number of items</b>	<b>Cronbach's alpha (<math>\alpha</math>)</b>
<b>CCVs</b>	17	.81
<b>Attitude</b>	4	.71
<b>Personal influence</b>	5	.91
<b>Perceived barriers</b>	6	.79
<b>Past experiences</b>	6	.89
<b>Intention</b>	2	.79

### *Data Collection*

Paper surveys were used for this research project. As explained earlier, 400 Chinese restaurants were selected from various municipalities and regions and solicited to participate in the study. In addition, another 100 Chinese restaurants that were not listed online were contacted by Chinese Restaurant News via faxes and phone calls. A total of 500 Chinese restaurants were contacted in this study, and a drawing of 30 \$50 gift cards was used as an incentive to participate in the study. Those Chinese restaurant owners received a copy of the questionnaire, a postage-paid envelope, and a cover letter (written in Mandarin) that explains the purpose of the research, the researcher's information, the subjects' rights, and information about the data collection procedure.

The owner/operators were instructed to mail the completed survey questionnaire to the researcher directly, using the self-addressed, postage-paid envelope provided, or to email/fax the completed survey questionnaire back to the researcher. The subjects were informed that their identities, responses, and establishments would be kept confidential, that the results of the study would be presented in summary form only, and that they could withdraw participation without

penalty at any time. Two weeks after the initial contact, participants who had not responded received a phone call or a fax that asked participants to complete and return the survey (Dillman, 2007).

### ***Statistical Analysis***

Descriptive statistics, such as frequencies, means, standard deviations, and cross-tabulations, were calculated to summarize the data. For Objectives 1 and 2, an exploratory factor analysis was applied to identify core Chinese cultural values and the relevant factors of the behaviors of Chinese restaurant owners/operators to provide food safety training. Cronbach's alpha (Cronbach, 1951) was also used to check construct reliability. A composite reliability of  $\geq 0.70$  for all constructs was considered to be an accepted threshold. For Objective 3, multiple regression analyses and correlation analyses were applied to identify relationships between/among Chinese cultural values, attitudes, personal influence, perceived barriers, past experiences, and other variables related to safe food handling, food safety training, and behaviors related to providing food safety training in Chinese restaurants. For Objective 4, descriptive statistics were applied to summarize the data and identify the most preferred food safety training method and language for Chinese restaurant owners/operators in Chinese restaurants. Data were analyzed using the SPSS for windows Version 17.0 (2007, SPSS Inc, Chicago, IL).

### ***Study Variables***

Study variables were identified based on the literature review and the elicitation study. The instrument included questions regarding pre-identified Chinese cultural values (CCVs,  $n = 17$ ), attitudes toward food safety training ( $n = 4$ ), personal influences on providing food safety training ( $n = 5$ ), perceived barriers to providing food safety training ( $n = 6$ ), past experiences with food safety training and health inspections ( $n = 6$ ), behavioral intentions related to food safety training ( $n = 2$ ), and preferred food safety training method and language. Demographic information about the establishments and participants were also included in the questionnaire. All questions, except the demographic questions, were measured using Likert-type scales on which the participants indicated their degree of agreement. The survey instrument containing the complete variables is included in Appendix C and Appendix D. Each construct included in the questionnaire is described below with examples of questions.

### **Chinese Cultural Values (CCVs)**

“Chinese Cultural Values and Their Implications in Business” (Anonymous, n.d.) identified important cultural values for the Chinese population, including “trust”, “reciprocity”, “face”, “time”, “harmony”, “hierarchy”, “power distance”, and “long-term orientation.” Forty CCVs were adopted from the Ng et al. (1982) study. Through an elicitation study, 17 previously identified CCVs were evaluated and used to extract core CCVs relevant to this population. CCVs were addressed by asking the participants to rate the importance of each item on a 7-point Likert scale from (1) *extremely unimportant* to (7) *extremely important*. For example:

“Please circle one number between 1 and 7 by each item below to express the importance of that item to you personally.”

1	2	3	4	5	6	7	1. Respect
1	2	3	4	5	6	7	2. Authority

### **Attitude**

Roberts (2008) identified nine attitude measures related to food safety training in commercial restaurants: Increasing customer satisfaction, ensuring food safety, ensuring food quality, reducing food waste, increasing employee’s food safety awareness, maintaining the operation’s reputation, improving employee satisfaction, reducing the likelihood of lawsuits, and improving the food safety practices of employees. Through an elicitation study, these previously identified attitude measures were evaluated and revised in order to extract core attitude measures relevant to this population. Specifically, attitudes were measured by asking the respondent to rate the strength of his/her attitude about each of the seven measures on a seven-point Likert scale from (1) *strongly disagree* to (7) *strongly agree*. For example:

“Please rate each statement on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*. In your opinion, providing food safety training to your employees will”

<b>Statements</b>	<b>Response to each statement</b>								
1. improve employee food handling practices	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
2. ensure my restaurant serve safe food	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

**Personal Influences**

Six subjective norms have been identified by Roberts (2008), including supervisors, long-term employees, short-term employees, customers, health inspectors, and vendors. Through the literature review, it was also determined that family members, relatives, friends, classmates, and colleagues have the most influence on Chinese people (Anonymous, n.d.). Through an elicitation study, these previously identified personal influences were evaluated, and new personal influence measures were explored. The core personal influences of the Chinese population were included in this study.

Each personal influence was measured by asking the respondent to rate their agreement with each referent group/individual about offering food safety training on a seven-point Likert scale from (1) *strongly disagree* (7) *strongly agree*, for example:

“Please rate your agreement with each statement about food safety on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*.”

Statements	Response to each statement	
1. Customers think I should offer food safety training in my restaurant.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree	Not Applicable
2. Business partners think I should offer food safety training in my restaurant.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree	Not Applicable

**Perceived Barriers**

Roberts (2008) identified nine control beliefs for restaurant owners/operators, including employee availability, managers’ time, financial resources, lack of off-site food safety training availability, lack of on-site food safety training availability, lack of targeted training materials, employees not following what they learn from food safety training, and the time commitment required for food safety training. Based on the literature review, a lack of resources, time constraints, the attitudes of the employees, and language barriers were contributing factors in preventing further food safety training in ethnic restaurants (Mauer et al., 2006; Roberts et al., 2008; Rudder, 2006; Youn & Sneed, 2002). Through an elicitation study, more control beliefs that are relevant to this population were identified and included in the final questionnaire. Perceived barriers were measured by asking owners/operators to rate their agreement with each statement about food safety on a seven-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (7). The final questions were revised based on the elicitation study. For example:



Statements	Response to each statement	
1. Customers think I should offer food safety training in my restaurant.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree	Not Applicable
2. Business partners think I should offer food safety training in my restaurant.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree	Not Applicable

### ***Past Experiences***

Based on the literature review, three items were used to measure the owners'/operators' behaviors regards food safety training at restaurants (Francis et al., 2004). A seven-point Likert-type scale with 1 being *strongly disagree* and 7 being *strongly agree* was used. Questions about past behaviors related to food safety training, past food safety inspection, and a variety of questions related to food safety training were asked, for example:

“Please rate your agreement with each statement about your past experience related to health inspection/food safety training on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*.”

Statements	Response to each statement
1. I was satisfied with the last health inspection.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
2. When I read the health inspection report, I can understand completely.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree

### ***Demographic Variables***

Demographic information about Chinese restaurant owners/operators was included in the questionnaire. Questions about individual characteristics included sex, educational level, and years of owning the current restaurant. Additional questions about the restaurants were also asked, which included seating capacity, whether the restaurant had an individual knowledgeable in food safety practices, and the zip code for the restaurant's location.

## **Definition of Terms**

**Chinese Cultural Values:** Confucianism strongly influences Chinese cultural values. “Trust, reciprocity, face, time, harmony, hierarchy, power distance, and long-term orientation” are identified as major Chinese cultural values (Anonymous, n.d., para. 1).

**Chinese Restaurant:** restaurant that specializes in Chinese cuisine (Allfoodbusiness.com, 2011).

**Food Safety Experts:** those who have performed a great deal of research, or provided many presentations, or worked for reputable and reliable organizations in the food safety area for 5 years or more.

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# **Chapter 4 - THE INFLUENCE OF CHINESE CULTURAL VALUES ON FOOD SAFETY TRAINING ATTITUDES AND BEHAVIORS OF CHINESE RESTAURANT OWNERS IN THE U.S.: AN EXPLORATORY INVESTIGATION**

## **ABSTRACT**

Foodborne illness is a challenge in the production and service of ethnic foods. The purpose of the proposed study was to explore variables influencing the behaviors of U.S. Chinese restaurant owners/operators regarding the provision of food safety training in their restaurants. A total of 17 major Chinese cultural values (CCVs) were identified through the individual interviews with 20 Chinese restaurant owners/operators. Most participants felt satisfied with the previous health inspection. However, several expressed the difficulty in following the health inspectors' instructions and understanding the health inspection report. Few participants provided food safety training to their employees due to state law. Physical exhaustion and lack of money, time, labor, and perceived needs for food safety training were recognized as major challenges of providing food safety training in Chinese restaurants. Video, case studies, and food safety training handbooks, and Chinese were most preferred food safety training methods and language of Chinese restaurant owners/operators, respectively.

**Key words:** attitudes, barriers, Chinese cultural values, Chinese restaurants, food safety training, training methods

## INTRODUCTION

The Asian population in the U.S. is continually increasing. In 2000, 3.6 % of the total U.S. population identified themselves as Asian. In 2010, that number had increased to 4.6% and is expected to reach over 8% by 2050 (Ortman & Guarneri, 2011). As the ethnic minority population increases and people travel more outside the U.S., Americans have been exposed to and interested in ethnic foods. According to a report from Mintel Group Ltd. (2012), Ethnic food sales almost reached \$2.5 billion in 2010 and are expected to increase 19% from 2010 to 2015.

Among ethnic minority groups, Asians and Hispanics are the most involved in restaurant businesses. As of 2009, 15% of total independent restaurant establishments were owned by Asians and 8% by Hispanics (NRA, 2009). Chinese food is considered as one of the America's favorite ethnic cuisines as evidenced by nearly 41,000 Chinese restaurants in the U.S., twice the number of U.S. McDonald's restaurants (Chinese Restaurant News, 2007). Over 90% of Americans have tried Chinese food, and 63% eat Chinese food at least once a month (George, 2001).

Despite the progress made in reducing food safety risks in the U.S., foodborne illnesses remains a challenge especially in the production and service of ethnic foods. The U.S. Centers for Disease Control and Prevention (CDC) reported that foodborne outbreaks associated with ethnic foods increased from 3% in 1990 to 11% in 2000 (Simonne, Nille, Evans, & Marshall, 2004). Restaurant inspection results of ethnic restaurants also revealed challenges and training needs for these establishments as ethnic restaurants had more critical and non-critical food code violations than non-ethnic restaurants (Kwon, Roberts, Shanklin, Liu, & Yen, 2010).

Several food safety training programs are available for restaurants including the most widely used ServSafe® program. Roberts, Barrett, Howells, Shanklin, Pilling and Brannon (2008) found that the 4 hr ServSafe® food safety training improved knowledge and food safety behavioral compliance associated with hand washing, use of thermometers, and handling of work surfaces. However, improved knowledge alone did not increase behavioral intention to handle food properly (Roberts et al.).

The increasing number of Chinese restaurants and cultural differences may present unique food safety challenges for Chinese restaurateurs. However, limited research has been conducted to assess needs and challenges related to food safety training in Chinese restaurants as well as possible cultural influences on food handling and food safety training at these restaurants.

Therefore, the purpose of this qualitative study was to explore variables influencing the behaviors of U.S. Chinese restaurant owners/operators regarding the provision of food safety training in their restaurants. The influence of Chinese cultural values (CCV) on these behaviors has also been investigated. Other variables such as attitudes, past experiences, and perceived barriers related to health inspection and food safety training were explored as they may also explain issues with providing food safety training in Chinese restaurants. In addition, the most preferred food safety training method(s) for this population was investigated for future research.

## **DESIGN AND METHODOLOGY**

Approval of the research protocol to use human subjects in research was obtained from the University Institutional Review Board (IRB) prior to contacting participants for this research.

### ***Participants and Recruitment***

The target population of this study was Chinese restaurant owners/operators who are currently operating independent, traditional, full-service Chinese restaurants in the U.S. A list of Chinese restaurants was obtained through ChineseMenu.com, which is the sub-organization of Chinese Restaurant News. Subscribers of Chinese Restaurant News include owners and operators of Chinese restaurants in the U.S. who share their restaurant information online for marketing purposes. Only full service, non-buffet Chinese restaurants (n= 1,031) were selected to minimize variations due to different restaurant setting and the style of service.

From the list, 20 Chinese restaurants were selected from various municipalities and regions and contacted by telephone calls to request their participation in the study. If selected owners or operators refused to participate in the study, a replacement was selected from remaining facilities in the same municipalities. A payment of \$20 was offered to compensate for participants' time and effort.

### ***Development of Interview Questions and Pilot Study***

Individual interviews with Chinese restaurant owners/operators were conducted to (a) investigate the core Chinese cultural values that influence Chinese restaurant operation and food safety training; (b) explore attitudes, past experiences, and barriers related to health inspection and food safety training; and (c) identify the most preferred food safety training method(s). The interview questions for this study were developed based on literature review and input from three

Chinese restaurant owners, foodservice systems management educators, and food safety experts with consideration for the unique Chinese cultural values.

Prior to finalizing the interview protocols, a pilot study was conducted with three local Chinese restaurant owners/operators. Pilot study results were reviewed by experts, and feedback provided by the experts was the basis for revising and finalizing the interview questions. The questions were revised to remove questions that generate redundant responses and to reorder interview questions for logical interview process.

### ***Data Collection***

Individual interviews with owners/operators across the U.S. were conducted. Participants were contacted by telephone and asked to participate in a 45-minute interview. An informed consent form was read by researchers via telephone. Participants were informed of the study objectives and guaranteed confidentiality before agreeing to be interviewed. Upon participant agreement, an interview was conducted, audio-recorded, and transcribed verbatim.

Interviews were conducted by a bilingual researcher by asking an identical set of questions. Participants were offered a choice to be interviewed in English or Mandarin. Chinese interviews were translated into English before analyses. Each participant continued discussing each topic until no new idea was generated. The probing technique was used to stimulate new ideas, elaborate comments, and clarify opinions.

### ***Analysis***

Common themes were identified from the transcribed data by two researchers who coded each of the transcription independently. The codes were compared repeatedly and reconciled. Codes with the similar meanings were grouped together under the same categories. The coding was reviewed by two other researchers who were not involved with this study to ensure the consistency in idea generation. Themes related to various Chinese cultural values; attitudes, past experiences, and perceived barriers related to health inspection and food safety training; and the most preferred food safety training methods in Chinese restaurants were identified.



## RESULTS

### *Demographic Characteristics of Respondents*

A total of 20 owners/operators from 20 Chinese restaurants in different locations participated in individual interviews. The majority (n=13) of participants were male, and eight participants had a high school education or less, while nine had a bachelor's degree or higher (Table 4-1). Three participants refused to answer the question about education, possibly because they felt the question was intrusive. The majority (n=18) of participants have been residing in the U.S. for 10 years or longer. Among 20 Chinese restaurants, eight had 100 seats or less, five had 101-200 seats, and four had more than 200 seats (Table 4-2). Eleven Chinese restaurant owners/operators had 10 full-time employees or less and fifteen Chinese restaurants had 10 or less part-time employees. More than half (n=12) of the Chinese restaurant owners/operators used Chinese as the main language to communicate with their employees.

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INSERT TABLE 4-2 HERE

### *Chinese Cultural Values*

The transcripts of the individual interviews were analyzed from emerging themes of Chinese cultural values (CCVs). A total of 17 major CCVs have been identified through the individual interviews and compared to 40 pre-identified CCVs (Table 4-3) developed by the Chinese Culture Connection (1987). CCVs were captured when participants answered various interview questions (Appendix B). When researcher asked participants to identify the major differences between American and Chinese cultures, comments related to “friendship” were mentioned the most (n=12), followed by “respect” (n=9), “humbleness” (n=7) and “thriftiness” (n=6). Additionally, “courtesy”, “carefulness”, “diligence”, “face” and “adaptability” were identified as CCVs that are different from mainstream U.S. cultures.

CCVs were also recognized from responses to questions related to participants' relationships with different people such as employees, difficult customers, regular customers, and health inspectors. Among 20 participants, “tolerance” was identified as the major CCV (n=19) followed by “sincerity” (n=9) and “harmony” (n=7) when the 20 participants were asked about their relationships with difficult or regular customers. Answering the questions about their

relationships with the health inspectors, “authority” (n=18) and “reciprocity” (n=7) were mentioned most frequently. A total of six Chinese restaurant owners/operators identified “power distance”, when asked about their relationships with their employees. “Power distance” was applied to measure the degree of inequality in power between a less powerful individual and a more powerful person (Mulder, 1977). “Family trust”, “adaptability” and “self-confidence” were other CCVs related to participants’ business practices. Appendix B summarizes the Chinese values identified during interviews and direct quotations from participants.

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### ***Past Experiences with Health Inspection and Food Safety Training***

#### ***Past Experiences with Health Inspection***

When asked how satisfied participants were with the previous health inspections, the majority of respondents indicated that they were satisfied, but a few participants stated their dissatisfaction saying, *“The inspector was very strict and picky”*. One participant also addressed communication issues during the health inspection. *“It’s (The health inspection) Ok. We don’t have critical violations or only a few, if any, that we overlooked. But different places have different standards, and there may be some communication problems,”* he stated.

The difficulty in understanding the health inspection report was a concern for Chinese restaurateurs due to language barrier. One participant stated that *“I don’t understand anything. If they write down the violations, I don’t know what they are talking about in the report”*. Several participants said they depend on others, such as family, employees, and friends when reviewing the inspection reports. For example, one participant indicated that *“I understood the most (of the report). If I don’t understand, I ask others”*. On the contrary, other participants felt fully confident in following the health department’s instruction even without reading the report. *“Even my English is not that good, I understand what they (the health inspection reports) are talking about based on my experience.”* one participant mentioned.

Some participants expressed their concerns about the health inspectors not understanding differences between Chinese and American cooking methods. One of the participants stated, *“Americans don’t fully understand the way of Chinese cooking. They said we left the food in the*

room temperature when cooking. But some foods need to be left in the room temperature to cook in the traditional way”. Another participant also indicated that “No. (It’s not easy). Their (Health inspectors’) recommendation is one thing, and how to implement is another thing”.

When asked if they agreed with health inspectors’ comments, some participants stated that they fully agreed with health inspectors’ suggestions because they thought the comments made sense and were fair. However, others argued that “If the recommendations make sense, we have nothing to say. But if something is so ridiculous, or saying we (Chinese restaurants) cannot use some types of containers when the one across the street can, this doesn’t make any sense.” Another participant also stated that “Of course I will agree anything they said. I can’t argue with them.”

### ***Past Experiences with Food Safety Training***

Among 20 participants, 15 have attended food safety training in the U.S., since the food safety training was required for restaurant managers in certain states before opening a restaurant. When the researcher asked how effective they think the food safety training was, all 15 participants felt that food safety training was very effective. “You don’t understand anything if you don’t go. It’s (The food safety training) a must,” one participant stated. Another participant provided the similar comment, “We didn’t have the professional knowledge for running a restaurant in the U.S. before (attending the training session).”

However, past experiences with food safety training for employees presented different results. Nine of 20 participants stated that none of their employees participated in formal food safety training provided in the U.S. Many of them only provided their employees “on-going training in the restaurants”. Ten participants provided formal food safety training for “some of their employees”, since they didn’t think it was necessary to ask all employees to participate in food safety training. “Normally one restaurant has two well-trained employees. They could teach others when they come back from training,” one participant stated. Only one of 20 participants asked all employees to attend formal food safety training mainly because it is mandatory in their state.

## ***Perceived Barriers to Provide Food Safety Training for All Restaurant Employees***

### ***Lack of Money, Time, and Labor and Physical Exhaustion***

Chinese restaurant owners/operators shared their perceived barriers to providing food safety training for all restaurant employees. Of 20 participants, four participants identified the lack of money being one of the challenges why they do not provide food safety training for their employees. Participants, especially Chinese restaurants owners/operators from a small restaurant, felt that *“We can’t afford to pay for those (employee training) expenses now. So we can only afford internal training.”*

Lack of time was another challenge for some Chinese restaurants faced when providing food safety training for all employees. One participant replied, *“There are some difficulties when you are busy. We need to squeeze time to provide training”*.

A few participants (n=2) stated that lack of labor is the main barrier to food safety training they were facing in the restaurant. *“Of course there are difficulties in providing food safety training to all employees. (We) don’t have a fixed schedule, and we don’t have enough staff”*, one participant stated.

A participant with more than 20 years restaurant experience commented that he doesn’t want to provide employee training for food safety because they are physically exhausted. *“We are super tired after each work day. (We have) No extra time or energy (for food safety training)”*, he responded.

### ***Lack of Perceived Needs for Food Safety Training***

In addition to lack of time, money, and adequate staff, which are often addressed by many foodservice management staff, seven Chinese restaurant owner/operators stated that they did not feel the needs for food safety training for all employees. One participant stated, *“No. It (food safety training for employees) is not necessary. They (Employees) don’t need that. We have internal training for employees, such as wash hands after going to restroom; they don’t need to go to any training.”* Another participant also stated *“(The training is) Not necessary. We have four trained employees, so it’s enough.”* Two participants addressed *“They (The government) don’t require all employees to attend training. It’s not necessary to provide training to every employee.”* These responses showed participants’ lack of perceived needs for providing food safety training partially due to self-confidence about providing safe food. They did not seem to

completely understand the importance of food safety or the relevance to their establishments. Such attitudes may be a barrier for Chinese restaurant owners/operators to providing food safety training to all employees.

### ***Other Barriers for Chinese Restaurateurs***

Several other barriers to providing food safety training were identified. Two participants perceived that employees were not willing to attend food safety training, even if food safety training was provided free of charge. Others (n=4) stated that employees' education level was too low to understand the food safety training. "*Some employees are not qualified for food safety training. They don't understand it anyway*", one participant stated. Other participants mentioned employees' language and lack of transportation as barriers. Additionally, perceived difficulty in changing employees' behaviors was identified by one of Chinese restaurant owners/operators as another barrier and stated, "*It's not easy to change to good (food safety practice) habits only by training.*"

### ***Preferred Food Safety Training Methods and Languages for Chinese Restaurant Owners***

In an effort to identify the most suitable food safety training methods for this population, participants were asked about their preferred food safety training methods and choice of language. Eleven participants mentioned video as their preferred method. "*Watching video is simple and easy to understand*", one participant replied. Case studies were also identified by eight participants. "*Case studies will let my employees see types of mistakes they commonly make that will make people sick*". Another participant stated, "*You use a case and then role play; your employees would have the feeling about what's going on. Lots of people cannot concentrate if you are doing only lectures*". The third most preferred food safety training method (n=6) was "food safety training handbook". "*I think a food safety training handbook is a good way for people to learn. It's convenient and flexible for employees to learn by themselves*", one participant responded. The next preferred food safety training method was "Demonstration/Observation." A participant elaborated his opinion, "*I could easily learn by observation. I am not good at learning things by conversation*". Small group discussion was identified by several (n=4) Chinese restaurant owners/operators as one of preferred food training methods.

Most of our participants preferred Chinese language for food safety training materials (n=13). “(Chinese is) Easy for us to understand each other”, one of the participants stated, while six participants like to use “English” because “We have many employees from different counties, so we need to speak English to make sure everyone understand one another”.

## DISCUSSION

The individual interviews provided in-depth information about factors influencing behaviors of U.S. Chinese restaurant owners/operators regarding the provision of food safety training in their restaurants. More specifically, the influence of CCVs on these behaviors was identified through interviews.

A total of 17 CCVs has been identified as factors affecting their Chinese restaurant operation. These 17 CCVs were a part of 40 CCVs identified by the Chinese Culture Connection (1987). CCVs have been studied for many years, especially in the business setting. Confucianism is one of the largest influences on the CCVs, and “trust, reciprocity, face, time, harmony, hierarchy, power distance, and long-term orientation” have been identified as major Chinese cultural values” (Anonymous, n.d., para. 1).

“Respect” and “(saving) face” were frequently mentioned by our participants during the interviews. “Face” is defined as ‘the respect, pride and dignity of an individual as a consequence of his/her social achievement and the practice of it’ (Leung & Chan, 2003). “Face” to Chinese people means not disgracing one’s self or family and is an important element in the Chinese culture (King, 1988), because it impacts interpersonal relations and people’s respect. “Face” not only makes Chinese people function properly within the community, but also represents a reputation that people build up during their life (Huang, Davison, & Gu, 2011). In China, “face” can be classified into two types: “lian” and “mian-zi”. “Lian” represents individual’s confidence and moral character. Loss of “Lian” makes the person feel guilty and function improperly so that he/she can no longer live in the world without “Lian” (King, 1993; Yau, 1988). “Mian-zi” emphasized prestige of the person such as the reputation and people’s respect achieved through the life (Brunner, Chan, Sun, and Zhou, 1989; Lam and Wong, 1995). Both types of “face” are related with a “guanxi”, which represents the confidence and relationship among the persons or firms (Chow & Ng, 2004). Therefore, “respect” and “face” are two important CCVs to consider for improving food safety practices in Chinese restaurants. To increase Chinese restaurant

owners/operators' cooperation intention, health inspectors may need to show more respect to this population. When Chinese restaurant owners/operators feel the respect from health inspectors, they will be more willing to work with health inspectors and follow their recommendations, which in turn, would improve the food safety practices in those foodservice establishments. Since "face" is the foundation for Chinese people's life, health inspectors need to utilize this unique characteristic for improving food safety practices among Chinese restaurants. By disclosing health inspection results to the public, Chinese restaurant owners/operators would pay more attention on their health inspection/food safety performance due to the fear of losing "face" for poor health inspection reports.

"Authority" and "power distance" have been identified as major CCVs in the study that affect Chinese restaurant operation and interactions with health inspectors. "Authority" was an important value as Chinese restaurant owners were willing to follow the orders/requirements from health inspectors, an authority figure in their culture. One of Confucius' virtues is to respect authority or individuals, who have a good reputation and great power (Kirkbride, Tang, & Westwood, 1991). Chinese restaurant owners/operators perceived their operations are fully controlled by health inspectors' position power and had to follow their instructions at any cost. Therefore, specific regulations on food safety training are necessary for Chinese restaurants. Chinese restaurant owners/operators will provide food safety training to their employees if that is mandatory by state law.

"Power distance" was another major CCV identified by researchers that influence dynamics in Chinese restaurants. Participants described a "*good relationship*" with their employees as "*just like the relationship between boss and employees*". This is a good example of how Chinese culture views power distance as a cultural norm and as a result, owners may consider themselves as authority figures. Understanding this CCV may be useful when developing food safety training programs for this population. Employees in Chinese restaurants will improve their attitudes toward food safety training and will be willing to attend food safety training if the owner/operator asks them to do so.

"Sincerity" and "trust" are critical components to consider when Chinese people establish social networks. "Sincerity" indicates the communication relies on the surface, which could show people's thoughts and feelings (Tao, 2005). Showing individuals' sincerity will gain trust from the other party. However, some participants implied that they do not trust outsiders but only

their family or close friends. Chinese people often establish trustful social networks first with family members, relatives, friends, classmates, and colleagues. Since health inspectors interact with Chinese restaurant owners/operators regularly, trustful relationships must be developed between the two parties. One of the ways to establish such relationships may be first trusting Chinese restaurant owners/operators by listening to their opinions. Health inspectors may gain trust in return from them, which could help to improve the level of collaboration on restaurant food safety between the two parties.

“Reciprocity” is used to describe relationships or called “guanxi” between two parties. “Reciprocity” is a universal concept, but it has particular salience to Chinese people. In the principle of “reciprocity”, the one who first receives a benefit needs to repay it in the future. For most people in China, a transaction will only take place when there is mutual benefit for both parties involved. Therefore, “reciprocity” sustains a networking relationship in the business setting. Without reciprocity, established “guanxi” will disappear (Chen & Chen, 2004). By understanding the mutual benefits between Chinese restaurant owners/operators and health inspectors in preventing foodborne illness outbreaks, Chinese restaurant owners/operators may understand the importance on food safety practices and will be motivated to provide food safety training to all employees in their foodservice establishments.

By following the Confucian “Doctrine of the Mean”, individuals prefer avoiding competition and conflict and maintaining harmony (Chen, 2002). “Harmony” plays a critical role in a two-party relationship. Without harmonious relationships, “face”, “trust”, and “reciprocity” cannot be successfully continued and “guanxi” will not be established (Chen & Chen, 2004). “Tolerance” is the essential part of “harmony”. To avoid conflict, our study showed that tolerance and patience are frequently displayed by Chinese people in the business setting. Moise (1995) indicated that Chinese people tend to avoid conflicts and prefer resolving issues in an ‘implicit and mild’ way. Direct conflict will hurt the relationship with the other party, especially when the other party is of higher social status. Since Chinese people are more sensitive with the concepts of hierarchy and power distance than among Americans, avoiding conflicts is applied more frequently among Chinese people than Americans (Friedman, 2006). If health inspectors could provide Chinese restaurant owners/operators more details on the importance of food safety training as well as the negative consequences of foodborne illnesses outbreaks (such as poor restaurant reputation, more customer arguments and lawsuits), the awareness and attitude



towards providing food safety training to employees in Chinese restaurants will be improved among this population.

“Relationship” is another characteristic that Chinese people and their culture value. It indicates that once a relationship is established among Chinese, it is unlikely to be broken. However, once a relationship is broken, it is very difficult to recover (Huang, Davison, & Gu, 2011). In other words, long-term relationships are very important in the Chinese culture. Thus, by establishing a long-term relationship with Chinese restaurant owners/operators, health inspectors can more easily work with them on preventing foodborne illnesses outbreaks and improving food safety practices. Additionally, our study also showed that other CCVs such as “self-confidence”, “courtesy”, “carefulness”, “thriftiness”, “diligence” and “adaptability” are closely related to the creation and development of the business operations.

In terms of information sources affecting Chinese restaurant owners/operators business practices, our participants identified customers, business partners, other restaurant owners, family members, self, and employees with expertise in different areas as information sources which could potentially affect their business practices. According to Rice and Hamilton (1979), most small business managers preferred to make decisions based on their own accumulated experience. Some studies indicated that small business managers relied less on formal sources and more on informal sources, such as family and friends, in making business decisions (Cooper, Folta, & Woo, 1995; Johannessen & Dolva, 1995). Additionally, customers, suppliers, employees, and competitors have been also identified as information resources affecting Chinese restaurant owners/operators business practices from previous studies (Fann & Smeltzer, 1989; Johnson & Kuehn, 1987; Kaish & Gilad, 1991).

According to the foodborne viral outbreaks reviewed by Koopmans and Duizer (2004), most foodborne illness cases were associated with mishandling foods by food handlers, and the most cases were traced back to infected individuals. Kwon et al. (2010) found that Asian and Mexican or Latin American ethnic restaurants had significantly more critical violations and number of inspections than non-ethnic restaurants. In our study, most participants felt very satisfied with the previous health inspection. However, several Chinese restaurant owners/operators expressed concerns following the health inspectors’ instructions in their restaurants. Language barriers in Chinese restaurants have also been identified during the health inspection. Several participants cited their difficulty in understanding the health inspection report

and questioned health inspectors' comments, which may be partially due to a lack of food safety knowledge (Mauer et al., 2006).

The CDC (2009) recommended educating restaurant employees on foodborne illness risks and prevention measures. Food safety training was found as an effective way to improve food safety knowledge and food safety behavioral compliance related to handwashing, use of thermometers, and handling of work surfaces (Roberts et al., 2008). Researchers also have reported that food safety training is effective in increasing sanitation inspection scores (Cotterchio, Gunn, Coffill, Tormey, & Barry, 1998; Kneller & Bierma, 1990). The majority of participants in this study received food safety training in the U.S. and stated the food safety training was effective in learning specific knowledge. However, a limited number of participants provided food safety training to their employees. Previous studies presented the similar results. Ram, Sanghera, Abbas, and Barlow (2000) reported that only 26% independent ethnic restaurant operations provided food safety and personal hygiene training to their employees. The training was not given to the employees unless there were requirements by law (Ram et al., 2000). Even restaurants that provided food safety to their employees, they did not fully understand the importance and relevance to their foodservice establishments (Roberts et al., 2008).

Food safety knowledge and behaviors can be improved by food safety training (Roberts et al., 2008). A lack of resources, time constraints, and attitudes of the employees were identified as the barriers to providing food safety training to restaurant employees (Roberts et al., 2008; Youn & Sneed, 2002). In term of the barriers to providing food safety training for employees in Chinese restaurants, participants in this study perceived lack of money, time, labor, and employees' motivation, qualification and physical exhaustion as the most difficult challenges in Chinese foodservice operation. This study like Mauer et al. (2006) found that language barriers could influence employees' motivation and qualification to complete food safety training. Additionally, the participants' attitude toward food safety training in this study was rather negative about providing food safety training.

This study also identified the most preferred food safety training methods and languages of participants. Videos, case studies, and food safety training handbooks using the Chinese language were most frequently mentioned by our participants.

### ***Limitations of the Study***

Individual interviews were used to gather in-depth data from a small number of participants (n=20). Therefore, due to the nature of qualitative research and the limited number of participants, the data may not be generalizable to Chinese restaurant owners across the U.S. The results were not intended to reflect all Chinese restaurant owners' opinions, but to assist in obtaining data needed to develop a quantitative instrument to explore the variables related to Chinese restaurant owners/operators' behavioral intention to provide food safety training in their restaurants.

### **CONCLUSION**

Food safety in restaurants has been recognized as a serious concern in the U.S. as 60% of the reported cases of foodborne outbreaks occurred by consuming foodservice from restaurants (Hedberg et al., 2006). Ethnic restaurants are not exempt from foodborne illness cases associated with food operations. Previous studies reported increased concerns about food safety handling in ethnic restaurants (Kwon et al., 2010; Mauer et al., 2006). This study explored variables influencing the behaviors of U.S. Chinese restaurant owners/operators regarding the provision of food safety training in their restaurants.

A total of 17 CCVs associated with providing food safety training among these populations were identified. The values identified were consistent with general CCVs identified previously. Recommendations on how to incorporate CCVs in food safety practices in Chinese restaurants have been discussed previously. If health inspectors apply CCVs identified in this study when inspecting and providing training in Chinese restaurants, the awareness, attitude, and motivation may improve among Chinese restaurant owners/operators and their employees.

Customers, business partners, other restaurant owners, family members, self, and employees with expertise in different areas have been identified as information sources which could potentially affect Chinese restaurant owners'/operators' business decisions. The majority of participants expressed satisfaction with their previous health inspections, but several expressed concerns about their ability to follow the health inspectors' instructions. Most of the study participants attended food safety training in the U.S. because it was mandated to do so, and noted that they found the training effective in increasing their food safety knowledge. However, only a few Chinese restaurants provided food safety training to their employees.

Several perceived barriers have been recognized as major challenges of providing food safety training in Chinese restaurants, including lack of money, time, labor, lack of perceived needs on providing food safety training by Chinese restaurant owners/operators, and lack of employees' motivation, qualification, and physical exhaustion. Video, case studies, and food safety training handbooks were most preferred food safety training methods of Chinese restaurant owners/operators. Chinese was identified as the most preferred language for food safety training by Chinese restaurant owners/operators. Future quantitative research should be conducted to validate these findings, and provide a basis for developing effective food safety training materials for Chinese restaurants.

The results of this study may provide significant implications for both theoretical and practical applications. This study, to the best of our knowledge, is the first one to investigate cultural values and their influences on restaurant operations and food safety training in Chinese restaurants. Some food safety training programs have been developed for this population, but lack of cultural sensitivity hampered program effectiveness (Mauer et al., 2006). By understanding traditional cultural values and preferred training methods, food safety educators may develop strategies to reach and influence Chinese restaurant owners/operators more effectively. The Chinese community may also utilize the research findings to recognize their need for food safety training and investigate ways to improve food safety in their restaurants.

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**Table 4-1 Respondents' Demographic Characteristics**

<b>Characteristic</b>	<b>Frequency</b>
Gender (N=20)	
Male	13
Female	7
Education (N=20)	
Less than High School	8
Bachelor's degree or higher	9
Declined to answer	3
Years of Residency (N=20)	
< 10 years	3
10-20 years	12
> 20 years	5



**Table 4-2 Operational Demographic Characteristics**

<b>Characteristic</b>	<b>Frequency</b>
Number of restaurant seats (N=20)	
0-50	5
51-100	3
101-150	3
151-200	2
>200	4
Declined to answer	3
Number of full-time employees (N=20)	
1-10	11
11-20	3
>20	2
Declined to answer	4
Number of part-time employees (N=20)	
1-10	15
11-20	1
Declined to answer	4
Number of kitchen employees (N=20)	
1-10	6
11-20	2
>20	1
Declined to answer	11
Number of servers (N=20)	
1-10	7
11-20	1
>20	1
Declined to answer	11
Communication language (N=20)	
Chinese	7
English	2
Spanish	2
Both Chinese and English	6
Both English and Spanish	3

**Table 4-3 Chinese Cultural Values (Chinese Culture Connection, 1987)**

<p><b>CVS I Integrity &amp; Tolerance</b> (Development of self)</p> <ul style="list-style-type: none"> <li>• Filial piety</li> <li>• Industry –working hard</li> <li>• Tolerance of others</li> <li>• Harmony with others</li> <li>• Humbleness</li>   <li>• Kindness (Forgiveness, compassion)</li> <li>• Knowledge (Education)</li> <li>• Self-cultivation</li> <li>• Sense of righteousness</li> <li>• Personal steadiness and stability</li> <li>• Sincerity</li> <li>• Patriotism</li> <li>• Persistence (Perseverance)</li> <li>• Patience</li> <li>• Adaptability</li> <li>• Prudence (Carefulness)</li> <li>• Trustworthiness</li> <li>• Courtesy</li> </ul>	<p><b>CVSII Confucian Ethos</b> (Relationships with others)</p> <ul style="list-style-type: none"> <li>• Loyalty to superiors</li> <li>• Benevolent authority</li> <li>• Non-competitiveness</li> <li>• Keeping oneself disinterested and pure</li> <li>• Contentedness with one’s position in life</li> <li>• Being conservative</li> <li>• Protecting your “face”</li> <li>• Chastity in women</li> <li>• Having few desires</li> <li>• Respect for tradition</li> </ul>
<p><b>CVS III Loyalty to Ideals &amp; Humanity</b> (Social responsibility)</p> <ul style="list-style-type: none"> <li>• Observation of rites and rituals</li>   <li>• Reciprocation of greetings and favors, gifts</li> <li>• Solidarity with others</li> <li>• Moderation, following the middle way</li> <li>• Ordering relationships by status and observing this order</li> <li>• Resistance to corruption</li> <li>• Patriotism</li> <li>• Thrift</li> <li>• Having a sense of shame</li> </ul>	<p><b>CVS IV Moderation &amp; Moral Discipline</b> (Worldly wisdom)</p> <ul style="list-style-type: none"> <li>• Repayment of both the good and the evil that another person has caused you</li> <li>• A sense of cultural superiority</li>   <li>• Wealth</li> </ul>

# **Chapter 5 - THE INVESTIGATION ON FOOD SAFETY TRAINING ATTITUDES AND BEHAVIORS IN CHINESE RESTAURANTS IN THE U.S.**

## **ABSTRACT**

The size of the Asian American population has increased substantially in recent decades, and Americans have become more exposed to and interested in ethnic foods. However, foodborne illnesses remain a challenge in the production and service of ethnic foods. The increasing number of Chinese restaurants and cultural differences may present unique food safety challenges for Chinese restaurateurs. The purpose of this study was to explore the variables that influence the behavioral intention of Chinese restaurant owners/operators in the U.S. regarding the provision of food safety training in their restaurants and to identify the preferred food safety training method and language among Chinese restaurant owners/operators. The study participants perceived “courtesy”, “respect”, and “harmony” as the 3 most important of 17 Chinese cultural values (CCVs), and the opinions of customers, family members, and business partners as the most important personal influences. Employees’ physical exhaustion, employees’ learning capability, and financial resources were the top three perceived barriers to the provision of food safety training. Of the five CCV predictor factors, customer and interpersonal relations had significant effects on the behavioral intention regarding the provision of food safety training. Personal influence, perceived barriers, and past experiences were also significantly associated with this behavioral intention. Additionally, male respondents valued customer relations more than female respondents who more highly valued interpersonal relations. The Chinese restaurateurs with a high school degree or lower were more intent on providing food safety training to employees than those with bachelor’s degree or higher education. Lastly, food safety training manuals and Chinese were the preferred training method and language, respectively, among the Chinese restaurateurs.

**Keywords:** attitudes, Chinese cultural values, food safety training, past experience, perceived barriers, personal influence

## INTRODUCTION

In recent decades, the minority populations in the U.S., especially the Asian Americans, have increased greatly (U.S. Census Bureau, 2010a). Chinese Americans are considered to be the oldest and largest ethnic group of Asian descent in the country. Their immigration and settlement history can be traced back to the late 1840s (Min & Kim, n.d.). According to the U.S. Census Bureau (2010b), in 2010, more than 4.1 million Americans, 1.3% of the total U.S. population, were Chinese. Enculturation is the process of adopting a specific condition of one's new environment into one's original culture (Lyonga, 2011). After immigrants move to America, they adopt the American culture in many social respects. However, people's perceptions of risks, cognition, and behaviors differ significantly on the basis of their cultural backgrounds (Finucane, 2002).

Inglehart and Welzel (2005) found that the Chinese culture is most strongly influenced by Confucianism and "Ex-Communism" (p. 111). Furthermore, Mok and DeFranco (1999) indicated that the three major elements that make up the modern Chinese cultural value system are traditional Chinese culture, which includes Confucianism, Taoism, and Buddhism, communist orthodoxy, and Western influences. Pye (1972) stated that Confucianism has the strongest influence on Chinese culture; it forms the foundation of the Chinese cultural tradition and provides the basic norms for Chinese interpersonal behaviors. Scholars have studied Chinese cultural values and beliefs for many years, and they have identified "trust", "reciprocity", "face", "time", "harmony", "hierarchy", "power distance", and "long-term orientation" as major Chinese cultural values that influence business practices (Anonymous, n.d., para. 1).

Researchers have contended that the existence of Chinese restaurants in the U.S. stimulates cultural interactions between Chinese immigrants and Americans (Chao, 1985; Zhang, 1999). A Chinese restaurant is not only a business establishment, but a social institution that influences culture, values, and rules (Zhang, 1999). The Asian population is expected to reach 34.4 million in 2050, compared to 14.7 million in 2010 (Ortman & Guarnei, 2011). With the increase in the Asian population, the number of Asian restaurants has significantly increased and now represents one of the leading restaurant industry sectors owned by the two largest ethnic minority groups (Hispanic and Asian) in the U.S. (U.S. Census Bureau, 2006a, 2006b).

As the ethnic minorities have increased and people have traveled more frequently outside the U.S., Americans have become more exposed to and interested in ethnic foods. Chinese food

is considered as one of America's favorite ethnic cuisines, as evidenced by the existence of more than 46,000 Chinese restaurants throughout the U.S. (Chinese Restaurant News, 2007).

Despite the progress made in reducing food safety risks in the U.S., foodborne illnesses remain a challenge, especially in the production and service of ethnic foods (Kwon, Roberts, Shanklin, Liu, & Yen, 2010). Several food safety training programs are available for restaurants, including the most widely used ServSafe® program. However, knowledge alone does not increase the behavioral intention to handle food properly (Roberts et al., 2007).

According to the results from a meta-analysis (Patil, Cates, & Morales, 2005), consumer food safety knowledge and practices vary considerably across demographic categories, such as socioeconomic and cultural differences. Thus, the increasing number of Chinese restaurants and the cultural differences between the Chinese and American approaches to food handling may present unique food safety challenges for Chinese restaurateurs in the U.S. (Linsk & Sitaramiah, 2000). For example, Linsk and Sitaramiah reported that some Chinese restaurant owners insisted that inspectors sometimes misinterpret what they see in a busy kitchen due to the unfamiliarity of the cooking methods. However, limited research has been conducted to assess the needs and challenges related to food safety training in Chinese restaurants or the possible cultural influences on food handling and food safety training at these restaurants. Therefore, the purpose of this quantitative study is to explore the variables that influence the behavioral intention of Chinese restaurant owners/operators in the U.S. regarding the provision of food safety training in their restaurants. In addition, the researcher sought to identify the most preferred food safety training methods and language among Chinese restaurant owners/operators.

## **MATERIALS AND METHODS**

The approval of the research protocol to use human subjects from the Kansas State University Institutional Review Board (IRB) prior to contacting the participants for this study.

### ***Participants and Recruitment***

The target population of this study was Chinese restaurant owners/operators who are currently operating independent, traditional, full-service Chinese restaurants in the U.S. A list of Chinese restaurants was obtained through ChineseMenu.com, which is a sub-organization of Chinese Restaurant News. Subscribers to Chinese Restaurant News include owners and operators of Chinese restaurants in the U.S., who share their restaurant information online for marketing

purposes (n = 7,188). Among the numerous restaurants listed online, only full-service, non-buffet Chinese restaurants (n = 1,031) were selected to minimize variations due to different restaurant settings and service styles. From this list, 400 Chinese restaurants were selected from various municipalities and regions and solicited to participate in the study. In addition, another 100 Chinese restaurants that were not listed online were contacted by Chinese Restaurant News via faxes and phone calls. A total of 500 Chinese restaurants were contacted in this study, and a drawing of 30 \$50 gift cards was used as an incentive to participate in the study.

### ***Model and Instrument Development***

Based on the literature review and the results of the qualitative research utilizing individual interviews (n = 20), an instrument was developed that estimates potential relationships among Chinese cultural values, attitudes, personal influences, perceived barriers, past experiences, and behaviors or other variables regarding food safety training. Questions in each identified construct were formulated according to the concepts established under each theme in the qualitative portion of the project (Liu & Kwon, 2012). An initial group of formulated questions were constructed in order to build a foundation for the questionnaire. After generating the initial group of questions, an evaluation process was applied to eliminate and reword questions as needed (DeVellis, 1991). Similar or repeated questions in each identified construct were eliminated or reworded to improve readability and clarity. To achieve better compliance with the instructions for the questionnaire, general and specific instructions were provided when needed. Finally, font variations were employed to improve skip pattern compliance, such as using a different font for the skip directions to attract the respondent's attention (Chow, 2009).

The instrument included questions regarding the respondents' perception of selected Chinese cultural values (CCVs, n = 17), behaviors related to food safety training (n = 2), attitudes toward food safety training (n = 4), personal influences on providing food safety training (n = 5), perceived barriers to providing food safety training (n = 6), past experiences with food safety training and food inspections (n = 6), and preferred food safety training methods and language. Demographic information about the establishments and participants were also included to understand the target populations. All questions, except the demographic questions, were measured using Likert-type scales on which the participants indicated their degree of agreement.

### ***Instrument Translation and Validation***

Food safety experts and Chinese restaurant owners/operators (n = 4) reviewed the initial questionnaire to ensure face and content validity and the clarity of the instructions. Two graduate students with food safety and foodservice experience and two local Chinese restaurant owners/operators who had not participated in the study conducted individual reviews to further ensure face validity. This focus group provided recommendations for the wording and flow of the questionnaire. At this stage, some questions were eliminated to reduce duplication and shorten the length of the instrument (Byrd-Bredbenner et al., 2007). Moreover, comments and additional questions about the instrument were summarized and used as feedback to facilitate its revision. Following a series of reviews, a bilingual researcher translated the questionnaire into the official Chinese language, Mandarin. In order to ensure the accuracy of the translation, another bilingual researcher, who had not been involved with the initial translation, back-translated the Chinese version of the questionnaire into English.

Then, a panel of 20 native English speakers reviewed the original and back-translated versions of the instrument. Some questions were translated word-for-word and achieved 100% agreement and therefore were not included in the translation. Each question in the Chinese version was considered acceptable if the average mean score for agreement between the two English versions reached 5.0 of 7-point scale. If the mean score was lower than 5.0, the question was revised and re-tested with mean score of 5.0 is reached. Some questions were translated word-for-word and achieved 100% agreement. Table 5-1 shows the final results of the back-translation evaluation for the questions that did not achieve 100% agreement.

INSERT TABLE 5-1 HERE

### ***Pilot Study***

Twenty Chinese restaurant owners/operators from the local and surrounding areas were invited to complete the Chinese version of the survey and provided feedback about the usability and clarity of the instructions. As shown in Table 5-2, the inter-item reliability score for each construct was evaluated using Cronbach's alpha analysis. According to Nunnally and Bernstein (1994), an acceptable Cronbach's alpha score is greater than .70. All constructs (CCVs, attitude,

personal influence, perceived barriers, past experiences, and intention) achieved the acceptable Cronbach's alpha ( $\alpha \geq .70$ ).

INSERT TABLE 5-2 HERE

### ***Data Collection***

To encourage potential participants to complete the survey, personal visits, e-mails, or faxes were employed. Printed questionnaires were used for this project to collect the data. Four hundred randomly selected Chinese restaurant owners/operators received printed questionnaires via mail (n=331) or personal visits (n=69). An additional 100 Chinese restaurant owners/operators (n = 100) who are not listed online received the questionnaire and cover letter via fax directly from Chinese Restaurant News.

The Chinese restaurant owners/operators in the sample received a package including a copy of the questionnaire, a postage-paid envelope, and a cover letter written in Mandarin that explained the purpose of the research, information about the researcher, the subjects' rights, and information about the data collection procedure. The instructions clarified that the participants should mail the completed questionnaire to the researcher directly using the postage-paid envelope.

The cover letter informed the participants that their personal identities, responses, and their establishments' information would remain confidential, that the results of the study would be presented in summary form only, and that they could withdraw from the study without penalty at any time. Two weeks after the initial contact, the participants who had not responded received a fax or a follow-up phone call encouraging their participation (Dillman, 2007).

### ***Data Analysis***

To summarize the data, the descriptive statistics, such as frequencies, means, standard deviations, and cross-tabulations, were calculated. Then, an exploratory factor analysis was applied to identify the core CCVs and the relevant factors of the behaviors of Chinese restaurant owners/operators in the provision of food safety training. Furthermore, Cronbach's alpha (Cronbach, 1951) was also used to check the inter-item reliability of each construct. A composite reliability of  $\geq .70$  for all constructs signified an accepted threshold. To identify the relationships among CCVs, attitudes, personal influence, perceived barriers, past experiences, and other



variables related to safe food handling, food safety training, and behaviors related to providing food safety training in Chinese restaurants, hierarchical multiple regression analyses and a one-way ANOVA were applied. Descriptive statistics were utilized to summarize the data and identified the Chinese restaurant owners/operators' most preferred food safety training method and language. Data were analyzed using the SPSS for windows Version 17.0 (2007, SPSS Inc, Chicago, IL), and statistical significance was evaluated based on  $p < 0.05$ .

## RESULTS

### *Demographic Characteristics of Respondents and Operations*

The participants returned the completed surveys via fax (118), mail (69), personal visits (69), and e-mail (5). Thus, there were a total of 261 completed surveys representing Chinese restaurants across the U.S. The majority ( $n = 148$ ) of the participants were male, and 57.5% of the participants had a high school education or less, while 42.5% had a bachelor's degree or higher (Table 5-3). The majority ( $n = 220$ ) of the participants had been operating restaurants in the U.S. for less than 10 years. Among the 261 Chinese restaurants, 163 had 100 seats or less, 96 had 101–200 seats, and 2 had more than 200 seats.

INSERT TABLE 5-3 HERE

The majority ( $n = 191$ ) of the participants had received in food safety training previously. Of the 261 respondents, 148 had received food safety training from the local health department, 22 from the National Restaurant Association (ServSafe®), and 21 from their owners or other sources.

### *Descriptive of Measurement Items*

Descriptive statistics indicated that many of the CCVs were considered very important to our participants (mean  $[M] \geq 6.00$ ) (Table 5-4). In general, the participants rated the CCVs as very important to Chinese restaurant operations and as having a great influence on Chinese restaurant owners/operators' intention to provide food safety training to their employees (construct  $M \pm$  Standard Deviation  $[SD] = 6.46 \pm 0.92$ ). Among the 17 specific CCVs identified in the qualitative research, the participants perceived “courtesy” ( $6.95 \pm 0.24$ ), “respect” ( $6.87 \pm 0.47$ ), and “harmony” ( $6.85 \pm 0.41$ ) as the three most important CCVs.

INSERT TABLE 5-4 HERE

The Chinese restaurant owners/operators' attitudes toward providing food safety training to employees was very positive ( $6.88 \pm 0.35$ ). The average personal influence score on food safety training provision was high ( $5.34 \pm 1.73$ ). The Chinese restaurant owners/operators perceived the opinions of customers ( $5.74 \pm 1.71$ ), family members ( $5.73 \pm 1.60$ ), and business partners ( $5.49 \pm 1.57$ ) as most important. Among six perceived barriers to the provision of food safety training, the participants rated physical exhaustion ( $5.89 \pm 1.58$ ), employees' learning capability ( $4.80 \pm 1.97$ ), and financial resources ( $4.56 \pm 2.19$ ) the highest. However, the participants' perception of barriers were not as significant based on the mean scores, ranging from 2.87 to 5.89 ( $4.38 \pm 2.11$ ).

### ***Categorizing Variables: Factor Analysis***

An exploratory factor analysis with VARIMAX rotation was applied to categorize the core CCVs and the relevant factors of the behaviors of Chinese restaurant owners/operators regarding the provision of food safety training. The KMO score was 0.581, indicating that the factor analysis was appropriate for this study. Bartlett's test of sphericity,  $\chi^2 = 2774.34$ ,  $df = 136$ ,  $p < .001$ , indicating that correlation between items was sufficiently large for factor analysis. Five factors emerged from the 17 CCVs in this study. Factor I includes six variables (30.27% of variance explained) addressing the work attitude (eigenvalue = 5.146). This factor includes variables such as "diligence", "adaptability", "thriftiness", "carefulness", "reciprocity", and "trust". Factor II includes four variables related to customer relations: "tolerance", "friendship", "humbleness", and "sincerity" (13.69% explained, eigenvalue = 2.327). Factor III includes three variables related to relationships in the workplace: "power distance", "authority", and "face" (12.86% explained, eigenvalue = 2.186). Factor IV includes three variables related to interpersonal relations: "respect", "harmony", and "confidence" (9.05% explained, eigenvalue = 1.538). Factor V includes one variable related to competitor relations: "courtesy" (6.06% explained, eigenvalue = 1.030). Table 5-5 illustrates the results from the factor analysis.

INSERT TABLE 5-5 HERE

***Relationships between CCVs and Intention to Provide Food Safety Training: Multiple Linear Regression Analysis***

Multiple linear regression analysis was used to test the relationships between the behavioral intention (dependent variable) and five CCV factors (independent variables). The resulting model was significant ( $F = 6.371, p < .001$ ) (Table 5-6). The significant independent variables in the model were Factor II, customer relations ( $\beta = 0.133, p < .05$ ) and Factor V, interpersonal relations ( $\beta = 0.320, p < .001$ ).

INSERT TABLE 5-6 HERE

***Relationships between CCVs and Other Factors affecting Food Safety Training: Hierarchical Multiple Regression Analysis***

Hierarchical multiple regression analysis was used to identify the relationships among CCVs, attitudes, personal influence, perceived barriers, past experiences, and behavioral intention related to providing food safety training in Chinese restaurants. The results are shown in Table 5-7. In model 1, the hierarchical multiple regression analysis investigated the variance explained by the five CCV factors identified in the previous section toward the behavioral intention. The results revealed that the five CCV factors were significant ( $F = 10.47, p < .001$ ) in the model, meaning that there was a statistically significant relationship between the five CCV factors and behavioral intention. These five CCV factors can explain 24.2% of the variance. After adding attitude, personal influence, perceived barriers, and past experiences into the model, model 5 significantly improved, explaining 37.8% of the variance. The five CCV factors ( $F = 10.47, p < .001$ ), personal influence ( $F_{change} = 3.98, p < .05$ ), perceived barriers ( $F_{change} = 6.42, p < .05$ ), and past experiences ( $F_{change} = 21.78, p < .001$ ) were significantly associated with behavioral intention regarding the provision of food safety training to employees in Chinese restaurants.

INSERT TABLE 5-7 HERE

***Impact of Gender on CCVs***

Independent sample t-tests determined the differences in the five CCV factors based on gender (Table 5-8). Among all five factors, significant gender differences were revealed in

Factor II, customer relations ( $t = 2.46, p < .05$ ), and Factor V, interpersonal relations ( $t = -6.02, p < .001$ ). The male respondents had significantly higher mean scores than female respondents for customer relations, indicating that the males perceived customer relations as more important than the females did. However, as compared to the females, the males perceived significantly less importance in the CCVs related to interpersonal relations. There were no differences between the male and female respondents with respect to the other CCV factors.

INSERT TABLE 5-8 HERE

### ***Impact of Education Level and Years of Restaurant Operation on Behavioral Intention***

One-way ANOVA was applied to identify the differences in behavioral intentions based on education level (Table 5-9). The result indicates that education level had a significant effect on behavioral intention ( $F = 5.905, p < .01$ ). More specifically, the respondents with a high school degree or lower were significantly higher in behavioral intention than those who had bachelor's degree or higher. The number of years of experience in restaurant operation did not influence the participants' behavioral intention to provide food safety training.

INSERT TABLE 5-9 HERE

### ***Most Preferred Food Safety Training Methods and Language among Chinese Restaurant Owners/Operators***

Descriptive statistics were applied to summarize the data and identified the most preferred food safety training method and language among the Chinese restaurant owners/operators (Table 5-10). The results revealed that the Chinese restaurant owners/operators preferred providing food safety training using training manuals ( $M = 6.17 \pm 1.23$ ) presented in Chinese ( $M = 6.13 \pm 1.33$ ) compared to English ( $M = 3.98 \pm 2.04$ ).

INSERT TABLE 5-10 HERE

## **DISCUSSION AND IMPLICATIONS**

The purpose of this quantitative study was to explore the variables that influence the behaviors of Chinese restaurant owners/operators in the U.S. regarding the provision of food

safety training in their restaurants and to identify the most preferred food safety training methods and language for their employees. Previous research identified a total of 17 CCVs as variables affecting Chinese restaurant operation (Liu & Kwon, 2012). The Chinese restaurant owners/operators perceived “courtesy”, “respect”, and “harmony” as the top three most important CCVs, as identified previously (Anonymous, n.d., para. 1). “Courtesy” refers to greeting people in the society by rank and title; it is a hierarchical concept that is closely linked to the standards of morality used to regulate the society and prevent conflict (Erbaugh, 2008). “Courtesy” (limao) can be traced back to at least 300 BCE and the philosopher Mencius; moreover, it is among the Confucian “five relationships,” including “ruler–ruled, father–son, husband–wife, elder brother–younger brother, and friend–friend” (Erbaugh, 2008, p. 624). In the twenty-first century, “courtesy” is applied to the business setting due to its powerful effect within a relationship (Erbaugh, 2008). Zhu and Yao (2008) studied Chinese culture from the perspective of corporate management and concluded that “harmony” and “courtesy” may apply to the management philosophy and operation behavior and provide strategies for business management and practices.

Although the Chinese restaurant owners/operators in this study did not perceive “face” to be as important as “courtesy”, “respect”, and “harmony”, it is the foundation of many CCVs. “Face”, as an important element in Chinese culture, indicates not disgracing oneself or one’s family (King, 1988). This concept represents the reputation that Chinese people build within the community during their lives (Huang, Davison, & Gu, 2011). More specifically, “face” can be classified into “lian” and “mian-zi”. “Lian” makes the person function properly in the society and represents an individual’s confidence and moral character (King, 1988; Yau, 1988), whereas “mian-zi” indicates the prestige of the person, such as the respect that the person receives within his or her lifetime (Brunner, Chan, Sun, & Zhou, 1989; Lam & Wong, 1995). Both types of “face” are associated with Chinese people’s confidence, reputation, and relationship with the community (Chow & Ng, 2004).

The Chinese prefer to avoid competition and conflict and maintain “harmony” by following the Confucian “Doctrine of the Mean” (Chen, 2002). “Harmony” plays a critical role in a two-party relationship. Without harmonious relationships, “face” and “trust” cannot continue successfully in the community, and this will prevent the establishment of “guanxi” or a

relationship (Chen & Chen, 2004). “Tolerance” is the essential component of “harmony”. To avoid conflict, the Chinese prefer resolving issues in an “implicit and mild” way (Moise, 1995).

Therefore, it is consistent with the previous research that the participants in this study valued “courtesy”, “respect”, and “harmony” as the three most important CCVs. Furthermore, the cooperation intention with food safety educators and health inspectors in reducing food safety risks in restaurants will improve if these individuals show “courtesy”, and “respect”, and maintain a harmonious relationship with Chinese restaurant owners/operators. When Chinese restaurant owners/operators receive “respect” from food safety educators and health inspectors, they will show their “respect” in return by following their recommendations. Since “face” is the foundation of Chinese culture, and a critical CCV for those within the Chinese community, food safety educators and health inspectors may utilize this unique characteristic to improve the food safety performance of Chinese restaurants. For example, if restaurant inspection results are disclosed to the public, Chinese restaurant owners/operators may be increasingly concerned about the food safety practices in their restaurants. If a Chinese restaurateur has foodborne illness outbreaks or numerous food code violations in his or her restaurant, he or she will lose “face” in the Chinese community. As a result, the awareness and attitude toward providing food safety training to employees will improve in Chinese restaurants. The Chinese restaurant owners/operators in this study also identified “humbleness” as an important CCV. Being “humble” in a business setting shows one’s respect for one’s partners, and this, in turn, may benefit the business partnership. Jones, Chan, and Yeung (2003) found that “humbleness”, “loyalty” to superiors, and “tolerance” of others had the greatest positive effects on employees’ attitudes toward their jobs.

Personal influence was significantly associated with Chinese restaurant owners/operators’ behavioral intention to provide food safety training to employees in this study. The participants perceived the opinions of customers, family members, and business partners as the most important personal influences. Roberts (2008) concluded that six subjective norms, namely, supervisors, long-term employees, short-term employees, customers, health inspectors, and vendors, affected restaurant owners’ decision-making. Our findings are consistent with the previous studies that identified customers, employees, and competitors as affecting Chinese restaurant owners/operators business practices (Fann & Smeltzer, 1989; Johnson & Kuehn, 1987; Kaish & Gilad, 1991). Other studies also indicated that small business managers rely on less

formal sources, such as family and friends, while making business decisions (Cooper, Folta, & Woo, 1995; Johannessen & Dolva, 1995). Among the 46,756 Chinese restaurant owners/operators in the U.S., 86.5% operate family owned or independently owned small businesses (Chinese Restaurant News, 2007). Therefore, in the setting of Chinese restaurants, family members, relatives, and friends have the strongest influence on the owners (Anonymous, n.d.).

The Chinese restaurant owners/operators identified employees' physical exhaustion, employees' capability to learn, and financial resources as the top three barriers to the provision of food safety training in Chinese restaurants. In the previous research, nine control beliefs for restaurant owners/operators emerged, including employee availability, managers' time, financial resources, lack of off-site food safety training availability, lack of on-site food safety training availability, lack of targeted training materials, employees not following what they learn from food safety training, and the time commitment required for food safety training (Roberts et al., 2008). Previous research has also identified a lack of resources, time constraints, the attitudes of the employees, and language barriers as contributing factors preventing further food safety training in ethnic restaurants (Mauer et al., 2006; Roberts et al., 2008; Rudder, 2006; Youn & Sneed, 2002).

The Chinese restaurant owners/operators in this study were not different from the previous research participants, even though they were underrepresented in previous studies. Therefore, food safety educators need to consider those barriers when providing food safety training to Chinese restaurant owners/operators. The food safety training materials must be quick and easy to learn and understandable by the employees in Chinese restaurants. Due to limited financial resources, the participants in this study expressed a preference for low or no cost food safety training. According to Food Safety Net (2010), a Chinese restaurant in the United Kingdom was fined almost £65,000 (approximately \$100,000) after 50 customers reported becoming ill after eating there. Therefore, if food safety educators and health inspectors provide employees more details about the importance of food safety training and the negative consequences of foodborne illness outbreaks (such as losing face, customer complaints and lawsuits, or fines), the employees will be more willing to participate in food safety training.

An exploratory factor analysis was applied to identify the core CCVs and the relevant factors of the behaviors of Chinese restaurant owners/operators to provide food safety training.

The five factors, customer relations, work attitude, work relations, competitor relations, and interpersonal relations, emerged to explain the 17 CCVs. The original CCVs were adapted from the Chinese Value Survey (CVS) developed by Bond and a group of Chinese researchers of the Chinese Culture Connection (1987). Later, Rokeach (1973) and Schwartz (1992) conducted studies using the CVS. The CVS was designed for people whose Eastern life values are dominant, and it was used to evaluate their cultural values that were developed from the Confucian ethos within the Chinese society (Matthews, 2000). Some examples of the values illuminated via the CVS are respect for “tradition, humility, filial piety, and protecting one’s face” (Matthews, 2000, p. 117). Four factors have emerged based on the 40 CCVs, including CVS I: integrity and tolerance, CVS II: Confucian ethos, CVS III: loyalty to ideals and humanity, and CVS IV: moderation and moral discipline (Matthews, 2000). These factors particularly represent the Confucian ethos, including the values of social stability and the Confucian work ethic, the ideas of gentleness and compassion, and moral restraint (Chinese Culture Connection, 1987). Fan (2000) expanded the 40 CCVs to 71 and classified these 71 CCVs into 7 categories (Appendix F), such as work attitude, interpersonal relations, and family orientation. The results of the exploratory factor analysis show partial consistency with the previous research due to the difference in settings (i.e., society setting vs. business setting).

Of the five CCV factors identified (i.e., work attitude, customer relations, work relations, competitor relations, and interpersonal relations), customer relations and interpersonal relations had significant effects on the behavioral intention of food safety training provision. Furthermore, customer relations consisted of “tolerance”, “friendship”, “humbleness”, and “sincerity”, and interpersonal relations consisted of “respect”, “harmony”, and “confidence”. As Pye (1972) stated, Confucianism has the greatest influence on Chinese culture. “Friendship”, or “relationship”, is one characteristic of the Chinese value. This indicates that once Chinese people establish a relationship, this bond is unlikely to break. Likewise, once a relationship is broken, it is very difficult to recover (Huang, Davison, & Gu, 2011). In other words, “long-term relationships” are very important to the Chinese. “Sincerity” is a critical component in the establishment of social networks among Chinese people, indicating that communication relies on what happens on the surface; thus, it is important to express one’s thoughts and feelings (Tao, 2005). Accordingly, an individual will gain “trust” from the other party by showing “sincerity”. In this study, after establishing “long-term friendships”, receiving “respect”, and gaining “trust”



within the community, the Chinese restaurant owners/operators will have more “confidence” in their relationships with customers.

Researchers in different fields have used past experiences to predict future behavior for many years. According to Bandura (1986), past experience plays a critical role in behavioral control. However, attitude was not significantly associated with the Chinese restaurant owners/operators’ intention to provide food safety training. This discrepancy may be due to the multicollinearity between the five CCV factors and attitude (Motulsky, n.d.).

The perceived importance of the CCV factors was somewhat different among different demographic groups. The male participants perceived customer relations to be more important than the female participants did, and they perceived interpersonal relations to be significantly less important than the female participants did. Hence, the male Chinese restaurant owners/operators are more likely to build relationships with customers by seriously considering the customers’ suggestions. Consequently, by emphasizing the customers’ concerns about food safety risks as well as their perceptions of food safety training, the male Chinese restaurant owners/operators will be more willing to improve the food safety practices in their restaurants and provide food safety training to their employees. On the other hand, the female Chinese restaurant owners/operators valued the “respect”, “harmony”, and “confidence” associated with interpersonal relations more so than their male counterparts. According to Croson and Buchan (1999), women are more likely to reciprocate than men. “Reciprocity” is used to establish relationships between two parties. Based on the principle of “reciprocity”, the individual who first receives a benefit will need to repay it in the future. Therefore, “reciprocity” sustains a network relationship in business settings, especially with regard to interpersonal relations (Chen & Chen, 2004). If the female Chinese restaurant owners/operators are aware of the mutual benefits between health inspectors and their restaurants in reducing food safety risks, they will be more motivated to provide food safety training to employees than males.

Lastly, the study highlighted the most preferred food safety training method and language among Chinese restaurant owners/operators. The results show that they prefer using a Chinese version food safety training manual.

### ***Limitations of the Study***

This study is limited to Chinese restaurants in the U.S. Thus, the results cannot be generalized to other types of ethnic or non-ethnic restaurants in the U.S., or restaurants located outside the U.S.

The second limitation is that the study did not explore the relationship between behavioral intention and behavior. Although behavioral intention cannot explain 100% of the actual behavior, studies have shown that a strong relationship exists between behavioral intention and actual behavior (Ajzen, 2002). Therefore, the behavioral intentions identified in this study may not directly reflect the participants' actual behaviors. To increase the validity of this research, future studies should explore the actual food safety training provision in Chinese restaurants by evaluating the association between behavioral intention and actual behavior.

Finally, this study did not address non-response bias. The Chinese restaurant owners/operators who participated in the study may be more aware of the needs for food safety training; therefore, they might already have more positive attitudes and good past experiences than those Chinese restaurant owners/operators who were not included in this study.

### **CONCLUSION**

Food safety in restaurants has been recognized as a serious concern, as foodborne illness outbreaks that are traced to restaurants often involve a large number of people getting ill after eating food from one source. A study indicated that 60% of the reported cases of foodborne illness outbreaks occurred due to the consumption of food from restaurants (Hedberg et al., 2006). Although improvements have been suggested to reduce food safety risks in the U.S., food borne illnesses remain a persistent problem, especially among ethnic restaurants (Kwon et al., 2010). Chinese food has become one of the Americans' preferred ethnic cuisines, as evidenced by the existence of over 46,000 Chinese restaurants in the U.S.—twice the number of McDonald's restaurants in the country (Chinese Restaurant News, 2007). The increased number of Chinese restaurants and the cultural differences between the Chinese and Americans may present unique food safety challenges. This quantitative study explored the variables that influence the behaviors of Chinese restaurant owners/operators in the U.S. regarding the provision of food safety training in their restaurants and identified the most preferred food safety training methods and language among those Chinese restaurant owners/operators.

Among the 17 CCVs, the participants in the study perceived “courtesy”, “respect”, and “harmony” as the three most important CCVs, and this is consistent with previous findings (Anonymous, n.d., para. 1). Furthermore, they perceived the opinions of customers, family members, and business partners as the most important personal influences, and employees’ physical exhaustion, employees’ learning capability, and financial resources as the top three barriers to the provision of food safety training in Chinese restaurants.

Five factors emerged in the study to explain the 17 CCVs, including work attitude, customer relations, work relations, competitor relations, and interpersonal relations. Of the five CCV predictor factors, customer relations and interpersonal relations had significant effects on the behavioral intention to provide food safety training. Additionally, personal influence, perceived barriers, and past experiences were significantly associated with behavioral intention with respect to the provision of food safety training to employees in Chinese restaurants. Health inspectors and food safety educators may find the results of this study useful when inspecting Chinese restaurants and trying to influence Chinese restaurant owners/operators to improve their food safety performance and to provide necessary food safety training to their employees.

Among the five CCV factors, the males perceived customer relations to be more important than the females did. The females, on the other hand, perceived interpersonal relations to be more important than the males did, due to their preference for the principle of reciprocity. Moreover, the Chinese restaurant owners/operators with a high school degree or lower were more intent on providing food safety training to their employees than those who had bachelor’s degree or higher level of education. However, there was no difference in the behavioral intentions of the participants according to their number of years of experience in restaurant operation. Lastly, the Chinese restaurant owners/operators in this study identified food safety training manuals and Chinese as their most preferred food safety training method and language, respectively.

The results of this study have significant implications for both theoretical and practical applications. The study provides information about CCVs, past behaviors regarding food safety training, the factors that impact Chinese restaurant owners/operators’ behaviors regarding food safety training, and the most preferred food safety training method and language among Chinese restaurants. Chinese restaurant owners/operators can utilize this data to recognize their needs for food safety training and investigate ways to improve food safety practices in their restaurants.

Additionally, understanding the influences of CCVs and other factors on the Chinese restaurant owners/operators with respect to their intention to provide food safety training may also help food safety educators and health inspectors to develop more efficient strategies to encourage safe food handling and food safety training in these restaurants.

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**Table 5-1 Results on Back Translation**

Words/Phrases	短语	Level of Agreement
		Mean <sup>a</sup> ± SD <sup>b</sup>
Courtesy	礼貌	5.50 ± 1.50
Reciprocity	互惠互利	5.55 ± 1.48
Thriftiness	节俭	5.08 ± 1.44
Diligence	勤奋	5.11 ± 2.14
improve employee food handling practices	提高员工处理食品的实践操作	5.67 ± 1.67
ensure my restaurant serve safe food	确保我餐厅提供安全的食物	6.08 ± 1.16
provide safe food to my customers	确保为客人提供安全的食物	5.83 ± 1.40
provide quality food to my customers	确保为客人提供高质量的食物	5.42 ± 1.73
I will offer food safety training to all employees if it is required by law.	如果法律有规定，我就会为我所有的员工提供食品安全培训。	5.92 ± 1.51
Having foodborne outbreaks in my restaurant would result in me 'lose face'.	我的餐厅发生食源性疾病会让我觉得很丢脸。	5.75 ± 1.42
I have enough staffs when employees are gone for food safety training.	当员工去参加食品安全培训时，我餐厅可以有足够的人手应付客人。	5.33 ± 1.61
By providing food safety training, my employees can adapt American's food safety practices.	提供食品安全培训可以确保员工适应美国食品安全的实践操作	5.58 ± 1.31
I try my best to follow health inspectors' recommendation no matter what they ask.	无论食品安全检查员要求什么，我都会尽我最大的努力去满足他们。	5.67 ± 1.37
I like to keep power distance with employees in the workplace.	我希望和员工在工作中保持距离。	5.58 ± 1.78
Having a good relationship with health inspectors will have a positive impact on food safety inspection.	和食品安全检查员搞好关系会对食品安全检查有正面影响。	5.60 ± 1.33
I agree with health inspectors' evaluation.	我同意食品安全检查员的评估。	5.92 ± 1.16
I don't think the health inspectors know about Chinese cooking.	我觉得食品安全检查员不懂中国烹饪技术。	5.25 ± 1.54

a. <sup>a</sup>Based on 7-point Likert-type scales with 7 being exactly the same and 1 being completely different.

b. Standard Deviation

**Table 5-2 Reliability of Measurement (n=20)**

<b>Construct</b>	<b>Number of items</b>	<b>Cronbach's alpha (<math>\alpha</math>)</b>
<b>Chinese Cultural Values</b>	17	.81
<b>Attitude</b>	4	.71
<b>Personal influence</b>	5	.91
<b>Perceived barriers</b>	6	.79
<b>Past experiences</b>	6	.89
<b>Intention</b>	2	.79

**Table 5-3 Respondents' Demographic Characteristics**

<b>Characteristic</b>	<b>Frequency</b>	<b>Percent (%)</b>
<b>Gender (n= 261)</b>		
Male	148	56.7%
Female	113	43.3%
<b>Education (n= 261)</b>		
Less than high school degree	18	6.9%
High school degree/GED	132	50.6%
Some college	40	15.3%
Bachelor's degree or higher	71	27.2%
<b>Years of restaurant operation (n= 261)</b>		
< 5 years	116	44.4%
6-10 years	104	39.8%
11-15 years	26	10.0%
16-20 years	11	4.2%
N/A	4	1.5%
<b>Food safety training experiences (n= 261)</b>		
No	70	26.8%
Yes	191	73.2%
<b>Food safety training provider (n= 191)</b>		
Local health department	148	56.7%
National Restaurant Association	22	8.4%
Your company	5	1.9%
Other	16	6.1%

**Table 5-4 Descriptive Statistic of Measurement Items for Predictor Variables and Intention**

Variable	Measurement Items*	Mean $\pm$ SD <sup>a</sup>	Not Applicable
<b>Chinese cultural values (CCV)</b>		<b>6.33 <math>\pm</math> 0.86</b>	
CCV6	Courtesy	6.95 $\pm$ 0.24	
CCV1	Respect	6.87 $\pm$ 0.47	
CCV5	Harmony	6.85 $\pm$ 0.41	
CCV15	Diligence	6.79 $\pm$ 0.56	
CCV16	Carefulness	6.72 $\pm$ 0.62	
CCV4	Confidence	6.71 $\pm$ 0.67	
CCV10	Trust	6.69 $\pm$ 0.66	
CCV17	Adaptability	6.67 $\pm$ 0.73	
CCV9	Sincerity	6.65 $\pm$ 0.67	
CCV11	Reciprocity	6.51 $\pm$ 0.85	
CCV7	Friendship	6.43 $\pm$ 0.75	
CCV12	Thriftiness	6.36 $\pm$ 1.00	
CCV3	Tolerance	6.16 $\pm$ 0.91	
CCV13	Humbleness	5.79 $\pm$ 1.29	
CCV2	Authority	5.52 $\pm$ 1.57	
CCV14	Face	5.01 $\pm$ 1.71	
CCV8	Power Distance	4.96 $\pm$ 1.60	
<b>Attitude (ATT)</b>		<b>6.88 <math>\pm</math> 0.35</b>	
ATT1	improve employee food handling practices	6.93 $\pm$ 0.27	
ATT2	ensure my restaurant serves safe food	6.91 $\pm$ 0.28	
ATT4	reduce the likelihood of foodborne illness outbreaks	6.89 $\pm$ 0.35	
ATT3	increase health inspection scores in my restaurants	6.80 $\pm$ 0.51	
<b>Personal Influence (PI)</b>		<b>5.34 <math>\pm</math> 1.73</b>	
PI2	Customers think I should offer food safety training in my restaurant.	5.74 $\pm$ 1.71	42
PI1	Family members think I should offer food safety training in my restaurant.	5.73 $\pm$ 1.60	7
PI3	Business partners think I should offer food safety training in my restaurant.	5.49 $\pm$ 1.57	27
PI5	Employees think I should offer food safety training in my restaurant.	4.90 $\pm$ 1.78	7
PI4	Other restaurant managers think I should offer food safety training in restaurant.	4.83 $\pm$ 1.98	66

**Table 5-4 Descriptive Statistic of Measurement Items for Predictor Variables and Intention (continued)**

<b>Variable</b>	<b>Measurement Items*</b>	<b>Mean ± SD<sup>a</sup></b>	<b>Not Applicable</b>
<b>Perceived Barriers (PB)</b>		<b>4.38 ± 2.11</b>	
PB6	I am too exhausted at work to provide food safety training.	5.89 ± 1.58	2
PB1	Not all employees have capability to learn food safety.	4.80 ± 1.97	25
PB4	I have financial resources to provide food safety training.	4.56 ± 2.19	34
PB2	Not all employees are willing to attend food safety training.	4.34 ± 2.26	5
PB3	My employees have time for food safety training.	3.83 ± 2.39	4
PB5	I have enough staff when employees are gone for food safety training.	2.87 ± 2.28	10
<b>Past Experiences (PE)</b>		<b>6.39 ± 1.05</b>	
PE5	I think health inspections are helpful in preventing foodborne illness.	6.67 ± 0.70	
PE1	I was satisfied with the last health inspection.	6.46 ± 1.04	
PE4	I agree with food safety inspectors' comments.	6.39 ± 0.91	
PE6	I think food safety training was very effective.	6.34 ± 1.23	
PE2	When I read the health inspection report, I can understand completely.	6.25 ± 1.16	
PE3	It is easy for me to follow the food safety inspectors' instructions.	6.23 ± 1.27	
<b>Behavioral Intention (BI)</b>		<b>6.46 ± 0.92</b>	
BI1	I plan to provide food safety training to my employees in the future.	6.50 ± 0.89	
BI2	I intend to provide food safety training to my employees in the future.	6.41 ± 1.11	

\*Scale range from 1 (extremely unimportant/strongly disagree) to 7 (extremely important/strongly agree) a Standard Deviation

**Table 5-5 Five-Factor Principle Component Exploratory Factor Solution (N = 261)**

Exploratory Factor Analysis Loadings					
	Work Attitude	Customer Relation	Work Relation	Interpersonal Relation	Competitor Relation
<b>Work Attitude</b>					
Diligence	.778	.232	-.032	-.023	.263
Adaptability	.749	-.013	.174	.138	-.216
Thriftiness	.673	-.024	.333	-.193	.295
Reciprocity	.603	.078	.192	-.222	.497
Carefulness	.588	.272	.139	-.039	.391
Trust	.581	.272	.139	-.039	.391
<b>Customer Relation</b>					
Tolerance	-.084	.826	.237	.203	.025
Friendship	.264	.819	-.014	.224	.000
Sincerity	.325	.800	-.074	.023	-.072
Humbleness	.064	.767	.218	-.327	.245
<b>Work Relation</b>					
Power Distance	.252	.069	.837	.248	.006
Authority	.281	.040	.806	-.072	-.012
Face	-.043	.327	.706	.429	.007
<b>Interpersonal Relation</b>					
Respect	-.080	.145	.201	.879	.008
Harmony	.108	-.150	.364	.581	.527
Confidence	.267	.125	-.032	.436	.461
<b>Competitor Relation</b>					
Courtesy	.055	.014	-.089	.069	.846
Percentage of variance explained (71.93% total)	30.27%	13.69%	12.86%	9.05%	6.06%
Eigenvalues	5.146	2.327	2.186	1.538	1.030
KMOS	0.581				

EFA Extraction Method: principle component with variant rotation

**Table 5-6 Multiple Regression Model for Predicting Behavioral Intention Based on Five CCV Factors**

Model	Sum of Squares	df	Mean Square	F	Significance
Regression	26.987	5	5.397	6.371	<0.001***
Residual	216.049	255	0.847		
Total	243.036	260			

**Standardized Coefficients**

Model	Beta	t	Sig.
(Constant)		0.214	0.831
Work attitude	0.011	0.164	0.870
Customer relation	0.133	2.078	0.039*
Work relation	-0.114	-1.593	0.112
Interpersonal relation	0.320	4.672	<0.001***
Competitor relation	0.000	-0.004	0.997

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .



**Table 5-7 Hierarchical Multiple Regression Results**

<b>Behavioral Intention (BI)</b>															
Variable	<u>Model 1</u>			<u>Model 2</u>			<u>Model 3</u>			<u>Model 4</u>			<u>Model 5</u>		
	<i>B</i>	<i>SE B</i>	Beta	<i>B</i>	<i>SE B</i>	Beta	<i>B</i>	<i>SE B</i>	Beta	<i>B</i>	<i>SE B</i>	Beta	<i>B</i>	<i>SE B</i>	Beta
CCV Factor1	-.128	.150	-.076	-.103	.152	-.062	-.007	.158	-.004	.033	.157	.019	.207	.152	.124
CCV Factor2	.204*	.106	.161	.210*	.107	.166	.263*	.109	.208	.148	.116	.117	.014	.113	.011
CCV Factor3	.039	.058	.054	.033	.058	.045	-.050	.071	-.068	.043	.079	.059	-.023	.075	-.032
CCV Factor4	1.456 ***	.248	.446	1.471 ***	.248	.451	1.475 ***	.246	.452	1.530 ***	.243	.469	1.378 ***	.231	.422
CCV Factor5	-.270	.335	-.062	-.254	.335	-.058	-.185	.334	-.042	-.170	.329	-.039	-.432	.314	-.099
Attitude (ATT)				-.245	.240	-.072	-.322	.241	-.095	-.375	.238	-.110	-.358	.224	-.105
Personal Influence (PI)							.114*	.057	.170	.063**	.060	.094	.040	.057	.060
Perceived Barriers (PB)										.163	.064	.205	.140**	.061	.175
Past Experience (PE)													.403 ***	.086	.334
R Square (Adjusted R Square)		0.242 (0.219)			0.247 (0.219)			0.265 (0.233)			0.293 (0.258)			0.378 (0.343)	
<i>F Change</i>		10.468***			1.046			3.982*			6.422*			21.780***	

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 5-8 Five CCV Factors Comparison between Male and Female**

	Male (148)		Female (113)		t	Sig.
	Mean	SD <sup>a</sup>	Mean	SD <sup>a</sup>		
Work attitude	6.66	0.48	6.57	0.61	1.350	0.178
Customer relation	6.36	0.72	6.13	0.77	2.457	0.015*
Work relation	5.16	1.54	5.18	1.41	-0.130	0.897
Interpersonal relation	6.70	0.47	6.96	0.21	-6.016	<0.001***
Competitor relation	6.93	0.26	6.98	0.19	-2.026	0.055

a. Standard Deviation

\*Scale range from 1 (strongly disagree) to 7 (strongly agree)

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Table 5-9 ANOVA Post Hoc Behavioral Intention Comparison among Education Level (N=261)**

Education Level	Behavioral Intention		F	Sig.
	Mean	SD <sup>a</sup>		
Less than high school degree	6.67 <sup>x</sup>	0.34	5.905	0.001
High school degree	6.64 <sup>x</sup>	0.55		
Some college	6.43 <sup>xy</sup>	0.96		
Bachelor's degree or higher	6.08 <sup>y</sup>	1.46		

a. Standard Deviation

\*Scale range from 1 (strongly disagree) to 7 (strongly agree)

<sup>x,y</sup>Means with different superscripts (a) differ significantly by LSD's Post-Hoc test ( $p < 0.05$ ).

**Table 5-10 Preferred Food Safety Training Methods**

	N	Minimum	Maximum	Mean	SD <sup>a</sup>
Food Safety Training Manual	261	1	7	6.17	1.23
Food Safety DVD	261	1	7	6.05	1.60
Case Study	261	1	7	5.59	1.51

a. Standard Deviation

\*Scale range from 1 (strongly disagree) to 7 (strongly agree)

## **Chapter 6 - SUMMARY AND CONCLUSION**

The major findings of previous qualitative and quantitative studies are summarized in this chapter. Several theoretical and practical implications for food safety educators and health inspectors are discussed. Additionally, limitations and suggestions for future research are presented.

### **SUMMARY AND FINDINGS**

As the ethnic-minority population increases and Americans travel more often outside the U.S., they become more exposed to and interested in ethnic foods. Chinese food is considered one of America's favorite ethnic cuisines, as evidenced by the nearly 46,000 Chinese restaurants in the U.S. (Chinese Restaurant News, 2007). Despite the progress made in reducing food safety risks in the U.S., foodborne illnesses remain a challenge, especially in the production and service of ethnic foods (Kwon, Roberts, Shanklin, Liu, & Yen, 2010). Several food safety training programs are available for restaurants, including the most widely used program, that of ServSafe®. However, improved knowledge alone does not increase behavior intention to handle food properly.

According to previous research, the increasing number of Chinese restaurants and cultural differences in the U.S. may present unique food safety challenges for Chinese restaurateurs (Linsk & Sitaramiah, 2000). However, limited research has been conducted that assesses the needs and challenges of food safety training in Chinese restaurants or possible cultural influences on food handling and food safety training. Therefore, there was a need to (a) explore Chinese cultural influences on the behaviors of Chinese restaurant owners/operators to provide food safety training, (b) examine other factors that influence behaviors to provide food safety training in Chinese restaurants, and (c) investigate the preferred food safety training method and language in Chinese restaurants in order to increase and improve food safety training in these restaurants.

To achieve the objectives of the study, the methodology included a qualitative study with individual interviews and a quantitative study with surveys of owners/operators. The questionnaire was developed based on findings from a qualitative study, reviewed by an expert panel, pilot tested, and administered to 500 Chinese restaurant owners/operators. For Objective

1, an exploratory factor analysis was applied to identify core Chinese cultural values and the relevant factors influencing the behaviors of Chinese restaurant owners/operators to provide food safety training. For Objective 2, hierarchical multiple regression analyses and correlation analyses were applied to identify relationships between/among Chinese cultural values (CCV), attitudes, personal influence, perceived barriers, past experiences, and other variables related to safe food handling, food safety training, and behavioral intention related to providing food safety training in Chinese restaurants. For Objective 3, descriptive statistics were applied to summarize the data and identify the preferred food safety training method and language for Chinese restaurant owners/operators.

### ***The Qualitative Study***

Qualitative methods give researchers the flexibility to explore participants' initial responses by asking why or how, which may encourage participants to elaborate on their answers (Qualitative research methods, n.d.). This study was designed to investigate variables that influence Chinese restaurant owners'/operators' behaviors regarding the provision of food safety training in Chinese restaurants in the U.S. With relatively little being learned about this process via the literature review, there was limited information to assist in survey design or to give direction for the construction of predetermined reference categories. Therefore, without a qualitative study, conducting a quantitative approach for this research was unsuitable (Everett, 1998; Silverman, 2000).

The purpose of conducting a qualitative study was to identify the core CCVs that influence food safety training practices in Chinese restaurant operations. Additionally, the aim was to explore attitudes, personal influences, perceived barriers, and past experiences related to safe food handling and food safety training and to uncover which elements may impede food safety training in Chinese restaurants in the U.S. Finally, the study investigated the preferred food safety training method and language for Chinese /operators and developed a survey instrument for subsequent quantitative research.

Twenty Chinese restaurant owners/operators from twenty Chinese restaurants in different locations participated in individual interviews. A total of seventeen CCVs were identified as being associated with providing food safety training among this population. The values identified were consistent with general CCVs identified previously.

Customers, business partners, owners/operators self, other restaurant owners, family members, and employees with expertise in different areas were identified as different information sources that could potentially affect Chinese restaurant owners'/operators' business decisions. The majority of participants expressed satisfaction with the most recent health inspection, but several participants addressed concerns about their ability to practically implement the health inspectors' instructions in a Chinese restaurant. Most participants attended food safety training in the U.S. before and noted that they found the training was to be effective in terms of increasing their food safety knowledge. However, only a few Chinese restaurants provided food safety training to their employees.

Perceived barriers and the preferred food safety training method and language were identified in the study. Several barriers have been recognized with regard to providing food safety training in Chinese restaurants, including a lack of money, time, labor, a perceived need to provide food safety training by Chinese restaurant owners/operators, and a lack of employee motivation and qualifications to complete food safety training, and employees' physical exhaustion.

Videos, case studies, and food safety training handbooks were the preferred food safety training methods of Chinese restaurant owners/operators. Also, Chinese was identified by Chinese restaurant owners/operators as being the preferred language for food safety training. If health inspectors and food safety educators apply the CCVs identified in this study when inspecting and providing training in Chinese restaurants, then awareness, attitude, and motivation may improve among Chinese restaurant owners/operators and their employees.

### ***The Quantitative Study***

The purpose of the quantitative study was to assess, using the instrument developed in the qualitative study, the behaviors that influence whether food safety training is provided in Chinese restaurants in the U.S. More specifically, the survey was administered to explore CCVs and their influences on the behavior of Chinese restaurant owners/operators in terms of receiving and providing food safety training. Also, this study examined the relationships between/among potential variables and the behavior of Chinese restaurant owners/operators with regard to providing food safety training. The preferred food safety training methods and language for Chinese restaurant owners/operators were also identified.

An instrument was developed based on the results of individual interviews. All questions on the questionnaire were developed based on the constructs identified in the qualitative portion of the research. The questionnaire included questions regarding the influence of respondents' CCVs on their behavioral intention related to food safety training, of their attitudes toward food safety training, of others' personal influence on providing food safety training, of their perceived barriers to providing food safety training, of their past experiences with food safety training, and of their preferred food safety training methods and language. Demographic information about the establishments and participants was also included. All questions, except demographic questions, used Likert-type scales.

A total of 500 Chinese restaurants were selected from various municipalities and regions and were contacted by personal visits, telephone calls, emails, and faxes to request their participation in the study. A total of 261 completed surveys were collected. The response rate reached 52.2%. Descriptive statistics, such as frequencies, means, standard deviations, and cross-tabulations, were calculated to summarize the data. An exploratory factor analysis was applied to identify core CCVs and the relevant factors of the behaviors of Chinese restaurant owners/operators with regard to providing food safety training. Cronbach's alpha (Cronbach, 1951) was also used to check construct reliability. A composite reliability of  $\geq 0.70$  for all constructs was considered an acceptable threshold. Hierarchical multiple regression analyses and correlation analyses were applied to identify relationships between/among CCVs, attitudes, personal influence, perceived barriers, past experiences, and other variables concerning safe food handling, food safety training, and behavioral intention related to providing food safety training in Chinese restaurants. Descriptive statistics were applied to summarize the data and to identify the preferred food safety training method and language of Chinese restaurant owners/operators.

Among the 17 CCVs identified from the qualitative study, "courtesy," "respect," and "harmony" were perceived by Chinese restaurant owners/operators as being the three most important CCVs, these also were recognized as major CCVs in the previous study (Anonymous, n.d., para. 1). The opinions of customers, family members, and business partners were perceived by Chinese restaurant owners/operators in this study as the most important personal influences. Employees' physical exhaustion, employees' capabilities to learn, and financial resources were rated by Chinese restaurant owners/operators as being the top three perceived barriers to providing food safety training. Five factors were categorized to represent the 17 CCVs, including



customer relations, work attitude, work relations, competitor relations, and interpersonal relations. Of the five CCV factors, customer relations and interpersonal relations had significant effects on behavioral intention to provide food safety training. Additionally, personal influence, perceived barriers, and past experiences were significantly associated with behavioral intention to provide food safety training to employees in Chinese restaurants.

### ***Other Findings***

Among the five CCV factors, male respondents valued customer relations more than female respondents who more highly valued interpersonal relations. Finally, Chinese restaurant owners/operators identified food safety training manuals and Chinese as being the preferred food safety training method and language. Results from qualitative study and quantitative study showed some differences. The summary was presented in Table 6-1.

**Table 6-1 Summary of Comparison on the Results between Qualitative Study and Quantitative Study**

<b>Results</b>	<b>Qualitative Study (n=20)</b>	<b>Quantitative Study (n=261)</b>
Chinese Cultural Values (Top three)	<ul style="list-style-type: none"> <li>• Respect</li> <li>• Authority</li> <li>• Tolerance</li> </ul>	<ul style="list-style-type: none"> <li>• Courtesy</li> <li>• Respect</li> <li>• Harmony</li> </ul>
Perceived Barriers	<ul style="list-style-type: none"> <li>• Money</li> <li>• Time</li> <li>• Labor</li> <li>• Physical exhaustion</li> <li>• Perceived needs</li> <li>• Employees' education level</li> </ul>	<ul style="list-style-type: none"> <li>• Physical exhaustion</li> <li>• Employees' capabilities to learn</li> <li>• Financial resources</li> <li>• Perceived needs</li> <li>• Time</li> <li>• Labor</li> </ul>
Food Safety Training Method	<ul style="list-style-type: none"> <li>• DVD</li> <li>• Case studies</li> <li>• Food safety training manuals</li> </ul>	<ul style="list-style-type: none"> <li>• Food safety training manuals</li> <li>• DVD</li> <li>• Case studies</li> </ul>

### **IMPLICATIONS**

The results of this study may provide significant implications for both theoretical and practical applications.

### ***Theoretical Implications***

This study, to the best of our knowledge, is the first to investigate cultural values and their influences on restaurant operations and food safety training in Chinese restaurants. Some researchers have indicated that consumer food safety knowledge and practices are considerably different across demographic categories, such as socioeconomic and cultural categories (Patil, Cates, & Morales, 2005). While some food safety training programs have been developed for this population, a lack of cultural sensitivity has hampered these programs' effectiveness (Mauer et al., 2006). In addition, the increasing number of Chinese restaurants and their cultural differences may present unique food safety challenges for Chinese restaurateurs in the U.S. (Linsk & Sitaramiah, 2000). This study provided information about CCVs, past behaviors regarding food safety training, factors that impact Chinese restaurant owners/operators behaviors regarding food safety training, and the preferred food safety training method and language for Chinese restaurants. Chinese restaurant owners/operators can utilize this data to recognize their needs for food safety training and to investigate ways of improving food safety practices in their restaurants.

### ***Practical Implications***

By understanding traditional cultural values and preferred training methods and language, food safety educators may be able to develop strategies for more effectively reaching and influencing Chinese restaurant owners/operators. Members of the Chinese community may also be able to utilize the research findings to recognize their needs for food safety training and to investigate ways of improving food safety in their restaurants, such by as providing food safety training to Chinese restaurant employees using their preferred training materials and methods. The results of this research will contribute to the body of knowledge about Chinese cultural values and their influences on food safety training in Chinese restaurants. The following are recommendations for Chinese restaurant food safety educators and health inspectors based on the results of this study:

- In order to improve awareness of, attitudes about, and motivation for food safety training among Chinese restaurant owners/operators and their employees, health inspectors and food safety educators should apply CCVs identified in this study when inspecting and providing training in Chinese restaurants.

- Food safety professionals should emphasize the importance of food safety training from the viewpoint of customer relations and interpersonal relations in order to increase Chinese restaurant owners'/operators' intention to provide food safety training.
- Food safety educators should focus on improving the efficiency and effectiveness of food safety training, reducing the level of difficulty, and lowering the cost of food safety training materials, which will reduce the barriers related to employees' physical exhaustion, employees' capabilities to learn, and protect financial resources to use food safety training practices in Chinese restaurants.
- Food safety educators should develop a Chinese language food safety training manual for food safety training in Chinese restaurants, these being identified as the preferred food safety training method and language among this population.

## **LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH**

This study is limited to Chinese restaurants in the U.S. Thus, the results cannot be generalized to other types of ethnic or non-ethnic restaurants in the U.S. or to restaurants located outside the U.S.

Second, this study did not address non-response bias. The Chinese restaurant owners/operators who participated in the study may be more aware of the need for food safety training; therefore, they might already have attitudes that are more positive and better past experiences than Chinese restaurant owners/operators who were not included in this study.

A third limitation is that the study did not explore the relationship between behavioral intention and behavior. Therefore, behavioral intentions identified in this study may not directly reflect participants' actual behaviors. In the future, in order to evaluate the association between behavioral intention and actual behavior, the actual provision of food safety training in Chinese restaurants may be explored in order to increase the validity of the study.

Finally, attitude was not significantly associated with Chinese restaurant owners'/operators' intention to provide food safety training, probably due to the multicollinearity among the five CCV factors, attitude, and personal influence. Future studies may be needed to investigate the moderating effects of the five CCV factors on attitude and behavioral intention.

This was the first study that investigated food safety related issues with Chinese restaurant owners/operators. There has been limited research conducted with this particular group possibly due to unwillingness to share their opinions. With “trust” being one of the major values for Chinese people, it is not surprising to see a lack of research participation of this population. The following section summarizes recommendations for future researchers based on this research project.

The respondents were contacted using various methods and asked to return the completed survey by the most convenient method (Table 6-2 and Table 6-3). A total of 500 Chinese restaurants were contacted for data collection in this study. Four hundred Chinese restaurants were randomly selected through ChineseMenu.com from various municipalities and regions and solicited to participate in the study by telephone and faxes. In addition, another 100 Chinese restaurants that were not listed online were contacted by Chinese Restaurant News via faxes. The response rate for this study was much higher than other social studies partly because the researcher was a Chinese and used variety of solicitation methods to encourage participation and to build trusting relationships.

Although results of this study did not show any difference with different respondent contact and data collection methods, future studies may need to investigate the influences of different data collection methods on survey responses related to behavioral intention among Chinese people. It is plausible that Chinese cultural values may impact their responses. For example, Chinese restaurant owners may not admit having barriers to provide food safety training in restaurants to protect “face.” Therefore, researchers may conduct future studies to explore different research methods and ways to minimize such cultural influences on survey responses.

**Table 6-2 Summary of Respondents Contact Methods**

<b>Respondents Contact Methods</b>	<b>N (500)</b>	<b>Percentage (%)</b>
Mail	331	66
Personal visit	69	14
State X	34	
State Y	25	
State Z	10	
Contacted by Chinese Restaurant News (Fax or phone calls)	100	20

**Table 6-3 Summary of Data Collection Methods**

<b>Data Collection Methods</b>	<b>N (261)</b>	<b>Percentage (%)</b>
Fax	118	46
Mail	69	26
Personal visit	69	26
State X	34	
State Y	25	
State Z	10	
Email	5	2

A Participant payment was offered to increase Chinese restaurant owners/operators' participation in this study. However, only a few Chinese restaurant owners expressed their interest in receiving financial compensation for their time and effort. A couple of reasons for their declination to accept the participant payment may be (a) their willingness to assist the researcher who is also a Chinese and (b) concerns related to their identities being revealed. To redeem the cash payment, participants had to provide their social security number to the researcher. Even with multiple reassurance of safety of their identity or social security numbers, some of them were not willing to provide their social security numbers to receive the payment. In the future, researchers may need to identify the preferred participant incentives among Chinese people.

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## Appendix A - Individual Interview Probing Questions

### The influence of Chinese cultural values on food safety training attitudes and behaviors in Chinese restaurants in the U.S.: An exploratory investigation

中国文化价值观对在美国的中国餐馆的食品安全培训的态度和行为上的的影响：一项探索性调查

#### Screening Questions:

筛选问题:

**1. Which of the following best describes the type of service your restaurant provides?**

下列哪一项最能描述您提供膳食服务的类型?

**a. Buffet.** Since this study is for full-service, independent restaurants only, I do not have further questions. Thank you very much for your time and interest.

a. 自助餐。由于本研究是针对全方位服务的，独立的餐厅。我们没有其他问题。非常感谢您的时间和兴趣。

**b. Take out only.** Since this study is for full-service, independent restaurants only, I do not have further questions. Thank you very much for your time and interest.

b. 外带。由于本研究是针对全方位服务的，独立的餐厅。我们没有其他问题。非常感谢您的时间和兴趣

**c. Others.** Such as Quick Service, Casual Dining, Fine Dining, etc.: Please answer the following questions.

c. 其他。快餐，休闲餐饮，高级餐厅等：请回答下列问题。

**2. Is this the only restaurant you operate?**

这间是您唯一经营的餐厅吗?

**Yes** – Go to next question.

是—下一个问题

**No** -- How many restaurants are you currently operating?

不是—您目前一共经营几家餐厅?

---

#### Individual Interview Probing Questions

个人探索性问题

1. How long have you been residing in the United States?

您在美国居住多久了?

2. Why did you relocate to the U.S.?

您为什么要搬迁到美国?

3. How long have you been working in a restaurant industry in the U.S.?  
您在餐饮业干了多久了?  
  
Have you worked in a restaurant in your home country (China, Taiwan, etc.)?  
您以前在您的家乡在餐厅工作过吗?
4. Why did you choose to operate a restaurant?  
您为什么从餐饮业起家?
5. When did you open your own restaurant?  
您什么时候开始开的餐厅?
6. What makes your restaurant unique or competitive?  
是什么让您的餐厅独一无二或者具有竞争性?
7. In your opinion, what are some major differences between American and Chinese cultures? Please be specific and provide examples.  
您觉得美国文化和中国文化有什么巨大差别? 请具体解释并提供例子。
8. What aspects of Chinese cultures are important to you? Please explain.  
中国文化价值观的哪个方面对您很重要? 请具体解释。
9. Please tell me what are the top 5 Chinese cultural values affected your business practices. (Potential questions as follows: )  
请提供影响您生意最多的 5 个中国文化价值观 (提示问题如下: )
  - a. Please explain how these values affected your business practices.  
请解释这些中国文化价值观怎样影响了您的生意上的行为。
  - b. What Chinese cultural values affected your training practices?  
哪些中国文化价值观影响了您对员工的培训?
  - c. What Chinese cultural values affected your relationship with employees?  
哪些中国文化价值观影响了您和员工的关系?
  - d. What Chinese cultural values affected your relationship with customers?  
哪些中国文化价值观影响了您和顾客的关系?
  - e. What Chinese cultural values affected your relationship with competitors?  
哪些中国文化价值观影响了您和竞争对手的关系?
  - f. What Chinese cultural values affected your relationship with restaurant inspectors or health inspectors?  
哪些中国文化价值观影响了您和食品安全检查员的关系?
  - g. What Chinese cultural values affected your attitude and behaviors on dealing with difficult customers?  
哪些中国文化价值观影响了您对难缠客人的态度和行为?
  - h. (If not addressed already) How important is making profit to you compared to other values you shared so far? More or less or how much more?



(如果还没有提到) 目前和其他价值比较, 利润有多重要? 多还是少?

- i. What Chinese cultural values affected your business success?  
哪些中国文化价值观影响了您生意上的成功?
10. Regardless of our discussion about Chinese cultural values, what other factors do you believe make your business successful?  
忽略和中国文化价值观相关, 哪些其他因素影响了您生意上的成功?
11. Have you received food safety training in the United States? Please describe what types of training you received, if any.  
您在美国又没有参加过食品安全培训? 如果有, 哪种?
  - a. Who provided food safety training?  
谁提供的培训?
  - b. How long was the training?  
培训持续多长时间?
  - c. How effective do you think the food safety training?  
您觉得食品安全培训有效吗?
  - d. How confident are you to provide safe food to your customers? Please explain why you are confident (or not as confident).  
您有多少信心给您的客户提供安全的食品? 请解释你为什么有信心(或没有信心)。
  - e. Was it required for you or other employees to receive food safety training before opening the restaurant?  
在开餐厅前, 您或您的员工有没有被要求接受食品安全培训?
12. I would like to ask some questions about your employees.  
我想问一些关于您员工的问题。
  - a. How many employees do you currently have? If you have multiple operations, please tell me the total number of employees in your operation(s).  
您现在拥有多少员工? 如果您有多家餐厅, 员工总数是多少。
  - b. Of those, how many people prepare food in the kitchen?  
在这些员工中, 多少人在厨房准备食物?
  - c. How many people serve food in the dining room?  
多少人在大厅服务?
  - d. Are any of your employees both prepare and serve food?  
有没有员工既准备食物又在大厅服务?
  - e. For those who prepare food, how do you rate their ability to prepare quality food?  
在那些准备食物的员工中, 您怎样评估他们准备有质量食物的能力?

- f. What language do you use to communicate with your employees? (If needed) Do you have any difficulties in communicating with them? Please explain.  
您用哪种语言和员工交流？（如果需要）您的员工交流有困难吗？请解释。
13. Have your employees participated in food safety training in the United States? Please describe what types of training they received, if any. (If participants do not address specifics, follow up with the questions below)  
您的员工有没有参加过食品安全培训？如果有，他们参加的哪种培训？(提示问题如下)
- a. Who provided food safety training?  
谁提供的培训？
- b. How long was the training?  
培训有多长时间？
- c. How effective do you think the food safety training has been?  
你觉得食品安全培训有多有效？
- d. (If they have received any training) When and how often do your employees receive food safety training?  
(如果员工接受过培训) 什么时候接受培训的？多频繁？
- e. On average, how many hours of training does each employee receive?  
平均来讲，每个员工培训了多少小时？
- f. Did you pay the cost of the employees attending food safety training? If so, how much does food safety training cost annually for your restaurant?  
(如果有) 您有没有为员工的食品安全培训付钱？如果有，您每年的在食品安全培训上的开销有多少？
14. What are your plans to provide food safety training for your employees in the next 12 months? Do you have any plans in place?  
您在未来 12 个月有没有为员工提供食品安全培训的计划？您有任何计划吗？
- a. If not, what are barriers to (or difficulties of) providing food safety training for your employees?  
如果没有，你为员工提供食品安全培训有没有什么困难？
- b. What would encourage you to provide food safety training for your employees?  
什么会鼓励您为您的员工食品安全培训？
15. We are almost done! Now I will ask a series of quick questions regarding health inspections that your restaurant(s) received.  
差不多快结束了！现在我要问您一系列关于接受卫生检查的问题。
- a) When was the last time your restaurant was inspected?  
上次餐厅检查是什么时候？

- b) About how many times does your restaurant receive health inspections a year?  
您的餐厅一年接受几次卫生检查?
- c) How satisfied are you with the health inspection? (*Follow up why or why not they are satisfied with health inspections*)  
您对为什么检查满意吗? (为什么满意/不满意?)
- d) How much did you understand the health inspection REPORT? \_\_\_\_\_  
您对卫生检查报告理解多少?
- e) Did health inspectors provide you recommendations for improving food safety practices in your restaurant? \_\_\_\_\_  
卫生检查员有没有给您提供加强食品安全的建议?
- f) How much did you agree with health inspector's assessment/comments during the inspection visit?  
您对卫生检查员在卫生检查时的评估/评论有多同意?
- g) How easy was it for you to follow the health inspectors' instructions/recommendations?  
遵循卫生检查员的指示/建议容易吗?
- h) Have you received follow-up inspection after your initial health inspection? \_\_\_\_\_  
您有没有接受初步卫生检查后的跟进检查?  
  
If yes, did the inspector recognize the improvement you have made? \_\_\_\_\_  
如果有, 卫生检查员有没有意识到您的进步?
- i) How helpful do you think the health inspections are in preventing foodborne illness?  
Please explain why you feel that way.  
你认为卫生检查对预防食源性疾病有多大帮助?  
  
请解释您为什么这么觉得。

16. Have you ever heard about other restaurants having foodborne illnesses? Please explain as much as you know regarding the incident and reasons for such incident(s) as you know.

您有没有听说过其他餐厅爆发过食源性疾病? 请尽可能多的解释您所知道的此类事件的原因。

### Operational Demographic Information

1. How many seats does your restaurant have for usual dining? \_\_\_\_\_  
您的餐厅有多少位子?

If you operate more than one restaurant, please answer the TOTAL number of seats for all your restaurants combined, not including the special banquet areas. \_\_\_\_\_ (Number of seats)

如果您有 1 家以上餐厅，请回答这些餐厅一共有多少位子，不包括特殊的宴会区。

2. How many full-time employees work in your restaurant (s)? If you operate more than one restaurant, tell me the total number of your full-time employees.

您的餐厅有多少全职员工？如果您有 1 家以上餐厅，请回答员工总数。

3. How many part-time employees work in your restaurant (s)? If you operate more than one restaurant, tell me the total number of your part-time employees.

您的餐厅有多少兼职员工？如果您有 1 家以上餐厅，请回答员工总数。

4. On average, how many hours do your part-time employees work per week? \_\_\_\_\_  
平均来讲，您的兼职员工每周工作几个小时？

### Demographic information

#### 人口信息统计

We are very close to be done. Now I have a few questions about yourself.

马上就要完成了。现在有一些关于您的问题。

1. What is your age? \_\_\_\_\_

您的年龄？

2. Which of the following best describes your highest educational level?

下面哪项是您的最高学历？

a. Less than high school degree

低于高中

c. Some college

社区大学

e. Bachelor's Degree or higher

大学本科或者更高

b. High school degree/GED

高中

d. Associate's Degree

联合学位

3. If there is a food safety training program available for you and your employees, what education methods do you prefer? Please name three most preferred methods. Of those, which one do you prefer the most? Between the other two (remind them what they are), which one do you prefer?

如果您和您的的员工提供食品安全培训，您喜欢哪种培训方式？请说出三种您喜欢的培训方式？您最喜欢哪种？其他两种，您比较喜欢哪种？

(Mark down their responses below. 1 most preferred followed by 2 and 3)

\_\_\_\_\_ Lecture

讲课

\_\_\_\_\_Lecture with discussion

讲课并讨论

\_\_\_\_\_Videotapes

录像带

\_\_\_\_\_Small group discussion

小组讨论

\_\_\_\_\_Case studies

案例研究

\_\_\_\_\_Role playing

角色扮演

\_\_\_\_\_Worksheets/surveys

工作表格/调查问卷

\_\_\_\_\_Others, please specify \_\_\_\_\_

其他，请具体说明

4. What language do you prefer to communicate with your employees?

\_\_\_\_\_

您喜欢用哪种语言和员工交流？

Thank you very much for your participation. Now, I need to know your address information so that we can send you a \$20 check.

非常感谢您的参与。现在我需要您的地址以便给您寄 20 美元的支票。

## Appendix B - Chinese Cultural Values (CCVs)

Chinese Cultural Values	Frequency*	Questions and Examples of Responses
Respect	29	<p>“What aspects of Chinese culture are important to you?”</p> <ul style="list-style-type: none"> <li>• <i>Mutually respect to different people.</i></li> <li>• <i>We should respect ourselves first, and then other will respect you. If you don't respect yourself, you can't ask others to respect you.</i></li> <li>• <i>Chinese tradition is to respect the elderly and care for the young, respect parents, and other people's life value.</i></li> <li>• <i>“Please describe the relationship between the owner and employees.” Our boss is the best in town. He treats employees equally well. If you respect others, they will respect you as a return.</i></li> </ul>
Authority	28	<p>“Do you agree with health inspectors' comments?”</p> <ul style="list-style-type: none"> <li>• <i>You have to follow their (health inspectors) recommendations.</i></li> <li>• <i>We have to follow, because it's mandatory by state law.</i></li> <li>• <i>Of course I will agree anything they (health inspectors) said. I can't argue with them.</i></li> </ul> <p>“How easy was it for you to follow the health inspector's instruction?”</p> <ul style="list-style-type: none"> <li>• <i>Although I feel it's not necessary, we have to follow (inspector's instruction).</i></li> </ul>
Tolerance	23	<p>“What are some issues you face when dealing with difficult customers?”</p> <ul style="list-style-type: none"> <li>• <i>Patience, patience, and more patience. Since we are in the service business, just like what you've heard “customers are always right!”</i></li> <li>• <i>Whatever customers did, they are always right. You need to make them come back.</i></li> <li>• <i>We need try to satisfy them (customers) as well as possible.</i></li> <li>• <i>You can't argue with them (customers), directly.</i></li> </ul>
Self-confidence	19	<p>“How confident are you to provide safe food to your customers?”</p> <ul style="list-style-type: none"> <li>• <i>I am fully confident, 100%.</i></li> </ul>
Harmony	11	<p>“What are some issues you face when dealing with difficult customers?”</p> <ul style="list-style-type: none"> <li>• <i>There is a principle for Chinese restaurant: first, customers are always right. Even if you think it's the customers' fault, the wait staff still needs to act as if customers are always right.</i></li> </ul>

Chinese Cultural Values	Frequency*	Questions and Examples of Responses
Courtesy	11	<p>“What aspects of Chinese culture are important to you?”</p> <ul style="list-style-type: none"> <li>• <i>If you need anything, you should say “Excuse me, could you help me...”</i></li> <li>• <i>Form a polite prospective, you also need to talk to your customers with courtesy.</i></li> </ul>
Friendship	10	<p>“What is your relationship with customers?”</p> <ul style="list-style-type: none"> <li>• <i>Most of customers are our friends.</i></li> <li>• <i>You should say every customer is your friend.</i></li> </ul>
Power Distance	9	<p>“What is your relationship with your employees?”</p> <ul style="list-style-type: none"> <li>• <i>(We have) Very good relationships! Just like the relationship between boss and employees.</i></li> </ul>
Sincerity	9	<p>“What is your relationship with customers?”</p> <ul style="list-style-type: none"> <li>• <i>Customers are the number one... (We provide) good food and service and (we are) honest to customers.</i></li> </ul> <p>“What makes your restaurant unique or competitive?”</p> <ul style="list-style-type: none"> <li>• <i>We are honest in providing service. We don’t cheat our customers.</i></li> <li>• <i>I think honest to customers is very important.</i></li> </ul>
Family Trust	6	<p>“Whose opinions impact your business practices the most?”</p> <ul style="list-style-type: none"> <li>• <i>I trust my people, my family.</i></li> <li>• <i>I only trust my family.</i></li> </ul>
Reciprocity	7	<p>“What is your relationship with other Chinese restaurant owners/health inspectors?”</p> <ul style="list-style-type: none"> <li>• <i>Having a good relationship makes mutually benefits.</i></li> <li>• <i>They are friends. We could help each other.</i></li> <li>• <i>Sometimes we discuss with each other about restaurant operation. And we can help each other, whenever we need help. We could have mutual benefits.</i></li> </ul>
Thriftiness	6	<p>“What are some major differences between American and Chinese cultures?”</p> <ul style="list-style-type: none"> <li>• <i>Chinese people like making and saving the money and developing their business.</i></li> <li>• <i>Some customers throw a whole plate full of food out with only one bite eaten. I told them it’s such a waste.</i></li> </ul>
Humbleness	5	<p>“What makes your restaurant unique or competitive?”</p> <ul style="list-style-type: none"> <li>• <i>(Regarding their business success) It’s not very good.</i></li> <li>• <i>Actually I don’t have any strategies.</i></li> <li>• <i>How do you know our restaurant is very successful? (Rephrased question followed by a laugh and no answer).</i></li> <li>• <i>Not very successfully.</i></li> </ul>
Face	4	<p>“What are some major differences between American and Chinese cultures?”</p>

Chinese Cultural Values	Frequency*	Questions and Examples of Responses
		<ul style="list-style-type: none"> <li>• <i>As a Chinese, we love to keep our “face”.</i></li> <li>• <i>I can’t serve food in the dining room, because I want to protect my “face”. I rather working in the kitchen and no one could see me.</i></li> </ul>
Diligence	4	<p>“What are some major differences between American and Chinese cultures?”</p> <ul style="list-style-type: none"> <li>• <i>I worked with 3 or 4 restaurants during the year; I just wanted to have some experience. I had lots of difficulties such as some work-related injuries because of hard work.</i></li> <li>• <i>I think the diligent is on the top of the list.</i></li> </ul>
Carefulness	2	<p>“What aspects of Chinese culture are important to you?”</p> <ul style="list-style-type: none"> <li>• <i>Chinese are more careful and think more like “why things are like this or that?” They have more concerns and never take things granted.</i></li> </ul>
Adaptability	1	<p>“What are some major differences between American and Chinese cultures?”</p> <ul style="list-style-type: none"> <li>• <i>(We) just follow American way to do things and adapt to their life style.</i></li> </ul>

\* The total frequency of each CCV exceeds 20 because of repeated responses to a variety of questions by participants.



## Appendix C - Sample Questionnaire in English

Dear Chinese restaurant owner:

Thank you for your willingness to participate in our research “The influence of Chinese cultural values on food safety training attitudes and behaviors in Chinese restaurants in the U.S.: An exploratory investigation” conducted by Pei Liu, PhD candidate at the Department of Hospitality Management and Dietetics, Kansas State University under the supervision of Dr. Junehee Kwon.

The purpose of this study is to investigate variables that influence Chinese restaurant owners’/operators’ behaviors regarding food safety training in Chinese restaurants in the U.S. Previous studies have confirmed that food safety is one of the top five attributes affecting customers’ restaurant choices. However, little is known about food safety training in Chinese restaurants. We are interested in finding what factors that influence owners’/operators’ behaviors related to food safety training in Chinese restaurants. The results from the study will support the Chinese restaurant community and food safety educators to find ways to improve food handling practices in Chinese restaurants.

As a token of our appreciation for your participation, upon receiving your completed survey, if you would like to participate in the drawing to win one of ten \$50 cash awards, please indicate your email address at the end of the survey. In addition, we will provide you the summary of the results. The summary will be generated based on approximately 300 Chinese restaurant owners/operators. We are certain that you will be able to use this document to benchmark your operation.

You have the right to refuse to participate in this study. You may also stop the survey at any time without any penalty. Your participation is completely voluntary. All responses will remain anonymous and no individual responses or your information will be released. Only summary will be reported in professional journals.

Your cooperation and contribution for this study is greatly appreciated. If you have further questions, please feel free to contact us.

Sincerely,

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4. increase customer satisfaction	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
5. increase restaurant cost	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
6. reduce the likelihood of food safety related customer complaints	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
7. reduce the likelihood of food safety related lawsuits	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

Please rate your agreement with each statement about food safety on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*.

Statements	Response to each statement									
7. I will offer food safety training to all employees if it is mandated by law.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
8. I am very confident that I can provide safe food to customers.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
9. Family members think I should offer food safety training in my restaurant.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
10. Having foodborne outbreaks in my restaurant would result in me 'lose face'.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
11. Customers think I should offer food safety training in my restaurant.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
12. Business partners think I should offer food safety training in my restaurant.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
13. Other restaurant managers think I should offer food safety training in restaurant.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
14. Employees think I should offer food safety training in my restaurant.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
15. My employees have time for food safety training.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
16. I have financial resources to provide food safety training.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
17. I have enough staffs when employees are gone for food safety training.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
18. I am too exhausted at work to provide food safety training.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
19. I think all employees need to attend food safety training.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
20. Not all employees have capability to learn food safety.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
21. Not all employees are willing to attend food safety training.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
22. By providing food safety training, my employees can adapt American's food safety practices.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable

23. I plan to provide food safety training to my employees in the future.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable
24. I intend to provide food safety training to my employees in the future.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	Not Applicable

**How much do you agree/disagree with the following statements? Indicate your answer on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*.**

Statements	Response to each statement									
1. I try my best to follow food safety inspectors' recommendation no matter what they ask.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
2. Customers are always right.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
3. Being polite to customers is very important.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
4. I like to be friends with my customers.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
5. I like to be friends with the food safety inspectors.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
6. I like to keep power distance from employees in the workplace.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
7. Having a good relationship with food safety inspectors will have a positive impact on food safety inspection.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
8. I spend most of my days working at my restaurant.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	

**Please rate your agreement with each statement about your past experience related to health inspection/food safety training on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*.**

Statements	Response to each statement									
25. I was satisfied with the last health inspection.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
26. When I read the health inspection report, I can understand completely.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
27. It is easy for me to follow the food safety inspectors' instructions.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
28. I agree with food safety inspectors' comments.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
29. I think health inspections are helpful in preventing foodborne illness.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
30. I think food safety training was very effective.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	
31. I don't think the food safety inspectors know about Chinese cooking techniques.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree	

**Please rate your agreement with each statement about food safety training on a 7-point scale from (1) *strongly disagree* to (7) *strongly agree*.**

Statements: IF a food safety training was available	Response to each statement									
---	----------------------------	--	--	--	--	--	--	--	--	--

<b>free for my employees and managers,</b>	
1. I prefer the DVD for food safety training.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
2. I prefer using Case Studies for food safety training.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
3. I prefer using Food Safety Handbooks for food safety training.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
4. Chinese is the preferred language for food safety education.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree
5. English is the preferred language for food safety education.	Strongly disagree 1 2 3 4 5 6 7 Strongly agree

**Operational Demographic Information**

1. How many seats does your restaurant have for usual dining? Please do not include the special banquet areas that you do not use regularly. \_\_\_\_\_ (Number of seats)

**Demographic information**

1. What is your gender? a. Male b. Female

2. Which of the following best describes your highest educational level?

- a. Less than high school degree
- b. High school degree/GED
- c. Some college
- d. Associate’s Degree
- e. Bachelor’s Degree or higher
- f. other (Please specify) \_\_\_\_\_

3. Have you ever receive food safety training in the U.S.? a. Yes. b. No

If Yes, which of the following best describes your food safety training provider?

- a. Local health department
- b. Your company
- c. National Restaurant Association
- d. Local community
- e. other (Please specify) \_\_\_\_\_

4. How many years have you owned your restaurant in the U.S.? \_\_\_\_\_ (years)

5. What is the zip code of your restaurant? \_\_\_\_\_

**Thank you very much for your participation!**

If you would like to participant in the drawing to win one of ten \$50 cash awards, please indicate your email address or fax number below. If you are selected, an email will be sent to you to gather more information. The SSN will be needed to redeem the award.

Email Address/Fax:

---

## Appendix D - Sample Questionnaire in Chinese

亲爱的餐厅东主：

我是堪萨斯州立大学的学生，我们在进行一项有关美国中餐馆食品安全培训的调查，需要您的协助。这项调查的主要目的是为了更好地了解美国中餐馆的食品卫生问题以及食品安全培训的普及。您的意见将会帮助中国餐饮业更好地在美国发展和扩大影响。美国食品安全机构也可以更好地了解中国餐饮文化，并针对中国餐馆的食品安全培训方式做进一步的改进。您的信息会绝对保密，只有总结将会用于学术文献。为了答谢您的协助，您有机会参与赢得\$50的现金（10%的机会），请在问卷的最后注明您的电子邮件地址或传真号码。如果您被选中，我们将会通知您。

请您填好调查问卷后，直接用提供的信封寄回（不需要邮票），如果有任何问题，请联系我们。非常感谢您的协助。

祝您生意兴隆！

Pei Liu, PhD candidate  
Department of Hospitality Management and Dietetics  
Kansas State University  
Manhattan, KS 66502  
Email: peiliu@ksu.edu  
(785)532-2213

Junehee Kwon, PhD, RD  
Associate Professor  
Department of Hospitality Management and Dietetics  
Kansas State University  
Manhattan, KS 66502  
Email: jkwon@ksu.edu  
(785) 532-5369

交还填好问卷说明您作为参与者知情并且同意参与这项研究。  
研究结果保证保密，只有总结将会用于学术文献。

### 美国中餐馆食品安全培训的调查

请运用以下数字表达您对**中国文化价值观**的意见。数字 1 代表您觉得“非常不重要”和 7 代表“非常重要”。换言之，数字越大，您觉得越重要。请涂黑可以表达您意见的数字。

例如：您觉得“尊重”对您来说是非常重要，请把数字 7 涂黑，如下图：

①-----②-----③-----④-----⑤-----⑥-----⑦  
非常不重要 一般不重要 不重要 无所谓 重要 一般重要 非常重要

① ② ③ ④ ⑤ ⑥ ⑦	尊重	① ② ③ ④ ⑤ ⑥ ⑦	信任
① ② ③ ④ ⑤ ⑥ ⑦	权力	① ② ③ ④ ⑤ ⑥ ⑦	互惠互利
① ② ③ ④ ⑤ ⑥ ⑦	容忍度	① ② ③ ④ ⑤ ⑥ ⑦	节俭
① ② ③ ④ ⑤ ⑥ ⑦	自信	① ② ③ ④ ⑤ ⑥ ⑦	谦卑
① ② ③ ④ ⑤ ⑥ ⑦	和谐	① ② ③ ④ ⑤ ⑥ ⑦	面子
① ② ③ ④ ⑤ ⑥ ⑦	礼貌	① ② ③ ④ ⑤ ⑥ ⑦	勤奋
① ② ③ ④ ⑤ ⑥ ⑦	友谊	① ② ③ ④ ⑤ ⑥ ⑦	谨慎
① ② ③ ④ ⑤ ⑥ ⑦	权力的差距	① ② ③ ④ ⑤ ⑥ ⑦	适应性
① ② ③ ④ ⑤ ⑥ ⑦	真诚		

请选择可以表达您对以下陈述观点的数字。1 代表非常不同意，7 代表非常同意。

您觉得对员工提供食品安全培训可以：

陈述	您的观点
1. 提高员工处理食品的实践操作	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意 无所谓
2. 确保我餐厅提供安全的食物	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意 无所谓
3. 提高我餐厅卫生检查的分数	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意 无所谓
4. 减少食源性疾病爆发的可能性	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意 无所谓

您觉得，确保餐厅提供安全的食物会：

陈述	您的观点
1. 增加餐厅的信誉	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意 无所谓

2. 确保为客人提供安全的食物	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
3. 确保为客人提供高质量的食物	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
4. 提高客人的满意度	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
5. 增加餐厅的开销	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
6. 减少与食品安全相关的顾客投诉	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
7. 减少与食品安全相关的法律诉讼	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意

请选择可以表达您对以下关于食品安全的陈述观点的数字。1 代表非常不同意，7 代表非常同意。

陈述	您的观点								
1. 如果法律有规定，我就会为我所有的员工提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
2. 我对为客人提供安全的食物很有自信。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
3. 我的家人认为我应该为员工提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
4. 我的餐厅发生食源性疾病会让我觉得很丢脸。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
5. 我的顾客认为我应该为员工提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
6. 我的生意上的伙伴认为我应该为员工提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
7. 其他餐厅的老板认为我应该为员工提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
8. 我的员工认为我应该为他们提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
9. 我的员工有时间参加食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
10. 我有财力为员工提供食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
11. 当员工去参加食品安全培训时，我餐厅可以有足够的人手应付客人。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
12. 我在工作中过于疲惫，所以不能提供员工食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
13. 我觉得所有的员工都应该参加食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○
14. 不是所有的员工都有学习的能力去参加食品安全培训。	非常不同意	①	②	③	④	⑤	⑥	⑦ 非常同意	不适用 ○



15. 不是所有的员工都愿意去参加食品安全培训。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意	不适用 ○
16. 提供食品安全培训可以确保员工适应美国食品安全的实践操作	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意	不适用 ○
17. 我计划将来为我的员工提供食品安全培训.	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意	不适用 ○
18. 我有为员工提供食品安全培训的打算.	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意	不适用 ○

您对以下的陈述同意/不同意? 请用数字来表达您的观点, 1代表非常不同意, 7代表非常同意。

陈述	您的观点
1. 无论食品安全检查员要求什么, 我都会尽我最大的努力去满足他们。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
2. 客人永远是对的。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
3. 对待客人礼貌非常重要。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
4. 我希望和客人成为朋友。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
5. 我希望和食品安全检查员成为朋友。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
6. 我希望和员工在工作中保持距离。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
7. 和食品安全检查员搞好关系会对食品安全检查有正面影响。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
8. 我每天的大部分时间都是在餐厅工作。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意

请选择可以表达您对您过去食品卫生检查或者食品安全培训的观点的数字。1代表非常不同意, 7代表非常同意。

陈述	您的观点
1. 我对上次的食品卫生检查很满意。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
2. 我能完全读懂食品卫生检查报告。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
3. 对我来说, 遵循食品安全检查员的指示很容易。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
4. 我同意食品安全检查员的评估。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
5. 我觉得食品安全检查对预防食源性疾病有帮助。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意
6. 我觉得食品安全培训很有效。	非常不同意 ① ② ③ ④ ⑤ ⑥ ⑦ 非常同意

	不同意	无所谓	同意
7. 我觉得食品安全检查员不懂中国烹饪技术。	非常 ① ② ③ ④ ⑤ ⑥ ⑦	非常	非常
	不同意	无所谓	同意

请选择可以表达您对食品安全培训的观点的数字。1 代表非常不同意，7 代表非常同意。

陈述：如果有一个免费的食品安全培训的机会提供给您和您的员工，	您的观点
1. 我喜欢观看食品安全培训的 DVD。	非常 ① ② ③ ④ ⑤ ⑥ ⑦ 非常 不同意 无所谓 同意
2. 我喜欢研究食品安全方面的案例。	非常 ① ② ③ ④ ⑤ ⑥ ⑦ 非常 不同意 无所谓 同意
3. 我喜欢使用的食品安全培训的食品安全手册。	非常 ① ② ③ ④ ⑤ ⑥ ⑦ 非常 不同意 无所谓 同意
4. 我喜欢用汉语学习食品安全培训。	非常 ① ② ③ ④ ⑤ ⑥ ⑦ 非常 不同意 无所谓 同意
5. 我喜欢用英语学习食品安全培训。	非常 ① ② ③ ④ ⑤ ⑥ ⑦ 非常 不同意 无所谓 同意

**餐厅信息：**

1. 请回答您的餐厅一共有多少位子，不包括特殊的宴会区。\_\_\_\_\_个座位。

**您的信息：**

1. 性别? a. 男 b. 女

2. 下面哪项是您的最高学历？

a. 低于高中

b. 高中

c. 社区大学

d. 联合学位

e. 大学本科或者更高

f. 其他 (请注明) \_\_\_\_\_

3. 您以前有没有参加过食品安全培训? a. 有. b. 没有

如果有，是以下哪个部门提供的食品安全培训 (请选择)?

a. 地方的卫生部门 b. 您的公司 c. 全美餐馆协会 d. 当地的社区 e. 其他 (请注明) \_\_\_\_\_

4. 您在美国开餐厅多少年了? \_\_\_\_\_ (年)

5. 你餐厅所在地的邮编: \_\_\_\_\_

**非常感谢您的参与！**

如果您想参与赢得\$50的现金（10%的机会），请注明您的电子邮件地址或者传真。如果您被选中，我们将会邮件或者传真通知您。到时候会需要您的社会安全号码。

邮件地址或者传真号码:

\_\_\_\_\_

## **Appendix E - Sample Reminder in English**

Dear Chinese restaurant owners:

Hello. Hope you have received the survey about “the investigation on food safety practices in Chinese restaurants.” If you have not provided response, please fill the survey out and send it back to the researcher using provided envelop or fax to 212-994-9609. The study is for my dissertation. Hope you could help me to complete. If you have any questions, please feel free to contact me via email [people@ksu.edu](mailto:people@ksu.edu) or phone 832-606-1577.

Thank you very much!

Sincerely,

Pei Liu

Department of Hospitality Management and Dietetics

Kansas State University

## Appendix F - Sample Reminder in Chinese

亲爱的餐厅东主：

您好。希望您前几天已经收到了我们关于“美国中餐馆食品卫生”调查的问卷。如果您还没有回复，希望您尽快填好，然后用提供的信封寄回给我们或者传真给我（传真：212-994-9609）。这项研究是我的毕业论文，真诚的希望您的帮助。如果您有任何问题，欢迎联系我本人。邮件：[peiliu@ksu.edu](mailto:peiliu@ksu.edu) 电话：832-606-1577。

十分感谢！

祝您生意兴隆！

刘培

堪萨斯州立大学

酒店管理专业

## Appendix G - Chinese Cultural Values (Fan, 2000)

<b>National Traits</b>	38 Thrift (saving)
1 Patriotism	39 Persistence (perseverance)
2 A sense of cultural superiority	40 Patience
3 Respect for tradition	41 Prudence (carefulness)
4*Bearing hardships	42 Adaptability
5 Knowledge (education)	
6*Governing by leaders instead of by law	<b>Business Philosophy</b>
7*Equality/egalitarianism	43 Non-competition
8 Moderation, following the middle way	44*Not guided by profit
	45*Guanxi (personal connection or networking)
<b>Interpersonal Relations</b>	46*Attaching important to long-lasting relationship not gains
9 Trustworthiness	47 Wealth
10 Jen-ai/Kindness (forgiveness, compassion)	48 Resistance to corruption
11*Li/Propriety	49 Being conservative
12*People being primarily good	50*Morality
13 Tolerance of others	
14 Harmony with others	<b>Personal Traits</b>
15 Courtesy	51*Te (virtue, moral standard)
16 Abasement/Humbleness	52 Sense of righteousness/Integrity
17 A close, intimate friend	53 Sincerity
18 Observation of rites and social rituals	54 Having a sense of shame
19 Reciprocation of greetings, favours and gifts	55*Wisdom/Resourcefulness
20 Repayment of both the good or the evil that another person has caused you	56 Self-cultivation
21 Face (protecting, giving, gaining and losing)	57 Personal steadiness and stability
	58 Keeping oneself disinterested and pure
<b>Family/Social Orientation</b>	59 Having few desires
22 Filial piety	60*Being gentleman anytime
23 Chastity in women	61*Obligation for one's family and nation
24*Kinship	62*Pragmatic/to suit a situation
25*Veneration for the old	63*Contentedness with one's position in life
26 Loyalty to superiors	
27*Defense to authority	<b>Time Orientation</b>
28 Hierarchical relationships by status and observing this order	64*Past-time oriented
29*Conformity/group orientation	65*Continuity/time viewed as circular rather than linear
30*A sense of belonging	66*Taking a long view
31*Reaching consensus or compromise	
32*Avoiding confrontation	<b>Relationship with Nature</b>
33 Benevolent autocrat/Paternalistic	67*The way (Tao)
34 Solidarity	68*Fatalism/Karma (believing in one's own fate)
35*Collectivism	69*Yuan
	70*Harmony between man and nature
<b>Work Attitude</b>	71*Unity of Yin and Yang
36 Industry (working hard)	
37 Commitment	

Source: Those with asterisk are added by the author. Amended and revised from the Chinese Value Survey by the Chinese Culture Connection.

## Appendix H - Sample Summary of Correlations between Direct and Indirect Measures of Chinese Cultural Values

CCVs measurement		Pearson Correlation
Direct	Indirect	
Respect	In your opinion, ensuring my restaurant serve safe food will increase restaurants' reputation	-0.040
Authority	1. I will offer food safety training to all employees if it is mandated by law. 2. I try my best to follow food safety inspectors' recommendation no matter what they ask.	0.400**
Tolerance	Customers are always right.	0.271**
Confidence	I am very confident that I can provide safe food to customers.	0.215**
Harmony	1. In your opinion, ensuring my restaurant serve safe food will reduce the likelihood of food safety related customer complaints. 2. In your opinion, ensuring my restaurant serve safe food will reduce the likelihood of food safety related lawsuits.	0.442**
Courtesy	Being polite to customers is very important.	0.185**
Friendship	1. I like to be friends with my customers. 2. I like to be friends with the food safety inspectors. 3. Having a good relationship with food safety inspectors will have a positive impact on food safety inspection.	0.026
Power Distance	I like to keep power distance from employees in the workplace.	0.509**
Sincerity	1. In your opinion, ensuring my restaurant serve safe food will provide safe food to my customers. 2. In your opinion, ensuring my restaurant serve safe food will provide quality food to my customers.	0.490**
Reciprocity	In your opinion, ensuring my restaurant serve safe food will increase customer satisfaction.	0.336**
Thriftiness	In your opinion, ensuring my restaurant serve safe food will increase restaurant cost.	0.403**
Face	Having foodborne outbreaks in my restaurant would result in me 'lose face'.	0.044
Diligence	I spend most of my days working at my restaurant.	0.018
Adaptability	By providing food safety training, my employees can adapt American's food safety practices.	0.049

a. Based on 7.0 scale.

b. Standard Deviation

Note. \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

# Appendix I - IRB Approval



University Research  
Compliance Office

TO: Junehee Kwon  
Hospitality Mgt. Dietics  
148A Justin

Proposal Number: 5917

FROM: Rick Scheidt, Chair  
Committee on Research Involving Human Subjects

DATE: July

RE: Approval of Proposal Entitled, "The influence of Chinese cultural values on food safety training attitudes and behaviors in Chinese restaurants in the U.S.: An exploratory investigation."

The Committee on Research Involving Human Subjects has reviewed your proposal and has granted full approval. This proposal is **approved for one year from the date of this correspondence, pending "continuing review."**

APPROVAL DATE: July 23, 2011

EXPIRATION DATE: July 23, 2012

Several months prior to the expiration date listed, the IRB will solicit information from you for federally mandated "**continuing review**" of the research. Based on the review, the IRB may approve the activity for another year. **If continuing IRB approval is not granted, or the IRB fails to perform the continuing review before the expiration date noted above, the project will expire and the activity involving human subjects must be terminated on that date. Consequently, it is critical that you are responsive to the IRB request for information for continuing review if you want your project to continue.**

In giving its approval, the Committee has determined that:

- There is no more than minimal risk to the subjects.  
 There is greater than minimal risk to the subjects.

This approval applies only to the proposal currently on file as written. Any change or modification affecting human subjects must be approved by the IRB prior to implementation. All approved proposals are subject to continuing review at least annually, which may include the examination of records connected with the project. Announced post-approval monitoring may be performed during the course of this approval period by URCO staff. Injuries, unanticipated problems or adverse events involving risk to subjects or to others must be reported immediately to the Chair of the IRB and / or the URCO.