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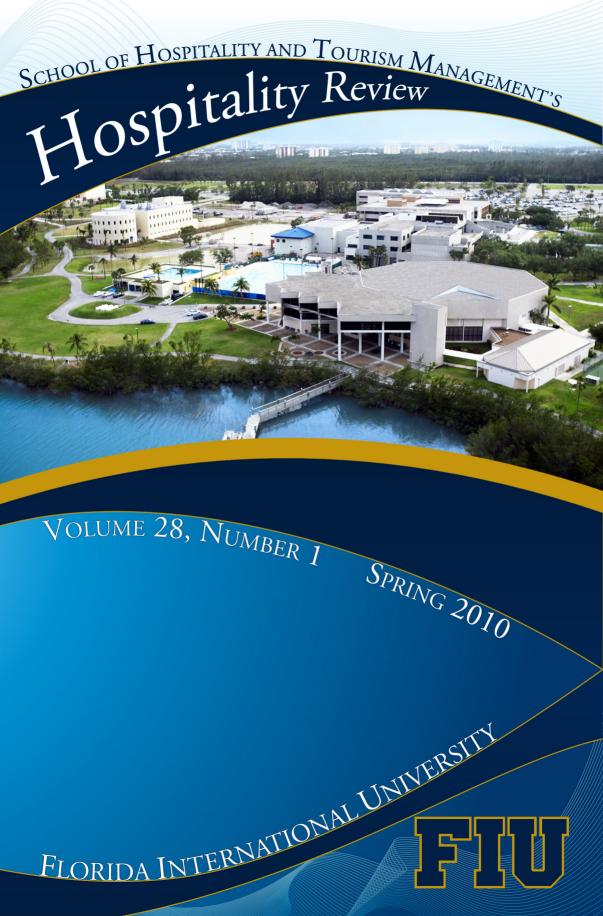# Hospitality Review Volume 27 Issue 2 2009

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The Foodservice Industry's Social Responsibility Regarding the Obesity Epidemic, Part I: Parallels to Other Public Health Issues and Potential Legal Implications

By Audrey C. McCool and Barent N. McCool

The incidence of obesity among both children and adults in the United States (U.S.) has reached epidemic level. If not quickly curtailed, it represents significant long-term costs to all facets of the U.S. economy. The foodservice industry has contributed to this major public health issue. Parallels between the obesity epidemic and the public health issues of smoking and foodborne illnesses could influence the foodservice industry's response to obesity concerns. Of particular note are the parallels between the liability litigation and legislative actions related to smoking and the tobacco industry. This industry has a history of taking socially responsible actions regarding public health issues. There is potential for costs to the foodservice industry from similar anti-obesity litigation and legislation if the industry does not once again assume social responsibility relative to the current obesity crisis and is not proactive in efforts to combat obesity.

INTRODUCTION

The Obesity Epidemic

Obesity has reached epidemic proportions throughout the United States (U.S.) as well as in many other countries. According to statistics reported by the U.S. Centers for Disease Control and Prevention (CDC), in 2008 obesity rates for adults exceeded 20% in every state but Colorado; 32 states had rates greater than 25%; and 6 states had rates in excess of 30% (Centers for Disease Control [CDC], n.d.c). Obesity incidence rates for children are particularly alarming as the prevalence of obesity has risen from 5% to 12.4% for children aged 2-5 years, from 6.5% to 17.0% for youth aged 6-11 years, and from 5% to 17.6% for adolescents aged 12-19 years (CDC, n.d.b). Conservatively assuming that an average of 20% of the total U.S. population is now considered obese, that percentage would indicate that there are more than 60 million persons in the U.S. who are now obese, a figure that does not include the population considered to be overweight, but not yet obese.

Fortunately, although the number of currently obese persons is already quite high, the growth in the obesity incidence rates for adults in

the U.S. appears to be leveling, as the rates for 2007-2008 were 32.2% for adult men and 35.5% for adult women, approximately the same as for 2006. However, these percentages ranged from 31.9% among non-Hispanic white males to 37.3% among non-Hispanic black males, and from 33.0% for non-Hispanic white women to 49.6% among non-Hispanic black women, variances reflecting the marked differences in incidence rates among the several ethnic groups within the U.S. When combining the prevalence of overweight with the prevalence of obesity, the combined percentages were 72.3% for males and 64.1% for women ("Obesity Rates," 2010; Flegal, Carroll, Ogden, & Curtin, 2010). The trend of increasing obesity incidence among children, based on children's body-mass index measurements, also appears to be stabilizing except among the very heaviest boys, for whom the prevalence still seems to be increasing significantly ("Obesity Rates," 2010; Ogden, Carroll, Curtin, Lamb, & Flegal, 2010).

The Foodservice Industry's Role in the Obesity Epidemic

The foodservice industry, particularly the "fast food" component and food industry advertising, has been implicated as a major contributor to the obesity epidemic (Alvy & Calvert, 2008; Chandon & Wansink, 2007; Colapinto, Fitzgerald, Taper, & Veugelers, 2007; Edwards, Engstrom, & Gustafsson, 2008; Edwards, Engstrom, & Hartwell, 2005; Harker, Harker, & Svensen, 2007; Harris, Brownell, & Bargh, 2009; Harris, Pomeranz, Lobstein, & Brownell, 2009; Henderson & Kelly, 2005; Klara, 2005; Kwan, 2009; Maddock, 2004). Consumers, today, spend about half of their food dollars on food away from home (National Restaurant Association [NRA], 2010); thus, even if the foodservice industry is not a primary cause of obesity, the industry and food available for consumption away from home are certainly related to this issue. Therefore, it has been argued that the foodservice industry should take a proactive approach to this issue and initiate actions that would help counteract the obesity incidence, particularly among children (Binelli, 2009; Burton, Creyer, Kees, & Huggins, 2006; Edwards, et al., 2008; Jones, 2009; Whitfield-Jacobson, Prawitz, & Lukaszuk, 2007; Wootan, Osborn, & Malloy, 2006).

However, not everyone is in agreement regarding the foodservice industry's responsibility for the obesity epidemic. Many persons believe that consumers have choices in their food selections and that it is their personal responsibility to select healthful foods and live a lifestyle that will enable them to prevent becoming obese. Thus there are arguments that the industry is not responsible for the obesity epidemic and should not be expected to take actions that might help reduce the obesity incidence rate, particularly if such actions would result in a decline in profitability for firms in the industry (Aranceta, Moreno, Moya, & Anadon, 2009; Binkley, 2006; Edwards, et al., 2005; Grotz, 2006; Kwan, 2009; Marr, 2004; Simmons, et al., 2005).

This paper reviews the potential costs associated with obesity, particularly if the obesity epidemic is not controlled. It relates the current obesity epidemic to two other major public health issues in which the foodservice industry has been actively involved, smoking and food safety. It considers the potential for the foodservice industry to incur costs related to obesity as a result of liability litigation and/or legal regulations that parallel the experiences of the tobacco industry. It suggests, conceptually, that whether or not the foodservice industry has been a major factor leading to the obesity epidemic, the industry has an ethical and social responsibility to take actions that may help reduce the obesity incidence, particularly among children, just as the industry has taken actions to help reduce the incidence and impact of these other major public health issues.

THE ECONOMIC IMPLICATIONS OF OBESITY

It is not only the rapidly increasing incidence of obesity that is of primary concern, but also related, potentially very high, economic consequences that are also at the forefront of public concern regarding obesity. According to a study completed by Finkelstein, Fiebelkorn, and Wang (2003) that looked at 1998 medical expenditures, the CDC reported that twelve years ago, when obesity rates were well below today's rates, medical costs attributed to both overweight and obesity accounted for 9.1% of the total U.S. medical expenditures and that such expenditures may have reached as high as $92.6 billion in 2002 dollars (CDC, n.d.a). Thorpe, Florence, Howard, and Joski (2004) reported that per capita

health care spending for obese persons increased 63% from 1987 to 2001 (in 2001 dollars). Over the same time period, the per capita health care spending for non-obese persons increased only 37%. Recently, Withrow and Alter (2010) reported that, worldwide, obese individuals were found to have medical costs approximately 30% greater than their normal-weight peers.

Medical costs are of concern as the increased obesity incidence is related to the parallel increased incidence of diabetes, hyperlipidemia and heart disease that has occurred over the same time period. Hospitalizations of children diagnosed with obesity nearly doubled between 1999 and 2005, resulting in an increased cost for these hospitalizations of $111.7 million (in 2005 dollars) (Trasande, Liu, Fryer, & Weitzman, 2009). Evidence has shown that the trends in obesity accounted for more than 38% of diabetes health-care spending growth in the U. S. (Thorpe et al., 2004). In 2008, the American Diabetes Association reported that people with diagnosed diabetes, on average, have medical expenditures that are approximately 2.3 times higher than their expenditures would be if they did not have diabetes (American Diabetes Association, 2008). After an extensive review of the literature, Ryan (2009) concluded that obesity and the related increased incidence of diabetes represented impending crises for the health care system. He suggested that increased prevalence and costs related to obesity should be expected unless more coordinated efforts are implemented to access the causes of these conditions at the national level. Such efforts may be budget neutral in the long term if they result in a reduction of the costs of morbidity and mortality related to obesity.

The costs indicated here are estimated for medical care only and do not take into account the cost of lost productivity from illness or early death. However, the worst is yet to come if the rising obesity epidemic cannot be stopped. Lightwood et al. (2009) have estimated the future economic burden of adolescents who are currently overweight, considering the probability of their becoming obese and the impact of that obesity on their likelihood of incurring diabetes, hyperlipidemia and hypertension. They estimated that 161 million life-years of these currently overweight adolescents would be complicated by diabetes or

cardiovascular disease, and 1.5 million life-years would be lost as a result of premature death. They also calculated that the cumulative excess total costs attributable to the impact of obesity could reach $254 billion in today's dollars. These cost estimates exceed the costs of any other major public health issue and represent an amount that could potentially cripple the U.S. health care system as well as severely impact the total U.S. economy.

THE SIGNIFICANCE OF THE OBESITY EPIDEMIC IN COMPARISON TO OTHER PUBLIC HEALTH ISSUES

The scope of the obesity epidemic's potential impact on the U.S. economy is a consideration when determining whether or not the foodservice industry has a responsibility for taking actions to help alleviate obesity. This impact might be considered relative to other public health issues related to the foodservice industry, issues for which the industry has been, and is currently actively involved in, helping to alleviate.

The Public Health Issue of Smoking and Foodservice Industry Actions

Although it took many years, smoking and second-hand smoke finally became a public health issue that involved the foodservice industry in the 1990s. An estimated 443,000 persons die annually within the U.S. of smoking-related diseases, and it is estimated that cigarette smoking results in more than $193 billion in annual medical costs and productivity losses (Kahende, Loomis, Adhikari, & Marshall, 2009). A Canadian study reported that implementation of selected tobacco policy interventions would result in a savings of 33,307 acute-care hospital days per year, resulting in an annual cost savings of about $37 million (Popova, Patra, & Rehm, 2009). These numbers pale relative to the projected costs for medical care, productivity losses, and the cost of premature deaths if the obesity epidemic is not controlled.

The foodservice industry was implicated in the "smoking problem" as customers often smoke while relaxing with coffee, wine or other alcoholic beverages, or after enjoying a comfortable meal. Foodservice establishments were known to have higher levels of indoor

air pollution containing carcinogenic tobacco-related chemicals, compared to smoke-free pubic venues (Fromme, Kuhn, & Bolte, 2009). Thus, laws banning smoking in public places, such as foodservice establishments, have been gradually implemented throughout the U.S. and other countries.

Within the foodservice industry, restaurants fought strongly against such laws for many years, arguing that they would suffer economic loss as a result of disgruntled customers' being unwilling to come to their restaurant to dine or enjoy drinks in their bar if they could not smoke while there. However, the reports of the economic impact of laws banning smoking in restaurants have consistently indicated that such economic loss has not occurred. Although in some instances there was a short-term decline in revenues following the implementation of the smoking ban laws, revenues quickly recovered and often improved as restaurants reconsidered their market and marketing strategies ("England Smoking," 2007; Fromme et al., 2009; McIntyre, 2007; McNabb, 2005; Stolzenberg & D'Alessio, 2007). The population demographics most opposed to smoking, generally, were older persons and families who did not want their children exposed to smoke (the former segment has the highest level of discretionary income) (NRA, 2000). These populations are more willing to frequent restaurants when no longer exposed to unwelcome second-hand smoke .

Foodservice establishments were only one public venue associated with smoking. Many were concerned about the implementation of smoking bans, but most have adjusted and are doing their part to help reduce the economic burden and the social costs of smoking in the U.S. They are doing so without realizing significant economic loss. That being so, should the foodservice industry not also be willing to take ethically and socially responsible actions to help counteract the obesity epidemic which appears to be developing into a far more costly public issue than smoking?

The Foodservice Industry's Involvement with Foodborne Illness

Foodborne illness is a second public health issue to which the current obesity epidemic might be compared. Clearly foodborne illnesses are a major concern for the foodservice industry, and failure of an establishment's efforts to control such illnesses has the potential to impact a large number of persons. In early 2009, the National Restaurant Association forecasted that more than 130 million individuals would be foodservice patrons on any one day in 2009 (NRA, 2009), and that any number of them could potentially be exposed to foodborne illness unless foodservice establishments were constantly vigilant in the preparation and handling of foods.

Compared to the health risks of smoking or obesity, foodborne illnesses are primarily short-term illnesses that have traditionally caused only a limited number of long-term disabilities or death. However, the economic burden of foodborne illnesses is high because of the high incidence rate. For example, the CDC has estimated that the annual cost of 73,000 cases of *Escherichia coli* O157 (*E.coli* O157) was $450 million, including $370 million for 60 premature deaths, $30 million for medical care, and $5 million in lost productivity (Frenzen, Drake, & Angulo, 2005). More recently, the Center for Foodborne Illness reported that the CDC estimated that 76 million persons in the U.S. become ill from foodborne illnesses annually, and of these, 325,000 are hospitalized and 5,000 die. The U.S. Department of Agriculture Economic Research Service (ERS) has reported that foodborne illnesses account for approximately one of every 100 U.S. hospitalizations and one of every 500 U.S. deaths. The ERS also estimated that five foodborne illnesses (*Campylobacter, Salmonella, E.coli* O157:h7, *Listeria monocytogenes*, and *Toxoplasma gondii*) caused $6.9 million annually in medical costs, lost productivity, and premature deaths. Children, the elderly, pregnant and post-partum women, and persons with compromised immune systems are at highest risk for foodborne illness complications. The U.S. Food and Drug Administration (FDA) has estimated that 2-3% of all foodborne illness victims develop secondary long-term medical complications resulting in over 1.5 million lingering health problems per year (Center for Foodborne Illness, n.d.).

The foodservice industry is not responsible for all the foodborne illnesses in the U.S As many cases occur in other venues, such as private homes, industry establishments incur financial risk from foodborne illnesses beyond the actual costs of the illness incidents. When foodborne illness is associated with a foodservice establishment, that establishment's business declines as potential customers fear becoming ill if they eat food served by that establishment (Knight, Worosz, & Todd, 2009; Roseman, Kurzynske, & Tietyen, 2005). Also, the establishment is at risk for lawsuits if customers can show that their illness resulted from food eaten there. Under the U.S. legal system, all patrons of foodservice establishments have the right to assume that the food they eat will be safe, free from contamination, and prepared in a sanitary environment (Eiler & Burke, 2009; Swanger & Rutherford, 2004).

Because of their high incidence rate, foodborne illnesses are considered to be an important public health issue. The threat of potential high liability cost as well as the possible economic loss from a decline in sales to an establishment blamed for an outbreak of foodborne illness are sufficiently serious to warrant these establishments' taking steps to try to avoid any foodborne illness outbreaks. In an effort to lessen the incidence of foodborne illnesses, foodservice establishments have invested time and money for personnel training and other actions, such as the development and implementation of Hazard Analysis Critical Control Point (HACCP) programs. While there are costs associated with these efforts, establishments recognize that these preventative costs are an investment offset by the economic benefits of customer retention and reduced risk for lawsuit liability (Derr, Ruetiman, Kokkinou, & Sharma, 2009; Harris, 2001).

Although the incidence rate of foodborne illnesses is high, the overall economic costs are low in comparison to the potential costs of obesity, even if the costs of potential lawsuits are taken into consideration. If the foodservice industry is willing to make substantial investments to control foodborne illnesses associated with the industry, is it not a reasonable conclusion that an investment in obesity prevention would be a viable industry investment as well?

LEGAL IMPLICATIONS OF OBESITY FOR THE FOODSERVICE INDUSTRY

The potential high cost of legal liability for foodborne illnesses and of non-compliance with legislation and local regulations regarding smoking in their facilities have been important forces motivating the foodservice industry to take socially responsible actions regarding these two public health issues. It is possible that the foodservice industry could face similarly high costs for liability and non-compliance in the future as the public becomes increasingly concerned about obesity and the related economic and quality-of- life issues.

Potential Risk for Lawsuits and Liability for Actions

Because there is a perception that the foodservice industry bears a major responsibility for the obesity epidemic, the industry could face a risk for lawsuits in which plaintiffs seek recourse for their obesity and the cost of obesity to them. It has been speculated that obesity litigation could replace smoking and the tobacco industry as the major socially related legal issue in the U.S. Activists who successfully led tobacco industry litigation and achieved passage of laws that limited the use of tobacco in venues, such as the foodservice industry, have turned their attention toward obesity issues. Even though tobacco litigation was not taken seriously for several decades, ultimately this litigation helped turned public opinion against the tobacco industry in the 1990s, leading to changes in industry marketing practices, payment of millions of dollars in damages, and passage of laws limiting smoking in many venues (Daynard, Howard, & Wilking, 2004; Parsigian & Williams, 2004).

Werner, Feinstein, and Hardigree (2007) conducted an analysis of the risk of obesity legislation for the fast food industry and concluded that, while damages for obesity and obesity-related illnesses might be awarded against fast-food companies under existing liability law, such cases were unlikely to succeed and could be efficiently avoided. They felt that the litigation against the tobacco industry was successful as the cases were based on the misdeeds of the manufacturer (i.e., manipulation of nicotine levels), and because smoking could be causally related to the plaintiffs' illnesses. In reaching their conclusions, Werner et al. argued

that establishing a direct cause-and-effect relationship between plaintiffs' eating food served by the fast food industry and their current state of obesity would be far more difficult to establish than the linkage between tobacco usage and the plaintiffs' resulting illnesses. This position reflected similar conclusions reported by Robinson, Bloom, and Lurie (2005). Werner, et al. also suggested that fast food industry lawsuits could be avoided if the industry were to take actions to ensure that the products used in their foods were clearly identified to the consumer.

While Daynard et al. (2004) agreed that the tobacco industry litigation was successful because of the linkage to misdeeds of the industry, they did not feel that the foodservice industry could as readily avoid obesity litigation as was suggested by Werner et al. (2007). They suggested that, similar to tobacco litigation, cases against food manufacturers could be based on evidence that manufacturers misrepresented the nutritional properties of products or that they took advantage of children by directly marketing calorically dense products with low nutritional value. Their suggestion that obesity litigation could be successful based on manufacturers' misrepresentation could be prophetic, considering some recent study reports. Urban, et al. (2010) reported that the stated energy contents of a variety of products labeled as "reduced-energy," which were found in supermarkets and restaurants, all had actual caloric values in excess of the level stated on the label for the product. Particularly noteworthy was their finding that some individual restaurant items contained up to 200% of the stated caloric value, and side dishes contained, on average, a caloric value of 245% of the labeled value. Halliday (2009) also reported that consumers do not trust food industry portion sizes and often purchase extra food in anticipation that the stated portion size is too small to meet their perception of what a portion size should be. This consumer behavior likely reflects the distortion in portion size that has been created by the foodservice industry through their promotional activities, such as the "super-size" or "super-value" items. That distortion, leading to increased caloric intake, is believed to be a factor contributing to obesity.

The widely publicized obesity lawsuit brought against McDonalds in 2002 is an example of the ambiguity regarding the

potential liability of the foodservice industry for consumers' obesity and related problems. Since it was first introduced, this class action lawsuit had been dismissed and reinstated on various grounds, including a change in the plaintiffs. While the claims for product liability have been dismissed, the claims for deceptive advertising are still viable (Martin, 2005; Mello, Rimm, & Studdert, 2003; Mello, Studdert, & Brennan, 2006; Robinson, et al., 2005; Werner, et al., 2007). The retention of the deceptive advertising portion of this case seems to point to the possibility of successful obesity litigation against the foodservice industry that would follow the historical pattern of the tobacco industry litigation.

The Potential for Anti-Obesity Regulatory Legislation

In addition to the possibility of obesity-related lawsuits, if the obesity epidemic parallels smoking as a public health issue, there is the potential for legislation that will mandate actions for the foodservice industry. The use of the law as a powerful public health tool is now common practice in the U.S. Some of the most important advances in public health in recent times (e.g., the reduction in smoking) have resulted from new legislation, heightened regulatory enforcement, litigation, or a combination of these three factors. The public health law approach presumes that laws can be passed that will create conditions that allow people to lead healthier lives and grant government both the power and duty to regulate private behavior in order to promote public health. The development of public health laws that impact personal behavior usually results from a combination of the development of a scientific base and social disapproval. In the case of obesity, the mounting body of research regarding the economic and human costs of obesity have provided the necessary critical scientific evidence base. As the public has become aware of this research, social disapproval of many actions of the foodservice industry, particularly of the industry's marketing of "junk foods" to children, has arisen. Thus, the conditions are present for the potential passage of regulatory legislation designed to curtail obesity among the U.S. population (Mello et al., 2006; Weiss & Smith, 2004).

However, even though the conditions are present, there is not unanimous support for such legislation. Many persons believe that anti-obesity laws would constitute paternalistic intervention into individuals'

lifestyle choices and weaken individuals' sense of personal responsibility for their health and well-being. Accordingly, while there is a strong potential for the development of anti-obesity regulatory legislation, much of which would likely impact the foodservice industry, such legislation is not a certainty. Unlike tobacco, for which usage is optional and a direct correlation between tobacco usage and illnesses, such as cancer, can be shown, everyone must eat, i.e., must have food. Not everyone has the same nutritional needs; there is no food-related equivalent to the harm people may encounter from secondhand smoke; no research has shown that foods have physically addictive properties, much less that food companies manipulate their addictive content to encourage dependence, as was the case with the tobacco companies. It is the advertising and marketing to highly vulnerable young children that is the significant factor likely to trigger anti-obesity legislation. Children's eating patterns are set early in life and likely to persist over their life span (Mello, et al., 2006; Robinson, et al., 2005; Weiss & Smith, 2004).

CONCLUSION

There is little doubt that the current obesity epidemic is nearing crisis proportions, nor that the potential long-term economic impact of the epidemic may be catastrophic to the U.S. economy if actions to help reduce the incidence of obesity are not taken quickly. There is also little doubt that the foodservice industry has played a significant role in the development of this epidemic even if that role is only one of several contributing factors. The foodservice industry has a record of becoming actively involved in social issues, including ongoing issues such as smoking and foodborne illnesses. While the foodservice industry has traditionally exhibited socially responsible behavior, that involvement has sometimes not been entirely altruistic. Foodservice operations that fail to comply with regulations resulting from anti-smoking legislation or that are found responsible for foodborne illness outbreaks can incur potentially crippling costs, costs which could be sufficient to cause the operation to fail. As there are many parallels between these public health issues and the current obesity epidemic, particularly between the development of successful smoking liability litigation and the development of laws regulating smoking and the tobacco industry, there

is potential for the foodservice industry to face similar legal issues and the related costs in the future.

Thus, it would seem logical that the foodservice industry would recognize that it has social responsibility regarding the obesity epidemic and would take the initiative in assuming a leading role in the nation's efforts to combat obesity, a far more critical public health issue than any previously faced in the U.S. Such a proactive approach would reflect the foodservice industry's long-standing support of each operation's local community while also helping to deflect obesity-related legal and legislative actions that might be taken that would be detrimental to the industry as a whole.

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The Influence of Social Responsibility Image Relative to Product and Service Quality on Brand Loyalty: An Exploratory Study of Quick-service Restaurants

By Allen Z. Reich, Yueying Hazel Xu, and Ken W. McCleary

Social responsibility (SR) is becoming an increasingly significant component of many firms' strategic planning decisions. Research has shown that consumers tend to reward socially responsible behavior. However, there has been little testing of the construct in the hospitality industry. Additionally, when other important variables that influence consumer brand loyalty are considered, will brand social responsibility image (BSRI) still play a significant role? This study investigates the importance of SR and its impact on brand loyalty, relative to product quality and service quality in the quick-service restaurant industry. The authors were also interested to learn whether BSRI impacted consumers' image of product and service quality. It was found that BSRI had a positive impact on brand loyalty, product quality, and service quality. However, product quality was a significantly stronger predictor of brand loyalty than BSRI. Where the vast majority of studies of SR have utilized scenario analysis of hypothetical firms, this study utilizes consumers' perceptions of a real-world firm.

INTRODUCTION

Social responsibility (SR) is an important issue in the hospitality industry (Font, 2004). With all its potential and perceived benefits, research into this area has been limited (Erffmeyer, Keillor, & LeClair, 1999). SR has been shown to have a positive influence on consumer behavior (Clarke & Bell, 1999). However, does it play a critical role in helping a firm gain an advantage over its industry peers (Cone, Feldman, & DaSilva, 2003) and can it improve the perception of various strategies of the firm, such as product quality decisions (Brown & Dacin, 1997)? With limited resources, should a firm focus on building up its SR image or work on improving its product and service quality?

Surprisingly, the vast majority of related research has not measured this important relationship by directly studying consumers' perceptions of real-world firms. Instead, measurement has been accomplished indirectly either through scenario analysis of hypothetical firms (Godfrey, Merrill, & Hansen, 2009; Maignan & Ferrell, 2000) or anecdotal evidence of real-world firms (Ambec & Lanoie, 2008). Will a real-world application of the theory produce the same results as a study

based on hypothetical firms? Would validity and perhaps a better understanding of a firms's SR result from attempting to describe consumers' perceptions and behavior concerning real-world firms' relevant socially responsible actions?

Managerial knowledge of the role of SR is critical because there is a correlation between its perceived importance and the attitude and behavior of industry leaders (Pinkston & Carroll, 1996). Knowing that there is a significant relationship between brand SR image and brand loyalty may serve to convince internal stakeholders that SR (in its many manifestations) may be an important strategic option. To assess its relative importance, it was decided to compare it to what are generally perceived to be two of the most important predictors of brand loyalty, product quality and service quality (Jacobs, van der Merwe, Lombard, & Kruger, 2010). Along this same theme, Salmones, Crespo, and Bosque (2005) found that corporate SR was a significant predictor of service quality, but not of loyalty. Consequently, the authors hope to provide a better understanding of the importance and impact of SR on brand loyalty. To learn about other important potential influences of SR, it was decided to include product- and service-quality in this research. The works of Pirsch, Gupta, and Grau (2006), Klein and Dawar (2004), Schnietz and Epstein (2005), and Brown and Dacin 1997) showed that corporate SR has a positive impact on various aspects of the firm's image. Most notable for the current study was Brown and Dacin's (1997) finding that a positive SR image could improve a firm's product image.

Specifically, this study examines the impact of SR relative to product and service quality on brand loyalty. It also attempts to determine whether a brand's SR image can improve the brand's image for product and service quality. Quick-service restaurants were selected as the focus of this study because of their importance in the foodservice industry (Richards & Padilla, 2009). The goal in this research was to learn whether the previously tested SR relationships found in other industries hold up when applied to the quick-service segment of the foodservice industry (i.e., test for predictive validity), and to do so by analyzing a real-world firm.

RESEARCH OBJECTIVES

The primary objectives were to learn whether brand SR image influences brand loyalty for quick-service restaurants, and to determine the influence of SR on brand loyalty relative to product and service quality. It was also desired to learn of any possible indirect effects (halo effects) of brand SR. It was hoped that this would help validate previous research and be of value both to those concerned about society and those concerned about showing the highest reasonable profit.

LITERATURE REVIEW

The literature review covers SR's impact on consumer behavior. The measurement of product and service quality, and of brand loyalty, are also discussed.

Social Responsibility

Cognitively, SR is a general belief or value that refers to a broad range of normative obligations (Enderle &Tavis, 1998). Examples include, but are not limited to demonstrating interest in the environment, contributing money or time to local charitable organizations, being environmentally conscious, acting ethically toward internal and external stakeholders (Collier & Esteban, 2007; Rugimbana, Quazi, & Keating, 2008), and acting morally as an individual manager (Enderle & Tavis, 1998; Gustin & Weaver, 1996). SR is closely aligned with the study of ethics (Galindo & Cuevas, 2008) and morals (Caruana, 2007). It is very similar to Quality-Of-Life issues as researched by Sirgy (1996), in that Q-O-L research focuses on measurable improvements in a firm's strategies toward consumers and other stakeholders. It is also associated with the constructs of social responsiveness (Beliveau, Cottril, & O'Neill, 1994) and social performance (Stanwick & Stanwick, 1998). Lozano (1996) used *business ethics* as a term superordinate to SR. With ethics being a value (Fritzsche, 1995), and a value being an abstract ideal (Rokeach, 1965), SR, according to Lozano (1996), would be a value hierarchically lower in order than ethics. In other words, SR is a dimension of business ethics.

Having been empirically shown to result in increased brand loyalty, increased likelihood of purchase (Du, Bhaattacharya, & Sen,

2007), financial gains (Pava & Krausz, 1996; Salas & Dev, 2003), and reputation (Sotorrio & Sanchez, 2008), SR is significant to business as more than just a popular social issue. Salas and Dev (2003) studied the relationship between corporate social responsibility and financial performance for thirty hospitality firms and found the relationship to be highly correlated. In a summary of 21 empirical studies by Pava and Krausz (1996), 12 showed a positive correlation between SR and various measures of financial performance, eight showed neither a negative nor a positive correlation, and only one of the studies showed a negative relationship. Du et al. (2007) found that the SR image had a positive effect (i.e., halo effect) both on purchase likelihood and on long-term brand loyalty. Padelford and White (2009) argued that an individual's ethical orientation was a significant predictor of his or her consumer beliefs. In the U.S. and worldwide, studies have shown that substantial percentages of consumers are concerned about corporate SR. For example:

- 60% of U.S. consumers would be more likely to buy a firm's products and services if they knew the firm was mindful of the importance of being socially responsible (Hein, 2007);
- 57% of U.S. consumers were more loyal to firms that were socially responsible (Hein, 2007);
- 84% of U.S. consumers said that if a firm supported good causes, and the price and quality were the same, they would switch brands (Bhattacharya & Sen, 2004);
- 82% of U.S. consumers would pay more for products that were environmentally friendly (Gustin & Weaver, 1996);
- 58% of British consumers felt that it is important for firms to act ethically (Page & Fearn, 2005);
- 92% of Canadians' purchase decisions are affected by a firm's reputation for SR (Fliess, Hyung-Jong, Dubreuil, & Agatiello, 2007); and
- 92% of consumers in a Roper Starch Worldwide survey felt that it was important for marketers to find ways of being good corporate citizens (Krol, 1996).

Pirsch et al. (2006) examined the impact of institutionalized corporate social responsibility (CSR) (being socially responsible in everything the firm does—marketing, employee policies, communicating to stockholders, etc.) versus promotional CSR (related activities that drive sales, such as giving a portion of sales for a certain day to a charity). On a seven-point scale, consumer loyalty for the hypothetical firm that utilized institutional CSR was 4.626, while consumer loyalty for the hypothetical firm utilizing promotional CSR was 23% lower, at 3.747. Not surprisingly, skepticism was greater with promotional CSR (3.737) than for institutional CSR (4.499). Positive attitudes toward the company were higher with institutionalized CSR (6.216) than for promotional CSR (5.315). Du et al. (2007) in a similar study found that consumers valued CSR efforts more if they were ingrained in the business's core strategy (e.g., selling only free-range chickens), rather than simply giving to charities. Becker-Olsen, Cudmore, and Hill (2006) also found that promoting social initiatives positively influenced consumers.

Further evidence of the value of a socially responsible image was provided by Goll and Rasheed (2004), Klein and Dawar (2004), and Schnietz and Epstein (2005). Each study found that businesses with a reputation for being socially responsible created goodwill that would help minimize the impact of a crisis (i.e., halo effect). Over any extended period of time, firms will find themselves in various types of crises (e.g., a restaurant's reputation suffers because a few people become ill). Intuitively, if socially responsible goodwill is valuable during a crisis, it should be valuable during normal operations. Kamal and Jauhari (2007) found that if two hotels were equal, except that one had a reputation for SR, consumers were inclined to select the socially responsible hotel. However, despite the preference for socially responsible firms, consumers were not willing to pay a premium for SR strategies. The advantage comes only if the hotel is equal to or better than competing properties in the core attributes they were seeking. In fact, Kasim (2004), in a study of Malaysian hotels, found that SR was not a significant predictor of consumer preference for about 85% of the (non-American) consumers. Consumers valued price, quality, and physical attributes more than SR. From these two studies it was learned that consumers value personal benefits over activities that benefit the environment.

In one of the most frequently referenced articles on SR, Brown and Dacin (1997) studied how SR affects product evaluation. Their research focused on differences between the impact of Corporate Social Responsibility (CSR) and Corporate Ability (CA) associations ("associations related to the company's expertise in producing and delivering its outputs," p. 69). In their first study, students analyzed hypothetical scenarios. The results showed that CA associations had a significant effect on product evaluations by influencing perceptions of product attributes and the holistic/overall image of the firm (i.e., halo effect). The authors felt that SR did not impact product attributes directly, but rather did so indirectly by impacting the firm's holistic image. Brown and Dacin's (1997) second study replicated the first, except with fictitious products of actual companies. The major change from the first study was that Product Social Responsibility became a significant predictor of Product Evaluation. Brown and Dacin measured CSR associations with,(a) (brand) has a concern for the environment; (b) (the company) is involved in local communities; and (c) gives to worthy causes. Items were measured on a 7-point semantic differential scale with anchors of *very unfavorable* and *very favorable*.

Maignan and Ferrell (1999) studied the antecedents and consequences (benefits) of corporate citizenship. They defined *corporate citizenship* as "the activities and organizational processes adopted by businesses to meet their social responsibilities" (p. 456). The sample consisted of business decision-makers. The authors developed a corporate citizenship scale exclusively for this study. They based this scale on Carroll's (1999) four dimensions of corporate social responsibility: economic, legal, ethical, and discretionary citizenship.

Brand loyalty

Consumers' attitudes are often studied to measure their impact on purchase behavior; however, these attitudes can also be used to determine preference (Smith, Terry, Manstead, Louis, Kotterman, & Wolfs, 2008), intention (Ajzen & Fishbein, 1980), loyalty (Chaudhuri, 1999), and brand equity (Keller, 1993). Behavior involves an explicit *action* by a certain target market, often in a certain context and time. Intention and preference are successively more ambiguous, with *intention* being a

consumer's expressed likelihood of purchase and *preference* being an attitude designating a consumer's affinity toward one brand relative to other brands. *Brand loyalty* expresses various measures of both brand attitudes and purchase habits. *Brand equity* concerns the added value of a firm's name, based on brand knowledge, awareness, and image. Chaudhuri and Holbrook (2001) among many others (Chaudhuri, 1999; Iwasaki & Havitz, 2000; Pritchard, Havitz, & Howard, 1999; Punniyamoorthy & Raj, 2007) believed that both brand attitudes and buying habits encompass the measurement of brand loyalty. An apparent few maintained that past purchases alone denote brand loyalty (Baldinger & Rubinson, 1996). Chaudhuri and Holbrook (2001) and Pritchard, et al. (1999) measured brand loyalty as two distinct constructs-- purchase/behavior-based loyalty and attitude-based loyalty--while most researchers combined the two measures into one construct, brand loyalty. Chaudhuri (1999) specified three advantages of having brand loyal customers: they (1) require less advertising; (2) have the greatest level of repeat purchases; and (3) are willing to pay a premium for the product or service. In a later study, Chaudhuri and Holbrook (2001) divided brand loyalty into purchase loyalty and attitude-based loyalty. Purchase loyalty influenced market share, but not the relative price the consumer was willing to pay, while attitude-based loyalty influenced relative price, but not the firm's market share. Interestingly, market share was not correlated to relative price. Punniyamoorthy and Raj (2007) agreed that brand loyalty was composed of both attitude and behavioral components. The strongest predictor of brand loyalty in their research was repeat purchases, followed by functional value, commitment, and emotional value.

Jacoby and Chestnut (1978), in a frequently referenced monograph, listed 53 tested indices for operationalizing attitude-based loyalty, behavior-based loyalty, and composites of the attitude and behavior measures. These researchers simply presented their conceptualization of the subject and the results of various studies. Most authors viewed brand loyalty as a single construct, but Pritchard et al., 1999 justified the two-construct brand loyalty measurement ; they decided there was a need to develop the attitudinal component of brand loyalty (i.e., a conceptual, rather than empirical justification). Based on the work

of Jacoby and Chestnut (1978), Chaudhuri and Holbrook (2001), and Pritchard et al. (1999), it was decided to measure brand loyalty as two distinct constructs.

Product and service quality

Certainly, the most popular means of measuring service quality is the SERVQUAL scale, developed by Parasuraman, Zeithaml, and Berry (1988). It measures service quality in five dimensions: (1) tangibles (physical facilities are up to date and visually appealing, equipment is up to date, and personnel are well dressed; (2) reliability (timely, dependable, and accurate service); (3) responsiveness (promptness); (4) assurance (knowledge, courtesy, trustworthiness); and (5) empathy (individualized attention and caring attitude). Quality was assessed as the difference between expectation and perception. A problem with its application to foodservice is its lack of attention to one of the most important aspects of a restaurant's product--food (Dubé, Renaghan, & Miller, 1994). The reason for this absence is that the purpose of the SERVQUAL scale was to measure only service (Parasuraman et al., 1988). The original SERVQUAL article of 1988 specifies the scale was developed "for measuring customer perceptions of service quality" (Parasuraman et al., p. 5). Also, the firms in their study (appliance repair, retail banking, long-distance telephone, and credit cards) are heavily focused on service, with minimal degrees of tangibility associated with their actual product.

The following three studies also used SERVQUAL-type models without measuring food quality. Lee and Hing (1995), in a study using SERVQUAL for restaurant operations (i.e., the production aspects of food and service), focused only on service quality, as did Stevens, Knutson, and Patton (1995). Bojanic and Rosen (1992) similarly focused on service, not food, and through factor analysis uncovered a six-construct model (tangibles, reliability, responsiveness, assurance, knowing the customer, and access). Here too, tangibles did not include food. The absence of product quality from most SERVQUAL studies raises this question: Is it possible to measure service quality exclusively, when tangible product quality may account for a large percentage of a customer's overall perception of quality? For example, in completing a SERVQUAL-type questionnaire, what is the bias (measurement error)

created by deleting the quality of the physical product--the food? Would the results of SERVQUAL be the same if the food were mediocre or superb (halo effect)?

Since the seminal work of Parasuraman et al. (1988), several researchers have attempted to measure restaurant quality by including the product quality construct. One of the few studies to incorporate food in a SERVQUAL-related scale was Dubé, Renaghan, & Miller, 1994; however, the absence of reliability coefficients made valid interpretation questionable. Lehtinen and Lehtinen (1991) determined that service quality for restaurants was based on three dimensions: (1) physical quality (food); (2) interactive quality (interaction between customer and provider); and (3) corporate quality (the history of the business and what the customers think of it). Food or product quality was simplistically measured by menu choices and the taste of the food--not adequate for a comprehensive analysis of food quality. Keillor, Holt, and Kandemir (2004) studied the impact of product quality, service quality and servicescape (e.g., design, functionality, and social factors) on behavioral intentions for fast food restaurants and grocery stores in eight countries. Product quality was measured with (1) product excellence; (2) variety; and (3) being among the best available options. For U.S. fast food restaurants and grocery stores, product quality was found to be most important, followed by service quality. Servicescape did not significantly impact behavioral intentions for fast food restaurants, though it did for grocery stores. Though the Keillor et al. research was a very interesting study, product quality, again, was measured in a less than comprehensive manner. Overall, it appears that the construct of product quality for restaurants has not received the attention it deserves. Reasons could include the topical nature of service and the service industry, and the difficulty of separating the food experience from the service experience. Meiselman (2001) wrote of the complexity of measuring food quality on its own merits, separate from customers' varying perceptions, and the situational and consumption context. He also asserted that food should play a more integral role in assessing overall service quality in food service.

Perhaps the most comprehensive study focused on both food and service quality was that of Oh and Jeong (1996). In a study of quick service restaurants, the authors utilized variables derived from National Restaurant Association research. The variables were subjected twice to factor analysis, once for expectations and once for perceptions (performance). The product quality attributes for each factor analysis application (expectations and performance) were identical--tastiness of food, food quality, portion size, ingredient freshness, temperature of food, and price of food. Customers' expectations for service quality-related attributes included quick food delivery, employees' greeting, responsiveness, and employee attitude. Customers' perceptions of performance for service-related variables included quick food delivery, no waiting, employee attitude, employees' greeting, responsiveness, and menu item availability. Service-related attributes for expectations and performance were the same except for the addition of *no waiting* and *menu availability* in the perceptions category. Of the two additional variables included in service quality-related variables for the performance factor analysis, *no waiting* and *menu availability*, no waiting could be subsumed under responsiveness. This perception is supported by the research of Parasuraman et al. (1988) as they utilized responsiveness in the cognitive sense as promptness. There is no clear justification for menu availability other than the perceived lack of convenience. Intuitively, menu availability is an issue more associated with casual- or fine-dining, than with quick-service restaurants. With limited menus and heavy reliance on frozen products and items prepped outside the restaurant (e.g., pre-cut lettuce and onions), running out of items in the quick-service segment is a rare occurrence. The results of their research identified an R^2 of .37 between the restaurant's performance on product and service quality-related variables and customer satisfaction.

METHOD

Survey questions were selected from those previously tested by well-referenced researchers (see Tables 1.1 and 1.2 for Source of Scales). All variables were measured with a 7- point semantic differential scale as they were in the original research. The sampling plan selected was a convenience sample, a method that is commonly used in ethics-based

research (Brown & Dacin, 1997; Rallapalli, Vitell, Wiebe, & Barnes, 1994). Rallapalli, Vitel, Wieb, and Barnes (1994) wrote that convenience samples are acceptable as long as the study is exploratory and respondents are familiar with the questions being asked. Since the current test is exploratory in nature, it is more efficient to test it first on a convenience sample before testing it with a more expensive mail survey on a probability or random sample. Regression was selected because it is appropriate for testing the specified relationships and it has been used by other researchers in similar studies (Goll & Raheed, 2004; Sotorrio & Sanchez, 2008).

The questionnaire was tested on hospitality students prior to implementation on the selected sample frame. The reliability of each of the scales was tested using Cronbach's Alpha. According to Nunnally and Bernstein (1994), and alpha of .7 is acceptable for exploratory studies. The alphas of all scales were between .88 and .93. Content and face validity were accomplished through the reviews of experts in scale construction (academic faculty members) and from input from consumers (students and academic staff). The questions were viewed as valid and understandable for the study. Convergent validity was examined internally by testing the correlation of single-item scales that measure Brand Social Responsibility Image, Product Quality Image, Service Quality Image, and Brand Loyalty with the items used to measure each construct. In each case convergent validity was supported; the variable used to test this form of validity was highly correlated with each other variable in its scale (r^2 of .496 to .838 and $p < .000$).

Table 1.1
Source of scales for measuring BSRI, PQ, and SQ

Independent Variables	Scale Type	Modified from:
Brand Social Responsibility		
1. Concern for the environment	Likert type scale ranging from 1-7	Brown and Dacin (1997)
2. Involvement in the community	(1 = disagree completely to 7 =	Maignan and Ferrell (1999)
3. Corporate giving	agree completely)	
4. Attempts to improve the quality of its products		
5. Cleanliness		
6. Quality-of-life offered to employees is higher than other similar restaurants		
7. Overall social responsibility		
Product Quality		
1. Tastiness of food	Likert type scale	Oh and Jeong (1996)
2. Portion size	ranging from 1-7	
3. Ingredient freshness	(1 = disagree	
4. Temperature of food	completely to 7 =	
5. Value	agree completely)	
6. Overall food quality		
Service Quality		
1. Employee greeting	Likert type scale	Oh and Jeong (1996)
2. Employee attitude	ranging from 1-7	
3. Overall service quality	(1 = disagree	
4. Quick food delivery	completely to 7 =	
5. No waiting	agree completely)	

Table 1.2
Sources of scale for measuring brand loyalty

Brand Loyalty	Scale type	Modified from:
1. I am very loyal to brand X.	Likert type scale ranging from 1-7	Reynolds and Arnold (2000)
2. I would highly recommend brand X to my friends.	(1 = disagree completely to 7= agree completely) 0-9%, 10% up to	Pritchard, Havitz, and Howard (1999) Chaudhuri and
3. I would continue to dine at brand X even if the price was higher.	25%, 25% up to 40%, 40% up to 55%, 55% up to	Holbrook (2001)
4. Of the times you purchase fast food, approximately what percentage is at brand X? (This scale was converted to a seven point scale for the final analysis.)	70%, 70% up to 85%, 85% up to 100% Likert type scale ranging from 1-7 (1 = disagree completely to 7 agree completely)	
5. In the future, I intend to keep buying from brand X.		
6. The next time you go to a fast food restaurant, how likely is it to be brand X?		

RESULTS

Data Collected

A total of 175 surveys was collected. The data were gathered by intercept surveys of 90 students at a university in the Southwestern U.S. and 85 intercept surveys collected from 45 shoppers at a prominent regional multi-unit grocery chain, 27 from employees at a regional hospital, 13 from faculty and staff at a university. An incentive was provided in the hope of increasing the likelihood of shopper participation. The incentive was a drawing for a first prize of $125.00 and a second prize of $75.00. The combination of survey collection methods was adopted because the collection strategy of intercept interviews was

not highly successful. It was found that the vast majority of businesses queried had policies that prohibited intercept interviews of patrons. Additionally, in spite of the prizes, getting people to complete the intercept surveys was challenging. Therefore, another source of surveys for the study was sought. Civic organizations and churches were considered but not selected because of their potential positive bias in the SR survey. Subsequently, the previously discussed 90 surveys were collected from students in introductory hospitality classes and hospitality technology classes at a school of hospitality management.

A t-test was used to see whether there were any significant differences between the intercept surveys and those of students. The results showed that there were no significant differences at the .05 level (p < .05) between the responses of students and intercept respondents for the constructs of the study. After data screening, 172 surveys were usable. Some 47.7% of respondents were students, 53.3% had yearly household incomes below $30,000, and 64.9% were below 30 years of age;, the respondents represented a typical quick-service restaurant demographic (Ayala-Taylor & Long-Tolbert, 2002).

Table 2
A demographic profile of the sample

Intercepts or students (N=172)	Frequency	Percentage
Intercepts	90	52.3%
Students	82	47.7%
Gender (N=170)		
Male	64	37.6%
Female	106	62.4%
Age (N=171)		
Up to 20	44	25.7%
21-30	67	39.2%
31-40	19	11.1%
41-50	28	16.4%
51-60	9	5.3%
61 and older	4	2.4%

Yearly Household Income (N=162)		
Up to $15,000	44	27.2%
$15,001-30,000	39	24.1%
$30,001-45,000	17	10.5%
$45,001-60,000	29	17.9%
$60,001-75,000	16	9.9%
$75,001-100.000	8	4.9%
100,000 and more	9	5.6%

The total number may not add up to the total number of respondents (n-175) due to missing data.

Measurement of brand loyalty

Factor analysis was run on the two-construct scale for brand loyalty (i.e., attitude and behavior), and the findings were contradictory to previous research, such as Pritchard et al. (1999). All the items designed for both Attitude-based Brand Loyalty (ABL) and for Behavior-based Brand Loyalty (BBL) loaded on the same factor (see Table 3), and therefore were measuring the same construct.

In reviewing the work of Chaudhuri (1999) and Pritchard et al. (1999, both of whom justified the two-construct brand loyalty measurement, it was found that their decisions were based on the conceptual needs of the research, rather than on empirical justification (i.e., not through a statistical technique such as factor analysis). Chaudhuri and Holbrook (2001) stated that, "our notion of brand loyalty in this study includes both purchase loyalty and attitudinal loyalty" (p. 3). They did not, however, test or profess to test their "notion" to see whether there were in fact two distinct constructs. Hence, brand loyalty in the current study was a single-dimension construct and was used for further analysis.

Table 3
Factor analysis of brand loyalty

	Factor 1	Eigenvalue	Total variance explained
I would highly recommend McDonald's to my friends. (ABL)	0.896		
The next time you go to a fast food restaurant, how likely is it to be McDonald's? (BBL)	0.887		
I am very loyal to McDonald's. (ABL)	0.887		
I would continue to dine at McDonald's even if the price was higher. (ABL)	0.880	4.467	74.45%
In the future, I intend to keep buying from McDonald's! (BBL)	0.844		
Of the times you purchase fast food, approximately what percentage is at McDonald's? (BBL)	0.777		

KMO=0.899. Bartlett's Test of Spherecity is significant at 0.001

Statistical analysis

To examine the effects of brand social responsibility image (BSRI), product quality (PQ) and service quality (SQ) on brand loyalty (BL), multiple regression was selected because of its use in similar studies (Goll & Raheed , 2004; Sotorrio & Sanchez, 2008) and because it fits the purpose of the study: whether brand social responsibility can predict brand loyalty when compared to product quality and service quality. Multiple regression can also find out which independent variables are most important in predicting consumers' brand loyalty by analyzing the strength of the relationship between the three variables and brand loyalty. The responses for each variable were summated to get an average value.

Before running the multiple regression, correlations among independent variables were checked to test whether the assumption of non-multicollinearity was met. As shown in Table 4, the correlation

coefficients among BSRI, SQ, and PQ are all below 0.60, indicating there is no substantial multicollinearity among the independent variables in the regression model. In order to find out the predicted strength of the three independent variables for brand loyalty, the sequential/stepwise method was adopted to specify the regression model.

Table 4
Correlation matrix

		BSRI	PQ	SQ	BL
BSRI	Pearson Correlation	1	0.540**	0.469**	0.431**
	N	169	168	166	162
PQ	Pearson Correlation	0.540**	1	0.482**	0.598**
	N	168	171	169	165
SQ	Pearson Correlation	0.469**	0.482**	1	0.386**
	N	166	169	169	164
BL	Pearson Correlation	0.431**	0.598**	0.386**	1
	N	162	165	164	165

The following results showed that the total regression model was significant (F=48.377, P=0.000) (see Table 5). However, one of the independent variables, SQ, was excluded from the model. It was found that in the first step, PQ was entered in the mode. In the second step both PQ and BSRI were included, while SQ was left out. Therefore, service quality was not a significant predictor of brand loyalty for this study. BSRI and PQ explained a total variance of 37.2% of BL. But PQ was by far the most important attribute in influencing consumers' brand loyalty, accounting for most of the variance (35.6%). Adding BSRI improved the model with a significant F change of 5.121 (p< .025), meaning BSRI was also a significant predictor of brand loyalty. The standardized beta for PQ was 0.511, and for BSRI it was 0.167. Both the betas were significant at the 0.05 level (see Figure 1).

Table 5
Multiple regression: effects of BSRI, PQ, and SQ on BL

Dependent Variable: Brand Loyalty (BL)

Model Summary

Method: Stepwise

	Step 1 (PQ)	Step2 (PQ+BSRI)
Multiple R:	0.600	0.616
R Square:	0.360	0.380
Adjusted R Square:	0.356	0.372
Standard Error:	1.096	1.082
Excluded Variables	BSRI, SQ	SQ

ANOVA (Step 2)

	df	Sum of Squares	Mean Square	F	Sig.
Regression	2	113.373	56.687	48.377	0.000
Residual	158	185.138	1.172		
Total	160	298.511			

Independent Variables

Variables	Coefficient	Standardized β		t	Sig.
Constant	-0.806			-1.605	0.110
PQ	0.596	0.511		6.930	0.000
BSRI	0.238	0.167		2.261	0.025

Note: BSRI-social responsibility image, PQ-product quality, SQ-service quality, BL-brand loyalty

Figure 1
The Influence of Brand Social Responsibility Image
Relative to Product and Service Quality on Brand
Loyalty in Quick-service Restaurants

The work of Brown and Dacin (1997) highlighted the potential for the indirect effect (i.e., halo effect) of SR on a brand's overall image through product quality. Therefore, it was decided to test for this relationship in the current study. In other words, part of the effect of PQ on BL could come from the effect of BSRI on PQ. To test the interaction effect of BSRI and PQ on BL, the two variables BSRI and PQ were standardized and a cross product of them was obtained as the interaction term BSRI*PQ (Pulakos, 1984). The three variables were then entered hierarchically into a new regression model with BL as the dependent variable. The results in Table 6 show that the R Square change for BSRI*PQ was significant (F change=4.134, P=0.044), indicating that adding the interaction term to the model could explain more variance of BL in the regression model. The standardized β of BSRI*PQ was 0.069 (P=0.044). So we can conclude that there is a significant interaction effect between BSRI and PQ on BL.

Table 6
Test of the interaction effect of BSRI and PQ on BL

Dependent Variable: Brand Loyalty (BL)

Independent Variables: BSRI, PQ, BSRI*PQ (Standardized Scores)

Model Summary
Method: Hierarchical
Enter

	BSRI	BSRI+PQ	BSRI+PQ +BSRI*PQ
Multiple R:	0.431	0.613	0.626
R Square:	0.186	0.376	0.392
Adjusted R Square:	0.181	0.368	0.380
R Square Change	0.186	0.190	0.016
Standard Error:	1.233	1.084	1.073
F Change	36.549	48.348	4.134
Sig. F Change	**0.000**	**0.000**	**0.044**

ANOVA

	df	Sum of Squares	Mean Square	F	Sig.
Regression	3	117.172	39.057	33.911	0.000
Residual	158	181.979	1.152		
Total	161	299.151			

Coefficients

Variables	Standardized β	t	Sig.
Constant	0.241	31.299	0.000
BSRI	0.175	2.387	0.018
PQ	0.528	7.191	0.000
BSRI*PQ	0.069	2.033	0.044

Note: BSRI-social responsibility image, PQ-product quality, SQ-service quality, BL-

brand loyalty

Since BSRI positively affects the image of a firm through product quality, it can be inferred that BSRI has a halo effect on the firm's product image and perhaps on other variables of concern to the customer. To find out which individual SR practices influence the image of product and service, and subsequently brand loyalty, three stepwise multiple regressions were run, with the items used to measure brand social responsibility image as the predictor variables (see Table 1.1 for the variables), and product quality, service quality, and brand loyalty as the dependent variables. Table 7 shows the results of the regressions. It was found that "attempts to improve quality of service /products" and "attempts to keep restaurant clean" were the most important practices for influencing customers' perception of product quality for quick-service restaurants. Interestingly, these two practices were also the most important predictors of customers' loyalty to the restaurant. On the other hand, "attempting to keep restaurant clean" and "giving to worthy causes" influenced the perception of service quality. While cleanliness and attempts at improving product quality were significant predictors of product quality and brand loyalty, surprisingly, the restaurant's concern for the environment and its involvement in local communities had no effect on product quality, service quality, or brand loyalty.

Table 7
Multiple regressions: effects of BSRI on PQ, SQ, and BL
(To test which specific BSRI practices/predictors impact PQ, SQ, and BL)

Model	Predictors: BSRI items	Standardized coefficient	*p*-value	Tolerance	*R²*
PQ	McDonald's attempts to improve quality of service/products	0.38	0	0.52	**0.322**
	McDonald's attempts to keep restaurant clean	0.234	0.009	0.52	
SQ	McDonald's attempts to keep restaurant clean	0.346	0	0.815	**0.247**
	McDonald's gives to worthy causes	0.238	0.002	0.815	
BL	McDonald's attempts to improve quality of service/products	0.249	0.012	0.527	**0.195**
	McDonald's attempts to keep restaurant clean	0.231	0.02	0.527	

* The table shows only items that have significant values below .05 (p<.05)

The image of the brand for SR influences the consumer's perception of both the firm's product and service quality. The results of this research supported the work of Brown and Dacin (1997), who found a positive and significant relationship between corporate social responsibility (CSR) and the consumer's perception of both the firm and its products.

DISCUSSION AND IMPLICATIONS

BSRI is becoming an increasingly popular and important topic in business. The key is understanding how to utilize it to one's best advantage. The results from the study show that of the three variables (BSRI, PQ, SQ) tested as antecedents to brand loyalty, product quality is the strongest predictor of brand loyalty, followed by brand social

responsibility image. Service quality was ruled out from the regression model, indicating it had no significant impact on customers' brand loyalty when compared to product quality and SR image. This finding makes intuitive sense in that quick-service restaurants, being convenience products, are generally not sought out for high levels of unique service. Because this was an exploratory study on a convenience sample, further studies should be done to validate these findings.

From this study we can conclude that in quick-service restaurants, consumers will be loyal to those brands that offer quality food and have an image of being socially responsible. However, it should be noted that although brand SR image is a significant predictor, its effect on brand loyalty is much weaker relative to that of product quality. Customers will consider food quality as the most important factor of their loyalty to a quick-service restaurant. It is logical to postulate that customers favor restaurants with high PQ but low BSRI over restaurants with high BSRI but low PQ. But further research can be conducted to find out how customers trade-off between the two factors.

The significant but weak effect of BSRI on BL can be explained by the study of Du et al. (2007) that suggested that SR should be a good way to build meaningful long-term relationships (i.e., it helps brand loyalty), but of less value for generating short-term increases in sales. Building a positive SR image contributes to a brands' long-term reputational capital and improves its brand equity. Since restaurant operators have limited resources, they should focus their efforts primarily on offering tasty and high quality foods, and secondarily on being socially responsible. However, efforts to increase the SR image of a brand will pay off by improving customers' loyalty, and their perception of product and service quality, and therefore, create a competitive advantage for the brand.

This study has shown that a positive perception of a brand's SR image has a positive influence on brand loyalty and customers' perception of product quality and service quality. Specifically, this study showed that SR perceptions related to cleanliness and attempts at improving product quality had the strongest impact on product quality and brand loyalty, while cleanliness and giving to worthy causes had the strongest impact on

service quality. This positive perception shows that the *halo effect* of BSRI plays an important role in the development of customers' perceptions of product quality and service quality. Conversely, brand managers must be aware that low perceptions of their level of SR may result in lower perceptions of product quality, service quality, and brand loyalty. Consequently, as managers develop strategies that attempt to improve brand loyalty and perceptions of product and service quality, they should consider their brand social responsibility image, especially as it relates to those consumers who rate the brand's BSRI as high.

Where the vast majority of SR research has focused on hypothetical firms and consumers' opinions of them, this research focused on consumers' opinions of a real-world firm, McDonald's. While the overall results are compatible with much of the existing research, real-world results should provide marketers with information that is more actionable and perhaps more valid.

LIMITATIONS

The data from this research were drawn from a convenience sample; therefore, statistical results cannot be held to the same standard as those from a probability sample. The convenience sample is, however, quite common in ethics research (Brown & Dacin, 1997) and the results have been similar to that found in probability samples (Reynolds & Arnold, 2000). The sample size of 175 is higher than the 148 of the frequently referenced Dacin and Brown (1997) study of SR , but not at as high as other studies. For example, the Singhapakdi, Vitell, and Franke (1999) and Reynolds and Arnold (2000) SR studies had sample sizes of 453 and 388, respectively. This study analyzed various relationships using a single firm, McDonald's. The results might be different for other quick-service restaurants, for full-service restaurants (table-service), or for firms in other industries.

FUTURE RESEARCH

Because of their overall impact on the firm and its Brand Social Responsibility Image, each of the items in the SR scale merit further study (i.e., showing concern for the environment; being involved in local communities; giving to worthy causes; attempting to improve the quality

of its products and services; attempting to keep its restaurant clean; offering a higher quality-of-life to its employees than other, similar restaurants; and being a socially responsible brand). Knowing which are most important in the determination of a brand's social responsibility image and which have the greatest influence on brand loyalty should be of value to both practitioners and researchers. There is more to learn from the relative strength of each in determining the brand's SR image and how they might influence brand loyalty and other perceptions of the brand. Consumers' perceptions of and justifications for one brand's SR image relative to that of another brand should also be of interest. Since it was shown that the quality-of-life of the restaurant's employees is viewed as important to customers, it would be interesting to know whether an increased emphasis in this area would result in increases in customer satisfaction.

This research showed that a brand's social responsibility image (BSRI) influences consumers' perceptions of a brand's product quality, service quality, and brand loyalty. The domain of the study was quick-service restaurants. It should be of interest to learn if the findings would change for different types of hospitality products, such as hotels and different classes of products (e.g., convenience, shopping and specialty products).

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Examining Technology Adoption and Management Perception of Inventory Management Systems: The Case of Aruba Restaurants

By Kimberly Severt, Robin B. DiPietro and Diana Herrera

The purpose of this paper is to explore the use of automated inventory management systems (IMS) and identify the stage of technology adoption for restaurants in Aruba. A case study analysis involving twelve members of the Aruba Gastronomic Association was conducted using a qualitative research design to gather information on approaches currently used as well as the reasons and perceptions managers/owners have for using or not using automated systems in their facilities. This is the first study conducted using the Aruba restaurant market. Therefore, the application of two technology adoption models was used to integrate critical factors relevant to the study. Major findings indicated the use of an automated IMS in restaurants is limited, thus underscoring the lack of adoption of technology in this area. The results also indicated that two major reasons that restaurants are not adopting IMS technology are budgetary constraints and service support. This study is imperative for two reasons: (1) the results of this study can be used as a comparison for future IMS adoption, not only for Aruba's restaurant industry but also for other Caribbean destinations and the U.S., (2) this study also provides insight into the additional training and support help needed in hospitality technology services.

INTRODUCTION

The use of technology in the restaurant industry is considered to be the most important change since the development of the gas stove and electrical refrigeration. In an effort to respond to greater demands for profitability, restaurant managers are looking to new technology as an alternative to better manage their operations (Mandabach, Blanch, VanLeeuwen, Revelas, & Cole, 2003). Oronsky and Chathoth (2006) reported that technological innovations allow managers to control costs, enhance effective management techniques, and monitor more closely profit/loss mechanisms in real time, as opposed to waiting until the end of the week, month, etc. While information technology (IT) clearly presents opportunities for restaurants, Ansel and Dyer (1999) report that many organizations have been slow to adopt and implement technology in the back of the house, specifically in the area of cost control.

Food-and-labor cost control is of vital importance to any foodservice establishment. According to Rogers (1996), aside from labor, inventory is probably the largest expense in a food-and-beverage operation's financial statement, and many foodservice operations are still trying to control these costs without tracking their inventory. Schwartz

(2008) stated that traditional food-and-beverage control, at least for the past 20 years, has been composed of three elements: profit-and-loss statements (P&L), Management by Walking Around (MBWA), and miscellaneous spreadsheets. The introduction of inventory management software makes the P&L statement less critical, gives managers some specific things to look for while walking around, and typically replaces the spreadsheet component almost entirely. In addition to this, Gale (2007, p.77) affirmed that inventory control software replaces the "time consuming and often inaccurate process of taking physical counts," while enabling the company to determine where money is tied up in inventory that isn't moving. In short, automated inventory management provides the edge restaurants require in order to boost profitability.

So what keeps restaurants from leaving the spreadsheets behind and moving to an automated system? Schwartz (2008) stated that although the answer varies from company to company, some probable reasons include familiarity with current practices, unfamiliarity with new approaches, unwillingness to invest, and no motivation to spend the time required in order to implement a new system. Based on this, the purpose of this study is to address the fundamental question: Are restaurants in Aruba adopting and implementing technology to manage food-and-beverage inventory?

Aruba has become a major tourism destination, with the U.S. and Europe being the key sources of visitors. According to the Central Bank Aruba (2009) there were 772,100 million visitor stay-overs in 2007, and the total registered tourism receipts for 2008 were $1409.50 million. The majority of tourism receipts are hotel and food-and-beverage expenditures.

This study is important not only to the Aruba hospitality industry but also to the many U.S. companies that have restaurants in Aruba or supply restaurants with inventory and/or services. This study is also important to provide insight into some of the challenges faced by other island destinations and remote locations that depend on the long-distance help of service providers for technology needs. The current study aims to (1) provide a benchmark to determine the level to which technology has been adopted by the Aruba restaurant industry and to measure future advancement and (2) identify technology adoption to determine whether there is a resistance to technology adoption that may affect customer service levels and/or inventory management control.

Aruba merchandise exports in 2008 were US$32 million but the merchandise imports were US$1035.2 million. Aruba depends on the

import of food and beverages to service the millions of tourists each year. Managing food inventory is critical to the success of restaurant operators since they rely solely on imports to service their customers. Since the majority of tourists are from the U.S. and Europe, they naturally compare the quality of food in restaurants with the quality of food they commonly purchase in the U.S. and Europe. One of the primary differences lies in the transportation of food into Aruba and the time span between ordering and receiving.

Other research questions answered through the current study are:

1. What technology is being currently used in restaurants in Aruba?
2. What inventory management systems (IMS) are used in restaurants in Aruba?
3. What is the level of satisfaction with the current inventory system used?
4. What is the managers' perception towards adopting an inventory management technology system in Aruba?

The final objective of this study is to present the results in the Technology Adoption Model (TAM) (adapted by Wang and Qualls, 2007) to identify the stage of adoption and the implications in the technology adoption process.

LITERATURE REVIEW

Technology in the Restaurant Industry

Information Technology (IT) advances have drastically altered the way many industries now conduct their business. For instance, Douglas (2007) stated that new technologies have served smart business solutions that have pushed industries to achieve greater levels of internal proficiency in core operational areas. Larsen (2009, p.15) also affirmed that in difficult economic times, savvy operators who realize they need smart systems to get smart results are spending money on technology: "The right technology can mean a significant boost to an operator's bottom line."

The U.S. National Restaurant Association has forecast that the overall economic impact of the restaurant industry is expected to exceed US$1.5 trillion in 2009 (National Restaurant Association, 2009). Studies have shown that some of the tangible benefits to the restaurant industry that may be achieved through the use of IT are minimization of costs (such as food, labor, beverage, and energy), better employee management techniques, increased revenue management, and the ability to analyze

customer preferences (Oronsky & Chathoth, 2006). The importance of IT in restaurants has also been stated by other researchers. For instance, Leung and Law (2007) considered the fact that IT plays an important role in strategic and operational management; new technologies and innovative ideas support restaurants' daily operations and managerial decision-making. Operations software makes manually monitoring inventory and estimating recipe costs tasks of the past (Gale, 2007). Lockwood (1992) also reported that after instituting a computerized inventory control system, restaurants have been able to trim food and liquor inventories by about 13%. With an up-to-date inventory system, owners can track bartenders' pours and any food shrinkage to help control loss (Gale, 2007).

According to Oronsky and Chathoth (2006), technological advances have also changed the customer's dining experience over the years—the way in which the meal is prepared, the speed at which it is delivered, and the way in which it is received,,just to name a few of the changes. Companies can use technology not only to benefit themselves but also to enhance the experience their front-line people have with guests (Carbonara, 2008). In short, technology offers one of the few opportunities for cutting costs, improving efficiency and customer service, affecting the bottom line, and cutting down on the mountains of paperwork that have been known to bury restaurateurs (Belman, 1997). Futurists and industry experts predict that the increased use of technology in a variety of formats will continue to be a major determinant of success for restaurant operations (Mandabach et al., 2003).

Lack of Technology Adoption in the Restaurant Industry

With the advent of new technology and its impact on restaurant operations, one would believe that most firms in the restaurant industry would be IT-oriented in their operations (Oronsky & Chathoth, 2006). Yet Carbonara (2008) affirmed that, relative to other businesses, the foodservice industry has been slow to incorporate technology into its processes. For years, many restaurateurs have ignored the onslaught of technology and its impact on the restaurant industry (Belman, 1997). While all other service industries are heavily involved in developing technology, restaurants seem to lack interest in the implementation of their own technology (Grimes, 1988).

Researchers have reported different reasons for the industry's lack of technological adoption. For instance, Grimes (1988) stated that although restaurant owners are extremely concerned about ways to make their operations run better, they may not be aware of the possibilities of

automated control and standards. Foodservice operators continually face the challenge of being up to date on IT trends to accurately achieve maximum profit potential (Mills & Feinstein, 2007). Grimes (1988) also argued that technology providers are partially responsible for the lack of adoption; although general systems are developed for other industries, they are very rarely considered for initial use in the restaurant industry. Hence, the restaurant industry is usually several years behind other industries in terms of software technology.

Another main issue seems to be the perceived costs associated with IT and what IT can do to provide a return on investment. Ansel and Dyer (1999) suggested that technology has typically been viewed as an additional cost of doing business, rather than as an investment in future profitability. The absence of formal capital budgeting techniques might explain why restaurants demonstrate a lack of technology implementation. These techniques would enable firms to assess the risk of investing in new technology from a value-adding standpoint (Oronsky & Chathoth, 2006).

Although it has been reported that the restaurant industry is not technologically oriented, restaurateurs need to assess the importance of automating their operations. Belman (1997) asserted that regardless of the size of the operation, today restaurants cannot compete without investing in some sort of technology. The information-intensive nature of the industry requires that IT be used to assist daily operations and business decision-making (Leung & Law, 2007). Ansel and Dyer (1999) derived four possible strategies of current developments that may help focus and drive restaurant IT development. These are (1) gaining strategic competitive advantage, (2) supporting human resources, (3) managing revenue, and (4) minimizing costs. For the purpose of this study, only the fourth strategy will be further discussed and analyzed, putting primary emphasis on the importance of food-and-beverage inventory control as a way to minimize costs, as well as the technological approaches available to restaurants in this specific geographic area.

Food and Beverage Inventory Control

Food-and-beverage inventory cost control is very important to any foodservice business. According to Reynolds (1999), inventory is a current asset that provides no return on investment until it is prepared and sold. Hence, the cost of goods is one of the largest expenses a foodservice operation will have to pay out each year (Rogers,1996). Poor inventory management practices can greatly affect customer service as well as the operation's bottom line. According to Reynolds (1999),

inventory shortage results in menu items that cannot be offered to guests, and excess inventory provides opportunities for theft. The need for stringent inventory controls has grown during the last decade because liquor costs and insurance costs are higher, and profit margins are squeezed tighter (Riell, 2006).

Restaurateurs need to make sure their inventory control systems are effective. The key to an effective inventory control system is reporting timeliness and relevance (Huber & Pilmanis, 2001). The universally accepted practice used by most restaurants for monitoring inventory control measures is to take a physical inventory typically on the last day of the calendar month (Dittmer & Keefe, 2006). The practice requires counting, recording and valuing the actual number of units in stock. Although this practice is meant to determine control effectiveness, Reynolds (1999, p. 58) asserted, "It is assumed that the individuals who perform the actual counting and recording do so honestly and take reasonable care not to make errors."

Bartenders who pour generously, employees who provide freebies, and employees who steal (all of which is called "shrinkage") are three problem areas that restaurant managers cite that hurt restaurant profits (Hodl, 2006b). Liquor shrinkage has been widely estimated at US$7 billion a year in the U.S. (Riell, 2006).

According to Schwartz (2008), most restaurants use spreadsheets to manually record inventory and produce the necessary reports. Nevertheless, researchers indicated that restaurateurs consider the practice of taking manual inventory time-consuming, labor-intensive and slow. According to Gale (2007), inventory reports are so labor intensive that they are typically completed and immediately shelved without review for problems or ways to save money. Keeping track of current cost information and other routine spreadsheet maintenance tasks can also take significant amounts of time, thereby increasing labor cost (Schwartz, 2008).

Researchers and restaurant operators have reported that automated inventory control systems offer countless benefits for enhancing profitability in the restaurant industry. Lockwood (1992) stated that automated inventory control allows managers to balance inventory, food costs, and cash flow with greater accuracy and speed than by eyeballing the shelves and cash register. The key is the ability to take a physical bar inventory that is more accurate and roughly half as time consuming as a pencil-and-paper inventory (Scarpa, 2009). Some of the inventory tracking software includes features that determine the value of

current inventory and calculate how much inventory is being lost, how much each menu item costs, which menu items generate the most gross profit, and how much of each menu item is being sold (Rogers, 1996). Scarpa (2009) reported that these features help operations lower beverage cost, increase managerial efficiency, and reduce dollars tied up in inventory. Alternate technologies can also combine the point of sales (POS) system used in restaurants and other retail operations with an inventory management system. These technologies are often used in grocery stores, where an immediate knowledge of inventory can help with ordering and inventory control.

In addition to these benefits, operators have also suggested that one of the main advantages of automating inventory control, regardless of the type of technology used, is time reduction. Restaurant owners have affirmed that rather than spending time just tabulating results, managers are now able to analyze and react to the results generated by the system (Gale, 2007). Howard (1994) also stated that the automation system is freeing up managers by about 10 to 15 hours per week, which allows them to focus more on customer and employee relationships.

Restaurant operators have also reported positive financial results after implementing automated inventory control systems. Food-and-beverage inventories can be maintained at a lower level. This translates into ensuring that money is being put to work rather than sitting on shelves (Lockwood, 1992; Riell, 2006; Sheridan & Matsumoto, 1999). Recognizing the importance of this technology, The Art Institute of New York now teaches inventory software programs to its 1,200 culinary students because they consider it an essential skill (Goldhagen, 2003).

There are several types of food-and-beverage inventory management systems available to restaurant operators. Three types of technologies will be highlighted in this study (1) Scanner/scale aided technology (which can also be integrated into the POS system of the restaurants if available), (2) Beverage dispensing technology, and (3) Radio Frequency Identification Devices (RFID). Table 1 provides a list of the different technologies available to restaurant operators, along with a description of how they work and the pros and cons associated with each.

Table 1
Food and beverage inventory management technologies

TECHNOLOGY	HOW IT WORKS	PROS	CONS
Scanner/scale-aided Technology	Uses scanner or scaled-aided measurement. Data is entered into software that calculates pouring cost and highlights variances (Scarpa, 2009)	Can be used for both food and beverage items. Offers consistent accuracy of inventory taking, no matter who is doing the counting (Herr, 2008).	Ongoing scanning or weighing of the entire inventory stock (Rubinstein, 1997).
Beverage Dispensing Technology	Each bottle has a magnetic ring connected to a soda fountain-style gun dispenser Allows the system to record all drinks poured while keeping track of each liquor used (Hodl, "Liquid Gold," 2006a).	Eliminates over-pours and comps offered by bartenders (Hodl, 2006a).	Can only be used for beverage control. Customers may not like drinking from a human assisted vending machine (Herr, 2008).
Radio Frequency Identification Devices (RFID)	This is the latest inventory tracking technology. This technology measures and transmits the amount of every shot of liquor poured to a personal computer running specialized software (Scarpa, 2009).	Can be used for both food and beverage items. No scales, scanners, barcode tags or dispensing guns needed. Everything is done wirelessly.	Very expensive (Rubinstein, 1997).

METHODOLOGY

This study was exploratory in nature because the aim was to determine whether restaurants in Aruba were adopting the use of technology in food and beverage operations. If so, what technologies were utilized and for what purposes? It was of special interest to investigate what inventory management systems were used, gain insight into the management perceptions of using such systems, and identify the technology climate and adoption position within the various organizations. By identifying these specific questions, the study results gauge the level of technology adoption in Aruba restaurants and provide a benchmark for development in the future. It also provides technology producers and food-and-beverage suppliers with an insight into the perceptions of managers regarding the IT products related to inventory control and management.

After a thorough review of the literature, a qualitative design was deemed most appropriate to gain a holistic picture of a situation, issue or concept (Stainback & Stainback, 1988). Interviews with managers and restaurant owners were selected for this data collection process because they provided the ability to gain first hand information from restaurant operators at the destination. Interviews were also deemed appropriate because the research was designed not only to capture what technologies were being used, but also investigate reasons why or why not restaurateurs were using or not using the new technologies that are available for them in inventory management (Bogdan & Biklen, 2003). A case study design is deemed appropriate when a researcher seeks an answer to "what," "how," and "why" questions in the study design (Adler & Ziglio, 1996; Yin, 2003). The current study has characteristics of an exploratory case study that is focused on contemporary events and seeks to answer "what" and "why" questions; therefore, the case study research methodology was deemed to be appropriate.

This study was supported by the Aruba Gastronomic Association (AGA), which is part of the Aruba Hotel and Tourism Association (AHATA). Members of this association are committed to culinary and service excellence by making food safety a priority. As AGA has a broad and diverse membership, representing different types of restaurants in Aruba, it was deemed to be a suitable source for the selected population of this study.

Restaurants were randomly selected using Microsoft Excel's random feature. From the 26 AGA member restaurants, two were

discarded for being the place of employment of one of the researchers. From the remaining 24 restaurants, a random sample of 12 was selected and asked to participate in the study. Although there are many restaurants in Aruba, the AGA restaurants are located in the primary tourist district, and revenues are much higher due to the volume of tourists served. This was another reason the researchers felt this sample was appropriate for the destination and overall purpose of the study.

Due to the scope of the study and after careful review of other restaurant studies, the sample size was deemed appropriate but would have been extended if the selected interviews did not reach saturation of data. This occurs when the researcher is no longer hearing or seeing new information (Severt & Palakurthi, 2007). Sample size extension was not deemed necessary as sufficient data was derived from the sample population. Other qualitative studies done in the restaurant industry have similar sample sizes (Murphy & Murrmann, 2009; Suboleski, Kincaid, & DiPietro, 2009). Semi-structured interview questions were prepared in order to collect data from the participants and serve as a format to administer information received during the interview. Analyzing data from different angles, or corroborating with other sources, increases the reliability of the research (Severt & Palakurthi, 2007). The 28 questions were broken down into four different parts.

Part one consisted of five independent/structured questions, which were designed to retrieve information on the participating restaurants in order to gain a clear indication of the restaurant's size, volume of sales, and years of operation. Part two sought to get an indication of technology adoption in general. Participants were first asked whether they used technology as an aid in the operation of their restaurants and then they were asked to identify in which areas it is used. The third part inquired about the frequency of taking inventory; the food-and-beverage cost percentage aimed for monthly; inventory control practices to prevent theft, waste and spillage; and the persons responsible for inventory control and purchasing. The next set of questions was used to collect data on the key areas of the inventory management system used; first participants were asked an independent question

on whether they used an inventory management system. This was followed by a dependent question asking to identify which system was used. The next question was used to identify reasons for not using an automated system. The following four semi-structured questions used in this part of the interview were used to stimulate additional information on effectiveness and efficiency of the Inventory Management System (IMS) in place. The last set of Likert-scale questions in part three was used to indicate whether participants "agreed" or "disagreed" on the importance of both inventory control and the use of an automated IMS, as well as on the satisfaction level with the current IMS used. Answer options included: "strongly agree," "moderately agree," "neither agree/disagree," "moderately disagree," and "strongly disagree."

Finally, the last section of questions was designed to collect demographic information from the person being interviewed, representing the selected restaurant, e.g., gender, age, level of education, home country, and years of experience.

DATA ANALYSIS

On completion of the twelve interviews and transcriptions, the data was imported into the qualitative software, NVivo8. This program was used to assist in sorting, coding, and analyzing the data. The researchers independently coded the data into different "nodes" and then the coding was compared to determine the intercode reliability of the analyses. The intercode reliability ranged from 84.2 to 98.0, which meant that the two researchers coded the data the same 84% to 98% of the time. The quantitative data collected from the interview questions was input into SPSS, version 15, to determine descriptive and frequency results.

RESULTS

Restaurant Managers Interviewed

The summary of restaurant demographics provided in Table 2 indicates that 16.67% have been in business from 1-5 years, 41.67% from 6-10 years, 16.67% from 11-15 years, 8.33% from 16-20 years, and 16.67% for 21 years or more. In terms of the number of guests that are served daily on average, 8.33% reported that they serve from 51-100 guests, another 8.33% serves 101-150 guests, 41.67% serves 151-200, and the remaining 41.67% serve more than 200 guests on a daily basis. The majority of restaurants, or 66.67%, have an average check price of $26-

$49, 8.33% under $25, 16.67% above $50, and 8.33% did not want to provide that kind of information. To keep the anonymity and confidentially of the participating restaurants, the restaurants will be identified as Restaurant A, B, C, and so forth.

Table 2
Demographics of restaurants

	Freq.	Percent
Number of years in operation?		
1-5 years	2	16.67
6-10 years	5	41.67
11-15 years	2	16.67
16-20 years	1	8.33
21 years or more	2	16.67
Total	12	100%
How many guests served on average daily?		
51-100	1	8.33
101-150	1	8.33
151-200	5	41.67
Above 200	5	41.67
Total	12	100%
What is the average check price for dinner?		
Under $25	1	8.33
$26-$49	8	66.67
Above $50	2	16.67
N/A	1	8.33
Total	12	100%
Number of employees?		
Under 15	1	8.33
16-29	5	41.67
30-44	1	8.33
Above 45	5	41.67
Total	12	100%

Table 3 shows that out of the 12 participants interviewed, 8% have been working in the restaurant industry 1-5 years, 41.67% have been working 6-10 years, 8.33% have been working 11-15 years, and 41.67% have been working more than 20 years. In terms of the amount of years participants have been working in management, 50% have been doing it for 1-3 years, 33.34% for 4-6 years, 8.33% for 7-9 years, and 8.33% for longer than 10 years. The majority of the participants (58.33%) were born in Aruba, 16.67% in Mexico, 16.67% in Holland, and 8.33% in Iran. Regarding gender distribution, 75% of participants were male and 25% were female. In terms of age category, 33.33% fit a range of 25-34 years-old, 33.33% are in a range of 35-44, 25% are between 45 and 54 years old, and 8.34% are over 55. Finally, the majority of participants (41.67%) have achieved a four-year degree, 25% have some college, 16.67% graduated from high school, 8.33% have a two-year degree, and 8.33% have a graduate degree, as well.

Table 3
Demographics of participants

	Freq.	Percent
How long have you been working in the restaurant industry?		
1-5 years	1	8.33
6-10 years	5	41.67
11-15 years	1	8.33
16 years or more	5	41.67
Total	12	100%
How long have you been in this position?		
1-3 years	6	50.00
4-6 years	4	33.34
7-9 years	1	8.33
10 years or more	1	8.33
Total	12	100%
What is your country of origin?		
Aruba	7	58.33
Mexico	2	16.67
Holland	2	16.67
Iran	1	8.33
Total	12	100%
Gender		
Male	9	75.00
Female	3	25.00
Total	12	100%

Age			
	25-34	4	33.33
	35-44	4	33.33
	45-54	3	25.00
	Over 55	1	8.34
	Total	12	100%
Education Level			
	High School	2	16.67
	Some College	3	25.00
	2 year degree	1	8.33
	4 year degree	5	41.67
	Graduate degree	1	8.33
	Total	12	100%

Research question 1 results: What technology is currently being used in restaurants in Aruba?

Based on the interviews conducted, it was discovered that the majority of the restaurants use technology in at least one area of the operation. Out of the 12 participating restaurants, 33.3% use a reservation system, another 33.3% use a website to manage their reservation system, and the remaining 33.3% use no system at all. Regarding the use of a POS system, 41.67% use the system "Micros," 25% use "Aloha," 1 restaurant uses a chain-based system, another restaurant uses an unnamed POS system, and the remaining 16.67% use no POS at all, but only a manual order recording and a cash register.

In the back of the house area, it was reported that 11 restaurants, or 92%, use "QuickBooks" for accounting purposes. As for technology used in the kitchen or back-of-the-house areas, only the capabilities that the POS systems provide were utilized. There were no additional technologies used in the back-of-the-house systems. In general, it can be observed that restaurants see the importance of using technology in certain areas of the operation and thus are not reluctant to adopt technology in general. The majority of restaurants use accounting software and a POS system, which are both very important for revenue, sales, and expenses control.

Research question 2 results: What inventory management systems (IMS) are used in restaurants in Aruba?

The findings in Table 4 show that although five (42%) restaurants use some type of IMS, none of them uses a fully automated system in their operations. Two of the restaurants use a system to track liquor inventory, but still use manual count for food items. One of them

uses a Personal Digital Assistant (PDA) to take inventory and interfaces the food sales with the inventory usage and cost, but not with all the items. The reason for this, according to a restaurant H manager: *"In Aruba, for us it is very difficult; we have recipes in Aloha and then we check all the items, but every week we have price changes, so it's a lot of work if you want everything to be 100%, so we do it, but we take key items and then we do inspections to do it, but not with the whole menu."*

Table 4
Types of inventory management systems used

	Frequency	Percent	Valid Percent	Cumulative Percent
Not fully automated	5	41.67	41.67	41.67
To be implemented	1	8.33	8.33	50.00
Spreadsheet	1	8.33	8.33	58.33
POS/No IMS	3	25.00	25.00	83.33
No system	2	16.67	16.67	100.00
Total	12	100	100	

On the other hand, restaurant L uses software for food items and recipe control, but still uses manual tracking for liquor usage. Although the restaurant bought a scanner for improved control of the inventory, the manager said: *"We have had no time to set up all the information needed for it to work properly, so we prefer to do it manually until we find the time to do it."*

One of the restaurants uses a POS system that has a feature called "product management." This function compares inventory usage with sales; however, inventory counts are still done manually. Another participant uses a feature of the POS system for stock control, but will implement a newer system. Nevertheless, they will still do the inventory manually. When asked whether they would move to using an automated system so they can take inventory digitally instead of manually, the answer given was: *"No, not for the time being, I don't think so. The economy, you know..."*

Another restaurant is also in the process of implementing a fully automated system that will handle everything, including reservations, sales, inventory control, etc. Other participants use no POS system, but use Excel spreadsheets for recipe control and thus inventory usage. Of

the remaining restaurants, two use no inventory tracking system at all, and although the other three use POS systems, they do not use the features these systems offer for inventory control. One comment given by the manager of restaurant I in relation to not using the inventory control features of its POS system was: *"Well, we tried to do it with "Aloha", but some way or another it did not really work out and you know, you have to update your system every day and it really did not work out, and we are not that big of a restaurant, so we have to do it manually."*

These results suggest that although restaurant managers/owners find it important to have some type of IMS, they are not aware of the capabilities and benefits of using technology in this area. It can be said that even those restaurants that are using an automated system are not aware of the benefits it can offer, because it is not being used to its full capacity. This result indicates that additional training and services may be needed to maximize the capabilities of technology in which an investment has already been made, and it may be a reason that other restaurants are reluctant to implement such systems.

Using a cross-reference analysis made in SPSS between the types of IMS used and the number of years the restaurants have been in operation, it was observed that the five restaurants that use a "not fully automated IMS" have been in operation one-to-ten years. The restaurant that is in the process of implementing a system has been operating for less than five years and those that use a POS system (without using the inventory management features) have been in operation from 6 to 20 years. It was also observed that the two restaurants that do not use an IMS at all, have been in operation for longer than 20 years, thus giving insight into why they may be reluctant to adopt new technology. Although the owner of one of these restaurants (restaurant G) has been evaluating the possibility of adopting new technology, it was stated that the reason for doing it was the following: *"It's been 30 years we have been using the same technology- which is 3 pieces of paper, one receipt goes to the chef, one receipt goes to accounting, one receipt goes to back of the house, so that is how we have been controlling it for the last 30 years, so getting the new machine is really just an upgrade, because we have had honestly no problems whatsoever with the three sheets, because there is no way you can steal!"*

This finding indicates that newer restaurants or restaurants that have been in operation for less than ten years are more likely to adopt a technology for inventory control than those that have been in operation for more than 20 years.

Research question 3 results: What is the level of satisfaction with the current inventory management system (IMS) used?

When asking participants to rate their level of satisfaction with the current IMS used from "Strongly Agree" to "Strongly Disagree," the majority of restaurants, or 58%, answered that they "Moderately Agree" that they are satisfied, and the remaining restaurants answered "Strongly Agree." A cross reference analysis made in SPSS was used to compare the type of IMS used with the level of satisfaction of using such. Restaurants reported different levels of satisfaction with the current system used, regardless of whether it was automated or not.

Based on these results, it can be stated that, in general, restaurants are satisfied with the type of IMS used, regardless of having an automated system. Taking these results with the results from research question 2, it can be stated that restaurant managers/owners do not actually see the need for using an automated system.

Research question 4 results: What is the managers' perception towards adopting an inventory management technology system in Aruba?

When asking the six participants who do not use an automated IMS why they do not adopt an automated system for inventory control, four of them reported that the main reason is budget. The owner of restaurant K mentioned that besides budget, he also considered "time" to be a constraint; he commented: *"It's probably easier to use technology, but we're a small restaurant. We find it easier just to do it manually. It's probably faster to do it at a computer, but we just haven't had the time to go into it and do it."*

Another comment from a participant: *"For a small company that we are, you know, we never considered it. Nobody ever thought– no. With a small company there are a couple of things you don't have the money to invest in."* One participant stated: *"Maybe we will adopt a system; it depends, not this year, because this year has been very bad for all of us, so most probably not…maybe if things go well."*

The remaining restaurant (Restaurant G) does not consider time or cost to be a reason for not moving to an automated system, the owner just considers that: *"This is the way we have been doing it for the last 10 years and I'm just accustomed to doing it like this!"*

The data revealed the participants' other perceptions regarding the implementation of automated systems. These included (1) fluctuating electrical supply, which can have a negative effect on the system and can generate data loss, (2) maintaining and keeping up hardware, (3) training

employees who have been accustomed to using a manual system for many years, (4) updating prices as well as entering new items purchased on a regular basis (time consuming), and (5) tracking liquor usage with 100% accuracy, because bartenders have different pouring styles.

Using this information, it can be stated that although 83.34% of the restaurants reported budget to be the main reason for not adopting an automated IMS, managers also perceive different challenges attached to the implementation of the system, thus reinforcing their reluctance towards adoption.

How satisfied are users with the automated IMS used?

Five participants who use an automated IMS were asked to rate their system on a scale from 1 to 5, with 1 being very poor and 5 being excellent. All of them rated it as a 4 or "Good.". The majority of participants commented that when you give yourself a five, there is no room for improvement. The manager of restaurant B said, *"I don't give it a 5, because it is not linked to my sales."* The manager of restaurant H also commented: "I think it is easier to use, the only problem is if you want to do this good, then you need a cost controller, like the hotels have that function and only that person is putting every invoice, every item in the system, and making sure the process is up to date and that your system is 100%. But the system works easier, you have a small PDA, you make your inventory and it goes in your system and then more or less you know if everything is good."

In addition to this, the participants that use an automated system were asked whether they consider the support provided by these companies to be good. The five restaurants answered that they don't really need that much support since they have learned how to use the system throughout their years of experience, but still they consider that the support offered on the island is not good. Manager of restaurant H commented: *"I think the company is not doing well enough, they can do better. I think they should make a troubleshooting guide, that's an issue they have and I've told them many times, but they don't do it and that would make their lives so much easier and for us too."*

Restaurants are satisfied with the automated inventory system used and therefore do not find it necessary to use the system to its full capacity. Operators even consider they do not need the companies' support and that they are able to operate the system efficiently. These results suggest that the companies that sell the automated IMS systems need to provide more support to their customers and train them in all the benefits. Even

though they may indicate that they do not find is necessary to utilize the systems full capabilities, the restaurant operators may find many of the features time saving and thus may lead to better service times, quality, and overall efficiency.

Participants were asked to rank the importance of an inventory control for restaurants on a Likert scale, from 1 = "Strongly Agree" to 5 = "Strongly Disagree." One hundred percent of the participants answered "Strongly Agree." The majority of the restaurants related the importance of inventory with money and revenue. Using as a reference the findings discussed in the research questions, it can be stated that although all restaurants consider inventory control to be highly important for their profitability and revenue, they do not consider the link that adopting an automated IMS would enhance inventory control greatly and therefore boost profitability and results.

Using the same scale as the previous question, participants were asked whether they considered the use of an automated inventory system to be important for the restaurant. The results indicate that 50% of the restaurants answered "Strongly Agree," 33% answered "Neither Agree or Disagree," and the remaining 17% answered "Strongly Disagree." A statement of each answer will be provided in order to get an insight into the managers'/owners' perception of this topic: (1) *"Strongly agree because you can get whatever reports you want or create whatever you want. It gets down to every detail, everything. It's better! With a manual system, it's tough!"*

(2) *"I consider that neither agree nor disagree, because inventory is still something that you can do the old fashioned way. It's very simple if I go now in the bar and I count the bottles of beer and I do a small inventory and then if tomorrow I check it again, it should match my sales. It actually makes your life easier but it's not necessary."* (3) *"I strongly disagree because as long as somebody keeps track of…. everything matches up with the cashier, accountant takes everything; they do everything. If there is one thing wrong, we know about it and we will catch it right there."*

These findings suggest that although restaurants are not using automated IMS, some of them are starting to realize the importance of adopting such a system. A few still see no difference between using automated versus non-automated.
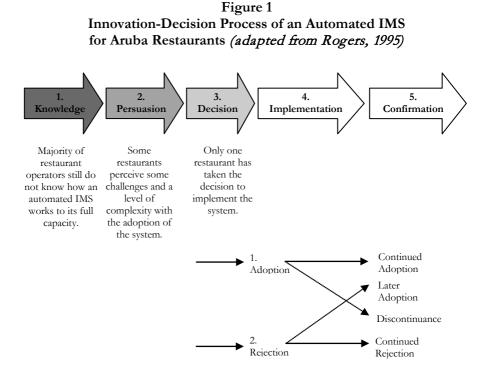
When asking participants the frequency with which they take inventory, one reported that they do it daily, six restaurants do it monthly, four of the restaurants do it daily and monthly, and the remaining restaurant does it daily, weekly, and monthly.

Participants were asked to provide the food-and-beverage cost percentage they aim to achieve per month. Although no range was given, there were some frequencies in the food-cost percentage. Three restaurants reported 27% food cost, four reported 30%, two aimed for 32%, and the remaining three did not want to provide this information. In terms of the beverage cost percentage, a wide variety of percentages was provided, ranging from 15% to 32%.

Using this semi-structured question, participants were able to identify different procedures they use for inventory control from theft, waste, and spillage. Several options were identified, but among the most common and popular were using security cameras, monitoring reports of waste and spoiled items, performing spot checks, taking inventory daily, monitoring through the POS system, monitoring food-and-beverage cost percentages, and controlling through constant supervision from owners/managers.

Application of Theoretical Framework

The final objective of this study was to present the results in the Technology Adoption Model (TAM) (adapted by Wang and Qualls, 2007) and identify the stage of adoption and the implications in the technology adoption process. Based on the findings and discussion of this study and using an integrated theoretical framework, the current position, perception and organizational behavior of restaurants in Aruba towards technology adoption will be indicated. Using the Model of Five Stages in the Innovation-Decision Process, by Rogers (1995), the following model (Figure 1) shows the stage in which Aruba's restaurants are located based on their adoption of technology for an IMS. The results suggest that restaurants in Aruba have not arrived beyond the "Decision" stage. Although some restaurants use some type of automated IMS, the capabilities of the system are not being fully utilized. This can be attributed to the fact that employees lack knowledge of how to use the full system effectively. The results indicate that restaurants should currently be categorized in the knowledge stage; nevertheless, since some of the restaurants have gone through stages 1 and 2 and only one has arrived at stage 3, a brief explanation of the first three stages will be provided.

Figure 1 Postulates where Aruba's restaurants are in the Innovation-Decision Process of an automated IMS (adapted from Rogers, 1995). There are five stages in the overall process. The first stage is identified as *knowledge*. The majority of the restaurants are still in the process of determining what systems are available and how they work.

The reason for restaurants being in this category can be attributed to a lack of support by the companies that offer such systems in Aruba. Some restaurants are not interested and therefore have not entered the process yet. The second stage is identified as *persuasion*. Few restaurants have arrived at this stage; those that had identified some challenges and difficulties in the ease of use, time, training of employees, etc. This can be attributed to the fact that the knowledge acquired was not complete and therefore hindered them from seeing the actual benefits the system provided and how profitable it could be.   The third stage is the *decision* stage. Based on the data, only one restaurant had arrived at this stage. After obtaining accurate knowledge and shaping a positive attitude towards the innovation, it decided to adopt the technology and use all the features of the system to maximize capacity. As of the date these interviews were conducted, the restaurants had not arrived at the fourth stage, known as the *implementation* stage. The final stage is called the *confirmation* stage.

Figure 1
Innovation-Decision Process of an Automated IMS
for Aruba Restaurants *(adapted from Rogers, 1995)*

Using the Technology Adoption Model (TAM) by Wang and Qualls (2007), Figure 2 indicates where Aruba's restaurants currently are in the technology adoption process. The model shows how the organizations' technology climate and technology characteristics, as perceived by managers/operators, affect the adoption of an automated IMS.

Figure 2
Aruba Current Technology Adoption Model
(adapted from Wang & Qualls, 2007)

The first part of the model addressed is labeled the "Organization Technology Climate." It includes three components: level of technocratization, management support, and technology budget. For the "level of technocratization," it can be said that Aruba's expertise in technology is moderate, as there are some restaurants that use reservation and POS systems as well as software for accounting purposes. For "management support" it was observed that management attitudes towards technology adoption were not negative. Half of the respondents stated that they consider the use of an automated system for inventory control to be strongly important. "Technology budget," the third component, was an issue that was highlighted during the research. The majority of the restaurants stated that due to the economic recession they don't have the budget to invest in an automated system and they would probably implement a system when the economic situation turns around.

The "*Technology Characteristics,*" another part of the TAM model has two components: (1) change impact and (2) application orientation. The "change impact" is considered the type of innovation proposed, which is an automated IMS. It can be said that it falls into the category of incremental innovation. The reason for this is that implementing this system requires minor changes and challenges to the existing structure of business operations. When applying the case of Aruba restaurants to the adoption model, the "application orientation," it can be said that the IMS is a process-oriented innovation, due to the goal of introducing a new way of controlling inventory. This can represent a challenge to the technology adoption, as it was previously stated that these types of innovations are less preferred by organizations than product-oriented ones. This may be the reason why manager/owners do not consider it as important to invest in the technology during difficult economic situations.

LIMITATIONS AND FUTURE RESEARCH

This was an initial exploratory study to identify the adoption of technology for food-and- beverage inventory control in restaurants in Aruba. For this reason, the results of this study are limited in scope because the sample size was small. Despite the small number of restaurants, the sample selected was thought to be good representation of the industry at large on the island and provided a good basis for examination. Another limitation was that the restaurants selected were members of the Aruba Gastronomica Association, and therefore have been in operation for more than a year. The limitation in this is that the findings suggested that newer restaurants are more likely to adopt the

technology and hence the research may not have shown whether newer restaurants are currently using the technology on the island.

Although there were some limitations in the study, the results offered evidence that have provided a better understanding of restaurant owners'/managers' perceptions of adopting an automated IMS in Aruba. Future research should then consider investigating the relationship between years of operation and technology adoption, as well as use a larger sample size in order to be able to generalize the findings. The results of this study can be used in subsequent research to determine whether there is a predominant trend towards a lack of adoption of technology for inventory control in restaurants in Aruba, in other island economies, or throughout other locations around the world.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the results of this research point out that although restaurants in Aruba have not been reluctant to adopt technology in some areas, such as accounting and front of the house (POS), they are not technologically oriented towards incorporating an automated inventory management system (IMS). Even though all restaurants recognize the importance of inventory control, they are not maximizing its effectiveness by using an automated system; in fact, it was observed that the majority of the restaurants are still using manual practices for inventory management. Even the restaurants that are using some type of automated IMS are not taking advantage of all of the benefits this offers, as they are not using the system to its full capacity.

Although it was reported that half the respondents consider it important to have an automated system for inventory control, different factors and perceptions are dissuading restaurant owners/managers from adopting the system:

- *Familiarity with approach:* the results of the research indicated that some reluctance towards adoption can be attributed to the number of years the restaurant has been in operation, especially the restaurants that have been operating for longer than 20 years. The older the restaurant, the more difficult it is for them to adopt the changes, as they are accustomed to the system they have used for so many years. On the other hand, the newer the restaurant, the more likely it will adopt the technology.

- *Budget:* considering the current economic situation, managers/owners consider that investing in the technology is costly and not necessary.

- *Time:* there is a perception that implementing an inventory management system is time consuming.

- *Lack of support:* there is a lack of support from the systems' distributors; therefore, managers/owners are not informed on all the features the systems offer.

- *Technology characteristics:* some characteristics the system requires are perceived by managers/owners as challenging. Some of these include maintaining the system, training of staff, transforming the process, and others.

Based on the findings of this research, one of the most important recommendations the researcher would make for the restaurant industry of Aruba is "Training." Associations such as the Aruba Gastronomic Association, and the Aruba Hotel and Tourism Association should make a commitment to provide restaurants with the information necessary for them to be able to implement an automated IMS effectively. To do this, several topics need to be discussed in order for the managers/owners to assess the importance of adopting such systems. These topics would include the following:

- *Impacts of Information Technology:* considering the current impact technology is having in all aspects of business, it is very important for restaurant managers/owners to see the importance of investing in technology for the management of their restaurants; this is essential, especially for operators who have been working in the industry for many years, as they are more reluctant to transform and change. Technological innovations can help a restaurant operation minimize costs, boost profitability, and much more.

- *Importance of inventory control:* managers/owners need to be aware of the potential losses an ineffective inventory control can produce. Employee theft, waste, spillage, and ineffective inventory tracking are a few of the things that can affect a restaurant's profitability, potentially even causing bankruptcy.

- *Benefits of using an automated IMS:* it is important for managers/owners to know and understand that controlling inventory with an automated IMS is ultimately less time- and labor-consuming than using a manual procedure, and it is more accurate, thus offering more control and increasing the restaurant's profitability.

- *Types of automated IMS available:* in order for restaurants to be able to adopt an automated IMS managers/owners need to know what systems are available in order for them to analyze which system can better suit their specific needs.

- *Long-term orientation:* it is important for restaurant owners/managers to evaluate the impact of technology with a long-term orientation. A long term orientation would help them understand that such investment is worth it, because it would bring many benefits for the company in the long term. Nevertheless, many users of automated IMS have reported quicker return on investments than was initially anticipated.

Besides this, the companies that are offering the automated IMS on the island should also improve the support given to its customers by constantly updating them on new technologies and applications available and by providing trainings in how to manage the system applications to their full capacity.

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A Study of Satisfaction Level of Hong Kong Tourists with Hot Springs Hotels and Resorts in Guangdong, China

By Rob Law and Rudy Yip

The research reported here aimed at examining Hong Kong tourists' level of satisfaction with hot springs hotels and resorts in Guangdong, China. Primary data were collected and service quality and tourist satisfaction levels were measured using the SERVQUAL model. The empirical findings indicate that most tourists are satisfied with the service quality of these hotels and resorts. Among the different dimensions of service quality, empathy receives the highest score. Overall satisfaction receives a score only slightly better than average. The results also reveal significant relationships among customer satisfaction level, loyalty, and recommendation.

INTRODUCTION

Increasing public concern about health due to the high cost of health care and the growing aging population, among other reasons, has spurred phenomenal growth in medical tourism in the twenty-first century (Cai, 2007). Hot springs destinations are especially popular as they combine both medicinal and touristic activities.

Hot springs are precious and abundant resources found around the world, including Iceland, Japan, New Zealand, and Taiwan. A hot spring is a spring that is produced by the emergence of geothermally heated groundwater from the earth's crust, with a temperature greater than 20°C and higher than the annual average temperature of the area in which it is located (Cai, 2007). Hot springs contain many kinds of minerals, each of which has a different medicinal value. For example, a spring that contains carbonic acid is good for those with heart disease and high blood pressure (Huang, 2008).

People have used hot springs as medical treatment for thousands of years. During the Roman Empire, people started to visit hot springs in the hope of being cured of their diseases (Peng & Wang, 2004; Zhang, 2005). The development of hot springs tourism has since gone through various stages. Initially, tourists traveled to hot springs destinations solely for medical treatment. Later, hot springs tourism began to diversify, as people sought not only medical treatment but also entertainment. Today,

hot springs hotels and resorts have modern facilities that include meeting rooms and golf courses.

History of Hot Springs Tourism in Guangdong, China

Geographically located next to Hong Kong, Guangdong is a province in China that possesses numerous hot springs. The past two decades have seen the rapid development of the hot springs industry in the province, with the opening of more 130 hot springs locations ("Guangdong is the Most," 2008). These locations feature hot springs hotels and resorts with complete, up-to-date, diversified facilities. Some facilities reach, if not exceed, international standards. Guangdong has pursued an open-door policy in developing its hot springs tourism, which has attracted millions of visitors, with Hong Kong as one of the major markets. For instance, among all 2006 tourists visiting Jiangmen City, a famous hot springs location in the province, 40% were from Hong Kong, and hundreds of hot springs tours depart to Guangdong from Hong Kong each month ("Hot Springs in Guangdong," 2007).

The level of service quality of the hot springs hotels and resorts in Guangdong is, unfortunately, still below the international standard. These facilities have been criticized for their poor hardware (facilities) and comparatively worse software (service) ("Several Problems," 2006; Tisdell & Wen, 1991; Yang, 2007). It is well known that service is one of the most important elements for success in the hospitality industry (Huang, Hsu, & Chan, 2010). A high level of service quality leads to customer satisfaction, which, in turn, has a positive impact on customer loyalty and company profitability (Anderson & Sullivan, 1993; Cronin & Taylor, 1992; Cronin & Morris, 1989; Daugherty, Stank, & Ellinger, 1998; Fornell, 1992; Innis & La Londe, 1994; Reichheld & Sasser, 1990; Oliva, Oliver, & MacMillan, 1992; Youngdahl & Kellogg, 1997). Hence, examining the relationship between customer satisfaction and service quality levels, and the level of success of hospitality businesses is useful.

Research Motivation

As stated, despite the rapid development of hot springs tourism in Guangdong, the service quality of its hot springs hotels and resorts still falls below the international standard. Service is an important element

that determines the success or failure of service providers. In view of the fierce competition in the hospitality industry, it is therefore important for businesses to provide a high level of service quality to meet the needs of tourists. Prior studies have demonstrated that service quality is an antecedent of customer satisfaction, which, in turn, leads to customer loyalty and repeat business (Anderson, Fornell, & Lehman, 1994; Anderson & Sullivan, 1993; Fornell, 1992; Reichheld & Sasser, 1990). Hence, the provision of quality service enables suppliers to remain competitive (Anderson et al., 1994; Cronin & Morris, 1989; Cronin & Taylor, 1992; Daugherty et al., 1998; Innis & La Londe, 1994; Oliva et al., 1992; Youngdahl & Kellogg, 1997; Zeithaml, Berry, & Parasuraman, 1996). The success of hot springs hotels and resorts largely depends on their facility standards and ability to provide quality service. In spite of the importance of quality service provision and the growing importance of the tourism industry in China, few, if any, studies in the existing hospitality literature have empirically examined the issue in the country. Hence, hospitality practitioners in China's hot springs industry have insufficient knowledge of consumer perceptions of their service. This, in turn, has led to difficulty in formulating appropriate policies to provide their customers with better quality service. Wang (2007) and Lu and Ling (2008) argued that service quality in air transport is directly related to competitiveness. Lin and Johnson (2004) and Wang, Lo, and Yang (2004) stated that service quality is a crucial factor that determines the profitability, market share, and business' ability to survive in China. In addition, Wang, Wang, and Zhao (2007) advocated the importance of having customers evaluate service quality. Therefore, the industry needs an empirical study of the customer's perspective of service quality in Chinese hot springs hotels.

Hong Kong, a cosmopolitan city that highly values service quality, is a major market of hot springs hotels and resorts in Guangdong. Tourists from Hong Kong are thus an appropriate sample for examining the service quality of these hotels and resorts. In view of the importance of the issue and paucity of published articles on the topic, this research uses the SERVQUAL model to investigate Hong Kong tourists' level of satisfaction with hot springs hotels and resorts and provide recommendations to service providers. Specifically, the primary objectives

of this research are (a) to investigate the service quality of hot springs hotels and resorts in Guangdong as perceived by Hong Kong tourists, and (b) to examine the relationships among customer satisfaction level, loyalty, and recommendation. The findings of this study will be useful to industry practitioners in China and international hotel managers by providing a better understanding of customers' expectations and perceptions of service quality at hot springs hotels and resorts.

LITERATURE REVIEW

Service

Service is different from physical products, which are manufactured by factories. Physical products (or goods) are easy to control, and their quality can be measured by machines based on certain guidelines. Service, however, is hard to control and measure as it is intangible, inseparable, heterogeneous, and perishable (Rathmell, 1966; Regan, 1963; Shostack, 1977; Zeithaml, Berry, & Parasuraman, 1996).

Service characteristics include the following:

a. **Intangibility:** In contrast to manufactured goods, service cannot be seen, touched, or reproduced prior to its consumption/purchase.

b. **Inseparability:** The production and consumption of service cannot be separated: service is produced at the time that a customer makes a purchase.

c. **Heterogeneity:** Service varies from person to person and from time to time.

d. **Perishability:** Service can neither be inventoried nor carried forward to a future time.

Among these characteristics, heterogeneity is the most closely related to people and thus is the most difficult to manage, as human behavior is virtually impossible to control. Hence, if service providers can find a way of dealing effectively with heterogeneity, then they may be able to provide a consistent level of quality service, which will lead to business success.

Relationships among Service Quality, Customer Satisfaction Level, and Customer Loyalty

A service quality gap generally arises from a discrepancy between a customer's expectation and perception of service quality (Lewis & Boom, 1983; Parasuraman, Zeithaml, & Berry, 1985). Anderson and Sullivan (1993) stated that customer satisfaction is the customer's overall judgment of the degree to which product or service performance matches expectations.

Customer loyalty is a long-term commitment to repurchase, which involves both a favorable cognitive attitude towards the selling firm and repeat patronage (Dick & Basu, 1994). Service quality, consumer satisfaction, customer loyalty or retention, and firm profitability and market share are closely related. The ultimate goals of a business are to make a profit and gain a significant market share. Service quality is thus the key to achieve these goals. As noted, service quality is an antecedent of customer satisfaction, which has a positive and considerable impact on repurchase intention; hence, improved service quality may increase purchase intention (Anderson et al., 1994; Cronin & Taylor, 1992; Daugherty, Stank, & Ellinger, 1998; Innis & La Londe, 1994; Youngdahl & Kellogg, 1997; Zeithaml et al., 1996). Repurchase intention generally increases when the level of satisfaction increases past a critical point (Oliva et al., 1992). In addition, customer loyalty has a positive impact on the profit and market share of a firm (Anderson et al., 1994).

As service quality is a key factor leading to the achievement of the ultimate goals of firms, examining service quality is useful for members of the service industry. In the past few decades, scholars have developed different models to examine service quality, including the well-known SERVQUAL model.

SERVQUAL Model

The SERVQUAL model was originally developed by Parasuraman, Berry and Zeithaml (1991) as well as Parasuraman, Zeithaml, and Berry (1985, 1988). Sometimes referred to as the gap model, it attempts to measure five potential gaps in the service delivery process: understanding, service standards, service performance,

communication, and service quality. The model posits that these five aspects are interdependent and interconnected, such that the extent of the discrepancy between expected and experienced (or perceived) service is influenced by the other four aspects.

The discrepancy between expected and experienced service quality (SQ) determines the satisfaction level of consumers. When perceived service (PS) is worse than expected service (ES), a consumer is not satisfied with the service provided. When ES equals PS, a consumer is satisfied with service. Lastly, when PS exceeds ES, a customer tends to rate service quality as excellent. In this research, the satisfaction level of Hong Kong tourists was determined by comparing their expectations and perceptions of service quality.

Parasuraman et al. (1985) argued that there are ten dimensions of service quality, including reliability, responsiveness, competence, access, courtesy, communication, credibility, security, understanding/knowing customers, and tangibles. These ten were later reduced to five in a framework that is generally known as the SERVQUAL model (Parasuraman et al., 1988; van Iwaarden, van Der Wiele, Ball, & Millen, 2003). The five dimensions are as follows.

a. **Tangibility.** The physical facilities, equipment, and appearance of personnel.

b. **Reliability.** Ability to dependently and accurately perform the promised service.

c. **Responsiveness.** Willingness to assist customers and provide prompt service.

d. **Assurance (including competence, courtesy, credibility, security).** Knowledge and courtesy of employees and their ability to inspire trust and confidence among guests.

e. **Empathy (including access, communication, understanding customers).** Caring, individualized attention that a firm provides its customers.

These five dimensions include 22 attributes that are used to analyze service quality (Parasuraman et al., 1988). These attributes were

used to analyze the service quality of the hot springs hotels and resorts in this study. The SERVQUAL model is useful to evaluate customer satisfaction and service quality levels. Su, Ho, and Hsu (2007) observed that the perception of service quality is based on the feelings of customers, and for this reason should be examined from the perspective of customers. The SERQUAL model can be used to explore customer satisfaction from the point of view of customers (Zhao, Bai, & Hui, 2002). Satisfaction is also related to the feelings of customers. Using two psychological elements (customer expectations and perceptions) to understand the feelings and behavior of customers is more accurate than other means. Hence, the SERVQUAL model is able to offer a more comprehensive analysis of customer behavior as it deals with customer expectations and perceptions of services. Prior to consumption, customers have a number of expectations about a service, which are influenced by word-of-mouth communication, personal needs, and past experience (Parasuraman et al., 1985). After receiving the service, customers compare their expectations and perceptions of service quality, which determines their satisfaction level. The five dimensions of service quality are comprehensive. For instance, tangibles such as up-to-date facilities and equipment and the appearance of facilities and staff can affect customers' perception of hotel service quality. The SERVQUAL model has been widely applied in service-oriented studies to measure service quality dimensions in the service industry. Tsang and Qu (2000) and Wang and Pearson (2002) applied the SERVQUAL model to assess service quality in China's hotel industry, while Su and Liu (2006) applied it to measure service quality and customer satisfaction in hair salons in Taiwan.

Prior Work on Hot Springs

Despite constituting a small share of the hospitality industry, hot springs hotels and resorts have attracted some research attention. Many of the published articles on hot springs hotels focus on Taiwan, among which a number have applied the SERVQUAL model to examine service quality (Chen, 2007; Hsiao & Chang, 2003). Deng (2007) and Hsieh, Lin, and Lin (2008) found that hot springs hotels and resorts performed well with regard to tangible elements. Hsieh et al. (2008) found that visitors to

hot springs hotels in Taiwan perceived that sanitary conditions, safe and private facilities, and space are particularly important. Lee and King (2006, 2008) investigated different factors that affect competition in the hot springs industry in Taiwan, and identified resources and attractions, destination strategies, and environment as the primary determining factors. Lee and Chen (2006) advocated that the hot springs industry in Taiwan be segmented according to visitor demographics. McMorran (2008) examined hot springs resorts in Japan, and found that business leaders used heritage for purely economic rather than ideological reasons.

Yang (2007) stated that studies of hot springs carried out in China are different from those conducted in other countries, as the latter have a longer history. In addition, most studies of China's hot springs hotels and resorts have concentrated on the development of the industry (Bi, 2003; Peng & Wang, 2004; Zhang, 2005). As service quality is one of most important elements affecting the success of the hot springs industry, the topic deserves further research effort. Hence, this study examines the service quality of hot springs hotels and resorts rather than the exploitation of hot springs.

Since China adopted an open-door policy to international tourists in the late 1970s, its tourism and hospitality industries have rapidly developed. The United Nations World Tourism Organization predicts that China will be the world's largest tourist destination by 2020, and possibly by 2015 (Graff, 2009). The central Chinese government has made major changes to promote the development of its tourism industry (Law & Cheung, 2008), including price reformation and the opening up of inbound and outbound tourism. Millions of tourists are attracted to the country, but the service quality of hospitality providers is criticized as being far below the international standard, especially among hotels (Choy, Guan, & Zhang, 1986; Schrock, Adams, & Lung, 1989; Boyd, 1993; Cai & Woods, 1993; Tsang & Qu, 2000; Yu, 1995). Tisdell and Wen (1991) commented that the level of the service quality of China's hotels lagged behind that of competitors in nearby regions, including Singapore and Hong Kong. Examples of poor service quality in China include poor language and communication skills, poor sanitation, and attitude problems among personnel. These problems are applicable to hot springs

hotels and resorts in Guangdong ("Seven Problems," 2006; Tisdell & Wen, 1991; Yang, 2007). In view of the importance of service quality and the rapid development of the hot springs industry, this study applied the SERVQUAL model to examine service quality among hot springs hotels and resorts in Guangdong.

METHODOLOGY

A structured questionnaire was prepared to understand and evaluate Hong Kong tourists' perceptions of the service quality of hot springs hotels and resorts in Guangdong. The questionnaire was developed based on the service quality attributes proposed by Zeithaml et al. (1996) and instruments used in previous studies of hot springs hotels and resorts (Chen, 2007; Hsiao & Chang, 2003; Hsieh, Lin, & Lin, 2008). The original questionnaire was developed in English, and then translated into Chinese using the back-translation process to ensure accurate translation.

The closed-ended questionnaire was divided into three sections. At the beginning, a qualifying question was included to ensure that the respondent had previously visited a hot springs hotel or resort in Guangdong. The first section aimed at evaluating the travel behaviors of tourists. These questions were related to visiting frequency, travel purpose, and trip expenditure. The second section asked about respondents' expectations and perceived experience regarding different dimensions of service delivery, namely, tangibility, reliability, responsiveness, assurance, and empathy (van Iwaarden, van Der Wiele, Ball, & Millen, 2003). Respondents rated items on a 5-point Likert scale (1 = very dissatisfied, 2 = dissatisfied, 3 = neither dissatisfied nor satisfied, 4 = satisfied, 5 = very satisfied). The third section of the questionnaire collected respondents' demographic information. The questionnaire ended with a question about the respondent's overall perception of hot springs hotels and resorts in Guangdong (either satisfactory or unsatisfactory). Satisfied respondents were requested to indicate the extent of their willingness to revisit and recommend the hotel(s)/resort(s) to others.

The questionnaire was pilot tested using eight local Hong Kong residents who had visited a hot springs hotel or resort in Guangdong.

Other than a couple of minor suggestions about the wording of items, no major problem was found.

A nonrandom sampling technique was employed for large-scale data collection. The survey was conducted at the end of 2008 in one of the busiest areas in Hong Kong, which has many travel agencies. In total, 150 questionnaires were received, 20 of which were discarded because of incomplete responses, resulting in 130 usable questionnaires for further analysis.

EMPIRICAL FINDINGS

Cronbach's alpha was used to determine the reliability of the questionnaire. The values of all Cronbach's alphas were above 0.70, indicating adequate reliability (Table 1).

Table 1
Reliability analysis of the five dimensions of SERVQUAL

Dimensions	Questions	Cronbach's Alpha
Tangibility	Q.1 – Q.4	0.889
Reliability	Q.5 – Q.9	0.836
Responsiveness	Q.10 – Q.13	0.866
Assurance	Q.14 – Q.17	0.853
Empathy	Q.18 – Q.22	0.824

Table 2 shows that among respondents, the majority (69.2%) was female; approximately 44% were in the 20-29 age group; 38.5% were degree holders; and one third had completed secondary school. Slightly more than half were clerks or service or sale executives, and about half had a monthly income of HK$8,000 to HK$14,999 (HK$7.8 = US$1).

Table 2
Demographic profile of respondents (N = 130)

General information	Frequency	Percentage (%)
Gender		
Male	40	30.8
Female	90	69.2
Age Group		
15-19	9	6.9
20-29	57	43.8
30-39	28	21.5
40-49	19	14.6
50 or above	14	13.1
Education		
Post-secondary: Degree holder	50	38.5
Post-secondary: Non-degree holder	26	20.0
Secondary	43	33.1
Primary or below	11	8.5
Occupation		
Managers & Administrators	8	6.2
Associate Professionals and Professionals	12	9.2
Clerks	38	29.2
Service & Sales Executives	30	23.1
Non-technical Workers	12	9.2
Students	21	16.2
Other	9	6.9
Monthly Income (HK$)		
$20,000 or above	12	9.2
$15,000-$19,999	10	7.7
$10,000-$14,999	33	25.4
$8,000-$9,999	31	23.8
$7,999 or below	11	8.5
Refused to answer	33	25.4

Travel Behaviors of Respondents

Most respondents (77.7%) had previously visited hot springs hotels or resorts one to three times (Table 3), and less than 2% of them had visited at least 10 times. The majority (64.6%) had visited for leisure, and one third had visited for sightseeing. Most (43.8%) had spent HK$501 to HK$1,000 on each trip. Lastly, 48.5% of them had visited hot spring hotels and resorts with friends and 40% with family members/relatives.

Table 3
Travel behaviors of respondents related to
hot springs hotels and resorts (N = 130)

Items	Frequency	Percentage (%)
Number of visits		
1-3 times	101	77.7
4-6 times	21	16.2
7-9 times	6	4.6
10 times or more	2	1.5
Purpose		
Leisure	84	64.6
Medical consultation	3	2.3
Sightseeing	42	32.3
Other	1	0.8
Expenditure per trip (HK$)		
$100-$500	24	18.5
$501-$1,000	57	43.8
$1,001-$1,500	29	22.3
$1,501-$2,000	14	10.8
$2001 or above	6	4.6
Companions		
Family members/relatives	52	40.0
Friends	63	48.5
Colleagues	12	9.2
Other	3	2.3

Expectations and Perceptions of Service Quality

The mean of overall expectations was 3.174 (Table 4), which indicated that the tourists had only average expectations of the service quality of hot springs hotels and resorts in Guangdong. Among the 22 attributes, safe transactions had the highest mean value (3.73). Respondents also had high expectations about equipment and the appearance of hotel facilities and employees. The attribute that had the lowest mean value was employee awareness of customer needs. In other words, tourists did not expect employees to know what they needed and wanted. Among the five dimensions, tangibility had the highest mean value. Apparently, tourists expected the hotels and resorts to be aesthetically pleasing and have up-to-date facilities. The variance among different dimensions was, however, small.

Dimensions/Attributes	Expectation (A)		Perception (B)		Mean Difference (B)-(A)	t value
	Mean	S.D.	Mean	S.D.		
Overall	3.174	0.602	3.316	0.456	0.142	3.259*
Tangibility	3.346	0.736	3.492	0.632	0.146	2.585*
Up-to-date equipment	3.460	0.837	3.380	0.808	-0.080	0.000
Appealing facilities	3.380	0.900	3.430	0.860	0.020	0.646
Neat and well-dressed employees	3.280	0.856	3.650	0.843	0.100	4.347*
Facilities in keeping with service	3.260	0.803	3.430	0.704	0.190	2.233*
Reliability	3.175	0.631	3.275	0.499	0.100	1.896
Service in line with that promised	3.120	0.854	3.170	0.779	0.200	0.576
Sympathetic and reassuring employees	3.210	0.823	3.470	0.749	0.180	3.548*
Dependable service in hotels and resorts	3.080	0.764	3.320	0.739	0.180	3.124*
Accurate information provided	3.250	0.836	3.210	0.690	0.200	0.584
Accurate records kept	3.220	0.780	3.210	0.775	0.200	0.188
Responsiveness	3.146	0.703	3.301	0.601	0.156	2.866*
Services were delivered to customers	3.210	0.775	3.380	0.918	0.170	2.237*
Prompt service	3.120	0.784	3.240	0.724	0.110	1.455
Willing to help customers	3.220	0.828	3.480	0.809	0.070	3.402*
Promptly handled complaints	3.040	0.935	3.100	0.766	0.110	0.769
Assurance	3.117	0.729	3.227	0.562	0.110	1.854
Trustworthy employees	3.000	0.880	3.070	0.759	0.100	0.846
Safe transactions	3.730	0.893	3.020	0.652	0.090	0.831
Polite employees	3.210	0.814	3.420	0714	0.090	3.044*
Professional employees	3.130	0.910	3.220	0.853	0.090	1.085
Empathy	3.103	0.603	3.299	0.528	0.195	3.657*
Provide custom-made services	3.100	0.843	3.420	0.861	0.090	3.845*
Give customers personal attention	3.050	0.829	3.280	0.729	0.070	3.404*
Understand the needs of customers	2.990	0.792	3.190	0.672	0.060	2.748*
Keep the interests of customers at heart	3.120	0.700	3.120	0.618	0.070	0.000
Convenient operating hours	3.250	0.761	3.480	0.856	0.030	2.826*

Scale: 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neither Dissatisfied nor Satisfied, 4 =Satisfied, 5 = Very Satisfied.
*Significant at the 0.05 level.

The mean of overall perception was 3.316, which indicated that the respondents perceived that the service quality of these hotels and resorts was acceptable. Among various attributes, employee appearance received the highest score. In contrast, safe transactions received the lowest score. Similar to the corresponding values for expectations, the differences in perception among attributes was small. Among the different dimensions, tangibility received the highest average score, which indicated that tourists perceived the tangible elements of hotels to be the best among the different dimensions, although the variance among different dimensions was small.

Satisfaction Level of Tourists

The level of satisfaction with the service quality of hot springs hotels and resorts was determined by assessing the discrepancy between Hong Kong tourists' expectations and perceptions of the service experience. Table 5 shows that most respondents were satisfied with the service that they received, and that their perceptions of service quality matched or exceeded their expectations.

The paired sample *t*-test was used to determine the significance of the variation between expectations and perceptions of the service experience. Significant values imply that the expected service is significantly different from that experienced. As revealed in Table 4, the discrepancy between expectations and perceptions was 0.142, which indicated that the overall service quality of hot springs hotels and resorts exceeded the expectations of respondents. In addition, the *t* value shows a significant difference between the expected and perceived values. Up-to-date equipment was the only attribute that had a negative mean difference, which indicates that the expectations of tourists regarding this attribute were not met.

Looking at the dimensions, the perceived values were greater than the expected ones, and the greatest difference between them was that for

empathy. The differences for three dimensions were significant, whereas those for reliability and assurance were insignificant.

Table 5
Overall satisfaction level of tourists

Items	Frequency	Percentage (%)	Chi-square
Satisfied tourists	84	64.6	
Customers who will revisit	76	90.5	7.704*
Customers who will recommend the hotel(s)/resort(s) to others	67	79.8	12.359*
Dissatisfied tourists	46	35.4	
Total	130	100.0	

*Significant at the 0.05 level.

Relationships among Customer Satisfaction Level, Loyalty, and Recommendation

Cross tabulation was used to analyze the relationship between customer satisfaction level and loyalty. The results showed that the relationship was significant, as indicated by a Pearson chi-square value of 7.704 (significant at the 0.05 level) (Table 5). This means that satisfied customers would revisit the hotels and resorts. In fact, more than 90% of satisfied respondents had revisited the hot springs hotels and resorts.

The relationship between satisfaction level and recommendation to others was also significant, as indicated by a Pearson chi-square value of 12.359 (significant at the 0.05 level). This means that the satisfied customers would recommend visiting hot springs hotels and resorts to others. Approximately 80% of the satisfied tourists indicated that they would recommend these hotels and resorts to their friends and relatives. In a prior study of service quality in restaurant operations in China, Chow, Lau, Lo, Sha, and Yun (2007) found a significant relationship between service quality and customer satisfaction, and service quality and repeat patronage.

DISCUSSION

In this study, the majority of respondents were employed women who were highly educated and had fairly high levels of income and purchasing power. It is likely that these women were willing to spend

more on entertainment, travel, beauty, and health-related services than their less-educated counterparts with lower levels of income and purchasing power. Another interesting finding of this study is the small expenditure, with most tourists spending no more than HK$1,500 per trip. This could be attributed to the low transportation and other costs of hot springs hotels and resorts. As the development of hot springs tourism in Guangdong is fairly recent, the number of visits of Hong Kong residents was still low. Most were accompanied on the trip by family members or friends, indicating that the comfortable environment of hot springs hotels and resorts makes them suitable places for gathering with others.

The empirical results showed that the service quality of hot springs hotels and resorts in Guangdong was acceptable. Tourists were fairly satisfied with the level of service quality, with perceived service quality exceeding expected service quality. However, the differences between expectations and perceptions were not remarkable. This finding is similar to the results of prior studies of hot springs hotels conducted in Taiwan, which revealed that although customers are satisfied with service, the satisfaction level was merely fair and not excellent (Deng, 2007; Hsieh, Lin, & Lin, 2008). This strongly indicates room for further improvement. Similarly, Grabowski and Geng (2001) recommended that service quality in China be improved to realize the potential of China Silk Road tours.

As previously stated, the largest gap between expected and perceived level of service was that for empathy. This result contrasts the finding reported in the literature review, that is, that the hardware (facilities and decoration) of hot springs hotels and resorts was perceived to be better than the software (service and staff). Apparently, the hotels and resorts visited by the respondents of the present study were concerned about customer needs when planning and providing services.

The research findings showed that the differences between expected and perceived service quality related to reliability and assurance were insignificant. In other words, the satisfaction levels for these dimensions tended to be lower than those of the others. The respondents felt that the hotels and resorts did not do what they promised and were

not very reliable, and that the employees did not have sufficient professional knowledge to provide high-quality service.

In addition, the findings show that tourists were satisfied with the attitude of employees. This contrasts the finding, also reported in the literature review, that service attitude was one of major problems in local hotels in China. In the present study, tourists felt that employees were generally polite and willing to help. The improvement in service attitude is likely due to the fierce competition among different hotels after the adoption by China of the open-door policy. Service providers realize that if they want to be competitive, they can no longer permit the traditional attitude found among employees of state-owned enterprises. Employees need to have an excellent service attitude, which will lead to customer satisfaction and thus to profitability.

The results also show a significant relationship between customer satisfaction level and loyalty, and between satisfaction level and recommendation to others. In particular, customer satisfaction had a positive impact on customer loyalty (repurchase behavior) and intention to recommend the hotels or resorts to others. Repeat customers and customer recommendation in the form of positive word-of-mouth are important to service providers as these benefit hotel businesses by enhancing their reputation and reducing the cost of attracting new customers.

IMPLICATIONS AND CONCLUSIONS

Tourists from Hong Kong were generally satisfied with the service provided by hot springs hotels and resorts in Guangdong, although not all visited such destinations for medical treatment. It is recommended that these service providers continue to improve their services to retain young female tourists who have a high level of purchasing power. This can be achieved by providing more custom-made products and services for this population. Products and services should also be suitable for gatherings of family and friends.

Their medicinal value is one of the most attractive factors of hot springs, and for this reason, service providers should exploit this factor to attract more tourists. An approach to achieve this goal is to increase the

promotion of the medicinal value of hot springs. Service providers can offer more scientific evidence of such value in their promotional materials. In addition, Chow et al. (2007) argued that the success of a business largely depends on its ability to attract repeat customers. Therefore, managers should adopt incentive programs, such as free coupons or reduced rates, to reward loyal or returning customers and encourage them to bring friends or relatives.

As previously stated, the empirical results indicated that assurance and reliability could be improved. In other words, consumers felt service providers did not deliver what they had promised. Inconsistency between service promises and performance may affect satisfaction levels and potentially damage the reputation of hotels and resorts. Hence, service providers should avoid inflated service promises, and be careful to keep their promises. A lack of professional knowledge and skills among employees was another problem. To address this issue, hot springs hotels and resorts should provide targeted training to enrich the professional know-how of their employees, such as skill in handling customer complaints. Although hot springs hotels and resorts are a niche in the hospitality industry, the findings may shed light on other sectors in the same industry.

With China's accession to the World Trade Organization, the foreign expansion of hospitality businesses into the China market has been growing rapidly, and is likely to continue to grow (Chow et al., 2007). Zhou, Murray, and Zhang (2001) stated that China is one of the largest hotel markets in the world. Hence, understanding Chinese consumers' expectations and perceptions of the hospitality industry would be beneficial for international investors and managers, enabling them to take advantage of the huge opportunities for operating in the country. With such information, these international hospitality practitioners can establish appropriate marketing and position targets, which will give them competitive advantages by enhancing product and service differentiation. This study can thus help international hospitality managers to identify some potentially important factors that may affect the success of their business in China. Additionally, China can learn from the experience of hot springs hotels in mature travel destinations such as

Japan. Hot springs hotels of international reputation can then be developed. Finally, Tsang and Qu (2000) stated the importance of government policies in China. Therefore, it is important for the central Chinese government to introduce evaluation policies on service quality.

LIMITATIONS AND FUTURE RESEARCH

The limitation of studying a narrow sector of China's hospitality industry is acknowledged. Another limitation is the relatively small number of respondents who participated in the survey, which makes the findings ungeneralizable. Future research could repeat the study using a larger sample. Another research possibility is to conduct the survey in other places in China. Considering the large geographical area of the country and uneven economic development across different regions, a comparison of findings in various regions would certainly be useful for the future development of the industry. In addition, future work could compare and contrast the differences between locally owned/managed hot springs hotels and resorts and overseas owned/managed ones. Lastly, it would be interesting to investigate the degree to which cultural differences affect consumer perceptions of service quality. Zhu, Cole, and Card (2007) found that Chinese consumers are more collectivistic than individualistic. Understanding the influence of cultural tendencies would certainly be beneficial to hospitality managers and enable a more objective evaluation of service performance.

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Maximizing Hospitality Learning Outcomes: An Integrated Experiential In-class Approach

By Robert J. Harrington, Godwin-Charles A. Ogbeide and Michael C. Ottenbacher

This study explored the influence of an experiential, in-class approach to the hospitality curriculum as a means of increasing its efficiency and effectiveness. Specifically, the study provides an example of how hospitality faculty might utilize an experiential, in-class approach to integrate additional hospitality-specific content along with process and content issues for working in teams and team decision-making. The results of this study support the efficient and effective use of an experiential in-class teaching method. The value of this study is twofold: (1) it provides an initial test of this approach's usefulness and (2) it provides a forum for continued conversations of how experiential approaches can be utilized to enhance and reinforce other hospitality content and managerial skills and to bridge the gap between vocational and liberal education outcomes.

Hospitality education has long been viewed as "vocational in nature" (Barron & Anastasiadou, 2009, p. 140). Thus, many view this educational field to be based on lecture directly applicable to the field and delivered as "demonstration theatre to a passive audience" (Johnson, 2009, p. 179). Recent research in hospitality education points to growing diversity in the hospitality student body in terms of nationality, ethnicity, and age. This diversity has huge implications for effective teaching methods and differences in preferred learning methods. For example, many U.S. colleges and universities have a growing diversity of traditional-age students and other non-traditional student groups. Studies have indicated vast differences in preferred learning styles for students of these differing age groups and backgrounds (e.g., Sulkowski & Deakin, 2009).

To address these issues, faculty and administrators should devise innovative ways of balancing the need for both learning diversity and efficiency simultaneously. Therefore, this study looks at the value of using an experiential in-class method to combine hospitality-specific content with more general learning outcomes demanded of successful graduates. Hospitality faculty currently use a number of experiential in-class methods (e.g., case study, critical incidents, action research, and small-group problem solving). This study explores the effectiveness and efficiency in student learning by integrating content that is hospitality-specific but with an experiential approach emphasizing team processes and decision-making. The value of this study is in exploring the ability to maximize classroom experiences for student learning of managerial skills

and technical hospitality skills simultaneously. While this study provides some preliminary tests for an indication of effectiveness and efficiency using this experiential, in-class approach, additional value of this study lies in the sharing of innovative teaching methods across the hospitality education community.

LITERATURE REVIEW

A number of studies have considered methods to enhance student learning and exposed reasons for a disconnect between desired learning outcomes and actual outcomes (e.g., Maxwell, et al., 2000; Robertson, et al., 2000). Given the diversity of current university students, researchers have suggested several issues that limit student learning in the classroom, including (1) a disconnect between preferred learning styles and teaching styles (e.g., Maxwell, et al., 2000; Robertson, et al., 2000), (2) poorly designed assessment methods (De Vita, 2002), and (3) differing perspectives on appropriate interaction between instructors and students (Butcher & McGrath, 2004). For dealing with the diversity of university student population, Sulkowski and Deakin (2009) suggested adopting classroom approaches that become more inclusive in nature. In other words, "rather than attempting to respond to the particularities of individual cultural groups within the student body" (Sulkowski & Deakin, 2009, p. 163), institutions should review classroom practices and adopt those that are culturally inclusive to maximize student learning.

In a study of international students in the Australian system, Hellsten and Prescott (2004) pointed out that students from culturally diverse locations were reported to value more interactive modes, such as discussion-based learning. They also provided several suggestions to make courses more culturally inclusive. These suggestions include obvious and workable assessment guidelines sensitive to individual variation and diversity. Further, the study suggested the internationalization of curriculum to ensure the promotion of cultural change and pointed out the success of mentoring programs in many universities. Implications from these studies indicate the value of discussion-based approaches to learning as well as enhancing curriculum delivery and communication using reflective teaching methods.

While many teaching styles and methods have their advantages and disadvantages with respect to students' learning experience, one in particular has captured the attention of many scholars: improving learning through the use of research termed "the new science of learning" (King, 2003). Experiential learning is one such stream of "the new science of learning." Experiential learning is the reflective process of making

meaning from direct experience (Itin, 1999). An experiential learning approach appears to elevate students' learning experience in a new direction with a sense of continuous improvement in the learning experience (Kolb & Kolb, 2005). Experiential learning can be highly effective because it facilitates the experience of learning while addressing individual needs. The cyclical concept of experiential learning includes experience, followed by reflection, conceptualization, action, and further experience. Kolb and Fry (1975) argued that the learning stage starts with an individual carrying out a specific action and seeing the effects of this action. The second step is the understanding of these effects in the particular instance, while the third step is the understanding of the general principle. After the general principle is understood, the last step is the application through action in a new situation.

While most scholars refer to it as experiential learning, Wolfe and Byrne (1975) termed it "experienced-based learning." While experienced-based or experiential learning can take place both inside and outside the classroom, the method used in this study focuses on an in-class, experiential approach. Therefore, the term "experiential in-class learning" will be used here and is defined as experienced-based learning in the classroom. The approach brings the experiential activities to the classroom and presents the educators and the students with an opportunity to maximize classroom experiences for learning managerial and technical hospitality skills.

Similar to other applied university/college programs (e.g., medicine, engineering, etc.), the applied nature of the hospitality profession with both managerial and technical content makes experiential in-class learning pedagogies an important means to deliver on the needs of the hospitality graduate. Early proponents of experiential learning attest to the value of its use providing superior learning experiences for both applied content and the learning of behaviors (Rogers, 1969).

One experiential approach suggested for the college classroom is described as "collaborative learning," whereby students collaborate in small groups (Johnson, Johnson, & Smith, 1998). Johnson et al. (1998) found that this collaborative approach increased student learning, particularly when compared to traditional forms of pedagogy. In a recent study on whole grains, Stastny (2009) used a "self-directed learning" approach rather than a traditional lecture model. Self-directed teams were instructed to complete a presentation and sensory evaluation. While the results did not provide a reason for a self-directed learning preference, Stastny (2009) indicated students in the study preferred the self-directed

learning approach. Results in earlier research implied a greater sense of understanding of principles (Kolb & Fry, 1975), a sense of personal continuous improvement (Kolb & Kolb, 2005), and greater flexibility in learning practices by the students (e.g., Sulkowski & Deakin, 2009).

Effectiveness can be defined as "a measure of the match between stated goals and their achievement" (Fraser, 1994, p. 104). Thus, effectiveness in higher education is closely tied to quality assessment due to the need to determine desired achievements (outputs) based on judgments about program objectives (which are also part of inputs). Efficiency, on the other hand, is commonly defined as "the production of the desired effects or results with minimum waste of time, effort, or skill" (American Heritage, 2009). Therefore, efficiency in higher education relates to finding methods to maximize desired outputs while minimizing inputs. Inputs in this instance should be defined as methods to enhance learning while simultaneously reducing student time demands and instructor time demands. The efficiency motive is important in higher education because it allows greater overall outputs (student learning) based on the growing need for graduates to address more complex issues in industry, and it acknowledges higher education's time and resource limitations (e.g., budget reductions, larger class sizes, maximum allowable credit hours, simultaneous needs of a diverse student body, etc.).

For hospitality education studies assessing the usefulness of in-class simulated experiences (e.g., computer-based simulations, student-run restaurants, written case studies, etc.), Kendall and Harrington's (2003) review pointed out a general lack of measures to test either the effectiveness or efficiency of collaborative, experiential methods. Most studies seem to use students' self-reported measures rather than other objective measures. Of course, finding appropriate measures that effectively tap into problem-solving, team process, etc., is a challenge. Kendall and Harrington (2003) used self-reported measures for the effectiveness of team-process skill development, overall perceived learning, and strategic business-planning ability.

As indicated through a synthesis of the literature, classroom practices with experiential and collaborative elements are likely to be useful to enhance student learning. Specifically, experiential in-class approaches have received reasonable support for effectiveness and as a preferred student learning approach. But there appears to be a gap in the literature in terms of student learning efficiency. Therefore, the purpose of this study was to determine whether the experiential in-class approach used in this study allowed greater efficiency (the introduction of food and

wine pairing along with team, team process and group decision-making, simultaneously). A second question was whether this method increases learning outcome effectiveness. The concepts of beverage management or wine evaluation are far from underutilized in most hospitality programs, but other than in relatively large hospitality programs, food-and-wine pairing is not provided as a standalone course and is covered at a relatively cursory level in most beverage management (e.g., Katsigris & Thomas, 2007) or wine texts (e.g., Koplan, Smith, & Weiss, 2008).

Using food-and-wine pairing as a decision vehicle may not be an effective choice for many programs, but it is shown here as an example of how hospitality-specific content and more general management topics can be integrated with experiential in-class methods. If appropriately designed, experiential in-class approaches, such as the approach used in this study, may also enhance learning across a variety of cultural boundaries inherent in the current makeup of most hospitality student populations (age, gender, nationality, etc.).

METHODS

The study used a quasi-experimental design with reoccurring intact groups (i.e., reoccurring sections of a hospitality management course over three consecutive semesters). The sample in this study consisted of 311 junior- and senior-level undergraduate students enrolled in a hospitality management program at a North American University. Because the course sections in this study were of a reoccurring intact type (based on the course offering each semester), the section size varied, based on student enrollment each semester. Therefore, section one had 67 members, section two had 91 members, and section three had 153 members in the class.

When the intact groups (i.e., course sections) were compared by key characteristics--class time of day, gender, cohort distribution, and instructor (the same instructor for all three)--no significant differences were apparent. One key characteristic that was different was class size by semester. Class size is an important variable to consider in educational research (Wiersma, 1995) and has important implications for the results in this study.

As part of all three course sections, a key learning objective focused on groups, teamwork, and decision-making. Sections one and three used a traditional lecture, discussion, and test format (Treatment 1). Section two received a different treatment: an experiential in-class learning approach involving individual decision-making, team decision-

making, and assessing the team process. This treatment group received the same written test over the groups, teamwork, and decision-making material. For all three class sections, the course material was presented over three class periods of approximately 1.5 hours each.

To test the usefulness of integrating technical issues in the hospitality field, the students in section two utilized food-and-wine pairing decisions as the central decision issue. While many cases are available for this purpose (e.g., cases such as being stranded in a dessert, being involved in a plane crash, etc.), an objective here was to integrate hospitality content to maximize student learning of technical content as well as team process and decision-making behaviors.

Treatment 1

The treatment for class sections one and three used a format of required readings from a text on organizational behavior (Johns & Saks, 2008), videos, and PowerPoint presentations/lectures on groups, teamwork and decision-making. For the class sections in this treatment, food-and-wine pairing was not a part of the class discussion or reading material.

Content of the videos, lecture, and reading focused on key issues shown to impact teams, the team process and decision-making quality. In the group and team portion, topics included the potential impact of (1) the organizational context/environment (e.g., management practices, processes, systems), (2) leader-member relationships, (3) group composition, (4) team member characteristics (climate, diversity), (5) team relationships, (6) team problem-solving/decision-making, and (7) other factors shown to drive successful outcomes. For the decision-making portion, topics included the potential impact of (1) the decision-making process (e.g., groups, too little or too much information), (2) context (risk, uncertainty, volatility, complexity), (3) a rational approach, (4) biases, scripts and schemas, (5) intuition, and (6) evaluation (sunk costs, escalation of commitment, hindsight).

As part of this presentation, the instructor integrated discussion questions to facilitate classroom interaction and reinforcement of the material. After three class periods on these topics, students' knowledge was tested using a 25- item, multiple-choice test.

Treatment 2

The treatment for class section two used a format of required readings (two chapters from the same text as required for sections one and three) and described an experiential in-class exercise that integrated food-and-wine pairing as well as a discussion of groups, teamwork, and decision-making. For this treatment, the discussion was still instructor led (as in Treatment 1) and readings were the same for both treatments. Video and PowerPoint presentations were replaced with a group in-class exercise that integrated decision-making, and predominately process issues associated with groups, teamwork, and group decision-making. Thus, while treatment one relied more on content, Treatment two was more concerned with processes of decision-making and of teams.

After three class periods using the in-class exercise, students' knowledge was tested using the same 25-item, multiple-choice test as used to assess sections one and three. Specific steps of the experiential, in-class design were as follows.

Students in section two were randomly assigned to teams by the instructor. Team size ranged between five and six people, with a total of 16 teams. The students in this study had a range of knowledge levels on food and wine in general, and minimal knowledge of food-and-wine pairing. After being assigned to teams, the experiential, in-class program utilized the following steps (see Table 1).

Table 1
Outline of in-class program

In-class Program	Process and Time
Step 1: Food and wine recommendations	Introduction of the situation = 10-15 minutes Completion of individual recommendations = 10-15 minutes Completion of team recommendations = 35-45 minutes
Step 2: Group process assessment	Completion of 23-item survey of group process (individual perceptions w/o group discussion = 15-20 minutes)
Step 3: Review expert recommendations	Review the facts/expert recommendations of food and wine pairing = 20 minutes
Step 4: Satisfaction score and team problem-solving	Calculate gastronomic satisfaction scores = 10 minutes Discuss results and implications = 20 minutes Calculate individual perception of team process and plot on graph = 10 minutes Calculate average for each team and plot on separate graph = 10 minutes
Step 5: Team process implications	Instructor provides discussion of key issues associated with the team process = 20-25 minutes Each team discusses similarities and differences in perception by individuals in group (what are the implications?) = 20-30 minutes Round-robin to have each team discuss their team process and how it may have impacted team decisions and synergy = 20-30 minutes

Students received a brief introduction to the topic of food-and-wine pairing, a seven-course menu, and list of possible wine selections. A sample menu item and possible wine selections are provided in Table 2. Levels of match or "gastronomic satisfaction" scores were derived using the structured food-and-wine matching format by Harrington (2008). For food and wine, the match level could range from 0 (no match) to 10 (perfect and synergistic match). The level of match value for each course

was created following a matching methodology for food-and-wine elements (i.e., taste components, texture elements, and flavors) described by Harrington (2008, pp. 249-259). For each menu item and wine choices, the highest possible match score and best wine match might not have been a maximum score of 10, as most choices are less than perfect. Therefore, the highest possible gastronomic satisfaction score summed across all seven food courses was 62 (rather than 70).

Table 2
Menu item example and possible wine choices

Food Item/Course	Possible Wine Choices and Match Level (in parentheses)
"Fire and Ice" Northwest Oysters Baked Olympia oysters topped with roasted shallots, ginger and proscuitto. Served with a savory sorbet of fennel, lime, and wine.	A) Bartenura Moscato d'Asti (Italy) (2 points) B) Chateau St. Michelle Eroica Riesling 04 (Washington) (9 points) C) Peter Lehmann Barossa Semillon (Australia) (4 points) D) Lindemanns Bin 65 Chardonnay (Australia) (3 points)

Individuals selected their food-and-wine recommendations prior to meeting as a group. Then, the five-to-six-person student teams met, deliberated on possible matches, and reached consensus on the food-and-wine recommendations as a group.

Based on the experts' level of match score, students totaled the individual and the team gastronomic satisfaction scores. To assess the effectiveness of the team, each team calculated the average individual score, team score, gain (loss), percentage change, best individual score, lowest individual score, and team-synergy score. The methods used in calculating these scores are provided in Table 3. These calculations were adapted from team-scoring methods developed for use in other team-process and decision-making exercises (Human Synergistics, 1989).

Table 3

Table 3
Individual and team calculations

Team Scores	Calculation Method
Average individual score	(Sum Individual Scores)/(Number of Team Members)
Team score	Total match level scores selected by the team
Gain (loss)	Team Score minus Average Individual Score
Percentage change	Gain or Loss/Average Individual Score
Best individual score	Highest Individual Score
Lowest individual score	Lowest Individual Score
Team synergy score	Team Score minus Best Member Score

Finally, **s**tudents plotted the results of the group-process assessment survey (e.g., the 23-item survey of team-process perceptions) on a chart depicting where their group fell in relation to other team-process percentiles. The 23-item instrument was further divided into six categories key to the team process based on a review of the team-building and decision-making literatures. The categories included (1) use of information (3 items), (2) participative control (3 items), (3) teamwork (5 items), (4) innovative capability (4 items), (5) internal context (4 items), and (6) external context (4 items).

MEASURES

This study used two main methods to assess the effectiveness and efficiency of learning outcomes.

Average Individual vs. Team Scores

As each individual student made food-and-wine matching decisions as a first step, the average individual score was compared to the team score. This comparison tapped into whether or not the team decision represented a better overall food-and-wine match than the average for all individuals on the team.

As described above, the students received a brief introduction to the food-and-wine pairing topic and a seven-course menu with a list of four possible wine selections per course. The food-and -wine match score for each course ranged from 0 to 10 (10 = ideal match). The resulting score for each food-and-wine course was therefore dependent on the student's and team's wine selection. The overall food-and-wine match score was calculated as the sum of the food-and-wine match scores for

each course in the seven-course menu. A maximum possible score was 62 and a minimum was 10. The average individual student score was 31.73 (s.d. = 2.97, range = 13-49). The average team score was 34.16 (s.d. = 8.45, range = 19-52). While treatment two had 91 members, only 88 members provided fully complete and usable information for the individual versus team score assessment.

Gain and loss team scores

As part of the team process assessment, teams in this study were asked to compare the average individual gastronomic satisfaction score to the score derived from the team (see gain or loss calculation in Table 3). Because this assessment was based on improvement in gastronomic satisfaction using a team process, a gain represented a higher team score than the average individual in the team, and a loss represented a lower team score than the average individual in the team. Therefore, differences in food-and-wine knowledge prior to this exercise were not as important; rather, the measure reflected the level of improvement as a group by making use of team members' knowledge in a synergistic way.

Classroom Test Results

To assess the impact of the experiential in-class approach on team and decision-making topics, test results were compared for two classes using a more traditional lecture-and-discussion format, versus the class using the experiential and discussion format. The results for the lecture/discussion method (Treatment 1) were executed in the semester immediately before and immediately following the experiential method (Treatment 2). For both semesters, the test or quiz covering the team and decision-making material used a multiple choice format with 25 test items in total. The 25-item test was converted to a 100-point score (25 items worth four points each) for grading purposes.

Other Measures

The 23-item team process instrument used a 10-point Likert-type scale with anchors at the upper, middle, and lower points of each item. The items were chosen from previous research (e.g., Eisenhardt, 1989; Harrington et al., 2002; Human Synergistics, 1989) so that the measurement instrument reflects the most reliable measures available and provides a strong basis for content validity. In this study, the reliability coefficient for the 23-item instrument had a Cronbach's alpha of .67 (n = 88). In general, this alpha indicates a minimal but adequate level of reliability for this instrument (Hair et al., 1998).

Team process percentile scores

Items in the instrument provided six areas for assessing internal processes in the team and perceptions of the internal and external context. These areas included (1) use of information (3 items), (2) participative control (3 items), (3) teamwork (5 items), (4) innovative capability (4 items), (5) internal context (4 items), and (6) external context (4 items).

The results of the team process (instrument sections on use of information, participative control, teamwork, and innovative capability) were converted into individual summed scores for each area and average team summed scores (sum individual scores/number of team members) for each of the team-process sections in the instrument.

Next, each individual plotted his/her scores on what the instructor described as the "four diamonds" graph of the team process. This was also done using the average team summed score of each team. Basically, this graph is a round chart made up of four diamond shapes with defined points moving outward and representing the 25th percentile, 50th percentile, and 75th percentile; the outer edge served as the 100th percentile. This approach allowed the students to visualize a graphic display of their perceptions of the team process, other team members' perceptions, and the average overall team perception.

The percentiles for the four diamonds graph were calculated from a student sample of 934 individuals who were involved in a variety of in-class group projects. Table 4 provides the median and percentiles for the four instrument sections from this earlier sample of students. It also provides the average individual summed score, the range of individual scores, the average team summed score, and the range of team scores from the sample of students in the current study.

The use of these percentiles was instrumental in driving team discussion of the team process. Did their team perform at a higher or lower level in one or more areas than prior student groups? If so, how might this have impacted the decisions they made? Also, was there a relative agreement across the members of the group on the team process? Why or why not? Etc.

Table 4
Percentiles and sample means by instrument section

Instrument Section	Prior Sample Percentiles	This study's student sample
Use of information (3 items)	25th = 20 Median = 23.5 75th = 26	Individual mean = 24.75 (range = 9-30) Team mean = 24.4 (range = 20.5-28.4)
Participative control (3 items)	25th = 21 Median = 25.5 75th = 28	Individual mean = 26.07 (range = 15-30) Team mean = 26.02 (range = 23.3-27.8)
Teamwork (5 items)	25th = 36 Median = 41 75th = 46	Individual mean = 43.24 (range = 28-54) Team mean = 41.31 (range = 34.4-47.2)
Innovative capability (4 items)	25th = 21.5 Median = 26 75th = 30	Individual mean = 28.36 (range = 14-43) Team mean = 28.4 (range = 24.4-34.2)

This in-class evaluation process provided for substantial discussion within student groups, across student groups, and in an instructor-led format for Treatment 2 of this study. Perceptions of the internal team context and external context were summed by each individual and calculated as a team average to integrate discussion of the importance of context perceptions on decision-making and the team process.

These in-class discussions included group context issues, learning outcomes derived from this exercise, implications for future involvement with teams and group decision-making, and consequences for team organizational issues.

Size

Because class size has been shown to substantially impact learning outcomes and teaching method effectiveness (Wiersma, 1995), class size was included as a control variable in this study. The class sizes in this study ranged from 67 to 153; to ensure that statistical differences were not due solely to mathematical scale constancy issues, class size as a control variable was included in its raw form and then a second time as the natural log of class size (e.g., Hart & Banbury, 1994). Because the

results using the raw class size values versus the natural log of class size were not statistically different, the results using the raw class size values are shown to ensure direct interpretation of the impact of size.

RESULTS

The key question is whether or not the experiential in-class approach used in this study allowed greater efficiency (the introduction of food-and-wine pairing along with team, team process and group decision-making, simultaneously). A second question concerns whether this method increases learning outcome effectiveness.

Food-and-wine content

Food-and-wine knowledge was introduced and reinforced using three methods: individual critical thinking about this process, peer learning, and problem-solving using food and wine as a decision issue while simultaneously enhancing student food-and-wine knowledge, and expert suggestions for the best match for each food course in the exercise. To quantify these results, the improvement in the food-and-wine selection score from the average individual score compared to the team score (sum of individual scores divided by the number of team members) indicated substantial improvement. In this study, 12 of 16 teams (75%) obtained a higher food-and-wine pairing score compared to the average individual score (ranging from a .7% to 20% gain). Four of 16 teams (25%) obtained a lower food-and-wine pairing score compared to the average individual score (3.4% to 8.5% loss). The average gain was +6.22 points for the teams that improved versus an average loss of -3.78 points for the teams who incurred a loss.

Because the majority of groups saw a sizable gain in this exercise, this provides some initial support for the effectiveness of this in-class, collaborative method as a learning method of hospitality-related material. It also supports the use of hospitality material as a decision issue for courses focusing on key managerial topics as a way to efficiently integrate additional professional knowledge for students of diverse learning styles. While we used a quantitative assessment of peer learning outcomes (i.e., team scores versus average individual scores), a team with a lower score does not necessarily mean less learning took place. For instance, the follow-up discussion of the expert opinions on match level and rationale for food-and-wine selections reinforced food-and-wine knowledge for all students, regardless of gains and losses in the decision-making exercise.

Team-building and decision-making learning outcomes

The experiential in-class approach (Treatment 2) integrated the following areas: (1) Comparing individual and group perceptions of the team decision-making process; (2) discussion and reflections within and across teams on team work and the team process; and (3) a discussion of team process issues relating to experiential activity (i.e., key contextual features and decision-making tactics, the threat-rigidity cycle in newly formed teams, and four-diamond team grid [use of information, participative control, teamwork, and innovative capability]).

To assess the efficiency and effectiveness, the results of this particular semester's class test scores (Treatment 2) over the decision-making and team material were compared with the previous and following semesters' scores (Treatment 1). From an efficiency standpoint, the experiential in-class design used the same amount of class time for the exercise and discussion of team topics as the previous and the following semesters using a traditional lecture and discussion format. Because the experiential in-class approach also integrated food and wine as the decision issue, the authors suggested that the experiential approach appears more efficient than the traditional lecture/discussion method (at least from a student-efficiency standpoint).

For the Treatment 1 section, the average test scores for the material were 80.27 points (Class Section 1) and 71.11 points (Class Section 3) out of 100 possible. The average test score for the experiential in-class section (Class Section 2) was 77.86 points out of 100 possible.

To test for differences between class sections on test score results, we used linear regression. Tests for homogeneity of variances using Levene statistic indicates this assumption was not violated. The variables were included in the regression model with class size entered first, followed by class section type (i.e., treatment). Class section type was dummy coded, with Treatment 2 coded as "1" and Treatment 1 coded as "0".

Table 5

Test results regressed on class size and treatment dummy

	Test Results
Variables	
Class Size	-.45***
Treatment	.01
F	40.24***
R	.46
R²	.21
R² Adj.	.20

*** p < .001; **p <0.01; *p < 0.05; +p < 0.10   All betas are standardized.

Table 5 provides the regression results with test results regressed on class size and treatment type. For this test, the F value indicated a highly significant difference overall (F = 40.24, p < .001). The R² indicates that class size and treatment type explain about 21% of the variance in individuals' test results.   Further investigation of the results indicated that class size had a significant and negative relationship with test results in this study (β = -.45, p< .001). The finding also supported earlier suggestions that larger classroom sizes may have a negative impact on student learning outcomes.

Once class size effects are controlled for, the pure relationship between test results and treatment were non-significant. Therefore, this finding indicated that when class size is held constant, both treatments were equally effective for successful test taking on groups, teamwork, and decision-making content.   The finding of no difference in test results across these three class sections supports our hypothesis that the experiential, in-class approach used in this study proved more effective and efficient than the more traditional lecture/discussion approach. Our reasoning is that students in this study obtained comparable test results on teams and decision-making content but developed a greater basic understanding of food-and-wine pairing issues as well as tacit skills involved in team processes and group decision-making.

CONCLUSIONS

Hands-on or experiential learning approaches have a long history of use across hospitality education. These hands-on approaches have traditionally focused on hospitality-specific areas such as food and beverage and other service encounters. Experiential methods have many

times been in the form of internships, demonstration theater, and other laboratory situations. This traditional method has given hospitality education a label as vocational in nature. More recently many researchers have called for a greater balance between liberal arts content and hospitality-specific content.

The general education literature has demonstrated the effectiveness and student preferences for collaborative and experiential approaches to learning (Cantor, 1997; Walker, 1996). Given the growing diversity across the student population, faculty should be designing innovative teaching and learning approaches that are more effective and more efficient as well as adapting to a variety of preferred learning styles. The experiential in-class approach used in this study provides preliminary support for its effectiveness and efficiency in providing positive learning outcomes in life skills, key managerial behavior/knowledge and hospitality-specific content. Therefore, this experiential in-class approach should prove effective in traditionally lecture-only settings by (1) enhancing tacit learning with an experiential process, (2) providing a more interactive classroom environment, and (3) using hospitality-specific content as a vehicle to simultaneously enhance student success and address specific hospitality issues.

While effectiveness in hospitality education is dependent on a number of desired outputs and the types of available inputs, faculty need to make effectiveness a priority, with continual clarification of what they believe it means to be effective from both a class output assessment and a program output (what does an effective graduate of our program look like?). As with all experiential situations, experiences do not automatically equate to effective learning, and experiential learning does not apply to all situations. To gain genuine knowledge from an experience, certain abilities are required: (1) The learner must be willing to be actively involved in the experience, (2) the learner must be able to reflect on the experience, (3) the learner must possess and use analytical skills to conceptualize the experience, and (4) the learner must possess decision-making and problem- solving skills in order to use new ideas gained from experience (Kolb & Kolb, 2005). Faculty must assess these issues to balance learner abilities with process- and output expectations.

While the findings in this study appear to support the efficient and effective use of an experiential in-class method, the study has several limitations. First, the three intact class sections in this study varied substantially in size. As class size has been shown to be an important variable in educational research, this study supported the idea that student

learning is reduced in larger classes. Once the effect of class size was partialled out, the lack of differences between treatments in this study based on test scores could have been impacted by a variety of differences or other "field factors" that were not fully controlled for in this study. Second, the assessment of efficiency does not take into account additional time of the instructor in developing the experiential in-class approach versus a traditional lecture-and-discussion method. Also, while class time was used as a measure of student learning efficiency, students in the experiential in-class treatment may have had to spend more time reading textbook materials on groups, teamwork, and decision-making rather than passively listening to PowerPoint presentations on these topics. Finally, a weakness of this study is tied to earlier issues regarding assessment methods (De Vita, 2002). In other words, more tacit and process-related issues, such as teamwork, the team process and decision-making realism may not be adequately assessed using multiple-choice-type assessment methods.

Future research should address these limitations using additional controls, assessment methods and true experimental research design. For instance, there are some potential reasons why the results of this study could not unequivocally confirm our effectiveness assumption. First, class size and group size might be more important than originally presumed, serving as a distraction for students in larger class size and limiting a sense of connection for collaborative work in groups that are too large. Second, while the food-and-wine-pairing decision approach appeared effective and efficient, 25% of the teams in Treatment 1 had lower scores as a team than the average individual. Reasons for this finding include the following: (1) perhaps food-and-wine pairing is too complex and difficult a subject, (2) individual tastes or preferences are such that consensus is too difficult, or (3) students may be too intimidated when making food-and-wine selections in a group setting to achieve synergy.

While the authors acknowledge the limitations of the current study, articles such as this provide a useful dialogue for sharing differing approaches to hospitality education methods. Accordingly, a key contribution of this study is in continuing the on-going sharing of ideas that can be modified and improved upon by individual instructors to ultimately enhance student learning with greater efficiency and effectiveness, particularly across a diverse student population or sample. Therefore, future research should assess differences in learning outcomes using other experiential in-class methods and research designs to fully test the usefulness of experiential approaches in a curriculum. Future

research should also assess the value of this approach to enhance and reinforce other hospitality content. For instance, topics such as managing innovation, organizing a hospitality business plan, laying out and calculating profit-and-loss statements, devising service-quality models, planning menus, planning for crises, managing revenue, and many others could be utilized in an in-class, experiential format.

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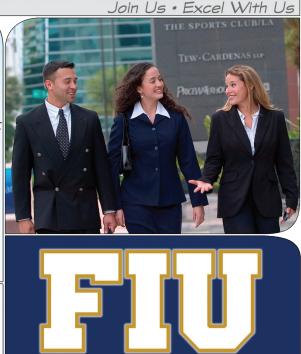
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