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Exploring open kitchens' impact on restaurateurs' cleanliness perceptions

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ABSTRACT Although the consequences of poor food health and food handling practices can be very costly to businesses or even lethal in some cases, research providing information of kitchen design as it relates to food safety is lacking. The present study seeks to add knowledge in this area, studying restaurant operators' perceptions of open and closed kitchens. Using semi-structured, face-to-face interviews, 20 restaurant managers and owners in Fulton County, Georgia, United States provided their views on kitchen design as it relates to a number of aspects that include hygiene, convenience or even the emphasis on the visual element of being able to see what is taking place 'behind the scenes'. Overall, respondents whose kitchens were both open and closed viewed open kitchen restaurants as the most hygienic, with open kitchen restaurant operators being more emphatic about the cleanliness differential. In addition, open kitchens were thought to positively influence employee behavior, particularly in regards to being more exposed to customers' scrutiny. Finally, the provision of an entertaining and engaging atmosphere, as well as enhanced cleanliness perception factors were reasons why open kitchen restaurants were constructed in that manner. *Journal of Retail & Leisure Property* (2010) 9, 93–104.

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INTRODUCTION

The importance of food safety has grown in recent decades, to a great extent transforming the way the hospitality industry operates. One motive for such development has been governments' stricter food safety requirements, as food poisoning and other events of a similar nature in the hospitality industry have led to serious health issues, in some cases with deadly consequences for consumers (Satcher, 2000). To provide for a safer food consumption environment, kitchen design and layout are being considered more often, as evidenced by the growth of professions such as foodservice consultants, who work with foodservice equipment dealers to plan the physical layout of commercial kitchens (Guyott, 1997). Eaton (2005), for instance, discussed the impact food safety has had on kitchen design and explained that temperature control and sanitation have received the most attention. For many years, hospitality operations' kitchens have been designed to fulfill multiple roles, including safety and appeal. Also, the adoption of different food cultures and trends, whereby the chefs/cooks provide entertainment to patrons while preparing meals, has seen the development of different kitchen styles, including open kitchens.

However, to what extent does (or would) an open kitchen influence the overall standard of hygiene? For example,

- What are restaurant operators' views of cleanliness according to the style of their operations' kitchen, that is, whether they operate in an open or closed kitchen?

Also,

- What may be some advantages or disadvantages, if any, that the kitchen style (open kitchen versus closed kitchen) may have for restaurant operators?

The information provided in answering these questions could contribute to identifying factors that may positively affect consumer food safety. In turn, such developments could lead to more consumer trust in restaurant hygiene, repeat patronage and positive word-of-mouth, with potential benefits for restaurants' bottom lines. In addition, information gathered could assist professionals such as restaurant designers in identifying new directions for kitchen and restaurant design, thus further contributing to customers' dining experience. In sum, this venture into research on factors relating to the food production 'servicescape', food safety and business success/longevity could have a great impact on consumers, the hospitality industry and society in general.

THE HOSPITALITY INDUSTRY, KITCHEN DESIGN AND FOOD SAFETY ISSUES

The incidence of restaurants with open style kitchens, that is, kitchens wherein some or all of the food preparation, cooking and/or food finishing activity is in view to the customer, has been increasing and gaining attention. Televised celebrity chef cooking challenges on Food

Network, Bravo TV and other television networks are hugely popular with consumers; consequently, some restaurant goers are enchanted by restaurants with open kitchens (Bruni, 2005). Following the steps of a trendsetting city such as New York, other cities that include the unofficial 'capital of the south' Atlanta (Chief Executive, 2004; Bachman, 2008) also have their share of open kitchen restaurants. In the case of Atlanta, not only have a number of upscale restaurants designed their spaces to showcase the chef's work through open kitchens, but also local fast casual chains have designed their kitchens to be open as well.

Apart from their comfort and attractiveness for restaurant patrons, different kitchen designs are also intended to serve as a focal point for patrons, which in many environments border on being or are actual entertainment. The ability of many chefs and cooks to prepare dishes in front of consumers, as is the case with Japanese chefs preparing sushi, has also added a certain degree of glamour to the art of delivering foods face-to-face. These situations are not coincidental, but rather deliberate, as restaurant operators have much to gain and lose, from restaurant patrons looking for value for their money. Approximately one-fifth of all meals US consumers intake on a weekly basis is prepared by commercial food service establishments (Ebbin, 2000; Klein and DeWaal, 2008), clearly suggesting the importance of kitchen facilities.

As a whole, the food and beverage industry is one of the largest private sector industries in the United States, employing 13 million people, representing 4 per cent of the national gross domestic product and accounting for \$566 billion in sales (Klein and DeWaal, 2008; National Restaurant Association [NRA], 2009). Jenkins (2007) argued that the importance of food and beverage in dollar value has a multiplier effect on the economy, as restaurant activity not only creates jobs, but also inter-firm linkages (suppliers and producers), generates tax revenue for government and offers valuable products and services to consumers (in Pfitzer and Krishnaswamy, 2007). Thus, the health of the food industry has a multiplier effect on the overall well-being of the economy. Moreover, the huge amount of money US consumers spend on prepared foods (whether eaten at restaurants or elsewhere) not only has a tremendous impact on the economy, but also to some extent demonstrates consumers' trust and reliance in the food producers.

When food producers abuse consumers' trust however, patrons who become ill due to consuming a product from a restaurant are not only unlikely to return to that establishment, but also unlikely to encourage their peers to frequent that restaurant. The resulting negative word-of-mouth and potential loss of customer traffic due to actual or perceived cleanliness issues might lead to a loss of revenue or even the end of the business. According to the NRA Educational Foundation (n.d.), a single incidence of foodborne illness linked to a restaurant may cost the enterprise a staggering \$75 000. In a related situation, the median jury award for a foodborne illness case decided in favor of the plaintiff approximately \$25 560 in compensation for each case in the period 1988 through 1997 (Buzby *et al*, 2002), while a more recent study showed an average payout of \$71 205 for similar cases (Swanger and Rutherford, 2004). However, a wrongful death suit proven to be caused by foodborne

illness may result in a jury award of a million dollars or more to be paid by the defendant(s) (Buzby *et al*, 2002).

In many scenarios, food safety is taken for granted as a baseline expectation and consumers expect restaurants they visit to exhibit cleanliness and hygiene, have clean restrooms and offer pleasant atmospheres (Josiam *et al*, 2007). Specifically, the restaurant itself and its food, china, cutlery, service personnel and kitchens must be clean in order to meet its customers' demands (Aksoydan, 2007). However, while in the United States restaurant patrons may expect cleanliness in restaurants, they may harbor doubts as to the whether or not restaurants in general actually are clean. The potential seriousness of this issue may contribute to some restaurant operators' decision to promote rather radical initiatives. In the United States, for example, in order to assuage fears patrons may have of kitchens' cleanliness, some minority restaurateurs invited non-members of their ethnic group to tour their kitchens to witness the sanitary environment for themselves (Govitvatana, 1999). Hence, the rationale for some food chains like Chin Chin Chinese Restaurants in Atlanta to design their restaurants with open kitchens is not surprising; instead, this strategy may be a welcome development for some consumer groups fearful of unhygienic kitchen environments.

With so many meals consumed originating from the estimated 945 000 foodservice outlets nationwide (NRA, 2009), it is no surprise that in such a large network problems may arise in the food delivery mechanism. One very serious issue is that of consumer health as it relates to food safety. Studies found that from 3.5 to 81 million people in the United States contract foodborne illnesses each year (Centers for Disease Control [CDC], 2001; Penn State, 2008; United States Department of Agriculture Economic Research Service [USDA ERS], 2008; Mississippi State University Extension Service [MSUES], n.d.). Between 62.5 and 105 million people in the United States suffer acute gastroenteritis – thought to be caused by foodborne illnesses – each year (McCabe-Sellers and Beattie, 2004).

Furthermore, while no recent data are available, in 1999 325 000 hospitalizations and 5000 deaths were estimated to be caused by foodborne illnesses each year in the United States (Mead *et al*, 1999). Other chronic health maladies such as arthritis, inflammatory bowel disease, kidney failure, Guillain-Barré syndrome and autoimmune disorders are suspected to be linked to foodborne illnesses (Anonymous, 2007). Consequences of health-related issues create substantial economic losses, ranging from an estimated \$3 billion (USDA ERS, 2008) to as much as \$7.3 billion attributed to lost productivity each year (MSUES, n.d.). Clearly, there are good reasons for government and health officials, as well as the hospitality industry to tackle this very serious problem for the good of patrons and society.

GOVERNMENT STANDARDS, INSPECTIONS AND WORKER BEHAVIOR

Different standards apply with regard to food inspections across the United States. For example, the State of Florida requires restaurants to be inspected twice per year, while the city of Sacramento requires eateries to

undergo two to three routine inspections each year (Environmental Health Division, 2009). Such routine health inspections were seen to be a valid predictor of foodborne illness outbreaks in Seattle, Washington (Irwin *et al*, 1989) and Los Angeles, California (Buchholz *et al*, 2002).

In another study, however, Jones *et al* (2004) found that the mean inspection (designed to measure restaurant food safety and hygiene) scores of restaurants with foodborne illness outbreaks were the same as those of restaurants with no reported outbreaks. Hence, there is evidence that both supports and disproves or contradicts the idea that the rigor of kitchen inspections leads to higher standards of food safety.

Some states and local governments also mandate certification in food safety practices for food preparers or their managers (Almanza and Nesmith, 2004). Food worker managers trained in safe food handling practices may in general be aware of proper (food handling) techniques, and as a result be responsible for communicating the proper practices to their food worker employees. Nonetheless, many food workers admit to not carrying out safe food behaviors, including holding foods at proper temperatures and washing hands properly (Clayton *et al*, 2002). Furthermore, whether it is due to insufficient training or lack of time, inattentiveness, lack of personal negative repercussions, some other reason(s) or a combination thereof, food preparation workers admit to not doing what they know to be right (Pragle *et al*, 2007). As food preparation workers are so paramount to food safety, a probe into factors that influence their behavior is warranted.

Clearly, food safety and the prevention of foodborne illnesses are extremely important for both public health and private economic concerns. Even with governmental-imposed standards and inspections, unsafe food conditions exist too often. The dire consequences of missteps, coupled with the crucial role food preparation workers play in the food chain, highlight the need to investigate any relevant factors that may influence food safety.

One potentially important factor – the effect of having an open kitchen on restaurant cleanliness and by extension, consumer physical and restaurant industry financial health – has been ignored from contemporary research. Such lack of information is particularly obvious from restaurant operators' perspectives. To this end, the present study will examine restaurant operators' views of restaurant cleanliness in regards to restaurant kitchen design, and also their views on any potential relationship between kitchen style/openness and actual cleanliness of restaurants.

METHODOLOGY

To gather data on restaurant operators' views of kitchen cleanliness and specifically open and closed kitchen restaurants, this study took an exploratory approach, whereby qualitative data from operators of restaurants were obtained. During January 2009, restaurants located in Fulton County, Georgia were selected for study based on their inclusion in the Fulton County Department of Health and Wellness Environmental Health Services Food Service Inspections and Scores report. The aforementioned report is comprised of the health inspection scores of

approximately 2355 officially permitted eating establishments. These businesses included restaurants, permanent concession stands and institutional foodservice locations such as schools and churches in the county that were inspected between November 2007 and July 2008, and the resulting inspection scores were published on the internet at www.fultoncountygga.gov/county/health/images/stories/File/Food_Scores.pdf. For this study, the Food Service Inspections report was modified to exclude all non-restaurants (that is, schools, churches and so on).

A total of 100 selected restaurants were randomly chosen from the paired down report with the aid of a computerized random number generator (www.random.org/integers/). From this list, a sample of 24 was conveniently chosen with the objective to interview owners/managers face-to-face during slow business times and in more depth. The particular 24 restaurants were chosen for convenience of location and representation across type of restaurant, including various restaurant formats, cuisines and price levels. From all the approached restaurant, 18 restaurant managers and two restaurant owners actually participated, a total of 20 or 83.3 per cent response rate, while the other four (16.7 per cent) declined to partake in the study.

The accepting managers and owners were asked to share their thoughts on restaurant cleanliness, benefits and drawbacks of open and closed kitchens, and given the opportunity to share any other thoughts they might have had apropos the study. As indicated previously, those main two matters were the fundamental questions asked in this study; additional questions were related to demographic aspects of the establishment, including the age of the business and kitchen style. Each of the interviews was recorded and transcribed literally (verbatim). Respondents' comments were labeled as Operator 1 (O1), Operator 2 (O2) and so on.

FINDINGS: RESTAURATEURS' VIEWS ON KITCHEN DESIGN

Part of the data collected shown in Table 1 illustrate some demographic characteristics of the 20 businesses participating in the in-depth interviews. The average age of the operations was 37 months, just above 3 years, with the five oldest (25 per cent) being open for 6 years and the newest being in existence for only 7 months. Of the 20 restaurants visited, 13 (65 per cent) had open kitchens and seven (35 per cent) had closed kitchens. Just over half of the participating businesses (11, 55 per cent) served US ('American') style cuisine. Although respondents were not asked their age, observations made while conducting the face-to-face interviews suggest that all participants were 35 years of age and/or older.

The majority of those with open kitchen restaurants thought open kitchens were the cleanest (10, 77 per cent). One operator (O1) told of his trust in open kitchens in a very direct manner: *You know the food isn't dropped on the floor*. Another (O2) simply explained, *... people with restaurant experience ... know open kitchen restaurants are cleaner*. Surprisingly, even the majority (4, 57 per cent) of closed kitchen restaurant managers thought open kitchen restaurants to be cleaner than closed kitchen ones. A closed kitchen operator (O3) expounded, *... with a closed kitchen, you could probably [imagine] people getting a little lazy*

Table 1: Basic demographic characteristics of participating businesses

Kitchen style	Restaurant format	Cuisine specialty	Age of business
Open	Fast casual	American	1.5 years
Open	Fast casual	Italian	1 year
Open	Deli	American	1 year
Open	Casual	American	2 years
Open	Fast casual	American	16 months
Open	Fast casual	Asian	2.5 years
Open	Fast casual	American	6 months
Open	Fast casual	Italian	7 months
Open	Fast food	American	3 years
Open	Fine dining	Italian	1.5 years
Open	Fast food	American	2 years
Open	Fast casual	American	3 years
Open	Casual	American	3 years
Closed	Casual	Asian	6 years
Closed	Fine dining	Asian	6 years
Closed	Casual	American Sports Bar	6 years
Closed	Fine dining	Asian	1.5 years
Closed	Casual	American	4 years
Closed	Fine dining	Italian	2 years
Closed	Fine dining	American	3 years

[with hygiene standards]. Three of the closed kitchen restaurant operators (43 per cent) believed closed kitchens to be the most sanitary. One such manager (O4) espoused the view that, *It is purely an image thing if the guest can sit there and see somebody cooking their food. But that is very little when it comes to hygiene – whether it is kept in the cooler or at the right temperature.*

When asked to what extent, if any, having an open kitchen had on the cleanliness of restaurants, 13 (65 per cent) operators, 10 of whom worked in open kitchen environments, thought it would have a tremendous effect. Only one of the 13 thought it would have a detrimental effect on cleanliness, and stated (O5) *[if] there's a lot of [staff] traffic... it could potentially be a negative factor.* Twelve (60 per cent) operators thought having an open kitchen would positively affect restaurant kitchen cleanliness; following are the summarized comments of four of them:

- (O2): '... it has a huge effect on the cleanliness, because ... guests are watching everything every minute. So, you have got to keep everything clean – floors, equipment – and ... the actual employees have to be spot on'.
- (O6): '... it affects [hygiene] in a positive way. It makes you aware the guests can see what's going on. The workers would be more conscious of what they are doing'.
- (O7): '[An open kitchen affects hygiene] a lot, because people can see everything we do. Because with a closed kitchen, you don't know if they are changing their gloves, if they drop something on the floor ... I've watched so many TV shows where somebody drops something on the floor and puts it back on the plate. So this way it lets everyone see what we are doing. We change our gloves when we tough raw meat. We wash our hand'.
- (O8): 'Totally. Everyone had to be put on stage – so you watch your every move'.

As evidenced by their comments above, restaurant operators are well aware that customers pay attention to the cleanliness of restaurant kitchens. Managers/owners are cognizant that customers are concerned with how their food is handled, especially when out of their line of sight.

Asked about their views on whether consumers thought open or closed restaurants to be cleaner, 11 (55 per cent) operators, nine of which had open kitchens themselves, thought consumers believed open kitchen restaurants were cleaner, five (25 per cent) respondents (of two open kitchens and three closed kitchens) thought consumers believed closed kitchen restaurants were cleaner and four (20 per cent) operators (of two open kitchens and two closed kitchens) thought consumers would not consider either style of kitchen to be cleaner than the other. Among those who thought consumers did consider open kitchen restaurants to be more hygienic, four commented:

- (O9, closed kitchen): 'I definitely think they think there's a difference'.
- (O10, open kitchen): 'I think so, yes, because they could see everything that was going on'.
- (O1, closed kitchen): 'From my experience, and for myself, I would say yes ... People do think they are cleaner establishments'.
- (O3, closed kitchen): 'I think initially people would think an open kitchen is cleaner because you can see it. In a closed kitchen, you don't know what goes on in there'.

Those operators that thought customers believed there to be no difference in the cleanliness of open and closed kitchen restaurants commented that they could not (O11, closed kitchen) *imagine that would go into a thought process*, and one (O12, open kitchen) shared, *I really don't think they pay any attention*. One respondent (O13, closed kitchen) explained that he did not ... *think they think one is cleaner or not. They may think they enjoy seeing their dishes prepared if there is an open kitchen ... for entertainment*. A different respondent (O14, open kitchen) who thought consumers considered closed kitchen restaurants to be more hygienic indicated: *It gives people who are leery from the beginning comfort seeing what is going on ... You look at the health food score, and if no one has died there before, I don't really have any problems with a closed door*.

A total of 14 (70 per cent) participants thought having an open kitchen would positively affect employee behavior. As many as 12 (86 per cent) of those 14 operators had restaurants with open kitchens; hence, it could be argued that these respondents would espouse the view that their style of kitchen was best. Regarding the restaurants' employees' behavior when working under the eyes of customers, one respondent (O14) stated that ... *they should act appropriately at all times, but it does help... if you're in an open setting where everyone can see you ... All of our guys are pretty well behaved, but I could see it having an effect on the general atmosphere of the kitchen, with the idea the customer was watching you, maybe you wouldn't get away with something you might do*. Another participant (O15) believed that having an open kitchen would positively affect employee behavior ... *because you need to present yourself ... professional[ly]... not only when people can see you, but ... all the time*.

And your overall appearance [matters]. ... Make sure that you're ... wearing your hat, [and] keeping your hair out of food. The comment from a different participant (O12) suggested an open kitchen impacting the way kitchen employees behave ... *because it [an open kitchen] keeps the staff aware of their behavior – the loud talking, the swearing... it [also] helps our employees understand their uniform standards have to be impeccable. So it helps us out to maintain standards and enforce discipline. And ... it encourages showmanship.*

Providing an entertaining, engaging atmosphere in which the guests felt interaction with the chefs was the most common justification for 11 of the 13 (85 per cent) open kitchen operators surveyed as to why their restaurants were designed with open kitchens. However, while most (11 of the 13, or 85 per cent) of the operators interviewed that had open kitchens and supported them, some operators of both kitchen styles saw drawbacks to having open kitchens. One participant (O9) who owned a restaurant with a closed kitchen complained that the mystique of cookery was lost with an open kitchen, expressing, *I don't think it is good to know everything that goes on [in the kitchen]. When you go out to eat it is kind of like entertainment. You don't want to know how the magician does his trick ... you just want to be entertained. The less they know, the more mystique there is.*

The crude language spoken by the kitchen staff, as two respondents (O3 and O8, closed kitchens) explained, could be a detriment to an open kitchen, cautioning, ... *there are a lot of conversations going on, with bad language* and to be careful of ... *the language that might be coming out of the kitchen every now and again.* Communication issues among front and back of house staff, as well as among customers themselves in the dining rooms, were also seen as potential drawbacks due to the noise that may emanate from open kitchens. Finally, on potential drawbacks to open kitchens, one interviewee (O2, open kitchen) mentioned *Overall I think the pros [of having an open kitchen] outweigh the cons.* By and large, however, the respondents that were supportive of open kitchens negated these drawbacks and acknowledged that open kitchens were well worth these potential disadvantages.

CONCLUSIONS

Safe food production, procurement and delivery have grown in importance of late. This increased emphasis has led to changes in the food production and delivery systems, and increased governmental regulatory oversight. The prevention of food poisoning-related illnesses and deaths, in addition to the prevention of potential economic losses, serve as the impetus for this heightened awareness and action. Although clearly legal compliance may be the natural reaction to implement strategies to avoid such negative consequences, it could also be argued that part of such actions may be conducive to proactive measures in the form kitchens at restaurants and hotels are designed and built. Despite its critical importance, one aspect of kitchen design that has received little to no consideration as of yet regards the effect that an open kitchen might have on perceptions of food safety, as well as on the cleanliness of an

eating establishment. This study attempted to shed more light into this under-researched area and to explore perceptions on open kitchens among restaurant operators, particularly with regard to the effects that open kitchens may have on restaurant hygiene.

Restaurant operators, particularly those whose operations had an open kitchen setup, predominantly espoused the belief that open kitchen restaurants would be cleaner than closed kitchen restaurants. The majority of the participants interviewed (11, 55 per cent) also thought customers would hold the same view. Many operators (14, 70 per cent) were also the view that employees would be more apt to act appropriately at all times when working in an open kitchen, especially as they would be exposed to patrons. An entertaining atmosphere in which customers could interact and be engaged with employees was cited as another benefit of and impetus to design restaurants with open kitchens. This elucidation of participants' viewpoint on the matter allows hospitality stakeholders to better position themselves for more educated patterns of consumption, regulation and inspection, and trade group advocacy – whether it be to encourage fellow restaurateurs to adopt open kitchen configurations or to promote the converse view.

Several limitations must be acknowledged in this study. For example, only 100 restaurants as compared to the approximately 2355 existing eating establishments available were selected for observation of their restaurant health inspection score and kitchen style. Also, that 24 operations out of a pool of 100 were conveniently selected, and that only 20 restaurant operators, 18 of which were managers were interviewed, further limit the generalization capability of the results. Finally, that 13 operations had open kitchens versus only seven with closed kitchens may not have allowed the researchers to make more balanced comparisons between these two kitchen styles. However, despite these limitations, this study represents a first attempt to learn about an area related to the hospitality industry that remains under-researched to date.

The present study also provides avenues for future research in a number of ways. First and foremost, future research using a larger sample of restaurants could further explore the influence of kitchen design of open versus closed kitchens, thus allowing for the gathering of more data within a broader context. This approach would provide more knowledge of such relevant area, extending from the findings of the present study. Furthermore, knowledge of factors contributing to foodborne illnesses could aid in the mitigation or prevention of those contributory factors, which in turn may lessen the incidence of foodborne illnesses.

Research could also be conducted involving government food safety inspectors. This approach could incorporate their knowledge and views about kitchen design. Moreover, studying which food safety factors are evaluated and how they are graded may lead to a better appreciation of potential gaps in the process. Tightening gaps could lead to enhanced food safety, thus resulting in better public health. Finally, future studies could investigate the consumer dimension, that is, whether restaurant patrons also have different perceptions of hygiene depending on the open or closed kitchen style. Information on this area would benefit restaurant owners as they would gain an understanding of the consumer mindset, so

it could be considered with regard to future restaurant design. Information on the consumer mindset on this same topic could also aid governmental or regulatory bodies as they could take consumer thought into consideration when formulating food safety educational campaigns.

Because of the toll of human suffering from illness and the economic hardship caused by foodborne illness, measures to combat or prevent it should be undertaken. The World Health Organization, for example, lists five factors of food handling that contribute to foodborne illnesses: improper cooking procedures; improper temperature holding; lack of hygiene and sanitation by food handlers; cross-contamination between raw to-be-cooked and fresh ready-to-eat foods; and food acquisition from unsafe sources (WHO, 2006). Food preparation workers' behavior applies to at least four of the five aforementioned factors. As such, measures to facilitate food workers' avoidance of the applicable food handling factors that contribute to foodborne illnesses should be considered and implemented by restaurateurs. As suggested in this study's findings, such measure may entail having an open kitchen style, where the food workers are on display, an alternative that may help exhibit a behavior more in line with standard food safety procedures.

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