

Creativity, aesthetics and eco-friendliness: A physical dining environment design synthetic assessment model of innovative restaurants

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H I G H L I G H T S

- ▶ Innovation is a critical attribute in future restaurant physical environment designed.
- ▶ The ideas on IDPED were gathered from interviews and questionnaire with experts.
- ▶ Using MCDM approach, four main dimensions were identified.
- ▶ The performance and creativity are critical attributes for IDPED model.
- ▶ We also found that eco-friendliness, creativity and aesthetics dimension are complementary.

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A B S T R A C T

This study attempts to identify the important attributes of Innovative Physical Dining Environment Design (IPDED) through qualitative and quantitative analyses of expert viewpoints. We extend the related literature in restaurant physical environment design and construct a Multiple Criteria Decision-Making (MCDM) model that combines Decision-Making Trail and Evaluation Laboratory (DEMATEL) and Analytic Network Process (ANP) to demonstrate the interactions and relations among the criteria. The DEMATEL analysis shows that eco-friendliness has direct and indirect influences on the dimensions of creativity, aesthetics and performance. Furthermore, performance is the most critical attribute of restaurant operation when the ANP analysis is applied. The results of this study provide an important reference for restaurant managers and interior designers in their decision-making process, thereby reducing risk.

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1. Introduction

In today's increasingly competitive and dynamic environment, the restaurant industry must provide innovative service to maintain a competitive advantage. Thus, innovations in service and the physical environment designed to increase performance are critical attributes for future restaurant development (Chen, 2011; Jones, 1996; Ottenbacher, 2007). Horng and Hu (2008) and Hu, Horng, and Sun (2009) suggested that a restaurant must provide a unique and novel consumption experience to satisfy customer needs.

Kim, Lee, and Yoo (2006) also noted that restaurants can attract customers through novelty in design. Therefore, the invisible atmosphere, dining space design and lighting have attracted attention from restaurant managers. Furthermore, in keeping with recent lifestyle changes, dining outdoors has become an important social behavior; customers need not only a new sense of taste but also a unique dining environment to experience an alternative dining experience (Liu & Jang, 2009).

The studies of Addis and Sala (2007), Wall and Berry (2007) and Han and Ryu (2009) found that the restaurant environment influences the customer price point, satisfaction and loyalty. Increasing numbers of customers expect to dine in a high-quality restaurant environment that also provides entertainment. Therefore, restaurant owners are working to create innovative environments to attract customers (Ryu & Han, 2010) and to maintain a competitive advantage through innovative physical environment design that

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improves restaurant and equipment efficiency (Hassanien & Tom, 2002).

This study provided several contributions to the existing literature. First, we integrated the previous literature regarding innovation and creativity and considered the novelty perspective in the context of future restaurant design and operation. Although the function of restaurants is primarily about providing food, because customers want to enhance their quality-of-life and enjoy comfortable dining space, improvements in food quality alone will not necessarily improve customer satisfaction. For example, when visiting upscale restaurants or dining out with family or friends on Sundays, customers would often spend 1 h or more in experiencing the physical environment of the restaurants, including the lighting, decoration, and layout. Therefore, sense of experience and attention to the environment of the restaurants may influence their satisfaction and subsequent decision on revisiting or not. Thus, intangible emotional experience of the physical environment of restaurants has been recognized as an important factor in customer attitude and behavior (Heung & Gu, 2012). Despite the large number of studies addressing how restaurant chefs become creative staff members (Horng & Lee, 2006) and the creative processes in chef development (Horng & Hu, 2008), there is limited empirical research that explores the applications of innovation and creativity concepts in the hospitality industry. Second, this study focused on in-depth interviews with creative restaurant evaluators, space designers, restaurant managers and academic scholars to obtain the opinions of these individuals and record their experiences in an innovative physical dining environment design (IPDED) analysis. Thus, this study provided a compass for restaurant managers to use in making decisions regarding dining atmosphere design and operations. Third, the existing studies have only investigated the dimensions of atmospherics on an individual basis. For instance, Wilson (2003) examined how music constructs the invisible atmosphere of restaurants and influences purchase intentions, and Gueguen and Petr (2006) analyzed the relationship between odors and consumer behavior in a restaurant. However, previously published research investigations have rarely explored the relationships and causality of each dimension of restaurant physical environment design. Therefore, this study used multiple criteria decision-making (MCDM) to analyze the structure of the IPDED model and describe the relationships among the dimensions and criteria of restaurant environmental design, thereby helping restaurant managers and designers make decisions that reduce the risks of operational failure.

Our research methodology incorporated both qualitative and quantitative methods to analyze the viewpoints of experts and discuss the relationships among the different dimensions. This study also extends the related literature on physical dining environment design by evaluating the critical attributes of restaurant design: creativity (novelty, centrality, importance, affect, interactivity and resolution), aesthetics (elaboration and synthesis, aesthetics, culture and fashion) and eco-friendliness (resourcefulness and efficiency, green experience and environmental pollution). The study further explores the influence of IPDED on creativity, aesthetics, and eco-friendliness. The MCDM, which integrates the DEMATEL and ANP methods, highlights the importance and prioritizes the dimensions of creativity, aesthetics, and eco-friendliness. Simultaneously, this study discusses the level of influence of creativity, aesthetics and eco-friendliness on restaurant performance (e.g., customer satisfaction, overall impression and operation profit) and provides important insights for restaurant physical environment designers and managers. As Horng and Lin (2009) note, comparative tests of creativity in the restaurant industry are rare in the hospitality literature. The research framework is depicted in Fig. 1.

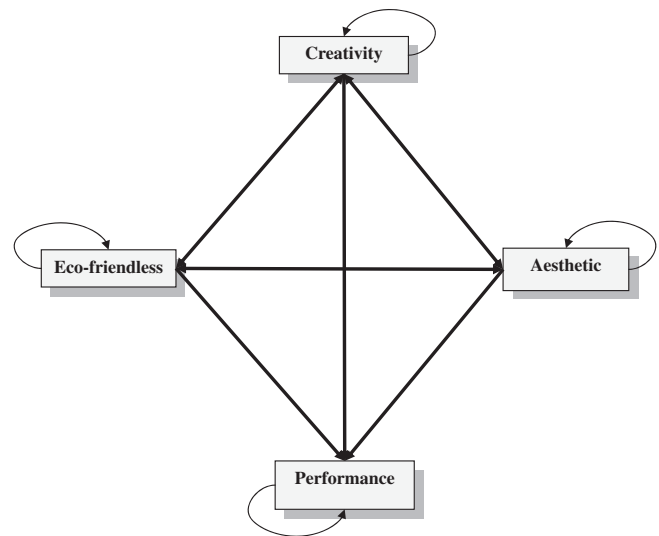


Fig. 1. Research framework.

2. Literature review

2.1. Physical environment of a restaurant

As Kotler (1973) observed, customer satisfaction does not simply depend on the tangible product (food) or service (immediate response) that is being offered; instead, specific emotional feelings of a pleasant and exciting atmosphere can also influence customers' purchase intentions. This phenomenon has led to increased attention in the service industries, particularly in restaurant operations, to atmospheric attributes, such as the facility's aesthetics (including the view from the window), ambience, spatial layout, and employee factors. By appropriately using these atmospheric attributes, restaurants have not only inspired positive word-of-mouth feedback but also increased patrons' dining satisfaction and influenced their behavioral intentions with respect to their willingness to pay more for their food (Heung & Gu, 2012). Bitner (1992) introduced multiple dimensions of atmospherics to explain the background environment of restaurants; these dimensions include ambient conditions; spatial layout and functionality; and signs, symbols, and artifacts. Baker (1986) and Baker, Grewal, and Parasuraman (1994) claim that the environmental atmosphere refers to the combination of functional design factors that are representative of the aesthetics and other social elements that facilitate customer satisfaction and the accomplishment of restaurant goals.

Several researchers have proposed that the inclusion of these design factors in the atmosphere dimension provides explicit or implicit signals that affect the behaviors of customers. For example, Bitner (1992) suggested that the atmospheric stimuli provided by the material or spatial layout, functionality, signs, symbols and artifacts of a business affect its customers' overall satisfaction. Turley and Milliman (2000) insightfully observe that external variables, general interior variables, layout and design variables, and decoration variables are important attributes of atmospherics that determine the purchase intentions of retail employees. Furthermore, Ryu and Jang (2008a, 2008b) proposed that the design of the physical environment of upscale restaurants, including elements such as the aesthetics, ambience, lighting, service products and service staff of those restaurants, affects consumer satisfaction and behavior. In particular, Wakefield and Blodgett (1996) suggested that the layout accessibility, facility aesthetics, seating comfort, electronic equipment/displays, cleanliness and social factors of

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