

A Customer-based Assessment of Casino Atmospherics

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Abstract

This study investigates the elements of casino atmospherics from the perspective of slot machine players in a Las Vegas Strip casino. Guest responses to a survey instrument that was developed to measure the elements of casino atmosphere were collected and quantitatively analyzed. The results of this study suggest that the design elements of floor layout and theme may be most closely aligned with the concept of casino atmosphere from the perspective of a slot player. This outcome supports the gaming industry's long-standing emphasis on these two areas of casino design. The study also provides further insight about physical evidence in services using a casino setting.

Keywords: Atmosphere, physical evidence, casino gaming, theme, slot machines.

Introduction

Casino operators have two main goals: first, to get customers into the casino; and, second, to maximize their overall gaming experience. If these twin goals are met, the laws of probability for casino games will underpin a casino's ultimate financial success. Marketing efforts, including word of mouth referrals and loyalty programs, drive the successful completion of the first goal. Meeting the second objective involves a combination of elements, including the type of accommodations or entertainment, restaurant quality, variety of games, a player's opportunity to win, guest-staff interactions, and casino "atmosphere". Of all of these factors, atmosphere may be the most difficult one to understand from a player's perspective. This study seeks to help casino managers by identifying the aspects of atmosphere in a casino that players seem to recognize and value most highly.

Casino atmosphere falls within the realm of physical evidence. Physical evidence is the design and décor elements that are present in any service setting, including a casino. It has been studied in the services marketing literature but has received little attention from hospitality researchers. Although physical evidence was identified twenty years ago (Booms and Bitner, 1981) as one of the new imperatives of services marketing, it still remains an under-explored area. While research has examined the effects of physical evidence in retail stores, hospitals, hotels and restaurants, very little published research is available on this subject in casino gaming. Further, most of the published research involving the casino setting and its effects has not examined this topic from the perspective of a gaming customer.

A previous study by Mayer, Johnson, Hu, and Chen (1998) investigated the effects of environmental and psychosocial factors on overall customer satisfaction with the gaming experience. In that study, which surveyed slot machine players, it was found that the variable "atmosphere" (therein termed "experiential affect") had the most influence on player satisfaction. However, although that study showed that "atmosphere" had the greatest impact on customer satisfaction, it also suggested that atmosphere was a difficult construct to define and measure. That research broadly conceptualized atmosphere as a composite of casino theme, décor, lighting, noise levels, and smoke effects. The current study seeks to extend and refine the prior research about atmosphere

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from the perspective of a gaming customer. Thus, this paper addresses a gap in the services marketing and hospitality literature by studying how a customer views the elements that constitute atmospherics in a casino.

Physical Evidence and the Servicescape

In service settings, the service is produced and consumed simultaneously in the firm's factory (Zeithaml, Parasuraman, & Berry, 1985). The customer participates in the production process and interacts with the physical facility (Shostack, 1985; Bitner, 1990). The physical facility is viewed as an integral part of a service encounter in the casino, and the higher the interaction between the facility and the customer, the more likely it is that the customer will view the facility as the service. Bitner (1992) used the term "servicescape" to describe the design of the physical facility and its ambient factors. The casino servicescape embodies a multitude of environmental stimuli, such as architectural design, colors, furnishings, textures, lighting, ceiling height, aromas and signage. Bitner suggested that the servicescape serves both a functional and a marketing purpose.

Atmospherics can be defined as "those elements of the service environments that influence affective reactions to place" (Foxall and Greenley, 1999, p. 149). Bitner (1992) referred to atmospherics as the physical design and décor that has the potential not only to create a firm's image, but also to influence the behavior and feelings of customers and employees. Similarly, Turley, Fugate and Milliman (1990) conceived of atmospherics as the controllable items connected with the internal and external environment of a service facility that exert an emotional or physiological reaction from customers. According to Bitner (1992), management should make every effort to create an atmospheric experience within the casino setting that is pleasant and positive and to evaluate its effect on customer satisfaction with the service encounter. Management, therefore, should strive to determine which aspects of a casino's servicescape are most highly valued by its players. It is this latter goal that defines the purpose of this study.

Two primary streams of research have emerged in examining the subject of physical evidence. The first involves the environment as providing tangible evidence, including the effects of atmosphere in different types of venues. The second centers on the effectual ability of the physical environment on consumers. In the first instance, since there is often an absence of tangible evidence in the casino service process, patrons will look to the physical facility for "cues" to help them judge a casino's capabilities. Frequently, the physical facility and its employees are the only visible cues in a service situation (Shostack, 1977; Bitner, 1992; Turley and Fugate, 1992). Physical indicators convey messages that influence the customer's perception of the firm's level of service competence. In intangible situations, consumers evaluate how the facility looks, and more importantly, how the atmosphere feels to them (Turley and Fugate, 1992).

The effects of atmosphere have been studied in a number of different service venues. Robson (1999) found that certain elements of restaurant design, such as lighting, color, and scents enhance guest satisfaction with the dining experience. Milliman (1988) lists seventeen key atmospheric elements that can enhance a restaurant's success. Some of these encompass physical evidence such as the appearance of the exterior and interior of the building, lighting, carpeting, wall décor and color scheme, table arrangements, the appearance of the bar, the separation of smoking and non-smoking areas and table settings. In the consequent stages of the service evaluation

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process, the customer may also consider additional physical evidence such as noise levels, odors, temperature, colors, textures, and furnishings (Shostack, 1977; Hutton and Richardson, 1995). All of these atmospheric details create the variance in perceived image that is associated with the facility itself (Turley and Fugate, 1992).

Sporting event facilities, such as sports stadiums, are a service setting in which atmosphere exerts a strong influence on patron behavior. When a patron purchases a ticket for a sporting event, the patron has made the choice to stay in the service facility for a designated period of time (Wakefield and Sloan, 1995). Numerous factors, including crowding, food service quality, fan behavior control, parking, and cleanliness affect the spectator's desire to not only stay at but also return to the stadium. Other research has shown that, while seeking entertainment and social interaction at a sporting event, the spectators' overall feeling about the experience is influenced by stadium design (Melnick, 1993). Thus, the physical surrounding of the sporting event heavily influences the spectators' perception of the experience and their willingness to return (Bitner, 1992).

The second principal research theme deals with the effectual ability of the physical environment on consumers, which has been studied both by researchers interested in retailing and by environmental psychologists. In the retailing area, research has shown that the customers' interaction with retail stores' physical surroundings affected their overall satisfaction with the shopping experience (Kerin, Jain, & Howard, 1992) and that the tempo of background music influenced both traffic flow and gross receipts in supermarkets and restaurants (Milliman 1982; Milliman, 1986). Donovan and Rossiter (1982) showed that two dimensions (affect; pleasure and arousal) could predict consumer behavior in retail settings. They found that pleasant environments contributed to unplanned shopping. In a role-play study, customers rated an organized travel agency higher on all ten included attributes over a disorganized travel agency (Bitner, 1990). In a restaurant setting, customer and employee interactions are considered to be key atmospheric elements (Milliman, 1986). These included the appearance and greeting of the host/ hostess, customer interaction with the chef or managerial personnel, the

attitude of the employees, and the effect of other diners in the facility. Other researchers found that the more a patient is satisfied with the "healthscape" of a health care facility, the higher the level of overall satisfaction with the entire service encounter (Hutton and Richardson, 1995).

Environmental psychologists have also studied why individuals react in particular ways to the characteristics of a space. Therefore, the principles of environmental psychology should be very relevant for any service provider that designs and manages the physical environment (Foxall and Greenley,

1999). For example, the consumers' emotional responses to a service environment are directly related to their intention to spend time and money in that environment (Donovan, Rossiter, Marcoolyn and Nesdale, 1994). Wakefield and Baker (1998) found that environmental elements, such as mall layout and décor, are positively associated with the desire to stay at the mall. In addition, hotels, restaurants and retail shops are now applying environmental psychology factors (Areni, 2001) with respect to perceptual factors, such as textures (Miller, 1998a), lighting (Gorman, 1997; Block, 1998), design and layout (McCann, 2000; Scoviak-Lerner, 2001; Robson, 1999), aromas (Miller, 1991, 1993), employee uniforms (Hall, 1998; Barhite, 2000), and music (Oakes, 2000; Matilla and Wirtz, 2001). Less is known, however, about the effects of such environmental elements in a casino gaming environment.

Mehrabian and Russell (1974) presented a theoretical model for studying the effect of the physical environment on human behavior. This approach assumes the combined perceptual tasks of pleasure, arousal and dominance can either attract individuals to an environment or cause them to avoid it. In a gaming context, Titz, Andrus and Miller

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(2001) used Mehrabian and Russels's construct as part of an instrument to evaluate hedonistic differences between mechanical game players and table players. However, their study did not address physical facility factors or casino atmospherics. Further, since the existing environmental psychology scales have not been applied to a casino gaming environment, it was deemed appropriate to develop a new survey instrument for purposes of conducting the current study.

The current study expands upon the research discussed above by examining atmospherics in a gaming venue. There are key atmospheric elements that exist for different types of businesses, which can be categorized as static or dynamic (Milliman, 1986). Static elements are consistent over time and fairly difficult to change, whereas dynamic elements constantly fluctuate and are easily changed. Another aggregation of these elements can be defined as "atmospheric dominant" (Turley and Fugate, 1992). In this type of service setting, atmosphere is a determining factor for patronage. An atmospheric dominant setting may be appropriate for the casino gaming industry. For example, Las Vegas casinos boast themes ranging from Egyptian treasures to Venetian canals and flaming volcanoes. However, little non-proprietary research about a casino's atmosphere and its effects on gaming customer behavior has been conducted.

Friedman (2000) has conducted the most extensive research on the effects of casino interior design on customer play. His findings indicate that after location, interior design is the most important variable in either increasing or decreasing the maximum effect of that location. According to Friedman (2000), casino design has more impact on customer play than the number of rooms available, since it directs what percentage of a property's guests will choose to play on premise. Additionally, he maintains that casino design influences the decision of whether or not customers who are staying at competing properties will choose to play in another casino.

Friedman views design as encompassing several physical features of the casino including the decor, dimensions and shape of the interior architectural shell, arrangement of the gaming equipment, traffic-flow pattern, focal points, signage, and lighting (Smith, 2001). Each of these elements can either hinder or enhance the comfort level of the casino player. Gamblers who feel comfortable in a particular setting are more likely to play longer as well as return for future visits. Friedman points out that although no specific interior design or décor has ever dominated the player counts in any casino gaming market, the majority of gamblers seem to favor particular architectural, layout, and décor formats.

Friedman's research led him to create thirteen specific casino design principles that promote player counts. Each of Friedman's principles is further subdivided into two (exactly opposite) design elements. According to Friedman (2000), a casino's adherence to these principles can also be used to predict whether or not a new or remodeled property will succeed or fail, as well as predict the property's potential degree of success. However, Friedman's research focuses on casino atmospherics primarily as a predictor of financial success or failure. He measured atmospherics in terms of physical attributes in the casino environment but did not appear to incorporate the perspective of the gaming customer in his work. This study will explicitly include the views of gaming customers in trying to discern how they view atmospherics in a casino environment. The methodology for doing so is discussed next.

Methodology

Data for this study were collected at a large Las Vegas Strip hotel/casino with over 2000 rooms. Gaming customers were intercepted while waiting to register for slot tournaments. Convenience sampling procedures were employed in order to minimize any disruption of normal casino operations. The customers had been invited to

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participate in the slot tournament by casino management. According to management at the property, the profiles of the typical slot players at this casino included men and women ages 45-65, with women being in the majority. The demographics of the guests who were surveyed for this research generally conform to this profile. Further, the slot tournaments at this particular property were thought to provide a cross-section of slot players, as the tournaments are advertised to low, middle, and high-end players. Thus, it is believed that the responses obtained in this study represented a reasonable mix of typical slot machine customers. A survey instrument designed to measure slot player perceptions of casino atmospherics was developed based upon the findings of previous researchers (i.e., Bitner, 1992; Friedman, 2000; Milliman, 1988; Wakefield and Baker, 1998) and two focus groups that were conducted with gaming customers at the casino hotel. Customers were asked to complete a 39-question, self-administered survey instrument that covered eleven different aspects of atmospherics relating to the casino hotel where they were playing:

- Theme
- Décor
- Noise level
- Color
- Ceiling height
- Light
- Floor layout
- Temperature
- Employee uniforms
- Smell
- Smoke

The survey design employed a 5-point Likert scale for all questions, except those related to guest demographic information. The use of five-level Likert scales with a neutral midpoint is recommended so that respondents are not forced to give an opinion if they do not have one (Steiber and Krowinski, 1990). Customers were asked to rate their response to each question from [1] Strongly Agree to [5] Strongly Disagree. Three questions were used to measure the first nine constructs shown above, while two questions each were used to measure the smell and smoke constructs. Two questions were used to collect responses on the variable 'atmosphere,' which was the dependent variable in this study. The remainder of the questions contained in the survey instrument measured demographic information and other variables.

Over the course of two slot tournament registrations, 205 customers were intercepted and completed the questionnaire. Ten surveys were discarded because they contained incomplete responses to the instrument, resulting in 195 useable surveys. The surveys were coded and entered into a database for quantitative analysis. Analysis of the data contained in this study was conducted by using SPSS 10.0 software with listwise deletion of missing values.

The dataset was first examined for outlying variables by running a mock linear regression and saving variables for Cook's distance, leverage and Mahalanobis's distance. No observations were deemed to have values on these measures that made them candidates for elimination from the dataset as extreme responses. Thus, the final dataset was of sufficient size to proceed with multivariate analysis.

Exploratory factor analysis was performed on the dataset for data reduction purposes. A seven-factor solution appeared to be the best fit for the dataset (Table 1).

Table 1
Factor Analytic Results - Rotated Component Matrix

Variable	Component						
	Enjoyment	Décor/ Color	Floor Layout	Theme	Employee Uniforms	Ceiling Height	Noise Level
Theme1				.859			
Theme2				.877			
Theme3				.697			
Décor1		.647					
Décor2		.514					
Décor3	.609						
Noise2							.831
Noise3							.853
Color1		.824					
Color2		.812					
Color3		.664					
Height1						.792	
Height2						.747	
Height3	.672						
Light3	.580						
Floor1			.782				
Floor2			.810				
Floor3			.690				
Temp3	.529						
Uniform1					.790		
Uniform2					.747		
Uniform3	.656						
Smell1	.557						
Smell2	.729						

Note: Factor loadings below 0.45 have been omitted for ease of interpretation.

Eigenvalues for the first five factors were greater than 1.0, while the eigenvalues for the sixth and seventh factors were less than 1.0, but greater than 0.90. Although these last two factors explained less variance than the first five factors, it was reasonable to include them in the solution based on interpretation of the Scree plot and the criterion comparing the relative size of the sample with the number of variables contained in the dataset (Steiber and Krowinski, 1990). In arriving at a seven-factor solution, two of the three temperature variables were eliminated from further analysis because they cross-loaded on several factors (Temp2 and Temp3). In addition, two of the three lighting effects variables were eliminated for the same reason (Light2 and Light3). Finally, one of the three noise variables (Noise1) was eliminated due to its tendency to load weakly on several factors. Thus, five variables of the original set of 31 variables were eliminated from further consideration during exploratory factor analysis.

The seven resulting factors are deemed to represent the following aspects of casino atmospherics:

- Factor 1 = "Enjoyment" (including casino 'odor' effects)
- Factor 2 = "Décor and Color"
- Factor 3 = "Floor Layout"
- Factor 4 = "Theme"
- Factor 5 = "Employee Uniforms"

Factor 6 = "Ceiling Height"

Factor 7 = "Noise Level"

Each of factors 3-7 represents a distinctive aspect of casino design. However, factor 2 represents a combination of both décor and color. Apparently, casino guests combine these elements when they think about casino atmosphere. This result is plausible, since a décor construct could easily encompass some aspects of color from a guest perspective. Factor 1 has been termed an "enjoyment" factor, since the questions related to it each dealt with the guest's enjoyment of the gaming experience, or with the odors (or lack thereof) in the casino. The emergence of such a factor may be similar to the "experiential affect" phenomenon that was referred to in a prior study by the authors. In that study, an aspect of casino atmosphere was found to be related less to physical design features than to an experiential aspect of gambling.

Each of the seven resulting factors was transformed into an independent variable comprised of the variables contained in each factor by using a summated scale. Scale reliabilities for the resulting seven independent variables and the dependent variable (atmosphere) are shown in Table 2. The scale reliabilities are all greater than 0.70, which is an acceptable standard for exploratory research (Nunnally, 1978). Hence, the reliability of the derived factors that resulted from the analysis appeared to be adequate.

Table 2
Scale Reliabilities Measured by Cronbach's Alpha Coefficient

Factor	Alpha Value
Enjoyment	0.80
Décor/Color	0.88
Floor Layout	0.84
Theme	0.88
Employee Uniforms	0.74
Ceiling Heights	0.80
Noise	0.84
Atmosphere	0.85

Next, linear regression was performed with the seven independent variables and atmosphere as the dependent variable. The resulting regression equation is as follows:

$$\text{Atmosphere} = 0.844 + 0.232 \text{ Theme} + 0.623 \text{ Floor Layout} + \epsilon$$

The F statistic for the regression was 141.753 ($p < 0.000$), which demonstrates that the regression result is meaningful. In addition, the R^2 for the regression was 0.61, which indicates that it explains over 60 percent of the variance in the dataset.

Only two of the independent variables, Theme and Floor Layout, were significant in the regression equation ($p < 0.000$, standard error of the estimated beta coefficients = 0.045 and 0.053, respectively). Of these two variables, it appears that Floor Layout may be more important than Theme as an element of casino atmosphere, due to the higher value of its regression coefficient. However, caution must be exercised with respect to the interpretation of the relative weights of regression coefficients in multivariate regression (Neter, Kutner, Nachtsheim, & Wasserman, 1990). Thus, no conclusion about the relative importance of these two independent variables can be drawn, other than that they were both significantly related to atmosphere from the perspective of the casino customers who were surveyed in this study. The remaining five independent variables did not prove to be significant with atmosphere as the dependent variable. The results of multiple linear regression suggest that, of the seven independent variables that might comprise atmosphere, only two represented significant aspects in the minds of casino customers. The implications of this finding and its impact are discussed next.

Discussion and Implications

The purpose of this study was to define and delineate how a player thinks about atmosphere in a casino. Since it was an exploratory research effort, the findings from this study are not conclusive with respect to this topic. Nevertheless, this study may lend further insight into the relative importance of certain aspects of overall casino design from the customers' perspective. The findings herein are somewhat surprising in that they suggest that casino atmosphere may be a narrower construct than might generally be believed by many casino operators. However, the fact that floor layout and theme are significant to the customers' conception of casino atmospherics is a very important result. It appears to confirm what casino operators have long known to be true; that is, that these two aspects of casino design are crucially important for its success. Further, as the recent bankruptcy of the Aladdin Hotel in Las Vegas may demonstrate, floor layout is central to the problems that were experienced at that property (Berns, 2001; Simpson, 2002), lending further credence to the key role that floor layout plays in casino success.

In this study, the two factors that defined the customers' view of atmosphere were floor layout and theme. The other atmospheric effects that were surveyed in this study did not appear to be significantly related to customers' perception of casino atmospherics. Obviously, such a finding must be tempered by the fact that this was an exploratory study using a convenience sample of slot machine players. Also, it may be the case that the other, non-significant aspects of atmospherics might be areas that customers consider, but only to the extent that they are expected elements in any casino setting. Thus, they might not represent points of differentiation to gaming customers. In this condition, their role in the servicescape might be related to simply meeting a guest's minimum level of expectation in a particular area of casino atmosphere. Additional research would be needed to investigate whether this is the case.

Nevertheless, the results of this study appear to confirm that floor layout and theme are two critically important casino design factors. In fact, they may actually constitute much of what the customer views as atmosphere in a casino, relative to the many other design elements that are present in a gaming establishment. Thus, this study partially supports Friedman, several of whose key design principles relate to floor layout in a casino (Friedman, 2000). It also confirms a long-standing gaming industry emphasis on the thematic effects that characterize modern gaming facilities in Las Vegas and elsewhere. Customers clearly care about theme and can relate to it as an element of their overall gaming experience. However, since the results of this study were purely quantitative assessments of casino atmosphere from players, further research would need to be conducted to determine exactly what they like or dislike about the concept of theme itself.

The same can be said about floor layout. Customers clearly appear to care about floor layout as a key aspect of casino atmospherics. Gaming properties have traditionally focused on maximizing profit out of every square foot of casino space. This generally involves managing playing floor foot traffic and machine play as dictated by location. Many of Friedman's thirteen design principles focus on floor layout. From a financial perspective, he found that short line of sight, a maze-type layout, and "jammed packed", congested gaming areas created higher player counts in certain casinos than did more spacious floor designs (Friedman, 2000). However, Friedman's analysis of floor design only considered player counts without directly incorporating the perspective of the gaming customer. Thus, the current study has expanded upon his pioneering work in casino atmospherics.

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Limitations and Future Research

As with any empirical study, certain limitations must be noted. One limitation is that the customers surveyed were a convenience sample of slot tournament players. These customers may not represent an overall cross section of all slot machine, video game, or table game players. Tournament players tend to be more experienced slot players. They usually are repeat customers and enjoy the tournament's ambiance. It is not known how much variation would be obtained if the study were replicated using a random, instead of convenience, sample of customers playing slots on the floor. In this study the sample type and data collection method were specifically designed so as to not interrupt regular casino operations.

This study was conducted at one medium-end player Las Vegas hotel/casino. The customers in this sample chose to participate in the tournaments at this particular property and therefore may have a positive bias towards its "atmosphere". Customers may have used this specific property as a reference in answering questions about atmosphere. Responses as well as key atmospheric determinants identified in this study may vary according to the physical attributes of a casino. Therefore, they may vary from property to property.

Finally, this study involved exploratory research. The study's principal objective was to determine the key attributes that gaming customers define as casino "atmosphere". However, it involved only a single casino and only one type of casino customer. In order to identify other major components of casino atmosphere from the customers' perspective, future research on this topic should introduce a number of other variables including: (1) non-tournament slot players; (2) table game players; (3) local customers; (4) other Las Vegas Strip and downtown casinos with various target markets; and, (5) gaming jurisdictions other than Las Vegas. Future research efforts should focus not only on the replication of this study in another gaming setting to confirm it, but also on expanding the sampling frame to include different player types from different casinos.

Summary

Although casino operators have long collected and analyzed detailed information about customers and their playing behavior, they traditionally have not involved customers in discussions or decisions about atmosphere. The results of this study suggest that the design elements of floor layout and theme may be most closely aligned with the concept of casino atmosphere from the perspective of a slot player. Other physical environment factors including decor, noise level, ceiling height, temperature, color, lighting, and employee uniforms were not significant determinants of casino atmosphere from the customers' point of view. Consequently, further research is needed in other gaming venues to generalize the findings of this study to the gaming industry at large.

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