

DESIGNED LIGHTING PLAN AND ITS IMPACTS ON PATRON TURNOVER RATE IN THE RESTAURANTS

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ABSTRACT: Mostly the restaurants open in evenings so the factor of lighting is very important to work on. In this study two moderate upscale restaurants, named Lahore View Restaurant (R1) and Jasmine Restaurant (R2) are selected which owned and designed by a single person, having similar interior, finishes, furniture, and menu.

The study aims to implement the comprehensive lighting and to use standards set for lighting in the restaurants. The study also emphasizes to assess the impact of lighting standards on a restaurant's profit through the change in patron turnover rate (PTOR). The previous lighting is verified according to the plan and needs of the people. The two aesthetical light plans are implemented by the use of decorative lighting fixtures in the selected restaurants. One aesthetical light plan, named Contemporary Light plan (CLP) is used in Lahore View Restaurant (R1) in which spotlights are combined with rope lights. The other aesthetical light plan, named Traditional Light Plan (TLP) is used in Jasmine Restaurant (R2), which consisted of spotlights and chandeliers. Results show that there is a significant difference in lighting before variation and after variation regarding PTOR in the restaurants. Mean several patrons after variation (Mean=0.92, SD=0.55) is much more than the Mean number of patrons before variation in lighting (Mean=0.27, SD=0.22). The value of the t-test between previous lighting and designed lighting is 6.9 which also concludes that PTOR is increased when new lighting plans are implemented. The use of lighting fixtures such as rope lighting and chandeliers significantly impact on patrons' number to visit the restaurants. The study concluded that there is a significant positive relationship between verified lighting plans and PTOR.

Key Words: Aesthetical, Moderate Upscale Restaurant, Patron, Turnover, Rate

INTRODUCTION AND REVIEW OF LITERATURE

The relationship between business and patron is very direct and related to revenue, which affects the economy of the country. The most prominent enhancement in business is the awareness of people in their purchase-decisions in the service industries [1], especially in restaurants. This mode of thinking increased the attention of the restaurateurs towards the price and the product, but also to provide a pleasant and exciting buying environment, in current professional settings [2]. That is why wide progress is seen in the research field of interiors, ambiance, services, qualities, images and behavioral intensions in different retail settings. It is also necessary for the restaurant environment [3, 4, 5] to increase sales and profits [6, 7] by enhancing the interiors.

With all the other factors of services and interiors, lighting individually plays a significant role in a dining establishment. The researcher tried to be fully conscious of the patrons' requirements and expectations for planning a comprehensive light setting.

This study looks at the patrons to increase the turnover rate (PTOR) in the restaurants through the environmental factor of light [8]. The objective of the study is to find out the designs of lighting with a focus on lighting fixtures which can increase the number of patrons and ultimately the profit. The other objective is to apply the standards of lighting and to assess their impact on patron numbers. A comprehensive lighting plan involves considering the amount of functional light, the consumption of energy as well as the aesthetical impression on the users [9]. Therefore, the sciences of light must be balanced with the aspect of art when implemented into the spaces, especially of public concern. The inventions in lighting fixtures and designs have increased the possibilities to combine both practical and aesthetical applications of light in a space [8]. Watanabe (1990) states about lighting, "A desire to design

the relationship between light and human beings and to turn lighting fixtures into inconspicuous tools of light that enhance architectural space" [9].

In Pakistan eating food, inside or outside home is taken as a celebration on several events such as weddings, engagements, night parties etc., these celebrations deeply depend on lighting, without light food is not visible and a luminant environment would benefit to the investors [6, 7] in this field by increasing their customers and profits.

Flynn was a twentieth-century lighting pioneer and researcher who focused on the psychological effects of lighting. Perceptual and emotional attributes which have been considered basic guidelines to measure lighting quality (Martin & Hemer, 2000), were developed by Flynn and followed and amended by Mehrabian and Russel (1974) to Arora and Singer (2006) and others [5, 9] These studies have found that people's moods, emotions, productivity, and alertness are influenced by the lighting in their space.

There are some contrasting studies such as some conclude the low level of light is preferred and others say bright light contributes to be preferred by people. Mehrabian and Russell (1974) also examined that people are naturally drawn to light sources and bright lights contribute to stimulating excitement [10].

The surveys of office employees consistently reported that lighting is one of the most important characteristics of office plans and furnishings. To test this further, Baron and Rea (1992) conducted an empirical study where participants performed a wide range of tasks under different lighting plans. The results indicated that lighting influences participants' performance on all tasks [10].

The Pakistani culture of celebrating eating has a historical prominence. Djanhal and Halliday, described the history of Subcontinent as the ancient civilizations of the world, its

culture had lots of variety because of different nations and religions present there.

Mohsin (2005) found that the patrons also notify and spread a word of mouth after utilization of a space and its environment. In the last two decades, the trend of eating out has gained popularity as a recreational activity; this is because of advertisements, brand consciousness, and foreign cultural influences in Pakistan. People consider it a mean of socialization, and relaxation, in this hot humid region (Mohsin, 2005) where electricity shutdowns with its rising prices forced people to move towards restaurants or other eating places, to get food along with a cool environment. Even the cost of that lavish environment they have to pay but in return, they get the expected environment for a short visit [8].

Scope of the Study

The study will assist the designers to plan the luminant environment more perfectly and professionally according to the requirements of the patrons coming to the restaurants. The study shall also contribute economically and aesthetically to design functional lighting in restaurants, beneficial to restaurateurs and also to increase patrons' turnover rate in that place which intensely raises the profits [6, 7].

Research Design and Methodology

The two upscale restaurants, named Lahore View restaurant (R1) and Jasmine restaurant (R2) were selected for the study, both were owned and designed by a single person. Restaurants were having an identical menu, venue, interior, and lighting. The lighting (L1) consisted only of energy savers in both of the restaurants.

The discussions with interior designers, restaurateur, and operational manager of the restaurants concluded that at the time of the starting of these restaurants the lighting was not considered important. But now the restaurateur was agreed to emphasize on lighting and he has also provided financial assistance to do alterations in lighting. The evidence collected by the prior survey showed that the lighting was not attractive and up to mark for the patrons, coming to the restaurants. Only food and services could be factors of attraction but not interior or lighting. A prominent and visible glare and bluntness were present in the light thrown by energy savers.

So the lighting was altered according to the suggestive measures and the standards set by IESNA in both of the restaurants. The basic standards communicate that the lighting must be economical, functional and aesthetical.

The light level, color temperature, brightness, glare and (IESNA, 1999) were measured and considered in the current study.

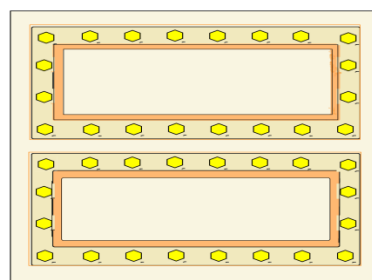
According to IESNA (1999), the recommended light level for task area dining is 15-foot candles, while the recommended light level for general area dining is 10-foot candles. The light level was measured by a light meter during previous and new lighting in both restaurants with the possibility of a $\pm 10\%$ error [11].

The color temperature for both of the restaurants was chosen up to 3000 Kelvin which comes in the category of warm white light which has a warmer light to accentuate the wood and earthy tones and also suitable for the restaurants [12].

The energy savers have a glare in their thrown light. And the illumination power of compact fluorescent energy saver

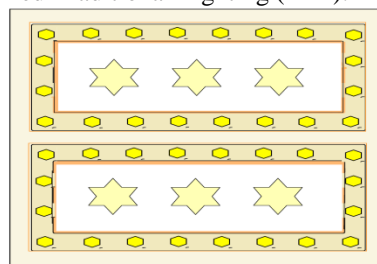
bulbs got dim by their continuous use [13, 14]. It needs to be changed after a specific period which increases the design cost so spotlights were installed for functional lighting and more economical in cost in the long run. The spotlights also centralized a table itself and highlighted table features e.g. spreadsheet, napkins, cutlery then food served [14] and the persons themselves to each other sitting on the table [5].

Both restaurants were differentiated from each other by choosing different esthetical lighting fixtures. Lahore view restaurant (R1) was illuminated with rope lights on the ceiling in square sections along with spotlights. Rope lighting was used for decorative purpose as well as it is a contemporary light source which accompanied with spotlights to highlight the space. The plan was named Contemporary Lighting Plan (CLP).



Ceiling Layout of the Contemporary Lighting Plan (CLP) in Lahore View Restaurant (R1)

Jasmine restaurant (R2) was illuminated with chandeliers, which illuminate the nearest surrounding area more than the sides of the room so they supplemented with spotlights. A total of eight chandeliers were used, each having fifteen bulbs of low luminance. The bulbs were used for low voltage to save energy but to have comprehensive lighting, the plan named Traditional Lighting (TLP).



Ceiling Layout of the Traditional Lighting Plan (TLP) in Jasmine Restaurant (R2)

The designed lighting was assessed on the rate of the patron numbers coming to the restaurants, with the help of a formula, given below:

$$PTOR = \frac{\text{Total Number of Patrons seated}}{\text{Total Number of Seats in Restaurant}}$$

The patrons who come to dine at both Lahore View (R1) and Jasmine (R2) restaurants were targeted for the study. The patron who came there, vary in age, marital status, educational qualification, income level, and responses of behaviors and attitudes. The data was recorded with the help of the restaurant's administration.

Results and Discussions

SPSS 20 was used to analyze the results based on the values of mean, standard deviation and Paired Sample t-test.

Table 1
Comparison of PTOR during new and designed lighting in R1

Lighting Variations	PTOR		t	df	P
	Mean	SD			
L1	0.9	0.43	6.4	29	<.001
CLP	1.7	0.54			

Table 1 shows the values of mean, standard deviation and Paired Sample t-test which concluded the difference in L1 and CLP regarding PTOR in R1. Results show that there are a significant difference $t=6.4$ ($P<.001$) before variation and after variation in lighting regarding PTOR in R1. The mean of several patrons after variation (Mean=1.7, SD=0.54) is much more than a mean number of patrons before variation in lighting (Mean=0.9, SD=0.43) in R1. This concludes that PTOR increased significantly after variations in lighting in R1.

Table 2
Comparison of PTOR during new and designed lighting in R2

Lighting Variations	PTOR		t	df	P
	Mean	SD			
L1	0.9	0.43	4.0	29	<.001
TL2	1.5	0.66			

The table 2 shows the values of mean and standard deviation and Paired Sample t-test values which concluded the difference in L1 and TLP regarding PTOR in R2. Results show that there is a significant difference $t=4.0$ ($P<.001$) before variation and after variation in lighting regarding PTOR in R2. Mean the number of patrons after variation (Mean=1.5, SD=0.66) is much more than the mean number of patrons before variation in lighting (Mean=0.9, SD=0.43) in R2. This concludes that PTOR also increased significantly after variations in lighting in R2.

Table 3
Comparison of PTOR in previous and new lighting in both restaurants

Lighting Variation	PTOR		t	df	p
	Mean	SD			
Previous Lighting (L1)	0.27	0.22	6.9	37	<.001
Designed Lighting (L2)	0.92	0.55			

Table 3 shows the comparison in previous and designed lighting regarding PTOR in the restaurants. Paired Sample t-test value 6.9, conducted the difference between before variation and after variation in lighting regarding PTOR. Results show that there is a significant difference ($P<.001$) in responses regarding PTOR in restaurants. Mean a number of patrons after variation (Mean=0.92, SD=0.55) is much more than the Mean number of patrons before variation in lighting (Mean=0.27, SD=0.22). This concludes that PTOR increased when designed lighting plans were implemented.

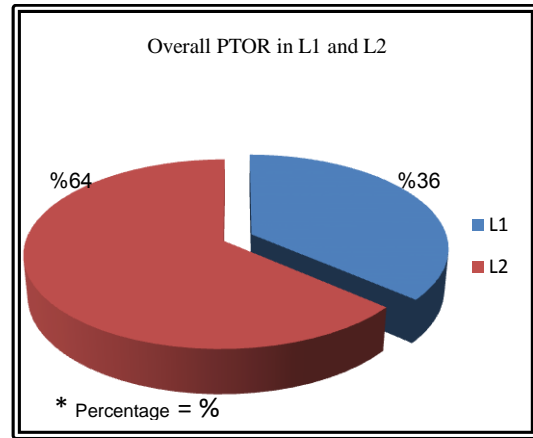


Figure 1 Overall PTOR in the Previous Lighting (L1) and Designed Lighting (L2)

According to a percentage (figure 1), the rate of patron turn over in previous lighting (L1) is 36% and in newly designed lighting (L2) is 64% which also confirms that PTOR increased when the lighting was altered. Several studies are present which concluded that lighting impact on patrons [6, 7, 8, 9, 12,] and also on patron turnover rate [1, 9]. But the relationship of light with patrons' turnover rate was not studied to a wider extent and usually not studied in a real environment.

Recommendations

The interior designers can get benefit from the designed lighting, to give a comprehensive lighting setup and they can also use lighting standards that are used in the study. The traditional or contemporary lighting designs can be used again and both designs can be combined to see the influence on several patrons. The study can also be revised with a variety of lighting fixtures available in the market. The study can also be applied in different commercial settings to increase in patrons and profits.

The researcher has used only a few lighting characteristics according to facilities and finances and the study can be revised with the consultation of other characteristics.

Conclusion

The designed lighting plans in the selected restaurants impacted on patrons' turnover rate. This change in PTOR might happen because the previous lighting consisted only on energy savers in both restaurants which would not be attractive for the patrons. The study proves that a comprehensive lighting plan based on set standards can impact on patron's number and profits. The use of lighting fixtures such as rope lighting and chandeliers significantly impacted on patrons' numbers. The results concluded that there is a significant positive relationship between variation in lighting and PTOR.

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Source Used

The article is based on the data of the PhD thesis work.

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