

# Light Design practices in Dubrovnik Restaurants

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**Undergraduate thesis / Završni rad**

**2019**

*Degree Grantor / Ustanova koja je dodijelila akademski / stručni stupanj:* **RIT Croatia / RIT Croatia**

*Permanent link / Trajna poveznica:* <https://um.nsk.hr/um:nbn:hr:229:822025>

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*Download date / Datum preuzimanja:* **2020-12-04**

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## **Light Design practices in Dubrovnik Restaurants**

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May 1st, 2019  
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## **ABSTRACT**

The goal of this research was to determine what are some of the practices when it comes to light design in Dubrovnik Based restaurants. Observation method was used as part of this project in order to create a matrix of different value which was later used as a primary tool for developing results. Restaurants were categorized into three different categories, fine dining restaurants, casual dining restaurants, and modern fast food restaurants in order to be able to compare observed data and create a conclusion to what some of the light design practices in Dubrovnik are. Dubrovnik based fine dining restaurants invest in both designs of the physical fixtures as well as research and development of determining best colors, positioning, and design of light. Casual dining restaurants put emphasis on interior design such as furniture and wallpapers while light, mostly white colored is in the second plan. Modern Fast food restaurants do not lack creativity in interior design and are designed by the book with white bright light predominant. Dubrovnik restaurants are following the trends, but there is room for improvement when it comes to uniqueness and creativity.

Key Words: Light Design, Restaurants, Dubrovnik, Interior, Hospitality, Design

## INTRODUCTION

Light is a form of energy, more specifically, it is the form of visible energy that is capable of creating stimulating receptors within the human eye that create a vision. Vision and light are both interconnected and in order for a person to see objects within a space, there must be light. Humans are not able to see light, what we perceive as light is actually the energy falling to an object and creating a reflection. The way we perceive objects in space is greatly influenced by the light and the texture of the objects. For example, an object with a dull surface such as brick will create a diffused light effect while smooth surfaces such as brushed aluminum will create reflected light. In order to understand the luminous environment, we have to distinguish two different types of light, natural and artificial light. The primary and only source of natural light comes from the Sun and it creates a full spectrum of colors and provides health benefits for the people in terms of being a natural source for vitamin D. Artificial light, on the other hand, is associated with usage of electrical energy. Combination of artificial and natural light can create a dynamic environment and people started implementing these techniques in ancient theatres where they wanted to create emotion. Kilmer, R., & Kilmer, W.O. (2014)

The most important factor when it comes to the creation of the human perception of the world around us is light. Interior designers nowadays are able to create stunning architectural visual concepts by mixing artificial and natural light and light design as a profession are quickly becoming an artistic discipline. Lighting brightness and contrast are the two most important element of emphasizing certain objects and emotions in the space as well as usage of cold colors such as blue and violet to create restful ambiance and usage of warm colors such as red and yellow to create a cheerful ambiance. Kilmer, R., & Kilmer, W.O. (2014)

Customer habits are changing on a generational level, in today's restaurant business, being close to the customer is not enough anymore and they are looking only for a tasteful meal, customers are looking for an entire experience of dining or so-called: "Theatrical Service". The restaurant industry has changed dramatically with the new habits of baby boomer generation who tend to use dining-out as a form of emotional and social experience rather than a "eat on the run" philosophy. In order to create a successful business, every small business manager must be aware that repeat business and customer satisfaction are the two most important factors of a successful business and they are created by understanding emotions and attitudes related to consumption experience that can be achieved by using the correct light design techniques. Raj (2006)

Technological advancements in light design technology are enabling restaurant managers and interior designers to use the technology and think outside of the box. Lighting is one of the most important atmosphere creators and in a well-designed space, every light fixture should represent a certain form of art. As mentioned before, customers are looking for a complete emotional experience when dining-out and restaurant managers and light designers both agree that in order to create an atmosphere that customers want to be part of, light design is crucial. According to Nick Albert who is the director of the illumination, the lighting and consultancy division of international hospitality and design firm HBA states that the American restaurants are leading the global market when it comes to implementing lighting techniques in creating customer satisfaction and experience with the exception of Asian competitors who are rapidly following up. Killifer (2015).

The light design has a great impact on a customer and studies show that the effects of brightness and contrast have a large impact on what the customer will order in a restaurant as well as

general health and well-being. More and more managers are increasingly focusing on differentiating themselves from their competitors by implementing correct lighting techniques. Retail atmospherics is becoming an important competitive tool in a restaurant business and light designers and restaurant managers are using light techniques to influence customer satisfaction. Recent studies show that luminance greatly influences the alertness of the brain and that has an impact on the customer's emotional state. Biswas (2017)

Recent studies in the field of customer satisfaction and overall customer habits show that factors such as music and lighting have a great impact on overall customer psychological state. Different types of restaurant implement different light design strategies. For example, Fast food restaurant will usually have brighter lights and fast-paced music, while on the other hand, fine dining restaurants implement dimmer light and slower music. A study examining more than 1,400 restaurants in the range from fine dining to fast food show that the customers in restaurants implementing slower paced music and dimmer light spend in an average more money and tend to stay longer. Light design of the restaurant also has an incredibly big influence on the health effects. The study shows that people tend to eat more in surrounded by bright colors such as red and yellow accompanied by fast-paced music. That environment has a great impact on the general health of the population because of the large number of fast food restaurant and the obesity problem. On the other hand, restaurants implementing more of a subtle and atmospheric ambiance, people tend to order more food than in fast food restaurants, but they also tend to leave more on the plate. Biswas (2017).

## METHODOLOGY

As part of the data collection methodology, observation methodology was used to create data.

There were 7 different aspects to look at every single restaurant visited as it follows:

1. WOW Effect
2. Comfort
3. The intensity of Colors and Contrast to Interior
4. Color
5. Installation of Fixtures
6. Menu Visibility
7. Trip Advisor Rating

WOW effect is a very important factor of the overall experience when visiting a restaurant since it can largely be influenced by the first impression. When entering a restaurant, it took less than 5 seconds to create personal observation based on colors, the intensity of the colors, contrast with the interior design and overall design experience. The importance of WOW effect in this methodology is important because it is based on the first impression and without any specific observation.

Comfort is the second observatory segment and was evaluated in terms of overall comfort in the specific restaurant. Although comfort is interlinked with the third segment which is the intensity of colors and Contrast to the interior, comfort in addition to light design includes factors such as to scents, music and other visual factors such as pictures, wallpapers and candles and they all together create comfort or discomfort for a visitor of the restaurant.

The intensity of the colors and contrast to the interior was one of the most important observation factors because of its influence on dining techniques. As mentioned earlier in this paper, brighter colors influence faster-paced dining experience connected to fast food restaurants while dimmed lights are related to fine dining restaurants where guests tend to socialize more while eating. Some of the restaurants put emphasis on light design, while some of the restaurants primarily focus on interior design and decorations as part of their differentiation and uniqueness. Both light design and interior design are interlinked and form a certain level of comfort as mentioned before, but the goal of this observation factor was to determine what do restaurant actually put in focus.

Besides the overall intensity of the colors and contrast to the interior, how colors are used in space also creates an important role in overall design and comfort. In order to determine what colors are predominant in Dubrovnik based restaurants, two different aspects were taken into consideration as it follows:

1. Combination of Colors
2. Single Dominant Color

Both of these factors are self-explanatory and the goal of the observation was to determine whether restaurants are using a combination of colors that are in contrast or not or the restaurants are using single light color to design their space.

Installation of fixtures is related to how the light fixtures look alike esthetically. One of the most important factors of this observation method was wire management, in other words, whether wiring of the fixtures is done in a professional way. On the other hand, light fixtures can sometimes be architectural wonders due to the fact that they come in different shapes and can

create a big difference in the overall quality of the interior, therefore besides wiring, the most important part of this observation is to see whether light design fixtures are implemented esthetically well with the rest of the interior. Light fixtures can be external and integrated meaning that they can be part of the architecture such as integrated LED stripes or they can be external such as chandeliers.

Menu visibility is often overlooked as part of the light design and can sometimes create problems with people with correct eyesight and even more problems for people with vision problem. In order to create a positive experience for a guest in a restaurant, one should not have problems reading the menu due to the lack of light and overhead or interior light should be sufficient enough for a person with regular vision to able to read the menu without interruptions.

Since all six of these observation factors were primarily done by the observer, it was also important to see what guests overall opinion on this topic is. Part of the Trip Advisor's rating is section Ambience and it rates the overall experience of the guest when it comes to a combination of light and interior.

All of these seven different factors were observed using the spreadsheet uploaded on the mobile phone and sheet of paper was soon dismissed as the instrument since it would create too much of a distraction for staff that could assume that they are being evaluated. WOW effect was observed using three different colors, Green as if WOW effect was present and memorable, orange if WOW effect was somehow present, but not memorable and red as lack of WOW effect. Comfort was also categorized in the same way, Green as comfortable, orange as somehow comfortable, for example nicely dimmed light, but too bright wallpapers and red not comfortable at all such as too bright of the lights. The intensity of colors and contrast to the interior was determined by two

different factors: Intensity of the brightness and whether the focus of the design is on decorations and furniture or light installations.

Observing Color was done in a very simple way, for example, if a restaurant used orange as their primary color of light, orange would be put in the bracket.

Installation of fixtures had three different categories and was determined by colors as well. Green color represented organized cable management and creative fixture design, orange, for example, presented creative fixture design but lack of wire management while red represented lack of everything.

In order to record menu visibility in the instrument, there were three different colors used as well. Green represented the normal vision of the menu, orange represented somewhat regular vision while red represented lack of vision of the menu.

Trip Advisor rating was done in three different categories. 4.5 stars to 5 stars, 4 stars to 4.4 stars and 4 stars and below. The limitation of this method was the fact that Trip Advisor Ambience rating does not include light design only, but combines factors such as music and interior design as well.

In order to to create diversity and be able to compare light design practices in Dubrovnik restaurants, observed restaurants were categorized into three different categories:

1. Fine Dining restaurants
2. Casual Dining Restaurants
3. Modern Fast Food Restaurants

Observed fine dining restaurants are the top restaurant in Dubrovnik with the best service and were expected to perform best in this observation method. Two of the fine dining restaurants chosen for this observation were:

1. 360 Restaurant Dubrovnik
2. Bistro Revelin

When it comes to casual dining restaurants, focus on targeting such was pricing and level of service. Although these restaurants are not lacking in service, they are more affordable and create a different kind of atmosphere. Observed casual dining restaurants were:

1. Mezzanave
2. Taj Mahal (Old Town)
3. Pantarul
4. Shizoku
5. Magellan
6. Ruzmarin

Lowest categorization of observed restaurants is modern fast food restaurants. Modern fast food restaurants differentiate from regular fast food restaurants in their uniqueness, although these restaurants are primarily serving fast food and the entire dining experience is different from one at fine dining or casual dining, there is still somehow the high level of service and quality of the dishes. Observed modern fast food restaurants were:

1. Barba
2. Republic
3. Take Away bar and Grill

## RESULTS

The results of this observation were somehow expected and there were no major surprises when it comes to light design practices in Dubrovnik based restaurants.

When it comes to the creation of WOW effect, both of the fine dining restaurants, 360 and Bistro Revelin created a WOW effect upon entering the restaurants and that was somehow expected due to their location and pricing, important notice is that both of these restaurants create very memorable first impressions. On the other hand, casual dining restaurants do not lack creativity when it comes to interior design and all of them have unique design features, but they do not create such memorable experience due to the fact that the location is not comparable to fine dining restaurants observed in this research project. Lastly, modern fast food restaurants did not create an outstanding first impression, but the setting and atmosphere of the observed restaurant location make it somehow memorable (See Figure 1). When it comes to comfort, again, both fine dining restaurants were designed in a way to create a pleasant and comfortable dining experience for a guest. Overall comfort for both 360 and Bistro Revelin restaurant was outstanding, the combination of colors, the intensity of colors, pace and style of the music, scents as well as the scenery were truly memorable and created above average dining experience. When it comes to casual dining restaurants, all six of observed restaurants created a positive and comfortable dining experience. Although light design differentiates completely from the fine dining restaurants, casual dining restaurants and modern fast food restaurants were able to create a pleasant atmosphere with a combination of light design, music and overall design (See Figure 2). What differentiates fine dining restaurants from casual dining restaurants and modern fast food

restaurants is their usage of dimmed light in order to create an atmosphere and memorable experience. The second most important factor in contrasting with the interior is the usage of zoning, meaning that different areas of restaurants have different styles of lighting implemented. 360 restaurant is a prime example of how good zoning can create a positive experience with differentiating reception area with dining area. Bistro Revelin is a great example of how city lighting can be used to create an overall atmosphere due to the usage of Dubrovnik's Old Town light as part of their design. With minimalistic light design on the terrace area, Bistro Revelin was able to create an outstanding experience for a guest by using external light sources and landscape of the Old Town. Casual dining restaurant, on the other hand, implement different methods when it comes to brightness, intensity and they primarily focus on interior design such as the design of the furniture and decorations. Brighter intensity is used in all six of casual dining restaurants observed and as mentioned before, their focus is on interior design. Modern fast food restaurants are as expected using mostly bright coloring in order to create a higher turnover of the tables because as mentioned in the text, brighter colors can increase heart rate which subconsciously makes the guest of the restaurants eat faster. Since modern fast food restaurants are not investing a lot in the design of the light, they are primarily focusing on the design of the interior. Every restaurant has different unique design features and that is how they chose to be differentiated on the market (See figure 3). Colors used within light design plays an important role in differentiating categories of restaurants. 360 Restaurant and Bistro Revelin as representatives of top Dubrovnik's fine dining restaurants are using colors in order to create the atmosphere. 360 Restaurant uses orange up-lights which go perfectly well with the color of the stones which are the main architectural material of the restaurant and that color creates

comfortable contrast with warm white colored city lighting in the background. Bistro Revelin is using magenta colored uplight located on the tree above the restaurant terrace and it is visible that the idea of light design was to use city lighting as the focus. Casual dining restaurant implements more colors in wallpapers and furniture while the color of light is predominantly white and the only differences are in the intensity. Modern fast food restaurants are as mentioned before using bright white colors (See figure 4). When it comes to fixture installation and design of the fixtures, all three types of restaurants were able to find creative solutions, all in their category. It is obvious that fine dining restaurants invest more in design and creation of fixtures made from the glass as visible in 360 restaurants, but casual dining restaurants are as well doing a very good job selecting fixtures and combining them with overall interior design. When it comes to the type of fixtures, fine dining restaurants are using a combination of uplights, LED stripes and chandeliers while casual dining restaurants are primarily focused on the usage of chandeliers. When it comes to modern fast food restaurants, besides Barba restaurant which uses modern designed chandeliers, predominant are integrated light fixtures. Despite the categorization of the restaurants, all of the observed restaurants have visible menus and there is absolutely no differentiation (See Figure 5). Trip advisor ratings are as well very high in all three different categories. Fine dining restaurants are categorized as 4.5 stars and above while casual dining restaurants are sharing the same categorization. Modern Fast food restaurants observed in this research project also have high ratings of 4.5 stars and above (See Figure 6).

## **DISCUSSION**

All in all, Dubrovnik based restaurants are not lacking creativity when it comes to light design and they all represent their respective categories very well. Before this research was done, it was

expected that top rated fine dining restaurants such as 360 and Bistro Revelin will have larger wow effect mostly due to their location, but also an obviously larger investment in light design as well as fixtures. Although lower in categorization, casual dining restaurants in Dubrovnik were able to differentiate themselves on the market by using different themes. For example, Mezzanave uses its location in Atlant Centar as a good theme to create maritime styled restaurant by using instruments from industrial and cargo ships as part of their decoration. Taj Mahal, on the other hand, is different due to the focus on Bosnian culture which is visible on their menu as well as interior design. Although most casual dining restaurants observed in this research project are not in a position to use the old city scenery as part of their value added, they are doing a decent job when positioning them on the market as unique restaurants to visit. Modern fast food restaurant is somewhat generic and they do not differentiate themselves a lot from other competitors. Besides Barba which is designed in a way that is unique due to their focus on fast food fish food, the other two restaurants do not create a high wow effect. When it comes to comfort, it was expected that fine dining restaurants will have a high level of comfort, but it was also expected that casual dining restaurants will not. Contrary to expectations, casual dining restaurants are doing a good job in creating a positive and comfortable atmosphere by implementing the light design with overall interior design. As mentioned before, modern fast food restaurants are doing their purpose by creating a comfortable atmosphere for a short period of time that person spends in such restaurants and that was fully expected. While observing colors in all of the restaurants, it was expected for casual dining restaurants to be more creative with colors, but it seems that designers decided to stick with different variations and temperatures of white, but that makes perfect sense since the focus of their attention is as

mentioned earlier in this research, on interior design which includes wallpapers, furniture, and decorations for example. Fine dining restaurants were expected to experiment more with colors and it seems that designers of light were aware of what colors to use in order to create a memorable and comfortable experience. Fixtures and installation of fixtures in fine dining restaurants are on an expected high level since these restaurants need to invest more in attracting customers willing to spend more in a place that offers a unique visual experience. What is interesting to see is that although fine dining restaurants play with colors and different fixture designs, they tend to blend installation with the architecture. For example, 360 restaurants are using minimalistic black colored uplights which are almost not noticeable, but they create a nice atmosphere and indirect lighting. The most surprising part of this research is the fact that when it comes to equipping casual dining restaurants, many of them use IKEA as their supplier. While searching on the IKEA website, it is noticeable that restaurants such as Barba are used IKEA website as a primary tool for their chandeliers (See Figure 7). DIY restaurants are trending now and IKEA, as well as other companies, specialized in furnishing space, made it very simple for small business owners to create their restaurants without hiring a designated designer. This trend is an uprising and it can create interesting and creative designs, but the main concern is uniqueness. The fact that for example, Barba restaurant used IKEA to purchase chandeliers does not mean that hundreds of other restaurants are not using the same ones. Restaurant Shizoku and Restaurant Ruzmarin were able to create a unique light design with implementing techniques that are correlated to their style. For example, restaurant shizoku uses circle shaped LED installation between wooden greed which represents the sun and since restaurant Shizoku is Japanese restaurants, this is a creative way of crediting Japan as the land of the rising sun (See Figure 8).

When it comes to menu visibility, this is a very important factor and sometimes overlooked because we do not really pay attention to it. It seems that Dubrovnik restaurant owners are aware of that problem and they were able to create an environment where people are able to read the menu without major problems. This factor is greatly influenced by the design of the menu as well but all of the observed restaurants have great menu visibility. Trip Advisor rating is high as expected due to the location of observed restaurants. Dubrovnik as a top Global destination tends to be categorized higher due to the higher expectations.

All in all, the results were somehow expected, the biggest surprise in the entire project is the fact that some of the restaurants use IKEA as their supplier, although that saves a great amount of money to the business owners, the concern is as mentioned earlier in this project the lack of creativity and uniqueness. Dubrovnik restaurant owners are doing most of their light design by the book and they do not tend to experiment with some unconventional lighting techniques. Improvements can be made in that area and Dubrovnik restaurant owners should look more in long term principles. Dubrovnik is an emerging market and more and more tourists come each year meaning that the competition will increase as well. If Dubrovnik continues developing at such a rapid pace, it will be crucial for small business owners to differentiate themselves on the market and create something unique for their guests. Although not part of the list, Cave Bar in Dubrovnik is doing a great job in differentiating themselves on the market. Part of the Hotel More, Cave bar implements outstanding architectural points as well as light design techniques which makes it one of the top locations in the area located outside of the Old Town. It will be interesting to see how Dubrovnik restaurants will develop in the future, design, and uniqueness

of the restaurants indirectly affects the development of the tourism and it is important for Dubrovnik restaurant owners to create trends instead of following them.

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## APENDIX

### WOW EFFECT

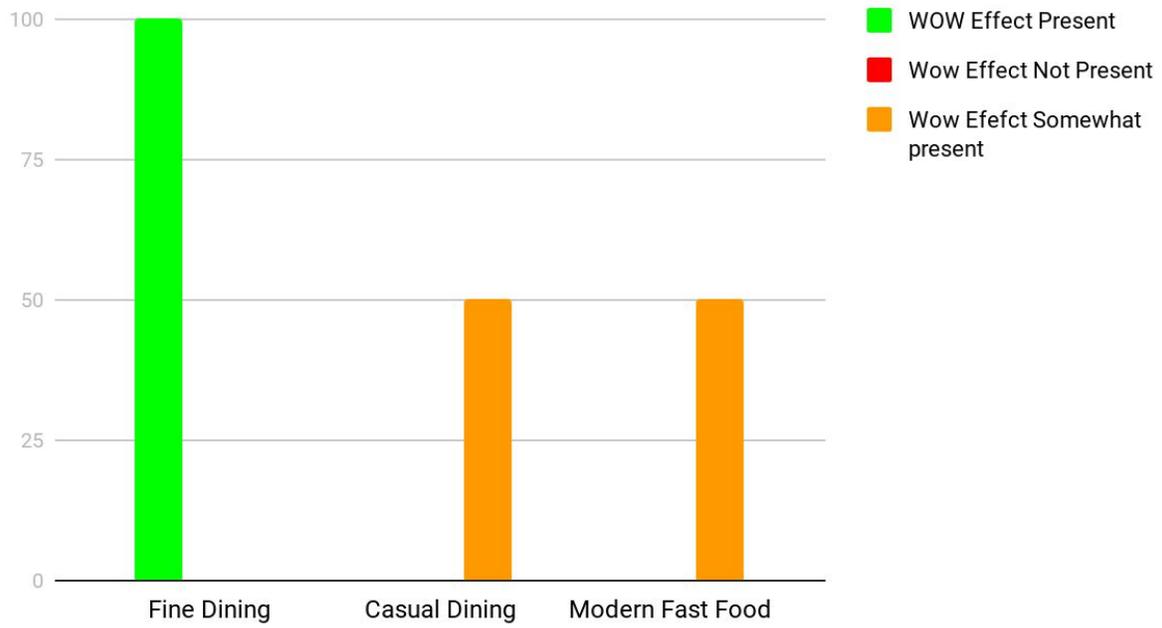


Figure 1. Presence of the WOW effect while entering the restaurant



Figure 2. Comfort Level in observed restaurants

### Level of Brightness

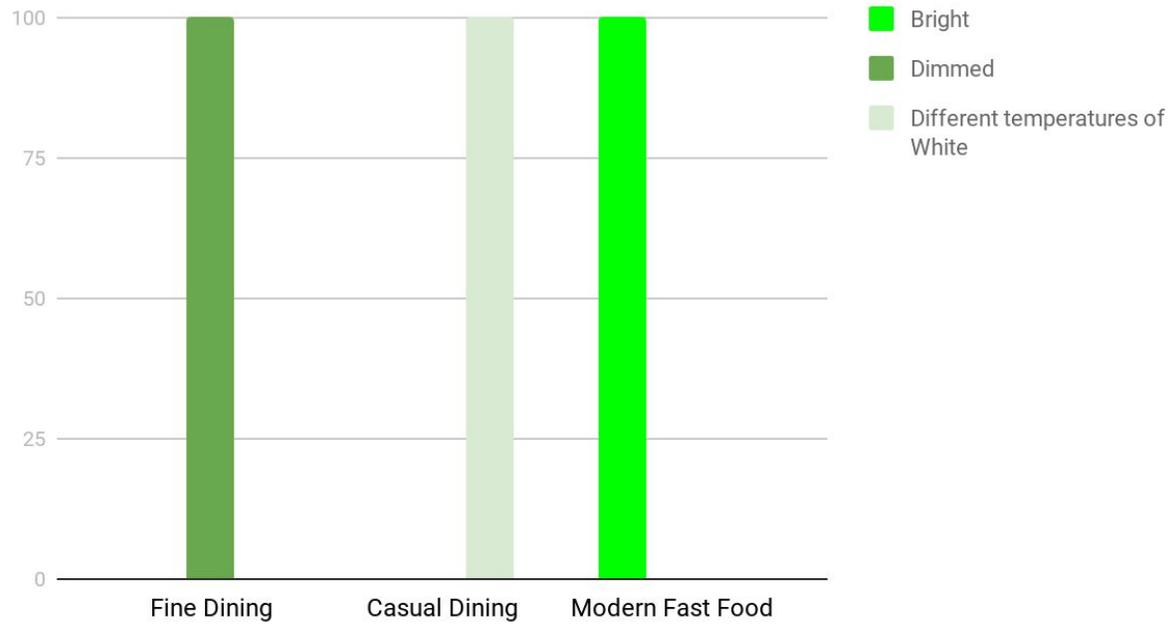


Figure 3. Level of Color brightness



Figure 4. Dominant Light Colors

## Menu Visibility

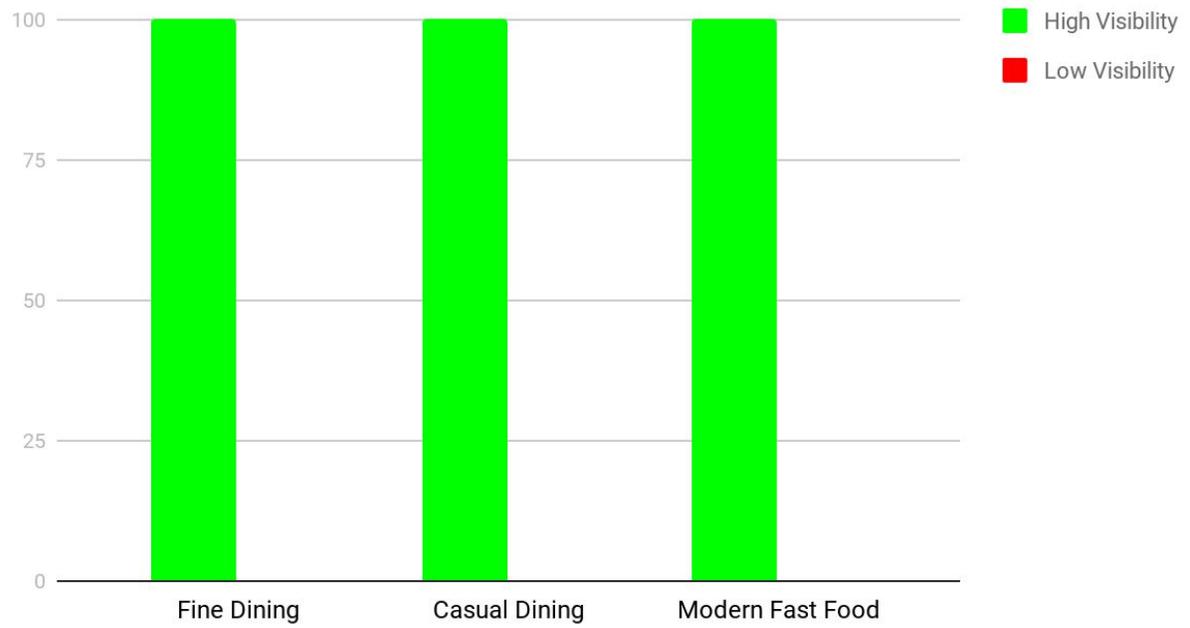


Figure 5. Menu Visibility in Observed Restaurants

	Ambience Score on Trip Advisor
360	4.5
Bistro Revelin	4.5
Taj Mahal	4
Mezzanave	4.5
Pantarul	4.5
Shizoku	4.5
Magellan	4.5
Pantarul	4.5
Barba	4.5
Republic	4
Take Away Bar	4.5

Figure 6. Average Score on Trip Advisor Ambience Section



Figure 7. Chandelier from IKEA website in Barba Restaurant



Figure 8. Light Instalation in Shizoku Restaurant