Light Cultivates Culture, Culture Cultivates Light

A comparative study to investigate how lighting can shape our perceptions of ritualistic spaces in a residential setting, across Swedish and Indian cultural groups.

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Ishita Madan
KTH Royal Institute of Technology, 2023

ABSTRACT

As lighting designers, we are aware of the importance of light in constructing dynamic, interesting spaces that enhance the human experience. But light is more than simply a physical component; it also has a rich cultural meaning that affects how we perceive and comprehend the world. This study aims to compare and investigate how the lighting setting of two distinct cultural groups, Indian and Swedish, influence the way people perceive a living room in a residential space when it is used for Diwali and Christmas purposes. It also tries to ascertain whether cultural backgrounds influence the preferences & perception for light in various settings. A qualitative analysis was conducted using three methods in order to compare & learn about lighting cultures in two different cities, Stockholm and New Delhi. As well as to comprehend user perception in two lighting settings, Christmas and Diwali, and to determine whether these perception and preferences are related to the cultural background, habits, or history. The results obtained supported one another and contributed to the research and made a serious effort to understand how different lighting preferences vary among cultures. There were intriguing findings throughout the objectives aimed, illustrating how similar yet different the two lighting cultures are.

Keywords: Culture, Perception, Artificial Light, and Mood.
CHAPTER I

1.1 INTRODUCTION

“Man is no creature of the night but is dependent on light or lighting in order to be socially active and functional.” [9] As lighting designers, we are aware of the importance of light in constructing dynamic, interesting spaces that enhance the human experience. But light is more than simply a physical component; it also has a rich cultural meaning that affects how we perceive and comprehend the world. The interaction between the physical and cultural components of light is the primary topic in this study, which also encourages us to think about how lighting settings may both shape and reflect cultural values as well as how cultural expectations and traditions affect how we approach perception of light.

“We perceive life by sensing it, and we enact life by reacting on the sensations as life goes on.” [1] For instance, Tanizaki uses the traditional Japanese tea ritual as an illustration of the beauty of artificial light for the reader in "In Praise of Shadows". A single source of light, usually a low-wattage incandescent bulb, lights the tearoom during the ceremony, forming thick shadows and fostering a feeling of quietude and intimacy. Tanizaki claims that this dim lighting highlights the texture of the materials and items in the space, enhancing their aesthetic appeal and fostering a meditative ambiance. The recognition of the sensual primacy, experiences, and links between these senses with light may differ greatly throughout cultures. “Many observers have noted differences in visual perception between people coming from different cultural backgrounds. On closer examination these differences appear to be related to cultural factors rooted in geographical locations” [2]. However, no one has made a serious effort to understand how different lighting preferences vary among cultures. This study therefore has a goal to investigate this further by looking into two specific cultures; Swedish and Indian; and their relationship with light.

Sweden, a Nordic nation in northern Europe, is distinguished by its distinctive linguistic and cultural fusion. Summer and winter are the two primary seasons of the nation, with spring and fall lasting quite briefly. The residents' way of life and cultural traditions are significantly impacted by seasonal variations and thereby affects their relationship with light. Stockholm, which is located at 59° N, “often receives overcast skies, extended twilight periods, and a fairly low sun angle throughout the year” [7]. India on the other hand, is a multicultural nation that has a special fusion of cultures, religions, languages, and customs. It is situated in the southern region of Asia, where it sees a variety of seasons throughout the year, all of which have a
significant impact on the way of life and culture of the locals. “Light is frequently utilized as a metaphor in Indian culture as a symbol for enlightenment, purity, and sometimes even social status.” [3] It is also often related and compared to Darkness, which is said to stand for negativity and destruction.

From the way how different cultures engage with light to portray emotions to the significance that light plays in their religious rituals, different civilizations have distinctive connections with light. “As light interacts with culture, its importance grows substantially and unravels in many different ways.” [3] I argue that these cultural connections are deeply rooted and affect the mood and perception, “as light opens up spaces, influencing not just how you look at them but also how you feel about them.” [11]

Therefore, this study aims to compare and investigate how the lighting setting of two distinct cultural groups, Indian and Swedish, influence the way people perceive a living room in a residential space when it is used for Diwali and Christmas purposes. It also tries to ascertain whether cultural backgrounds influence the preferences & perception for light in various settings.

1.2 OBJECTIVES

1. To investigate and compare the light culture in Swedish and Indian cultural groups.
2. To investigate if mood affects the way people perceive lighting or vice versa, if perception of light affects the mood.
3. To investigate if exposure to natural light has a role in the cultural lighting decisions made.

(Refer to Figure 2 for protocol)

1.3 SCOPE AND LIMITATIONS

The focus on individual ethnic groups in this study offers lighting designers to demonstrate their understanding of two lighting cultures. Using this knowledge, lighting designers could have practical implications working in these cultures, as they may take into account cultural differences when designing lighting environments. Similar to this, examining the connection between mood and how people perceive light might provide insight into the psychological impacts of light and aid lighting designers in creating surroundings that improve mood and well-being.
This is a subjective study and limits itself to a qualitative approach for analysis. This technique will concentrate on perceptual color temperatures, intensities, and distribution of light adapted to the environment for the rituals.

1.4 SUSTAINABILITY

This study aims to focus and achieve two goals of the 2030 Agenda of the Sustainable Development:

1. **Sustainability goal 4 – Quality Education, Target 4.7- Culture and Knowledge** by ensuring “that all learners acquire the knowledge and skills needed to promote sustainable development, including promotion of a culture and appreciation of cultural diversity.” [6]

2. **Sustainability goal 11 –Sustainable cities and communities Target 11.4 Protect Cultural Heritage** by Strengthening “efforts to protect and safeguard the world’s cultural and natural heritage.” [6]

![Flowchart of Protocol](image)

**Figure 2 Flowchart of Protocol**

CHAPTER II

METHODOLOGY

A qualitative analysis was conducted using three methods in order to compare & learn about lighting cultures in two different cities, Stockholm and New Delhi. As well as to comprehend user perception in two lighting settings, Christmas and Diwali, and to determine whether these perception and preferences are related to the cultural background, habits, or history.

The methods were:
o Literature Study that explains and compares the light culture of the two countries.

o Online survey that focusses on the investigation of cultural perception of light & the relationship between mood and perception.

o Interviews with Lighting Designers in the field to understand the reasons of different lighting cultures and to understand how exposure to natural light plays a role in our cultural lighting preferences and perceptions.

In summary, the literature, online survey, and interviews are complimentary techniques that offer a comprehensive picture of how lighting cultures, cultural practices, and user perception relate to one another in two distinct cities. Together they explain why there are variances and similarities among lighting cultures, determine the cultural meanings of light, and examine how individuals perceive light in various cultural settings. This might be helpful for gaining a more nuanced knowledge of how cultural practices and preferences influence lighting cultures in various circumstances.

2.1 LITERATURE

The core of most cultural studies is the interaction between people and their surroundings. However, it seems that the study of some of these experiences has grown overly focused on the psychology, omitting to take into account the social orchestration of this experienced process between physiological sense and our surroundings. Light is one of the factors that contributes to this sensation-environment interaction.

2.1.1. Light Culture

Beyond just its physical attributes, light has an influence on society through influencing creative expressions, social conventions, customs, and everyday routines. “As light interacts with culture, its importance grows substantially and unravels in many different ways.” [3] Light has a significant and all-pervasive impact because it reveals our routes to development while conserving the diversity of our cultural history. “Our basic ability to sense and interpret light, comes from our experiences of natural light. In addition to people’s cultural background, religion and social habits play a significant role in perceiving light. Understanding of light is tightly connected to the interpretation of the world around us.” [8]
Lucrezia Seghi with five other authors in their peer reviewed article define the meaning of Light culture as a “relationship between natural and artificial light.” [5] In order to better clarify this term, they go on to explain how, depending on geographical locations as well as cultural and social customs, natural light influences the usage of artificial light in interior living areas. Our impression of the area around us is a personal experience that is only influenced by the setting and illumination we are accustomed to. Both variables affect the population's habits and culture since they depend on the geographical location.

Therefore, to better investigate this definition, it is crucial to comprehend the lighting cultures of both Sweden and India, the interplay between natural and artificial light, and the preferences of users before establishing the analysis for the lighting settings of the rituals. This is done to understand what and how are the two lighting cultures different from each other for two prominent lighting rituals; Christmas and Diwali; celebrated in their respective cities.

The capital cities of both countries—Stockholm and New Delhi—will be compared and analysed as they are the epicentres of their respective traditions and cultures, and they get less natural light during these ritualistic periods, but not total darkness. And last but not least, the cities with the highest populations.

2.1.1.1 Swedish Lighting Culture.

Light in the Nordic countries as defined by Jan Garnert in his article is “an ethereal phenomenon of the heavens.” [9] Natural light is a key component of Swedish culture, interaction - perception of artificial light, and activities. Sweden experiences long daylight hours and comfortable temperatures throughout the summer, while its winters are marked by brief daylight hours, chilly temperatures, and snowfall. The illumination used by Stockholm inhabitants is frequently warmer in color temperature (Figure 4).
These transitory seasons are also related with traditional celebrations and their connection with light. This study investigates one such tradition, Christmas or ‘jul’ and how people perceive light during this ritual setting. Christmas is a mystical and charming season that brings light to the dark Swedish winter nights. (Figure 5) Its festivities in Stockholm begin in November when the sun is at 7º (Figure 6) and the sun sets at 14:00 hours, with residents illuminating their homes with ornamental window lights and Christmas tree lights that cut through the night. A beautiful and tranquil ambiance is created by the warm glow of the advent candle and the Christmas tree lights, which highlights the elegance and beauty of the decorations.

Peace and tranquillity are produced by the warm, welcoming light generated by the candle's mellow glow. People enjoy how the dim lighting shows the complex textures of the materials surrounding them and accentuates the attractiveness of the décor. An air of mystery and wonder is produced by the heavy shadows (Figure 7). People are drawn together in a shared experience of joy and celebration by the tree’s warm and inviting glow, which fosters a feeling of warmth and closeness.
2.1.1.2 Indian Lighting Culture.

In contrast to Stockholm and by including a personal account of how one perceives natural light, at 28° N, New Delhi receives the majority of its light from direct sunlight (Figure 8). The sun emits a harsh light that characterizes bright settings, which can occasionally be described as glaring and having sharp shadows. Even though the changes are not as noticeable as they are in Stockholm, there are a few seasonal changes in the sunlight's strength and direction.

Traditional celebrations and their link to light are also connected to this lighting culture. This study looks into one such custom, Diwali or "deepawali," and how individuals experience light in a ritualistic setting.

The week-long Diwali celebrations in New Delhi typically take place in the months of October or November, when the sun is at 43° (Figure 9) and sets at 17:30 hours.

“The name Diwali itself in its purer form – Deepawali – means a ‘string or row of lamps’. Goddess Lakshmi, the goddess of prosperity, who is prayed to during Diwali, is seen synonymous to Light, as an elderly person remarked in Sahariya – “in light, Lakshmi lives” [3]. This idea of light as the corporeal manifestation of the goddess has a significant impact on how people interact with lights throughout the festival. It is thought that Lakshmi prefers and visits the homes that are lit, avoiding the gloomy dwellings. Therefore,
with a colourful and spectacular display of splendour, Diwali, the festival of lights, enlightens each house by turning on every luminaire. (Figure 10)

These literary settings of lighting culture of both cities will further be investigated by performing a qualitative study in order to fully comprehend people' perception of light in a particular lighting setting, by exploring deeper into how light is perceived in ritualistic contexts discussed in this section.

2.2. ONLINE SURVEY

People from Stockholm, New Delhi, and international residents who have lived in these cities for more than 10 years were invited to participate in the study, which was performed using an online platform. People of the ages 18 and above were the target demographics for the survey. The copyright of images was one restriction that emerged. The questionnaire is therefore on request only and not made available to the general public.

2.2.1. Procedure

The survey was divided into five sections and were drafted in English. Great care was taken to respect the cultural values and heritage while framing these questions. The survey also promoted the sustainability goal 11 to protect cultural heritage and appreciate cultural diversity. To avoid overwhelming the participants with technical facts and to enable them to express their preferences in a clear and emotional manner, in line with the qualitative method, the questions posed were rather simple and direct. V/P theory by Jan Ehjed and Andres Liljefors was used to identify how people perceive the light setting. [13]

2.2.2. Structure

The first section understood the demographic identification of the participants. The second section assessed the mood of the participants on the following 8 scales: “sad/happy; miserable, ecstatic; bored/ interested, tired/rested; confused/ clear; drowsy/alert; indifferent/excited;
worried/calm” [12]. Each of the five-grade rating scales had to be completed in response to the question, 'How would you best define your mood today?'. The third and the fourth section were based on the perception of the respondent of two cultural lighting setting, Christmas and Diwali. Three pictures for each ritual were frame, ranging from a dark to neutral to brightly lit living room. This was done to give the individuals all range of options and test their light cultural perception. (Figure 12 and 13)

And finally, the last section again assessed the mood of the participants on the 8 scales, each of the five - grade rating scales had to be completed in response to the question, “After having a culturally emotional experience, how would you best identify your mood now?”. (Refer to Appendix A for more details.)

2.3 INTERVIEW

To take part in this investigation, lighting designers from Stockholm and New Delhi and international residents who have worked in these cities for more than 10 years were invited. The study's expansion to better understand the elements that affect how people perceive light settings in diverse cultural and geographic situations was made possible in large part by their participation. Additionally, to delve further into Lucrezia Seghi's definition of light culture as
stated in her peer-reviewed article (Section 2.1) the interview was conducted. And finally, to comprehend why people perceive and favour various light settings and determine whether this is related in any way to their cultural/social habits, exposure to sunlight, and history. (Refer to Appendix B for more details).

CHAPTER III

RESULTS

The qualitative analysis conducted to determine whether the perception and preferences of ritualistic light settings are related to the cultural background, habits, or history that was identified and learnt in the Section 2.1, had intriguing results.

3.1 Literature

Swedish and Indian cultures when investigated upon came to a conclusion that they are very different to each other.

3.1.1 Swedish Lighting Culture

The illumination used by Stockholm inhabitants is frequently warmer in color temperature (Figure 14). It was determined that this was because of shorter daylight hours, geographical position, and cold temperatures which will be discussed further in Section 3.3. The significance of lighting in Swedish homes and public areas has been profoundly influenced by the country's lengthy, dark winters.

People are reminded of the power of light to enlighten our lives and chase away the shadows as Christmas is celebrated in Sweden. Candles are frequently used to produce a warm and inviting atmosphere.
Less than three sources of light are used at Swedish Christmas celebrations to create a meditative atmosphere that encourages a sense of coziness and togetherness. The advent candle, (Figure 15) which is lighted each Sunday before Christmas, is the focal point of the holiday celebration in Sweden. The Advent star (Figure 16) is another focal illumination in the living rooms “They are often constructed of paper, fashioned like stars, and have cut-outs that cast ambient, dappled light.” [10] The utilization of natural light is another part of Swedish lighting culture. The closeness to nature is something that Swedes love, thus they frequently try to make the most of natural light in their homes. (Will be discussed further in Section 3.3)

Since during Christmas, natural light is not available in abundance, Swedes embrace the darkness and create cozy, warm, and inviting atmospheres.

3.1.2 Indian Lighting Culture

The illumination is usually of colder colour temperatures and originate from one source of light. It was discovered that this is because the outside temperature is considerably higher and daylight cannot be fully accessible; as a result, cooler colour temperatures are employed to create its experience. (Figure 17)
Lighting has deep symbolic meaning and is essential to many areas of Indian culture, such as religious rites, festivals, and daily activities. Lighting is frequently connected in Indian culture to spirituality, enlightenment, and the victory of good over evil. The main source of illumination at Diwali is a small, clay-based oil lamp known as a "diya" (Figure 18) along with the intense ambient illumination produced by turning on all of the living room's lights, the dancing flames form complex shadows that provide an exciting and relaxing atmosphere. The elegant and lovely ornaments are highlighted by the subtle glow of the diyas, which results in an eye-catching and colourful show. Additionally, the victory of good over evil is represented by the diyas, which serves as a reminder of the festival's deeper spiritual importance. These lights contribute to the festive and joyous ambiance, fostering a sense of celebration and community within neighbourhoods. However, it was observed that despite the shorter daylight hours, the lighting settings and environment created remains unaffected during Diwali.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Swedish Lighting Culture - Christmas</th>
<th>Indian Lighting Culture - Diwali</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illumination</td>
<td>Warm Colour Temperatures</td>
<td>Warm and Cold color temperatures</td>
</tr>
<tr>
<td>Source of Illumination</td>
<td>Advent Candle, Star &amp; Christmas Tree Lights</td>
<td>‘Diyas’ &amp; all sources present in the room.</td>
</tr>
<tr>
<td>Shadows</td>
<td>Soft</td>
<td>Complex and multiple</td>
</tr>
<tr>
<td>Distribution</td>
<td>Uneven</td>
<td>Even</td>
</tr>
<tr>
<td>Atmosphere created</td>
<td>Warm and Cosy</td>
<td>Brightly lit, Symbolic &amp; Vibrant</td>
</tr>
<tr>
<td>Relationship with Natural Light</td>
<td>Embraces darkness.</td>
<td>Unaffected</td>
</tr>
</tbody>
</table>
3.2 Online Survey

The survey conducted included 41 participants, with 18 of them being Swedish and the remaining 23 Indian. The main aim of this survey was to gain insight into how individuals from Sweden and India perceive light culture settings for Christmas and Diwali, as well as explore any connections between mood and perception.

3.2.1. Perception of Light Culture - Christmas

The survey found that majority Indians favoured Lighting option 2 as the setting in which they see themselves celebrating Christmas (Figure 19) where Cold Colour temperature has been adapted, making the atmosphere bright. Swedish people, on the other hand, favour Lighting option 1 for their Christmas celebrations (Figure 19) where Warm Colour temperature has been adapted making the environment dark and cosy.

![Figure 20](image)

**Figure 20** Illustration to show why Indians chose Light Setting 2. This was answered in the Survey and have been placed in this evaluation graph by the author on her personal observation.

![Figure 21](image)

**Figure 21** Illustration to show why Swedes chose Light Setting 1. This was answered in the Survey and have been placed in this evaluation graph by the author on her personal observation.

![Figure 19](image)

**Figure 19** Comparison illustrating the choice of Illumination for Christmas by Indians and Swedes amongst 3 Light Setting options.
According to Figure 20 and 21 it is interesting to compare the preferred lighting environments for Christmas by the two cultural groups, which are distinct but produce a similar atmosphere for the individuals. However, it also reveals a lot about the diverse choices chosen. The characteristics of light as perceived by Indians and Swedes for the Christmas light setting that has been preferred by the majority (according to Figure 19) are shown in Table 2 &3. (Refer to Appendix C to understand how this evaluation was conducted)

Table 2  Mode values of the majority of Indians (According to Figure 19) who chose Lighting Setting 2 perceptually to celebrate Christmas on the basis of V/P Theory.

<table>
<thead>
<tr>
<th>Qualities of Light (Linear Scale)</th>
<th>Parameters</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour of Light</td>
<td>Cold</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Warm</td>
</tr>
<tr>
<td>Bad/Good</td>
<td>Bad</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Level of Light</td>
<td>Dark</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>Bright</td>
</tr>
<tr>
<td>Bed/Good</td>
<td>Bed</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Distribution of Light</td>
<td>Uniform</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Varied</td>
</tr>
<tr>
<td>Bed/Good</td>
<td>Bed</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Intensity of Light</td>
<td>Light</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>Strong</td>
</tr>
<tr>
<td>Bed/Good</td>
<td>Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>Good</td>
</tr>
</tbody>
</table>

Table 3  Mode values of the majority of Swedes (According to Figure 19) who chose Lighting Setting 1 perceptually to celebrate Christmas on the basis of V/P Theory.

<table>
<thead>
<tr>
<th>Qualities of Light (Linear Scale)</th>
<th>Parameters</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour of Light</td>
<td>Cold</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Warm</td>
</tr>
<tr>
<td>Bad/Good</td>
<td>Bad</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Level of Light</td>
<td>Dark</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Bright</td>
</tr>
<tr>
<td>Bed/Good</td>
<td>Bed</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Distribution of Light</td>
<td>Uniform</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>Varied</td>
</tr>
<tr>
<td>Bed/Good</td>
<td>Bed</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>Intensity of Light</td>
<td>Light</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td>Strong</td>
</tr>
<tr>
<td>Bed/Good</td>
<td>Bed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td>Good</td>
</tr>
</tbody>
</table>

The survey examined the qualities of perception of this light setting using parameters formulated in V/P theory. The judgments of the perception varied substantially from one another according to the light setting.
3.2.2. Perception of Light Culture - Diwali

Figure 22 shows that majority Indians preferred Lighting Option 2 as the environment in which they saw themselves celebrating Diwali, which is bright & vibrant, whereas Swedish people preferred Lighting Option 1 which is warm & cosy. According to the V/P theory, this majority perceptual preferences delves even more deeply into how individuals perceive this light condition.

According to Figure 23 and 24 the preferred lighting environments for Diwali by the two cultural groups. The characteristics of light as perceived by Indians and Swedes for the Diwali light setting that has been preferred by the majority (according to figure 22) are shown in Table 4 &5. (Refer to Appendix D to understand how this evaluation was conducted)
Using criteria developed in the V/P theory, the survey looked at the characteristics of how this light situation was perceived. According on the light setting, the perception assessments differed significantly.

### 3.2.3. Relationship between Mood and Perception or vice versa.

A comparison between the pre and post visual perception mood between the two cultural groups was identified in order to investigate the relationship between mood and perception and vice versa according to parameters defined by Rikard Kuller [12].
Figure 25 illustrates a significant rise in the mood of Indians after the visual journey of both the festivities. But as seen in Figure 26, there is a gradual increase in the mood of Swedes.

There were significant differences in the self-reported moods before and after the ritual lighting settings were tested. The visual perception journey significantly improved the mood of both
Indians and Swedes. All the findings were conclusive evidence of a relationship between perception and mood.

3.3. *Interview with Lighting Designers*

It appears that all lighting designers concur that a person's liking for light may be influenced by two things: their cultural background and the geographic country that they live in. Lighting designers contend that this results from people's tendency to adapt to their surroundings. The geographical position is in respect to natural light. According to designers, a person's exposure to natural light influences their cultural preference for lighting, but for rituals, a variety of other aspects, such as history, social customs, and memories are also important. As we learned in literature about Indian and Swedish lighting, exposure to natural light affects cultural lighting practices. Since it is so subjective, there is no right or wrong when it comes to the lighting settings they conduct or adjust for rituals. Our memories, history, and emotions are connected by light. Lighting is a very significant cultural aspect from an Indian perspective, according to the designer, because of its importance in a religious and cultural setting. Indians express and venerate holiness via the use of light. During Diwali, they dedicate and celebrate with a flame. On the other side, a designer claims that Swedes create a warm and cozy ambiance in their houses because they attempt to replicate the essence of fire and its warmth during the holiday season through warm colour temperatures, low lighting placement, and many small light sources. The culture may also be seen of as facts that has been occurring for a long time and has become ingrained in people's brains and tastes. This clarifies and elucidates the decision made by people of Indian and Swedish descent to use lighting that is consistent with their backgrounds and traditions. In the case of Indian culture, the lighting is bright and vibrant; in Swedish culture, it is warm and cozy.

**CHAPTER IV**

**DISCUSSION**

4.1 *Comparison of Light Culture between the two countries.*

Sweden has a distinctive and well-known lighting culture that is frequently related to the idea of coziness. Whereas the rich history, customs, and religious practices of India are strongly
ingrained in its diversified lighting culture. Both lighting cultures are very different from one another. While Indians treat lighting as a symbolism and has a deeper meaning to their ritualistic lighting, Swedes aim to create an atmosphere. Although they differ in their color temperatures, distribution, and sources due to their geographical latitudes, social customs, their relationship with the natural light, and their respective cultures, they are similar as they regard with light as a 'material'. “Each country has its history and social habits that can affect their choices about light.” [5] Indians enjoy rich white lighting because they are accustomed to high temperatures outside due to abundance of natural light and try to create a cooling sensation. The same is true with Swedish lighting culture; they favour warm lighting as they try to recreate the atmosphere of fire and its warmth. Another key finding noted in the online survey, the two culture groups approached each other's rituals with the same cultural perspective and preferred lighting that they often use. For instance, if a Swedish person selected cosy, warm lights for Christmas, they chose and relate the same for Diwali, and the same would apply to the Indian perception, bright and vibrant ritualistic lighting.

A study is necessary to analyze the social character of a natural phenomenon and to move further into the analysis and crucial finding of "materiality" by demonstrating how these people relate with, respond, and navigate natural light in terms of orientation and darkness in their homes possibly throughout the year. It is important to note that “the materiality of light in cultural experiences” [3] and how “daylight is perceived and used” [1] has already been investigated both in a general and Danish trend respectively by researchers.

4.2 Relationship between mood and perception.

There were significant differences in the self-reported moods before and after the ritual lighting conditions were tested. The visual perception journey significantly improved the mood of both Indians and Swedes. All the findings were conclusive evidence of a relationship between perception and mood. Analysed separately, the various mood scales often increased in a consistent manner, indicating that exposure to ritualistic light settings had an impact on a variety of emotions, such as making participants feel more attentive, interested, happy, and calm. For instance, comparing three moods of both Swedes and Indians on a vertical linear scale of 1-5 (Figure 27 and 28), there is a significant rise in the mood of the people post visual perception journey, where they become happier, ecstatic, and interested. Surprisingly, there was no indication of a decline in the mood of the majority. However, it was also discovered that
people's selections of ritualistic lighting remained unaffected despite a bad mood, pre-perception. In the sense that, individuals chose the ritualistic lighting setting as discussed, in the literature, according to their culture.

Thus, another notary finding was determined that perception of the two ritualistic lighting settings alter mood after analyzing both illustrations and the improvement in their mood. However, mood has no impact on how the ritualistic lighting setting is perceived.

Ritualistic environments create an ambience of color, togetherness, and joy. Therefore, this study can be evolved in two ways. First, it can be expanded to examine how these two cultural groups evaluate the color rendering qualities of illumination, as it was noted in the V/P theory assessment that, despite the environment being bright and cold during Diwali, most Indians perceived the atmosphere to be warm. Potential light sources with adjustable color temperature properties could be used to conduct this study. These advancements could help analyse why and how the increase in perceptual mood arises.
This study displayed perceived color illumination in ritualistic settings that was both cold and warm. There are multiple research projects to understand how each culture interprets color. For instance, "red is the most sacred color in China but signifies danger in India." [5] The usage of RGB luminaires might be the subject of the second study, which would examine how people from various cultural backgrounds view and interact with color in ritualistic contexts, and their respective fluctuations in mood.

4.3 Exposure to natural light and cultural decisions.

Through conversations with subject-matter practitioners, in-depth understanding of the factors influencing the relationship between light and culture was revealed. As a result, it was recognized how the perception of natural light worked in both cultures, demonstrating the dual roles it plays in forming cultural experience and influencing how people perceive the outside world. “Research in the senses in anthropological perspective have shown how the senses are historically and socio–culturally embedded in not just people’s live but in society, reflecting and meditating cultural experience.” [1]

The unexpected finding was that these cultures' customary lighting rituals for Christmas and Diwali are unaffected by exposure to natural light. In contrast to the way Indians choose their lighting, which is more closely tied to its deeper significance than to the availability of natural light, Swedes welcome the darkness, adapt, and use it to create an atmosphere since it is geographically not possible to have sufficient natural light. However, there is an indisputable impact on the more general component of light culture for both countries.

“Natural light is an object with a sensual quality that becomes evident when it enters or affects people's bodies and brains during discussion. It may not be felt because it is so deeply embedded; rather, it serves as a prism through which people view the outside world.” [1] One likes cold light despite having an abundance of natural light, whilst the other prefers warm light due to fluctuating exposure to natural light. Therefore, it would be intriguing to expand on this research and examine how the cultures of lighting in the two nations affect circadian rhythm, and dive deeper into the effects of exposure to such color temperatures and frequent changes.

CONCLUSION

This cross-cultural study compared and investigated how light influences the ritualistic spaces perceived in residential setting during Diwali and Christmas celebrations in Sweden and
India. It also ascertained how cultural backgrounds influenced the preferences & perception of light in various settings.

The results obtained supported one another and contributed to the research and made a serious effort to understand how different lighting preferences vary among cultures. There were intriguing findings throughout the objectives aimed, illustrating how similar yet different the two lighting cultures are.

The whole study promoted cultures and valued the diversity of cultures in a sustainable way, thus fulfilling Sustainable goal 4 – Quality Education. By carefully and thoughtfully considering values, traditions, culture, and heritage, it also made attempts to maintain and safeguard the cultural and natural legacy of the two countries. Thus, fulfilling Sustainable goal 11 – Sustainable cities and communities.

This study showed that not everyone prefers specific illumination. People from different geographical areas have varied lighting preferences, which have become profoundly embedded in their culture, social behaviours, and perceptions of their surroundings. It is important to understand the relationship between how culture cultivates light and how light cultivates culture since light can take on a variety of "shapes" depending on cultural circumstances.

**FUTURE WORKS**

The study can be developed further, first through a more thorough field research that will enable a more in-depth measurement of a number of illumination characteristics, as well as adherence to culture, might be part of a future inquiry into this subject. Second, the research may look at whether modernity has any impact on the choices that people choose for their ritualistic lighting. Modernity in three senses:

1. Age Gap: Whether and how decisions about lighting in traditional and modern cultures differ in terms of age.

2. Technology: Given the abundance of luminaires in our environment, do people actually follow the traditional routines, or are they attempting to innovate and recreate them?

3. Globalization: How and if does it alter the traditional lighting cultures as the world becomes more unified and is influenced by one another's choices and decision-making?
CHAPTER V

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CHAPTER VI

APPENDIX A

ONLINE SURVEY – On Demand
APPENDIX B

Questions asked for the Interview:

1. In your opinion why do people prefer different lighting solutions/ settings, especially when they are from different countries?

2. In your opinion, does exposure to sunlight affects their cultural choice of lighting in their residences. If you could please elaborate and give 1 example.

3. What does ‘light culture’ mean to you?

4. What factors in your opinion, contribute to the relationship between light and culture?

5. What advice would you give to designers who are looking to incorporate and reflect cultural elements into their lighting design?
APPENDIX C - Christmas

Indians

This data calculates the qualities of light perceived by the majority of Indians during Christmas by conducting a mode evaluation.

Mode is the ‘Most Occurring’ data received in the online questionnaire and therefore was taken into consideration for analysis.

<table>
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<td>2</td>
</tr>
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<tr>
<td></td>
<td>Level of Light</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>Distribution of Light</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Intensity of Light</td>
<td></td>
</tr>
<tr>
<td>Option 2</td>
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</tr>
<tr>
<td></td>
<td>Bad/Good</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Level of Light</td>
<td>Dark</td>
</tr>
<tr>
<td></td>
<td>Bad/Good</td>
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</tr>
<tr>
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<td>Distribution of Light</td>
<td>Uniform</td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Intensity of Light</td>
<td>Light</td>
</tr>
<tr>
<td></td>
<td>Bad/Good</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td></td>
<td>Level of Light</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Distribution of Light</td>
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<td></td>
<td>Intensity of Light</td>
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This data calculates the qualities of light perceived by the majority of Swedish during Christmas by conducting a mode evaluation. Mode is the ‘Most Occurring’ data received in the online questionnaire and therefore was taken into consideration for analysis.

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<td>Bad/Good</td>
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</table>

Level of Light

Distribution of Light

Intensity of Light

Color of light

Level of Light

Distribution of Light

Intensity of Light
Appendix D – Diwali

Indians

This data calculates the qualities of light perceived by the majority of Indians during Diwali by conducting a mode evaluation.

Mode is the ‘Most Occurring’ data received in the online questionnaire and therefore was taken into consideration for analysis.

<table>
<thead>
<tr>
<th>Option</th>
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<th>Level of Light</th>
<th>Distribution of Light</th>
<th>Intensity of Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
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<td>Distribution of Light</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 2</td>
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<td>Distribution of Light</td>
<td>Intensity of Light</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 3</td>
<td>Color of light</td>
<td>Level of Light</td>
<td>Distribution of Light</td>
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</tr>
<tr>
<td></td>
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</tbody>
</table>

Note: The data is represented with symbols indicating the mode for each category.
Swedish

This data calculates the qualities of light perceived by majority of Swedes during Diwali by conducting a mode evaluation.

Mode is the ‘Most Occurring’ data received in the online questionnaire and therefore was taken into consideration for analysis.