Diriyah

Outdoor Lighting Impact from Tourists' Perspective

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Abstract

The impact of outdoor lighting on tourists' perspectives and its influence on tourist destinations were the focal points of this research work. The significance of this study lies in its ability to shed light on the role of outdoor lighting in highlighting tourist destinations, attracting visitors and shaping the identity of a city, thereby emphasizing the importance of thoughtful urban lighting schemes.

This research also addresses a notable gap in the existing literature. There has been a lack of resources exploring the relationship between outdoor lighting and tourism in underexplored urban areas. The shortage of comprehensive studies on this topic is particularly pronounced in Saudi Arabia, making this research an important contribution to the field.

The primary aims of this study were to clarify the impact of outdoor lighting on tourism and then to offer a range of lighting options and measure tourists' preferences and perceptions of these options. By achieving these objectives, the study intention was to provide valuable insights into how outdoor lighting can be optimized to enhance the tourist experience by enhancing safety and movement.

The research employed a mixed-methods approach to gathering the data, combining interviews with tourists and quantitative and qualitative analysis of the obtained data. This methodology ensured an understanding of how outdoor lighting influences tourists' perspectives and preferences, ultimately enhancing tourist destinations and urban lighting strategies.

The progressive development of Saudi Arabia and its vibrant nightlife make it crucial to explore the impact of outdoor lighting on tourism. The influence of outdoor lighting is evident, as it shapes tourists' perceptions and significantly contributes to the attractiveness of tourist destinations.

Keywords: City Image, Urban Lighting, Movement, Tourist Perception, Safety

Chapter 1: Introduction

In April 2016, Saudi Arabia unveiled its ambitious 2030 Vision, a transformative initiative aimed at diversifying the nation's economic resources. One of the key objectives of this visionary plan was to reduce dependence on traditional sources of income and instead promote alternative sectors, most notably tourism, to encourage people to visit. Saudi Arabia and experience its culture. In this context, the Diriyah Gate Development Authority emerged in 2017 with the overarching goal of reshaping Diriyah into an iconic landmark and a symbol of Saudi Arabian identity. In addition, it aims to transform Diriyah into a renowned cultural destination that showcases the rich heritage and identity of Saudi.

The project's objective goes beyond mere development; it aims to promote global recognition of Diriyah. The vision for this endeavour portrays Diriyah as a vibrant centre, attracting visitors from around the world and instilling a sense of pride among Saudis. To ensure that Diriyah remains a source of inspiration and serves as an exemplary symbol for all Saudis, with its deeply rooted historical significance, it is imperative to consider its future prospects. Diriyah holds immense value as a cherished treasure within the Kingdom, unmatched by any other location or entity. Therefore, this research is intrinsically linked to this project.

The research on lighting and tourism is in line with Saudi Arabia's commitment to global sustainability goals. These interconnected objectives, collectively serving as a framework for various goals, are aligned with the focus of this research. First, goal 8, which focuses on decent work and economic growth, is important to consider in the context of Saudi Arabia. Whereas some countries heavily rely on tourism for economic growth, Saudi Arabia has historically been dependent on oil as its primary source of income. However, with the ambitious Vision 2030 initiative, Saudi Arabia aims to diversify its economy by exploring alternative sources of revenue. This effort aligns closely with goal 17, partnerships to achieve the goal. As part of this vision, entities such as Driyah Company have been established to support and promote distinctive tourist destinations that contribute towards economic diversification and sustainable development objectives through partnerships at a global level (United Nations, 2015).

What drove my interest in this topic is the unique cultural phenomenon in Saudi Arabia, where a significant portion of daily life unfolds at nighttime. This phenomenon highlights the crucial role of urban lighting. Moreover, the importance of illuminating the night in hot climates goes beyond mere practicality; it holds profound implications for transforming nighttime experiences and plays a pivotal role in shaping a city's identity. This transformation not only serves the needs of tourists but also enhances the lives of residents, making the urban environment more vibrant and engaging after dark. The strategic use of artificial lighting is, in essence, a powerful tool for enhancing the quality of life and enriching the cultural tapestry of Saudi cities. In this context, the development of a vibrant nightlife has become a key element of tourism competitiveness (Giordano, 2018). The importance of appropriate urban lighting goes beyond practicality and extends to cultural and tourism considerations in Saudi Arabia. Thus, planning in various cities must prioritize factors such as safety and ease of movement for

people. Achieving a balance between these factors and minimizing installation costs are essential for sustainable development and efficient use of resources.

In addition, the nighttime lighting in a city has the power to create an appealing image, capture people's attention and convey a sense of attractiveness and safety without the need for words. In my estimation, well-designed lighting effectively enhances the beauty of a place, allowing anyone to appreciate it regardless of their language or cultural background.

The initial section of this dissertation provides a review of previous research on lighting tourism. I identify four main factors that contribute to the promotion of tourism through lighting, discussed from a lighting perspective. The first is the overall promotion of tourism; then, I review lighting enhancing a city's image through effective night lighting. The third factor is lighting ensuring safety, and lastly, the fourth is facilitating smooth movement within tourist destinations by optimizing lighting conditions. Therefore, the introduction of this dissertation provides a comprehensive review of previous research on lighting tourism, specifically focusing on four key factors that contribute to its promotion.

The second section of this study provides a detailed description of the methodology employed to gather data. It begins with the selection and design process for choosing a suitable location for the study, followed by generating images of this destination using three different options. Subsequently, interviews were conducted with tourists to collect data, and the results were presented. The final section presents both qualitative and quantitative analyses based on the types of questions asked during the interviews, leading to a comprehensive discussion that explores correlations between these two types of data.

The purpose of this study was to explore the impact of lighting on tourism, how lighting can attract visitors to a particular destination, and lighting in historical areas, as tourists seek unique experiences when travelling and wish to immerse themselves in the local culture. Additionally, This study focuses on preserving cultural heritage and promoting its exposure worldwide. For this reason, in today's competitive tourism industry, creating a memorable and immersive experience for tourists has become essential.

The primary question of this study was about the preferences of tourists regarding various lighting design options. Specifically, the research aimed to identify the lighting designs that tourists favour and those not well-received in their destinations. A secondary goal of the study was to examine whether variations in lighting preferences exist among diverse regions across the globe. As the tourism industry continues to expand and attract visitors from all over the world, understanding tourists' preferences is crucial for destination management and marketing strategies.

Chapter 2: Literature Review

To identify the literature review themes, I conducted a pilot interview to determine tourist perceptions and priorities to encourage them to visit a specific destination. Several key themes emerged from the pilot interview, including mindful and unmindful factors, starting with the main thing that attracts tourists to a destination, which promotes tourism, and the city image to the tourist and how the light promotes it. Safety is one of the essential mindful factors that emerged as a significant concern among prospective tourists. Movement and wayfinding were also highlighted as important themes, emphasizing the significance of facilitating navigation and access to attractions within a destination. In this section, I present a literature review on lighting promoting these four factors.

2.1 Lighting Promoting Tourism

Boyce's (2019) research presents a comprehensive exploration of the impact of light on various aspects by highlighting the functional, economic and emotional benefits of nighttime illumination. One crucial application is using light to attract attention to specific locations, resulting in increased visitor interest. The significance of lighting master planning is emphasized in the study (Boyce, 2019), as the absence of a master plan may lead to confusion for visitors exploring a city. Furthermore, the research suggests that controlling nighttime lighting can foster tribal identification and emotional stimulation, thereby building a meaningful connection between tourists and their destination. From an economic perspective, globalization and the expansion of trade have led to the emergence of 24-hour economies in many countries, which heavily rely on outdoor lighting to function efficiently.

In contrast, a study from 2022 utilized continuous satellite observation and sophisticated analysis to explore the relationship between night lights and tourism activities in Hunan Province, China (Wei, Zhong and Fan, 2022). The research established a strong correlation between the intensity of luminous radiation and the prevalence of tourism-related points of interest. Overall, both studies underscore the influential role of light in shaping various aspects of human life, including its potential to promote tourism when applied thoughtfully and sustainably.

Syngellakis, Probstl-Haider and Pineda (2018) researched urban architectural heritage in Jordan and sustainable tourism. The study highlights the lack of strategic policies in balancing architectural heritage richness and tourism potential. The authors explored the use of lighting as an option to attract tourists to heritage sites by conducting experiments with different lighting options, without specific mention of its impact on tourists. The paper concludes with recommendations for sustainable tourism, suggesting the use of advanced scientific studies and technology, particularly artificial light, to revive archaeological sites during both day and night, as demonstrated in Petra.

The study conducted by Giordano (2018) focuses on the significant role of outdoor lighting design in promoting tourism, using Valladolid as a case study. The researcher explored how lighting design can enhance the overall tourist experience and contribute to making a destination more attractive. The study emphasizes the importance of considering lighting as a strategic tool in urban planning and tourism development. To collect data, the researcher employed interviews with key individuals involved in the project, alongside secondary sources, including Valladolid's tourism master plan. The findings reveal that since the project's initiation, in 2011, there has been a 12% increase in the number of overnight stays in Valladolid, and over 40,000 visitors have joined guided tours during weekends. Moreover, the author pointed out that an increasing number of cities are adopting the development of lighting as a strategic choice, making it a vital component of their regeneration strategies and place promotion.

In another case study conducted in Singapore, the role of lighting in promoting tourism and enhancing the tourist experience was explored. Interviews were conducted with 104 tourists, of which 39 acknowledged the significant impact of lighting on their experience (Potvin, 2014). The researcher found that lighting plays a subconscious role in shaping people's perception of a destination. Notably, the use of cool colours in lighting design contributes to creating a pleasant nightlife atmosphere, even in hot climates. The study's conclusion was that creating an "ultimate tourism experience" for everyone may be an impossible task, but emphasizing lighting as a part of the overall tourism strategy was found to improve the tourist experience and promote tourism effectively.

2.2 Lighting Promoting City Image

Arbab et al. (2020) investigated the concept of light branding (LB) as a pivotal factor within the realm of city planning and city branding, which impacts the city image. The researchers sought to explore the potential of the LB strategy, aiming to create a unique urban image that sets one city apart from others while highlighting the significance of urban branding in shaping urban identity, particularly in the context of lighting. The study involved interviews with 41 professionals to identify elements contributing to a city's image. The findings indicate that strategic attention to the lighting of traditional and old buildings, recreational facilities, commercial buildings and parks significantly impacts a city's identity. The findings of this research have implications for urban lighting master planning, and they accentuate the role of LB, lighting architecture and nocturnal city identity in fostering sustainable development as pivotal factors in policymaking. Additionally, the findings indicate that the city's nighttime image relies heavily on traditional buildings at 21.13%, monuments at 20.21% and bridges at 15.44%, contributing to the overall city identity.

On the other hand, Del-Negro's (2016) focus was directed towards enhancing legibility and facilitating wayfinding processes within urban environments at nighttime. It was observed that the implementation of lighting in cities primarily concentrated on functional aspects, neglecting

the overall aesthetic of the urban scene (ibid.). The research, conducted in London and Lisbon, sought to assess the influence of artificial lighting on legibility and wayfinding. The author interviewed non-British and Lisbon resident adults, each having resided in one of the cities for a minimum of three years. Analysis of the results from the interviews indicated that during nocturnal hours, the prominent features of Lisbon are more easily identifiable. This highlights the potential nocturnal modification of recognition and visual hierarchies, specifically on landmark detectability, areas characterized by high luminance contrast, and their associations with luminance, colour contrast and observer expectations.

Considering the establishment of a new destination, Achsani et al. (2022) delved into the concept of attractive urban lighting as a new destination branding strategy, examining its impact on the formation of cognitive, unique and affective images related to a destination. Data was collected through questionnaires, completed by 126 respondents who were asked about places they had visited with interesting night lighting. The author's three proposed models, cognitive image, unique images and affective image, contribute collectively to the overall image of a destination as shaped by attractive urban lighting. The researcher categorized places with attractive urban lighting into cognitive images, unique images and affective images, which collectively contribute to the overall image of attractive urban lighting as a distinctive destination branding approach. Thus, the research highlights the significance of cognitive and affective images in shaping and influencing the overall destination perception. Along with this, another study filled gaps in prior research by investigating the link between background light pattern density and the visual saliency of nocturnal urban objects (Davoudian, 2011). Eyetracking technology, which measures participants' gaze patterns and fixations on urban objects in nighttime scenes with varying background light pattern densities on computer monitors, was utilized in the experiments. Consequently, the researcher found that background lighting complexity significantly impacts the saliency of urban objects at night.

After discussing many aspects in previous literature, Giordano (2018) conducted a case study in Barcelona, focusing on the lighting dimension of the tourist's perception. The researcher analysed the role of illumination in shaping the nighttime tourist image of tourist sites. Additionally, data was gathered through structured questionnaire interviews administered on tablet computers, employing a random sample distribution across mornings, afternoons, weekdays and weekends at diverse tourist spots to ensure representativeness. Each participant was presented with illuminated and non-illuminated pictures of tourist attractions and asked to express their preferences. The findings indicate that younger individuals tend to prefer pictures depicting illuminated sights, whereas older individuals prefer non-illuminated images. Furthermore, the study revealed that national tourists, in general, show a greater inclination towards non-illuminated pictures compared to international tourists. These findings highlight the significance of illumination as a relevant feature in shaping the perceived image of the physical elements of the destination. Notably, specific sights in Barcelona were identified wherein illumination plays a salient role in shaping their perceived image; however, this is not always the case.

2.3 Lighting Promoting Safety

Boyce's (2014a, p. 427) book includes a section dedicated to investigating pedestrians' needs regarding lighting. Through an analysis of recorded observations, it was found that pedestrians allocate approximately 40%–50% of their attention to the pavement ahead, whereas the remaining time is devoted to observing various attention-catching objects, such as approaching individuals, items of personal interest, nearby vehicles and informative signage. This observation suggests that pedestrians' primary concern is to navigate safely. In this case, tourists who typically possess limited familiarity with the environment may allocate additional time towards ensuring their safety, thus emphasizing the importance of well-illuminated spaces to facilitate their focused engagement during the visit. This study identified the perception of safety in terms of individuals' ability to observe their surroundings and understand their environment. Additionally, the author highlighted the role of lighting in facilitating orientation, aiding in the visual identification of landmarks from a distance, and assessing the risk of assault based on the surroundings. Finally, the importance of area lighting extends beyond orientation, significantly enhancing safety and reducing discomfort.

The subsequent section of the same publication underscores lighting in the context of security, clarifying the multiple meanings of the term "security," one of which is connected to the feeling of safety (Boyce, 2014b, p. 441). The author highlighted the reluctance of those who lack a sense of security when walking the streets at nighttime, emphasizing the resulting economic, social and quality-of-life implications for affected individuals. However, lighting has a significant impact on enhancing individuals' sense of security when they are outdoors during nighttime hours. However, people's perception of outdoor lighting is influenced by factors beyond just the lighting itself. Furthermore, the study involved an experiment wherein 81 participants walked along a footpath illuminated with specific lighting. Post-walk, participants completed a questionnaire, which provided several indices. Multiple regression analysis revealed that perceived danger was correlated with brightness, gender, hedonic tone and environmental trust. These results indicate that individuals' evaluations of lighting installations are contingent not only on lighting itself but also on their dispositions and beliefs. Consequently, although designers cannot alter personality and attitudes, they can manipulate the perception of brightness to optimize lighting outcomes. Alternative findings stemming from additional research indicate that the correlation between lighting and individuals' safety judgements can be related to the influence of light on the perceived prospect and entrapment of urban streets (Rijswijk and Haans, 2018).

Knight (2010) focused on field surveys conducted in three European countries to investigate the impact of lamp spectrum on face recognition and perceptions of safety and comfort outdoors. This research provides valuable insights into the effects of different lighting conditions on human perception. The results indicate that higher spatial brightness contributes to a greater sense of safety. Additionally, the utilization of white light enhances perceptions of brightness, comfort and safety.

2.4 Lighting Promoting Movement

Quartier and Van Cleempoel's (2008) research revolved around comprehending human movement within commercial spaces under specific lighting conditions. Two fundamental findings arose from this investigation. Firstly, the design of lighting can be utilized to effectively direct individuals' movement through a given area. Furthermore, the design of lighting can be strategically employed to positively impact the impression and appreciation of a given place. To achieve these objectives, a multifaceted approach was used. The initial phase involved an extensive review of the literature complemented by in-depth interviews with experts. The subsequent phase entailed a controlled experiment conducted within a commercial environment. The study's findings indicated that consumers spent significantly more time at displays when exposed to additional accent lighting. This point of view highlights the significance of lighting in influencing human movement and perception.

In the same field, Jihyun (2004) investigated the role of lighting in directing circulation and its impact on wayfinding within a specific environment. The researcher explored how lighting, as an environmental cue, influences individuals' choices when presented with a decision between a left and a right pathway. To achieve this, an experimental room was designed with visually similar left and right pathways, varying only in their illumination contrast ratios. The underlying hypothesis posited that individuals would prefer the more brightly lit pathway. The experiment used seven different illumination contrast ratios and involved 200 participants; the results of the study demonstrated a significant influence of lighting on path selection. Participants consistently showed a preference for the brighter path, indicating that lighting plays a vital role in guiding their movement. However, the preference for the brighter path did not grow with an illumination contrast ratio beyond 1:5. The findings highlight the effectiveness of lighting as an environmental cue for wayfinding.

The research outlined in Section 2.2. will now be expounded upon from a different perspective. Del-Negro (2016) investigated wayfinding behaviour among individuals in London and Lisbon, with a specific focus on the influence of lighting conditions on their wayfinding decisions. The researcher utilized a mixed-methods approach, involving walking interviews conducted during both day and night-time conditions. The primary objective of the study was to examine the influence of lighting on wayfinding behaviours. Participants were divided into two groups, one with good knowledge of the area and the other with average or poor knowledge, with digital cameras recording participants' actions. The reasons and decision-making processes behind each subject's direction and movement were examined, with a focus on visual cues encountered during wayfinding. These cues included both well-known and personal landmarks. Daytime interviewees preferred the shortest, quickest and most comfortable route. Others also avoided busy streets or took new routes. Finally, the primary findings derived from this study indicate that the perception of a city may vary at night, hence influencing people's interpretation, navigation and movement within the urban environment.

Barton, Valtchanov and Ellard (2014) investigated the impact of space configuration on route choice and the influence of limiting distant visual information on navigation behaviour. However, the authors described this research as adding to the longstanding exploration of factors such as landmark learning and cognitive mapping in wayfinding problems. This study utilized an experimental research method to investigate the influence of changes in local visual field properties on navigation behaviour, employing two conditions by presenting participants with either a 44° or a 150° field of view. As a result, the route selection was significantly impacted by the spatial layout, and the reduction of peripheral visual information independently affected the navigation. In general, this study highlights the importance of the environment's configuration in influencing path decisions and wayfinding. On the other hand, some studies found that landmarks and districts mainly serve a functional purpose in spatial experiences, primarily assisting with wayfinding tasks (Stevens, 2006). Therefore, enhancing these objects could potentially assist people in their movement.

I identified a gap in the existing literature. Few studies have explored the connection between lighting and tourism, as well as the impact of lighting on tourist's perception, and this topic was only briefly addressed in some papers. On the other hand, Saudi Arabia has recently prioritized tourism development and has been taking effective steps to attract more tourists. Therefore, there is a lack of research conducted in this area. Hence, the aim of this study was to investigate the correlation between lighting, tourism and tourists' perceptions, particularly in Saudi Arabia, with a specific focus on Riyadh, the capital city.

Several research questions motivated this study. I aimed to determine if tourists have distinct preferences for particular lighting designs and which ones they find unappealing. Additionally, I sought to identify the key factors important for tourists when it comes to lighting in tourism facilities. Furthermore, the intention of the investigation was to examine any regional differences in lighting preferences based on the diverse cultural backgrounds of tourists, thus providing insights into how culture influences these preferences.

Chapter 3: Methodology

After a series of evaluating approaches, which commenced with preliminary pilot interviews to facilitate the selection of the present approach, I proceeded to conduct in-depth interviews with tourists to ascertain the primary factors influencing their destination preferences, whether they prefer historical or modern. I identified that tourists are inclined towards exploring new cultural experiences, with historical attractions emerging as the most preferred choice. However, during the interview, it became apparent that there needed to be more knowledge about Saudi Arabia, especially Riyadh, the capital, among the individuals I spoke to. This served as inspiration for me to take on the role of promoting and enhancing Riyadh's image, specifically in terms of its lighting. An additional challenge of interviewing tourists was the language barrier, as not all were fluent in English.

After selecting the At-Turaif District in ad-Dir'iyah as the site of research, I visited the location in Riyadh to assess its potential for improvement and identify key attractions that may appeal to tourists. During my visit, I took several images of the site. From these images, I carefully selected those that effectively captured the ambience and space within the At-Turaif District. With two chosen images at hand, I conceptualized lighting designs that would further accentuate their unique qualities. The lighting design options consisted of three different choices for the two images, as shown in Figure 1. The first option aimed to establish a contrast between the contemporary style and the historic building while providing a seamless visual experience and dynamic illumination to guide visitors on their journey through the space. The second option focused on enhancing the architectural elements using various types of lighting fixtures and layering techniques to achieve a well-illuminated and balanced area. An important aspect considered during this design was highlighting the building's texture, including highlighting its monumental aspects with uplighting effects. The third option featured vibrant and colourful lighting intended to create an unusual ambience not typically encountered in traditional lighting designs within Saudi Arabia. To assess their effectiveness, I introduced a coloured lighting option that is familiar to certain cultures, and I tested their performance by showing something familiar to some of the participants.



Figure 1: The two images of At-Turaif District in ad-Dir'iyah with three lighting design options

Obtaining ethical clearance marked the initial phase of conducting interviews. The inaugural interview involved asking participants an unstructured question to measure their perceptions when exposed to the images. This comprehensive approach allowed for a holistic examination of tourists' preferences and concerns, including their aesthetic appreciation, feelings of safety, and inclination toward visiting the places depicted in the images. Ultimately, it aimed to determine whether specific designs would entice tourists and interface harmoniously with architectural elements.

This section provides a detailed explanation of the data collection process employed by the researcher. I collected the primary data through 3- to 5-minute interviews conducted with tourists. This approach has been applied in multiple studies related to tourism (Picken, 2018). In addition, data collection involved conducting interviews either face to face or online, which emphasizes the importance of understanding how individuals respond to various aspects related to tourism, including visually stimulating content such as photographs or images.

I used Photoshop software to create these design images during participant interviews. These lighting designs were presented on a large tablet screen, and respondents' answers were conveniently stored on the phone for efficient documentation. This interview approach focuses on allowing participants to concentrate on the visual stimuli without being influenced by accompanying questions.

Structured questions were used, and I also included an option for respondents to provide additional comments, which ultimately enhanced the accuracy of the results. A total of 25 multiple-choice questions were asked overall, along with one unstructured question inviting additional thoughts or insights from participants. The first question in the survey aimed to gather information about participants' regional groups, which were categorized based on

similar cultural backgrounds and geographical locations, as shown in Figure 2. This categorization was intended to explore how these factors influence perceptions of and preferences for lighting design, as well as safety concerns.





For the remaining 24 questions, each scene contained four inquiries regarding preference, safety, willingness to visit and perception of appropriate lighting, and each question offered four answer options: a positive view, a neutral stance, a negative view and an option for no comment.

The questions were presented as follows: The first was, Which region do you identify with? Then, for each of the six scenes, participants were asked the following questions: Do you like this sense of lighting? Do you think visiting this site is safe? Is this site attractive enough for you to be willing to visit? Do you find the lighting appropriate? Finally, I asked if there were any comments the participants would like to add.

The sample consisted exclusively of adult tourists aged 18 years and above residing in London during June and July 2023. The sample size was 20 tourists, although I collected 22 responses overall. To select the sample for this study, a purposive sampling method was employed. To ensure that individuals with specific characteristics or attributes relevant to the research were included in the sample, I visited tourist spaces such as Tower Bridge in London. I interacted with both tourists and international students with extensive travel experience. This non-random sampling technique allowed for targeted participant selection.

The rationale behind selecting tourists as the sample population for this study was rooted in the significance of comprehending their viewpoints and perceptions. This perspective allowed for an evaluation of the efficacy of tourism marketing strategies, as well as opportunities to identify areas that warrant enhancement. It is essential for tourism businesses to understand tourists' inclinations and priorities across various aspects, such as lighting options, since this can have a substantial impact on their overall experience.

Chapter 4: Findings

This section will show the interview findings. Several noteworthy findings emerged based on the information gathered from 22 respondents during the interview. These findings stem from a diverse range of participant backgrounds.



Graph 1: Participant background region ratio

As shown in Graph 1, the findings demonstrate variations in the responses, with East Asia having the highest percentage at 27.3%, meaning that there were six participants from countries such as China, Japan, Vietnam and others. Similarly, Middle East and North Africa, South Asia and Latin America each accounted for 18.3% of the total respondents, with four participants in each category. On the other hand, Europe and Central and South Africa had the lowest response rates. It is worth noting that these participants were contacted during my stay in London.



Figure 3: The first lighting design option for the first image



Graph 2: Numerical responses based on categories for the first option.

Regarding the first image and design option, which is more modern, shown in Figure 3, Graph 2 depicts the findings of this study, indicating that a majority of the respondents, 17 out of 22 individuals, expressed their liking for this scene. In contrast, only three participants reported a dislike for it, and two remained neutral. When considering factors such as safety and willingness to visit the site depicted in this scene, an equal number of 15 respondents indicated feeling safe and willing to visit with the current lighting design and conditions. On the other hand, four respondents expressed concerns about safety while also showing an unwillingness to visit under this lighting. Three respondents remained neutral on this matter and did not provide further comments. In terms of the appropriateness of lighting with its engagement with structures, 14 participants found it consistent with the buildings depicted, whereas seven did not share this view. Notably, though, one respondent refrained from commenting on this question altogether.



Figure 4: The second lighting design option for the first image



Graph 3: Numerical responses based on categories for the second option

The findings of the second option image, which emphasizes architectural elements through lighting effects, reveal a varied response, shown in Figure 4. Graph 3 shows the findings: Of the total participants, 10 found this scene appealing, and four did not. However, there were seven neutral responses regarding preference for this scene. Regarding safety perceptions, 16 respondents felt secure when viewing this lighting option, whereas only four did not feel safe; meanwhile, two respondents remained neutral in their perception. Furthermore, considering whether this scene is attractive enough to motivate people to visit, 13 individuals expressed willingness to visit. In contrast, six individuals expressed reluctance, and two responses indicated neutrality, with one respondent providing no comment. On assessing the appropriateness of the lighting categories used in conjunction with the structure, the data reveals that 12 participants perceived it as harmonious, seven did not perceive such harmony, and three respondents remained neutral.



Figure 5: The third lighting design option for the first image



Graph 4: Numerical responses based on categories for the third option

As shown in Figure 5, the final option for this image presents a coloured lighting design, which elicited divergent opinions from among respondents. Graph 4 shows the numerical findings. Regarding their preferences, 11 people liked it, whereas seven did not, and four remained neutral. Similarly, the dislike category garnered an equal number of responses as the "not safe" category, with 12 feeling safe under this lighting setup and three remaining neutral towards it. This particular scene was perceived as one of the least motivating to visit because there were reports from participants stating unwillingness in 11 responses compared to those who expressed their opposite sentiment at nine, along with some feeling neutral about it. Lastly, it is notable that a relatively high number considered this lighting inappropriate, whereas only five disagreed; two participants felt neutral on the matter, and one did not provide any comment.



Figure 6: The first lighting design option for the second image



Graph 5: Numerical responses based on categories for the first option

Figure 6 shows the first design option for the second image. In this scene, the structure appears smoother due to the application of soft lighting. In terms of preference, a significant majority, 17 participants, expressed admiration for it, whereas only a few dislikes were reported, and three participants remained neutral as depicted in Graph 5. Regarding safety, the numbers were almost similar to those for liking, with 15 participants feeling positively towards this scene and five expressing opposing views. The level of interest in visiting was also significantly higher among respondents who expressed a willingness to visit at 15 participants. When evaluating whether the lighting in this scene is appropriate, a higher number perceived it as suitable, whereas five respondents believed otherwise. Only four participants reported a neutral response.



Figure 7: The second lighting design option for the second image



Graph 6: Numerical responses based on categories for the second option

The fifth scene presented to the participants is shown in Figure 7. Graph 6 shows the results, which indicated a low level of liking, with only seven respondents expressing positive opinions. In comparison, a higher number of respondents (12) expressed dislike. Additionally, there were three neutral responses. Regarding safety concerns, 15 participants felt safe in this scene, whereas four did not, and three had no strong feelings. Regarding willingness to visit the facility depicted in the scene, 13 participants were willing to visit with this lighting design, whereas seven were not. Furthermore, some participants perceived the lighting as engaging with the structure, leading to positive responses from seven individuals who found it appropriate. However, responses from other participants indicated a need for an improved lighting arrangement, accompanied by negative feedback.



Figure 8: The third lighting design option for the third image



Graph 7: Numerical responses based on categories for the third option

The final scene chosen for this research involves colourful lighting on the historical buildings depicted in Figure 8. In Graph 7, the results indicate that of the 20 participants, seven expressed a liking for this scene, whereas 13 did not. Overall, in terms of safety, more respondents felt safe compared to those who felt the opposite. Moreover, of the participants who viewed these scenes, only nine expressed their willingness to visit the site under this lighting design, whereas 12 were not inclined to do so. Regarding appropriate lighting and colours, this particular scene received critical feedback from a significant number of participants, as most participants felt it was not appropriate. These comments will be discussed in detail in the next paragraph.

In this section, participants' comments on the lighting design are presented. In addition, the comments are categorized according to participants' regional background.

During discussions with East Asian participants, one of the participants expressed appreciation for the colourful lighting because it added a sense of vitality and intensified their experience. In contrast, another participant held a dissenting opinion regarding the use of red lighting specifically, citing concerns about potential visual impairments and its tendency to divert attention away from the primary purpose of lighting. This individual advocated for natural colours to accentuate the building's inherent connection to nature. On another note, a different participant remarked that using coloured lighting created an artistic atmosphere but did not effectively interact or harmonize with the architectural design.

I found the comments of participants from the Middle East and North Africa to be highly insightful, as they are knowledgeable about the culture. One significant viewpoint expressed is that coloured lighting, in this case, disturbs cultural understanding. On the other hand, another participant believes that certain architectural elements representing culture are not clearly visible in these scenes. Lastly, one participant mentioned that although they liked the images, they thought that the first option for both images depicted more movement and effectively showcased the contrast between modern lighting and historical architecture, so it would capture tourists' attention.

Some Latin American participants expressed their preference for the first option, highlighting its combination of old buildings and new lighting designs. On the other hand, other participants believed that brighter lighting creates a sense of safety. Interestingly, one participant noted that the linear light distribution in both options can be visually disturbing to the eye.

South Asian participants appreciated the third option for each image due to the intriguing use of colour. Although the red colour appears visually appealing, it lacks naturalness. Another participant said that when dealing with historical buildings like these, it is essential to avoid using elements unrelated to their culture. Instead, artificial lighting should be used strategically to enhance their features while maintaining respect for the space.

A European participant remarked that the colourful lighting in relation to the buildings seemed unusual, but it appeared to resemble a popular tourist destination. However, respondents from Central and South Africa expressed that the last option, which was colourful, did not create a welcoming atmosphere for tourists. They also mentioned that the brightness and vibrancy of the colours in that option were excessive and caused discomfort to their eyes.

Chapter 5: Analysis and Discussion

In this section, I analyse and discuss the findings using two different methods. Firstly, I use a quantitative approach, as structured questions were asked during the interviews to obtain numerical data. This second approach involves a qualitative perspective, as open-ended questions were asked to allow participants to provide additional comments and insights based on their thoughts. However, it should be noted that although the majority of this section focuses on quantitative analysis for measuring and testing the impact of lighting, tourists' perceptions can influence their decision to visit, which aligns with the primary goal of the research. Certain participants mentioned during interviews will also be further explored qualitatively.

5.1 Quantitative

In this section, I present the data by answering the main research question and sub-research question. Additionally, I present the correlations between the aspects that were asked about during the interviews.

5.1.1 Which lighting scenes are preferred, and which ones are not?

There was variability among individuals in their preferences for the depicted scenes. The first option for each image, characterized by a modern lighting design that emphasized the contrast between the old building and modern atmosphere, garnered greater preference. Specifically, 17 of the respondents expressed a liking for both scenes, and 15 out of 17 indicated their intention to visit this setting based on the scenes, constituting a higher percentage in terms of overall interest. The five participants who held the opposite viewpoint are likely from countries with a similar cultural background, so such contrasting designs may be unfamiliar to them. All scenes were depicted uniformly, specifically on a tablet screen with consistent levels of brightness.

The third option for the first image, which features coloured lighting, received a high number of likes compared to the other images, with a total of 11 likes. However, it also attracted a high number of dislikes, with seven responses, indicating that there is a noticeable disparity in opinions towards this particular image. After analysing these findings, I suggest that the interpretation and preference for images with coloured lighting can vary among individuals based on their backgrounds and surrounding lighting conditions.

On the other hand, the second option received 10 likes but fewer dislikes compared to the third option, towards which people had a neutral opinion. This suggests that individuals were more accepting of this scene and did not strongly express a dislike. Conversely, image two in option two and the third option received the lowest preference, receiving only seven likes. This outcome could be attributed to factors such as these images' perspectives and lighting brightness.

Analysis of the findings indicates that participants preferred lighting design characterized by an appropriate level of brightness instead of excessive brightness, which facilitates improved visual clarity.

5.1.2 Does the lighting preference vary by the region people come from?

There is no obvious difference due to the sample size, which is not an unexpected finding. However, it is important to note that the small sample size in this study limits the generalizability of the results.

5.1.3 Are there any correlations between the main four adjectives in each scene?

After conducting a correlation analysis in Excel, I calculated the correlation ratio between each adjective of the categories within each scene. The resulting numbers, in general, ranging from 0 to 1 and represented by R^2 , indicate that if the number increases above 0.5, there is a correlation. In this study, a total of 36 correlations were examined to identify adjectives that were related. The values for R^2 ranged from 0.0008, as depicted in Graph 8, indicating no connection between the two categories, to 0.69, as depicted in Graph 9, which is considered significant in this research when evaluating correlations. Next, the two adjectives of all scenes will be discussed individually, starting from the first scene.



Graph 8: The calculation of the lowest correlation ratio



Graph 9: The calculation of the highest correlation ratio

In analysing the preference and safety correlations, I found that all scenes exhibited correlation values ranging from 0.006 to 0.43, depicted in Table 1, indicating a weak correlation below the threshold of 0.5. However, it is important to note that the correlation can vary depending on factors such as lighting colour, scene clarity, overall presentation of the setting, and lighting brightness. For instance, the first option for the first scene demonstrated the lowest correlation value of 0.006; it is possible that individuals had not yet become accustomed to the interview questions. These results indicate that individuals may have preferences for certain elements or aspects but do not necessarily associate them with feelings of safety, and it should be noted that people's perceptions regarding safety can vary based on their familiarity or association with specific types of lighting environments.

Furthermore, the purpose of designing the first image with the second option was to visually increase clarity in the area, resulting in a ratio rise to 0.37 compared to the first. However, in the second image with the third option, where the ratio reached its highest value of 0.43 in these specific adjectives due to the negative responses and feelings of unsafety associated with these colours, participants might have perceived the colours as lacking a sense of safety and security. Overall, I do not derive a high value from these numbers due to their low ratio. Additionally, the percentage of people participating could be higher to gain a strong correlation, which may contribute to the lack of meaningful impact in terms of outcomes or findings.

Preference and safety correlations			
Option 1 Option 2 Option 3			
Image 1	R ² = 0.0067	R ² = 0.3768	R ² = 0.2678
Image 2 R ² = 0.0351 R ² = 0.2996 R ² = 0.4387			

Table 1: The correlation ratio of the preferences and safety of all images and options.

Considering the preference and willingness to visit correlation depicted in Table2, these specific categories demonstrate a significantly higher ratio compared to other aspects in all scenes, with a value of 0.69 as the highest. Furthermore, in the second image, with the third option, it is worth noting that participant responses consistently reflect strong and unambiguous opinions towards this particular scene based on their high correction across various other scenes. Additionally, these two categories exhibit a strong correlation with other scenes, such as image one with option three at 0.5, indicating that participants have decisive opinions in these two categories. Therefore, I discovered that individuals are more inclined to visit a place when they like it and feel a strong emotional connection to it. This leads to an increased number of tourists at the destination and highlights the importance of creating a positive preference connection between tourists and a destination to attract more visitors, although there are instances where people desire to explore something new even if they do not necessarily like the place. However, this study included a small number of participants, and their choices might have been influenced by the specific designs that were provided.

Preference and willing to visit correlations			
Option 1 Option 2 Option 3			
Image 1	R ² = 0.2404	R ² = 0.0591	R ² = 0.5217
Image 2	R ² = 0.407	R ² = 0.3936	R ² = 0.6925

Table2 : The correlation ratio of the preferences and willingness to visit of all images and options

In the context of this study, the preference and appropriateness dimensions attained the second highest numerical ranking at 0.6 in image two with option two while also registering the lowest numerical score among the various aspects considered at 0.008 in image one with option two. As depicted in Table 3, the relationship between certain scenes and their correlation is unclear due to significant differences in the numbers. Whereas some scenes show a correlation, others do not exhibit any noticeable correlation. Hence, I posit that individuals tend to perceive lighting as appropriate when they prefer it and are accustomed to it. Conversely, they are less likely to find it appropriate when they dislike or lack familiarity with it.

Preference and appropriate lighting correlations				
Option 1 Option 2 Option 3				
Image 1	R ² = 0.2964	R ² = 0.0008	R ² = 0.229	
Image 2 R ² = 0.1561 R ² = 0.6023 R ² = 0.3513				

Table 3: The correlation ratio of the preferences and appropriate lighting of all images and options

The safety and willingness to visit metrics, depicted in Table 4, exhibited values falling within the range of 0.19 to 0.4, suggesting the absence of a pronounced correlation worthy of consideration. Nevertheless, I posit that an individual's sense of safety within a given space can influence their inclination to visit, and the data numbers are comparable and low, indicating that a definitive correlation is not apparent. Still, it may be conceivable that the selected sample consisted of individuals who are more resilient or less concerned about safety, potentially stemming from their cultural background or other factors.

Safety and willing to visit correlations				
Option 1 Option 2 Option 3				
Image 1	R ² = 0.2318	R ² = 0.3083	R ² = 0.2525	
Image 2 R ² = 0.2337 R ² = 0.1977 R ² = 0.4189				

Table 4: The correlation ratio of the safety and willingness to visit of all images and options

Regarding safety and appropriateness, the numbers were between 0.01 and 0.3, depicted in Table 5; thus, I noted a significant lack of correlation. Likewise, individuals may perceive the lighting as suitable for the architectural setting but with the potential to be safer. In contrast, the lighting may be deemed safe and well-lit in other instances but may not effectively engage with the overall structure.

Safety and appropriate lighting correlations				
Option 1 Option 2 Option 3				
Image 1	R ² = 0.0146	R ² = 0.0215	R ² = 0.3115	
Image 2 R ² = 0.0816 R ² = 0.2332 R ² = 0.1486				

Table 5: The correlation ratio of the safety and appropriate lighting of all images and options

The last set of correlations examined the relationship between the willingness to visit and the appropriateness of the lighting with the structure and the correlation number presented in Table 6. I observed that correlations were not notably high, suggesting that tourists may not place a significant emphasis on whether the lighting effectively complements the architectural elements in encouraging their visitation.

Willing to visit and appropriate lighting correlations			
Option 1 Option 2 Option 3			
Image 1	R ² = 0.131	R ² = 0.0008	R ² = 0.3325
Image 2 R ² = 0.3325 R ² = 0.3274 R ² = 0.4144			

Table 6: The correlation ratio of the willingness to visit and appropriate lighting of all images and options

5.2 Qualitative

This section will undertake a thematic exploration of the adjectives expressed by the participant during the interview.

5.2.1 Coloured Lighting with the Structure

During the interview, there was significant mention of coloured lighting, with participants expressing various opinions and providing descriptive accounts related to it. For instance, Participant 11 articulated a sentiment of not feeling welcome within a colourful scene with the statement, "I feel not welcome in the space." From a lighting design perspective, this assertion implies that the specific coloured lighting design in the area does not effectively contribute to establishing a hospitable or inviting ambience. Within the domain of lighting design, it is well-acknowledged that lighting plays a pivotal role in shaping a space's overall atmosphere. When tourists convey such comments, they might be focused on the potential significance of lighting in creating a welcoming atmosphere and increasing visitors' sense of belonging.

However, Participant 13 from the same cultural background from the Middle East and North Africa expressed concern that "coloured lighting distorts cultural understanding." This suggests that the use of coloured lighting in a specific context or environment may negatively influence how individuals perceive and interpret the cultural elements present in that setting. On the other hand, the use of coloured lighting can divert attention away from the main building and its original colours, thereby hindering tourists' ability to grasp and comprehend the cultural significance fully, and it fails to contribute towards the primary objective, which is to draw in tourists.

Moreover, some participants argued that using coloured lighting to interact with a historical structure results in a messy and disorganized ambience. This, they believe, could diminish the building's historical importance. Furthermore, some participants concurred by asserting that coloured lighting diverts their focus from the historical building, blurring its original appearance and essence.

As a strongly adverse critique, one participant noted that coloured lighting induces feelings of insecurity about a space. This feedback suggests that, in certain contexts, it may be essential to reconsider the use of coloured lighting and its impact on people's sense of security and comfort, especially if it contributes to negative feelings or apprehension among those in the space and as tourist destinations.

Some participants expressed that the presence of coloured lights creates a sense of vibrancy or liveliness. For example, Participant 5 mentioned that coloured light gives them a feeling of being in an exciting tourist destination, which could potentially inspire them to explore other destinations as well, possibly influenced by their cultural background or other factors.

5.2.2 The contrast between modern lighting and historical buildings

This theme is about the connection between modern lighting and the characteristics of the spaces that are presented, considering their cultural and historical contexts, as well as how individuals perceive the scene. Many individuals responded positively to this scene, expressing their appreciation for the modern lighting design and how it effectively connects with the historical areas and buildings. Participant 22 remarked that it generates movement and allows people to engage with the space. From my perspective, incorporating contemporary lighting designs is beneficial, as people have become accustomed to such elements in their daily lives. Besides, when encountering historical buildings and diverse cultures, these modern features create a sense of involvement, particularly in new tourist destinations, as ins this case. The same participant highlighted that these scenes enhance and emphasize the beauty of the space without altering its essence. On the contrary, some individuals perceived the lighting as excessively uniform and lacking in warmth, leading them to express a preference against it in a restricted ratio. From my perspective, people might appreciate lighting designs that effectively engage with and accommodate generational differences in preferences and needs.

5.3 General Discussion

A correlation exists between the quantitative and qualitative aspects of the study, specifically regarding the perception of coloured lighting and individuals' discussions about it. The quantitative analysis showed that the coloured scene was not particularly well-received by the participants, as indicated by the relatively low level of likes. Moreover, the qualitative data revealed that a majority of the comments expressed negative sentiments towards this particular scene. Furthermore, the qualitative data highlighted various reasons for the negative perception, such as discomfort, distraction and a belief that it did not enhance the overall experience of the historical area. The analysis of the quantitative data in this study revealed a correlation between participants' perceptions of coloured lighting as appropriate and their decision about visiting, which had a slightly high correlation.

In the first option of each image, where modern lighting elements interact with historical buildings, it is evident that these particular choices received a more favourable reception among viewers. This preference is reflected both qualitatively and quantitatively. Participants expressed a positive inclination towards these lighting options, as indicated by their comments and reactions. The researcher concluded that tourist participants preferred the lighting choices in both images, which could be attributed to various factors. Firstly, the colours of the lighting options achieve a harmonious balance by illuminating historical structures without overwhelming them with excessive brightness. As a result, participants expressed their admiration through their comments and demonstrated a preference towards the option featuring the more favoured images. This indicates that thoughtful consideration of lighting design can have a significant impact on how historical architecture is perceived and positively influence tourists' experiences.

Based on the research findings, the researcher recommended that when selecting lighting designs for historical architectural settings, prioritizing lighting sources with a high colour rendering index (CRI) would be advantageous. This preference is rooted in participants' demonstrated affinity for clearer visuals and their ability to accurately perceive colours, thus replicating the authentic hues of the historical buildings. Therefore, to enhance the overall aesthetic and experience of historical sites for visitors, it is advisable to use lighting solutions that offer a high CRI, ensuring that the architectural elements are shown in their true and vibrant colours, thereby creating a more captivating and authentic environment for tourists and observers alike.

Chapter 6: Conclusion

In conclusion, this research investigated the influence of various lighting designs on tourists' perspectives of a particular destination. In this investigation, I utilized face-to-face and online interviews; the interviews were carefully designed to include well-structured questions that aimed at obtaining targeted data. Additionally, open-ended inquiries were incorporated to capture the depth and richness of participants' perspectives. I presented two images of a Saudi Arabia destination, each illuminated by three different lighting design options. This study revealed a diverse range of viewpoints from participants because I conducted a thorough investigation that encompassed both quantitative and qualitative analysis. Taking this approach enabled me to deeply explore and understand how lighting design impacts tourists' perception of a destination.

The use of this particular study approach holds promising potential for organizations and governments seeking to enhance their spatial distinctions on a global scale. This strategic initiative allows them to effectively present their unique cultural facets, thus creating an opportunity to market and sell this distinctive experience. It is essential to underscore that such initiatives can yield substantial positive outcomes for their overall income and economic prosperity.

The results of this study indicate that participants showed a preference for certain options while disliking others. Some comments were also provided by participants to further explain these preferences and dislikes. However, the researcher also observed that some participants found certain designs unfamiliar to the local culture and undervalued them. On the other hand, some individuals expressed an interest in blending modern lighting styles with historical and cultural significance buildings.

It is essential to acknowledge the inherent complexity of gauging public preferences in this context. Individuals' experiences are greatly influenced by their unique life paths and personal preferences. In addition, the influence of culture on individuals' preferences cannot be overlooked. Yet, in our contemporary globalized world, individuals are exposed to a wide array of cultures and perspectives, broadening their horizons and allowing them to develop preferences independent of their cultural backgrounds.

Therefore, although this study approach can serve as a valuable tool for organizations and governments, it is imperative to apply it with sensitivity to the multifaceted nature of human preferences, which emphasizes the relationships between lighting and tourism. Moreover, understanding tourists' preferences for destination choice and valuing different aspects of the destination are vital for marketing strategies, especially for mature tourism destinations.

The rationale for adopting this approach can be elucidated through multiple interconnected considerations. Firstly, the absence of scholarly investigations about the correlation between lighting and its influence on tourism represents a significant gap in existing literature. The lack

of practical research in this area includes assessing how illuminative urban environments contribute to the development of unique tourist destinations and creating a distinct nighttime urban identity that meets tourists' preferences.

Furthermore, the imperative of this study is underscored by the broader context of Saudi Arabia's Vision 2030. This comprehensive plan outlines a multifaceted transformation strategy for the Kingdom, with particular emphasis on the tourism sector. Given this strategic priority, it is evident that Saudi Arabia is actively endeavouring to foster tourism as a pivotal economic driver.

An essential aspect of this initiative involves the promotion of the historical sites and encouraging tourist visits to these culturally significant areas. Ultimately, this research aims to support the achievement of Vision 2030's strategic goals by examining various aspects related to urban lighting that can enhance the attractiveness of historical destinations for tourists.

The research recommendations include lighting designs with a high CRI, which have significant potential to improve the experience of visitors and tourists, especially in historical buildings. This aspect was brought up by participants who expressed their desire for clarity in the lighting. Such lighting solutions can authentically demonstrate the original structure and its true colours, catering to people's preference for clarity when exploring new destinations.

In terms of future research, there is a need for deeper exploration into the intricate relationship between lighting and tourism. Investigating how lighting, with its role in safety and attention-grabbing, can facilitate and improve the creation of a distinctive nighttime cityscape for tourists is an important and valuable insight into optimizing nighttime urban environments to attract and accommodate visitors effectively.

Lastly, it is essential to acknowledge the limitations of this study to ensure its validity. Firstly, there is a lack of available literature that examines the relationship between tourists and lighting in emerging tourist destinations, which presents a challenge. Moreover, the majority of the existing studies in this field are dated, spanning several years in their publication history, leading to a gap in contemporary understanding.

Another limitation pertains to the relatively modest number of participants involved in face-to-face or online interviews due to time constraints. This approach, although impacting the sample size, was deliberately chosen to ensure data authenticity. Future research may consider a larger participant pool to further enhance the validity of the findings.

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Appendices

Appendix 1

The interview structure

I will be presented with two images showcasing three distinct lighting designs. Afterwards, you must assign each photo to four categories: safe, appealing for a visit, and natural.



Which region do you identify with

- O Middle east and north Africa (mena
- Australia
- Europe
- O South Asia
- 🔵 East Asia
- Central south Africa
- O North America
- O Latin America

First scene

Do you like this sense of lighting?



🔿 Like

O Neutral

O Dislike

O No comment

Is this site attractive enough to you to be willing to visit?

O Willing to visit

O Neutral

O Not Willing to visit

O No comment

Do you think visiting this site is safe?

◯ Safe

NeutralNot safe

O No comment

Do you find the lighting appropriate?

- Appropriate lighting
- O Neutral
- Not appropriate lighting
- O No comment

Second scene

Do you like this sense of lighting?



🔿 Like

O Neutral

O Dislike

O No comment

Is this site attractive enough to you to be willing to visit?

O Willing to visit

O Neutral

- O Not Willing to visit
- O No comment

Do you think visiting this site is safe?

- 🔘 Safe
- O Neutral
- Not safe
- O No comment

Do you find the lighting appropriate?

- Appropriate lighting
- O Neutral
- O Not appropriate lighting
- O No comment

Third scene

Do you like this sense of lighting?



🔘 Like
O Neutral
O Dislike
O No comment
Is this site attractive enough to you to be willing to visit?
O Willing to visit
O Neutral

- Not Willing to visit
- O No comment
- 0

Do you think visiting this site is safe?

- 🔘 Safe
- O Neutral
- O Not safe
- No comment

Do you find the lighting appropriate?

- Appropriate lighting
- Neutral
- O Not appropriate lighting
- No comment

Fourth scene

Do you like this sense of lighting?



- 🔿 Like
- O Neutral
- O Dislike
- O No comment

Is this site attractive enough to you to be willing to visit?

- O Willing to visit
- O Neutral
- O Not Willing to visit
- No comment

- Do you think visiting this site is safe?
- 🔘 Safe
- O Neutral
- Not safe
- O No comment
- Do you find the lighting appropriate?
- Appropriate lighting
- O Neutral
 - O Not appropriate lighting
 - O No comment

Fifth scene

Do you like this sense of lighting?



AUTO WALLOW	Do you think visiting this site is safe?
◯ Like	◯ Safe
O Neutral	O Neutral
O Dislike	O Not safe
O No comment	No comment
Is this site attractive enough to you to be willing to visit?	Do you find the lighting appropriate?
Willing to visit	Appropriate lighting
O Neutral	O Neutral
O Not Willing to visit	O Not appropriate lighting
O No comment	 No comment

Sixth scene

Do you like this sense of lighting?



C		Ē	il	k	e

- O Neutral
- O Dislike
- O No comment

Is this site attractive enough to you to be willing to visit?

- O Willing to visit
- O Neutral
- O Not Willing to visit

O No comment

Do you think visiting this site is safe?

- 🔘 Safe
- O Neutral
- O Not safe
- O No comment

Do you find the lighting appropriate?

- Appropriate lighting
- O Neutral
- O Not appropriate lighting
- No comment



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MSc IEDE Dissertation Module Research Ethics, Data Protection & Risk Check for Questions-based Methods Part D: Review

This form is for the use of the MSc IEDE Dissertation coordinator or their delegate(s) to evaluate student applications completed on the MSc IEDE Dissertation Research Ethics, Data Protection and Risk Check for Question-based Methods Part B: Student Protocol and Application Form.

Evaluators must ensure all applications collecting sensitive / special category / criminal records data are reviewed with the Ethics and Dissertation coordinators. Ethics coordinators ensure that any application with any features of High Risk research (see Part A, Step A4) are referred to UCL Research Ethics Committee.

Evaluators must provide students with a completed PDF of this form (not the Word version).

DISSERTATION & TEAM (Refer to B1)										
Student Name: Shaden Fahad R Alrowidan Supervisor Name: Peter Raynham										
Student UCL Email Address: ucbvalr@ucl.ac.uk Supervisor UCL Email Address: p.raynham@ucl.ac.uk										
Student Candidate Number: BGQL5										
Dissertation Research Project Title/Topic: Outdoor lighting impact on specific area from tourist perspective										
Evaluator's Name(s):Ezgi Erturk		l g	for	N/A						
Date:30/06/2023		fac	fac							
Study is low risk and may commence	X	atis	atis							
Study requires revised submission to IEDE Research Ethics Tea	m & approval prior to data collection/processing	Uns	S							
Study requires approval from BSEER / UCL (cross out as applicable) Research Ethics Team prior to data collection/processing										
RESEARCH METHOD (Refer to B3, B4, B5 and Attached Question	ons / Interview/Discussion Guide)									
The research uses only Questions-based Methods covered by this protoco	I. Reviewed by MSc ethics reviewer & checked by IEDE ethics lead									
The research uses only Questions-based Methods covered by this protocol combined with Monitoring-based Methods covered by that light touch ethics protocol. The student has submitted concurrent completed applications for both methods. Reviewed by MSc ethics reviewer AND IEDE ethics lead										
Research does not focus on vulnerable participants and there are a	dequate safeguards to exclude children (<18y.o.) from the study									
RESEARCH RISK & PERMISSIONS (Refer to B2 and B6)										
Student and supervisor confirm that the research does not require external ethics committee approval.										
Student and supervisor confirm that the research is not deemed high risk.										
Correctly identifies if permission is necessary and, if necessary, indicates that this will be obtained prior to data collection?										
Correctly identifies any risks to the researcher and attaches any necessary Risk Assessment?										
If research will be conducted in a country where requiring local ethical approval (according to UCL's Flowchart for Planning Overseas Research [under development]), has sufficient evidence of local ethical approval been attached to the application?										
CONSENT (Refer to B5, Attached Participant Information and consent process)										
Process of choosing and inviting participants and providing Participant Information in advance are all satisfactory										
Participant Information covers necessary issues (Researcher & says if student, Institution, funder, study title & purpose, how participant selected, what happens to participant, how long it will take, benefits, potential risks/harms, anonymity/confidentiality, voluntariness, right to withdraw, contact details)										
Participant Information is written in an appropriate style (Study title and content appropriately phrased for participants, level of detail appropriate for participants, sufficiently concise)										
If participants known to researcherappropriate procedures to ensure participants feel free to not participate & withdraw from the study										
Process of recording consent uses a method approved for this light-touch within-module review										
SENSITIVITY, DATA PROTECTION & PRIVACY (Refer to B4, B5 and Attached Questions / Interview/Discussion Guide)										
Correctly identifies whether/not personal data are being collected / processed (Definition of personal data is embedded in the formcheck whole application to ensure applicant answered this Q correctly)										
Correctly identifies whether/not special category personal data and/or criminal records data are being collected / processed (Examples of such data embedded in the formcheck whole application to ensure applicant answered this Q correctly)										
If sensitive questions / special category / criminal records data used application includes all questions / discussion / interview guides?										
If sensitive questions / special category / criminal records data used Ethics and Dissertation coordinators approved? Must demonstrate public interest & using minimum special category data necessary Research of particular concern is that conducted overseas and/or in sensitive contexts and/or with colleagues / students / clients										
If personal data and/or special category / criminal records personal data are being used confirms will follow the protocol										
If participants are known to researcher procedures to protect participants' privacy (EG data collected &/or collection method)										
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Additionally, the Excel file includes all calculations for other aspects of the study.