

Unveiling the Spiritual Essence in Contemporary Bahraini Mosques through Architectural Phenomenology

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Abstract

This research explores the impact of light phenomenology on user experience in contemporary mosques, focusing on mosques in Bahrain. The research aims to understand the significance of architectural phenomenology, and how light can contribute to affecting the user experience, particularly in smaller contemporary mosques. The theoretical study delves into the role of architecture in shaping space, a detailed examination of light phenomenology, its role in sacred spaces, and its effects on human beings. The case study involves a phenomenological analysis of three contemporary mosques, considering building orientation, natural light fenestration, material qualities, and artificial lighting. The results indicate that despite the absence of traditional Islamic elements, contemporary mosques in Bahrain successfully create a spiritual atmosphere through the integration of natural light. User surveys reveal a preference for mosques that provide a sense of spirituality, emphasizing the importance of light in enhancing the sacred experience.

Keywords: Architecture; Contemporary; Light; Mosques; Phenomenology.

1. Introduction

"In all Muslim societies, the mosque is the most important building in the community and arguably in the townscape, providing a sense of identity and place" (Serageldin, I. 1996:8). The architecture of mosques can be recognized easily anywhere. Mosques have a unique characteristic that differentiates them from other religious buildings, minarets, domes, arches, and ornamentation are commonly used elements despite the mosque's location. These elements serve both functional and conceptual aspects in the design of mosques.

However, with the growing number of mosques and contemporary-oriented architecture, designers and stakeholders are considering modifying the traditional mosque design to be much simpler in form, materials, and ornamentation. These changes happened recently in almost all Islamic countries, and Bahrain is one of them.

The phenomenology of light is one of the important aspects in shaping contemplating spaces and provides the sense of place in not only mosques but also churches and temples. The research question is how light impacts contemporary mosques and shapes the experience of praying with humility.

The research focuses on the phenomenology of light in shaping the user experience inside the mosques despite the visual appearance and design elements. It also aims to evaluate the contemporary architecture of mosques in Bahrain through the phenomenology of light.

The research consists of two parts, a theoretical study that will explore in depth the role of light as a phenomenon in mosques through work of literature and library research. Followed by the analytical approach which studies and observes several contemporary mosques in Bahrain to evaluate them through the lens of phenomenology.

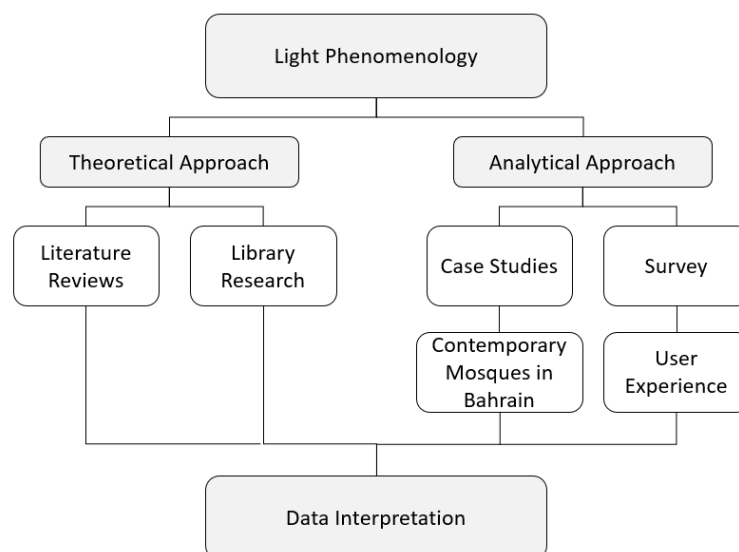


Figure 1. Research Structure

2. Material and Methods

The research is designed based on theoretical and analytical approaches to study the impact of light phenomenology in contemporary mosques. The theoretical study will provide in-depth an understanding of light as an element that shapes the bodily experience of users, and how it affects the sense of sacred places, especially mosques. In addition to fostering the knowledge of the impact of light on human behavior and emotional experience in the space.

The analytical study will include observation of three contemporary mosques in Bahrain to evaluate the built environment, and how light impacts the atmosphere of the place, its visual appearance, and the human experience. In addition, a survey designed with closed-ended questions to be used during the observation of users in the mosque. To ask participants to rate and describe their experience, verbal and written consent is taken from each participant to ensure ethical aspects.

The analysis of data will be descriptive with the use of images. Data collected from the survey regarding user experience will be analyzed by graphs, showing percentages of participant's answers. In terms of limitations, the study requires access to mosques where a high gender segregation, which might be one of the constraints during the analysis of the space.

3. Theoretical Study

3.1. The Role of Architecture in Shaping the Space

Ahlawat, J. (2015), in a phenomenological study, points out the responsibility of architecture in changing space into place by turning potential content into actual content. "Place is a space felt, understood, and associated with memories" Ahlawat, J. (2015:45). She argues that the feeling towards a place is commonly called a Sense of place, and it is formed by the feelings and memories, and it is a space where human knows their presence. (Ahlawat, J. 2015)

In addition, Jyoti Ahlawat believes that architecture is not only about form, it is about atmosphere, experience feelings, and emotions attached to space. "Form and function play a very crucial role for building design but it should also value the experience of the individual which can be done by designing buildings and spaces keeping in mind the concept of architectural phenomenology" (Ahlawat, J. 2015:4)

In the book *Atmospheres: Architectural Environments, Surrounding Objects* (2006) Peter Zumthor identifies several themes crucial for creating atmosphere. These include Material Compatibility, The Sound of Space, The Temperature of Space, Levels of Intimacy, and The Light on Things (Afara et al., 2024; Amen et al., 2024)

. These five elements work together and to achieve the required atmosphere, architects must envision themselves within the space (Zumthor, P. 2006).

Material plays a crucial role in shaping the atmosphere of a space, influencing factors such as weight and usage. According to Zumthor, materials also impact the acoustics of a space, acting as instruments that collect, amplify, and transmit sound. Architects should consider the specific sound characteristics required for a space, whether it's stillness or echo (Zumthor, P. 2006).

Moreover, the levels of intimacy in design should be mindful of their relationship with the human body, emotions, and the experiences they evoke. The contrast between the building and factors such as body size, mass, gravity, proximity, distance, and scale contributes to creating intimate spaces. The temperature of space affects human feelings and experiences, with every building material having its own temperature that can influence warmth (Zumthor, P. 2006).

He also suggests planning a building as a solid mass of shadow and then introducing light as if hollowing out darkness. Lighting is a significant element in creating experiences, influencing the sensorial aspect of a space. Different forms of light, including direct, diffused, and reflected, contribute to creating patterns, casting shadows, and illuminating the space, turning light into a poetic element in architectural design (Zumthor, P. 2006).

Likewise, Yasmine Abdelhamid (2020) claims that architecture holds significant influence over people's behavior, emotions, and interactions within their surroundings. It goes beyond the visible, often conveying hidden meanings. Architects aim to communicate specific messages or morals through their structures, using architecture as a powerful force. The primary purpose of architecture is to serve people, with architects designing spaces and buildings to meet users' needs. The impact of architecture on individuals' lives is profound, influencing well-being, stress levels, productivity, and behavior in various ways (Abdelhamid, Y. 2020).

Furthermore, Pallasmaa has emphasized the way architecture enhances one's connection to the world, ultimately leading to an enriched sense of self-experience. "Experience of architecture is multi-sensory; qualities of matter, space, and scale are measured equally by the eye, ear, nose, skin, tongue, skeleton, and muscle" (Pallasmaa, J. 1996: 28).

3.2. Development of Mosque's Architecture

In the book *Architecture of Contemporary Mosques*, Ismail Serageldin (1996) explains the development of the mosque's architecture through five stages starting from the first mosque of the prophet Mohamed (peace be upon him), to the Umayyad Dynasty, Abbasid Empire, Ottoman Empire, and the contemporary mosques.

Beginning with the Prophet's House in Madinah, the prayer space included a courtyard, with calling to prayer from the rooftop due to the absence of minarets. This design prioritized the community's practical needs and embraced simplicity in line with Islam's monotheistic principles. The Prophet's Mosque in Madinah also served as a center of temporal power, education, and civic activities. (Serageldin, I. 1996).

The Umayyad dynasty marked an evolution in mosque design, exemplified by the Great Mosque of Damascus in the eighth century. It is much larger than the Prophet's House and adopted a rectangular layout with four riwaqs. A central dome over the riwaq al-qibla, situated in front of the mihrab, emphasized its importance. Additionally, a minaret served both as a landmark and the point from which the muezzin called to prayer (Serageldin, I. 1996). During the Abbasid revolution and rule, there were no major alterations in mosque architecture, although the design of the minaret evolved, influenced by the distinctive Malwiya tower of Samarra, featuring an external spiral stairway. Riwaqs continued to be constructed with arcades or colonnades and included small domes (Serageldin, I. 1996).

The evolution of the dome, vault, and arch set the stage for the remarkable Ottoman domed mosque, considered a pinnacle in Muslim Mosque architecture. Developed in the sixteenth century by the renowned architect Sinan, this design featured a large courtyard enclosed by a colonnade with arches or domes. The central dome was supported by half domes and subsidiary structures, and the overall structure was complemented by two, four, or six pencil-point minarets (Serageldin, I. 1996).

The marriage of technology and architectural convention has opened up new avenues and developed a wide variety of new architectural approaches, that have changed the physical look of the mosques. The symbolic elements were not used anymore, less importance was given to the detailed ornamentation and architectural elements, creating simpler forms of what is known as a contemporary mosque.

3.3. The Role of Mosques in Communities

In Muslim communities, the mosque holds paramount significance, serving as a focal point in the community and arguably shaping the overall urban landscape, contributing to a sense of identity and belonging. Serageldin, I. (1996) highlighted the role of the mosque during its early stages, it functioned as both a spiritual and secular space, not merely a site for prayer, but also a venue for addressing and resolving important communal matters.

Moreover, the role of the mosque has undergone diverse changes, with its form, structure, and appearance reflecting a corresponding evolution and diversity, over time and across different locations. Traditionally, the mosque has been a central figure in most Muslim societies, orchestrating the organization of space and society. It not only preserves the identity of the community but also serves as a point of reference for residents, passers-by, and travelers, functioning as a defender of societal values (Serageldin, I. 1996).

Similarly, Mehwish Abid (2018) describes the communal places of worship, which were beyond serving as dedicated spaces for religious practices, also functioned as communal gathering spaces. The act of prayer and meditation evolved to emphasize interpersonal connections and bonding among people (Abid, M. 2018).

3.4. Phenomenology of Light

In a study of light phenomenology, Abdelhamid claims that lighting serves the purpose of aiding human perception, as individuals are unable to perceive space without it. Light plays a crucial role in the cognitive mapping process, providing interpretive keys that guide the exploration of the physical environment. Understanding the essentials of lighting design can positively impact well-being and health. (Abdelhamid, Y. 2020) Moreover, humans gather information about their surroundings primarily through sight, which relies on light. Manipulating light properties (intensity, heat, and color) can create specific conditions that influence perception. The human perception responds to the degree of daylighting change, with time and weather altering the interior space. Daylighting variations throughout the day create color changes, and it is known to reveal the true color of objects it illuminates. (Abdelhamid, Y. 2020)

Furthermore, Klarén (2011) explains how human beings experience light through an effortless yet very complex perceptual process. The light experienced by human beings differs from one person to another and when it is described it is always a comparison of our own with that of others. The human perception of the world surrounding us in an attempt to understand it. Light is the mediator that individuals construct their experience on. (Klarén, U. 2011).

3.5. Light and Sacred Spaces

Daylight in sacred spaces serves a purpose beyond illumination; it becomes a creative tool employed by architects to imbue spaces with a metaphysical essence, influencing the emotions of occupants. The interplay of light and

shadow is intentionally manipulated to evoke a sense of divinity and spirituality in religious buildings, impacting the human psyche phenomenologically. This powerful tool has been evident in ancient structures, from Stonehenge to pyramids, highlighting the profound connection between people and the sun (Gattupall, A. 2023). The transient qualities of light, encompassing brightness, color, and texture, generate diverse psychological and physiological effects, especially when it is used along with shadow. Functioning as a symbol of illumination, wisdom, goodness, and purity, natural light in places of worship possesses the ability to elevate the human mind beyond material constraints (Gattupall, A. 2023).

Light was traditionally introduced into sacred spaces through roofs, domes, and upper wall areas, symbolizing the divine presence above. In contemporary places of worship, the practice continues, but with a more abstract approach, bringing sunlight from nearby and above. Unlike earlier designs, modern religious architecture integrates postmodernism, minimalism, and futuristic styles to convey spirituality within the space. (Gattupall, A. 2023).

According to Abdelhamid (2020), light creates an identity to the space through the interaction with nature and the rhythm between light and shadows. She suggests that sacred spaces should have a sharp contrast in lighting to throw behind the attachment to the materialistic world and evoke spirituality. She assures that light represents God and faith, despite various cultures and religions the symbolism of light remains the same. (Abdelhamid, Y. 2020)

Therefore, architects must seek inspiration from the vast realms of God, the spiritual world, and the physical materialistic world to craft spiritual spaces. Through light which holds profound symbolism, representing mystical concepts and serving as a decorative element, the spirit of space can be shaped. Additionally, daylighting integration through colored glass or walls enriches the space, resembling divine light. (Shokrpour, M. Mahboubi, G. and Fakherian, F. 2016).

3.6. The Effect of Light on Human Being

According to Boubekri (2008), the interplay of light, shadows, form, and structure is a key aspect of outstanding architectural designs. Architects globally utilize light as a metaphor, mood enhancer, and conveyer of meaning in architectural projects. Research on the relationship between light and mood has expanded beyond sacred buildings to include retail, commercial, and office spaces, demonstrating how changes in light quality influence users' moods. (Boubekri, M. 2008).

In the book *Daylighting, Architecture and Health*, Boubekri (2008) claims that environmental psychologists and behaviorists assert that even slight alterations in luminous conditions can impact the emotional states of occupants. Light is viewed as an environmental stimulus that, when present or absent, can evoke positive or negative effects on individuals. The presence of light is associated with feelings of excitement, alertness, and dominance, while its absence or poor quality can lead to boredom, dullness, and submissiveness. This paradigm suggests that light also affects the social behavior and decision-making processes of occupants. (Boubekri, M. 2008).

4. Phenomenological Analysis (Case Study)

The mosques analysis was done on three temporary mosques in Bahrain, which located in different areas around the country. The selection of mosques was based on different aspects in terms of size, light integration, architectural style and location. The aim is to study these different aspects and evaluate whether they are affecting the spirituality of the place or not.

The great mosque (Durrat Al Bahrain) (Figure 3), Rcapita mosque (Manama) (Figure 4), and Sh. Ahmed Bin Salman Al Khalifa mosque (Riffa) (Figure 5) are contemporary mosques that are built with similar architectural elements. The three selected mosques are not built with the symbolic elements of the traditional mosques, nor follow the same layout of the prayer room. The mosques had no central dome, and they had detached minarets.

4.1. Building Orientation and Sun Path

Sunlight is the most important light source in sacred places and has been used since ancient times to illuminate the sacred space through fenestrations. Therefore, the sacred spaces must consider the sun's path to allow maximum light into the space during the day which provides a spiritual atmosphere to worshippers.

The selected mosques were designed with wall and roof fenestrations, both Rcapita and the great mosque of Durrat Al Bahrin architectural designs were considering the sun direction. The openings were facing the South, which means the maximum amount of natural lighting was brought to the prayer hall. On the other hand, the mosque of Sh. Ahmed Bin Salaman Al Khalifa glass façade faced East, and the qibla glass wall facing West. In other words, the mosque had soft indirect sunlight and without glare. The red arrows show the location of openings (Figure 2).

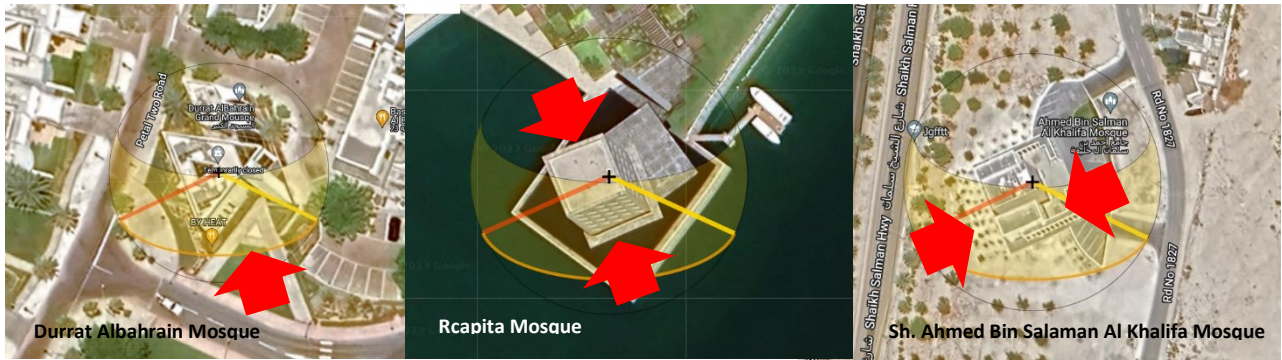


Figure 2. Sun Path (Sun Direction, 2023)

4.2. Natural Light Fenestration

The natural light is brought to the mosque’s prayer room through skylights, clerestory windows, and wall cuts. Bringing light beams to the holly space creates an atmosphere for worshiper, where the can feel the serenity in the space. In Durrat Al Bahrain the design of a central sky light illuminated the entire prayer space, in addition to wall vertical cuts (Figure 3).

However, the other two mosques did not consider bringing light from the roof, instead architects built both façades with glass walls. Besides the glass wall, in Rcapita the multiple wall cuts created a beautiful light effect in the interior space during the day (Figure 4). On the other hand, Sh. Ahmed Bin Slaman Al Khalifa Mosque integrated light through the clerestory window, with mashrabiya window screens that add patterns to the falling shadows (Figure 5). Mosques provide a sense of unity in the Muslim community when users are gathered to pray together. Moreover, it also elevates the human emotional feeling toward their God.

Through the observation of worshipers during the act of prayer, It was noticed that most of the users when they were praying solitary, preferred to pray in a spot that is reached by light beams. They claimed that in a certain moment, light takes them beyond the physical space and they feel the humility to God.



Figure 3. Durrat Al Bahrain Grand Mosque. (Dawa Center, 2023)

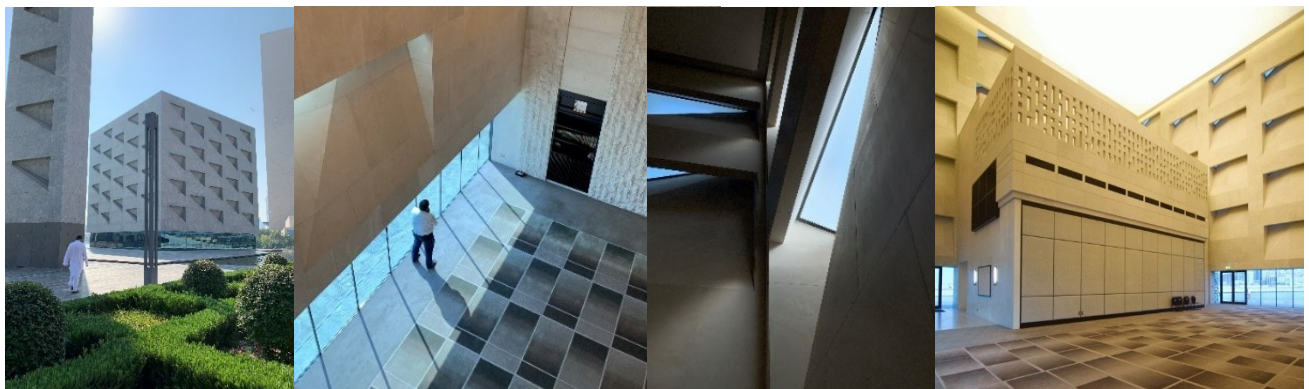


Figure 4. Rcapita Mosque. (Photo Source: Author)



Figure 5. Sh. Ahmed Bin Salman Al Khalifa Mosque. (Photo Source: Author & Google Map)

4.3. Material Qualities and Light

Material selection plays a big role in shaping the light intensity, color and temperature when entering the space. The translucency of glass facades and openings has lifted the sense of purity for users in the space, by bringing light through clear glass and connect them to the surrounding. The use of reflective and smooth wall finishes allowed light reflection, unlike the rough rugs that diffused the light and brought warmth to the space.

4.4. Artificial Light

After the sunsets, the three mosques are completely illuminated by warm artificial lighting. Thus the quality of artificial lighting does not equal the effectiveness of natural lighting, it maintained the calm and peaceful atmosphere at night. It provided users with the amount of light that helped them cognize their surroundings without disturbing the sense of purity and serenity of the mosque.

4.5. Impact of Light on Users in Mosques (Survey)

To study the user's experience, a survey was distributed to worshippers around Bahrain. The survey contained closed ended questions to allow easy answers for the users of the mosques with 14 participants contributing with their feedback regarding their experience inside the mosques.

The surveys show that most of the users preferred praying in mosques that provide them with an atmosphere of spirituality despite its style. In addition, users were attracted to the contemporary mosques and their designs especially with light integration, as the majority agreed that light can lift the spirituality of the space whether it is a traditional or contemporary mosque. By being in a contemporary mosque worshippers believe that when design brings light to the space it makes it more serene and it provides a better experience of humility during their prayer. Even those who did not visit contemporary mosques, the survey provided them with two options mosques. The first option was a traditional big mosque with dull artificial lighting, although it was full of ornamentation and Arabic calligraphy the majority preferred the second option which was the contemporary mosque with natural lighting illuminating the prayer room.

5. Results

The theoretical and library studies shows the importance of light phenomenology in shaping the experience of users in mosques. Light has the power to enhance interior spaces and provide users with the required sense of place regardless of the physical quality of that place. Additionally, architects when fully aware of the impact of their designs on human behavior and emotional experience, can produce places where users can link themselves to it and feel their presence.

In the case of the contemporary mosques in Bahrain, the analysis provides insights that align with the theoretical study. The selected mosques were small and had no symbolic representations of traditional Islamic architecture. Despite that, their design has proven the role of architecture phenomenology. By providing a spiritual atmosphere through light to the users, the architects achieved a successful design approach (Table 1). It can be said that the mosque can provide the worshippers with a sense of a sacred and holy space without the need for the traditional Islamic style, architectural elements, or ornamentation.

Table 1. Mosques Analysis.

Criteria	Durrat Al Bahrain	Rcapita	Sh. Ahmed Bin Salman
Wall Fenestration			
Skylight			
Clerstory Windows			
Glass Walls			
Transparent Material			
Reflective Materials			
Absorbing Materials			
Mashrabiya			
Public Users			
Warm Artificial Light			

Furthermore, the analysis of user experience provides a clear image of how light attracts the eyes and feelings of those who are looking for a holy experience. Users have noticed how natural light can improve the spirituality of contemporary mosques (Figure 6). It also ensures that users prefer praying in mosques that provide them with the needed atmosphere and the sense of serenity (Figure 7). With that in mind, participants agreed that the contemporary design can give them spirituality just like the traditional mosques (Figure 8).

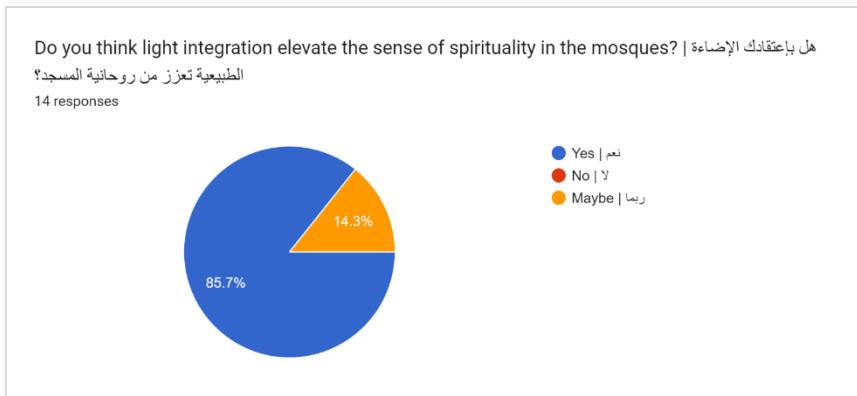


Figure 6. Contemporary Mosques and Light. (Photo Source: Google Forms)

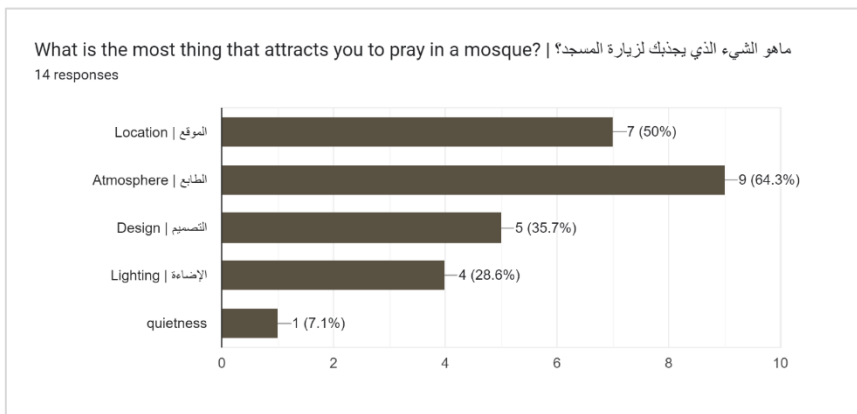


Figure 7. Users and Mosque Attraction. (Photo Source: Google Forms)

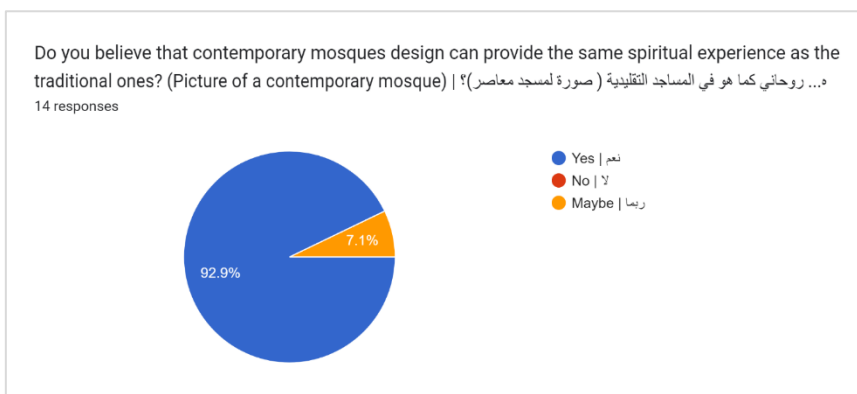


Figure 7. Contemporary Mosques and Spirituality (Photo Source: Google Forms)

6. Discussions

The outcome of the both theoretical and phenomenological analysis foster the knowledge of phenomenological architectural approach and its impact on human experience in the sacred spaces. The mosques as an important place for the Islamic community play an important role in building the sense of community and improving self-presence.

The findings of the research align with most of the prior research's results, which provide an understanding of phenomenology in enhancing the human experience and sense of place particularly light, which is the most important element in different sacred spaces. However, other researchers focused on the grand and traditional mosques, unlike this study which draws attention to the impact of light in contemporary small mosques.

Due to gender segregation access to the main prayer hall in some mosques was impossible, especially during prayer times to observe the user experience. Moreover, in some cases, mosques only had one main prayer room and it was for male users only. This fact limited access to the entire mosque allowing observation from female sections only, and it required to access the space when there were no users.

The research highlighted the importance of using the architectural phenomenon in mosques to allow an experience of spirituality that users need. It is suggested for future research, to study bigger contemporary mosques, and compare them with other traditional mosques in the same region. This will allow a comparison between the two mosques in terms of similar cultural and environmental structural frames, in addition to the impact of architectural elements affecting the experience in each mosque.

7. Conclusions

In conclusion, this research extensively explores the pivotal role of light phenomenology in shaping the user experience within contemporary mosques, particularly in Bahrain. Emphasizing a departure from traditional mosque designs, the study underscores the evolution towards simpler forms, materials, and ornamentation. The research employs a two-fold approach, combining a theoretical study and an analytical investigation of three contemporary mosques in Bahrain.

The theoretical study delves into architectural phenomenology, the historical progression of mosque architecture, and the evolving role of mosques in communities. It highlights the multifaceted nature of architecture, emphasizing atmosphere, emotions, and experiences alongside form and function. Additionally, the study explores the phenomenology of light, its impact on human perception, and its symbolic significance in sacred spaces.

The phenomenological analysis of the selected contemporary mosques reveals insights into building orientation, natural light fenestration, material qualities, and the interplay of natural and artificial light. Worshipers express a preference for spaces that provide a spiritual atmosphere through thoughtful light integration during prayer. Survey results support the notion that light significantly enhances the sense of spirituality in both traditional and contemporary mosque designs.

Despite the absence of traditional symbolic elements, the contemporary mosques in Bahrain effectively create a spiritual atmosphere through the integration of light. The study acknowledges limitations, such as challenges related to gender segregation in mosque access, and suggests future research avenues, including the exploration of larger contemporary mosques and comparative analyses with traditional counterparts.

In essence, this research contributes valuable insights into the evolving trends in mosque architecture, particularly in Bahrain. It underscores the transformative power of light in shaping the sacred experience for worshipers, emphasizing the need for architects and stakeholders to understand the intricate relationship between design elements and user experience in the realm of sacred architecture.

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Conflict of Interests

The Author(s) declare(s) that there is no conflict of interest.

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