A typological study of mosque internal spatial arrangement : A case study on Malaysian mosques (1700-2007)

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Abstract

The paper presents the results of a study on internal design of Malaysian mosques from a typological way of research. Specifically it will look at the form and spatial variety which leads to the functionality of interior space. Orientation of mosques is taken into serious consideration because the prostration activity for Muslims is performed while facing the '*qibla*' towards the Ka'bah in Mecca, where the unity of the religion can be seen during the congregational prayers. Apart from that, this typological research will also show clearly the evolution of mosque architecture from the beginning of Islamic embracement in Malaysia. From there, classification of types of mosque design will be defined by analyzing the inner spatial composition and not just by looking at the external built forms. As a result, it is hoped that this paper will help innovate design solutions to the mosque designers and to Muslims who will be using the facility. The typological index produced in this paper will help the present and future generation to learn history through the trend of mosques design evaluation that is shown in the classified images.

Keywords: typology, history, contemporary, evolution, spatial orientation

Introduction

> *"At any given time the man-made world is inevitably the measure we use to determine the direction of change. Whatever we may think of it, the world around us provides the basis for decisions about the future. We are keenly aware of its deficiencies, but not always so aware of its strengths. From time to time it is wise to pause and consider whether when we changed something, we consider what we might be losing. The corollary to this is to look back to see whether what we lost yesterday might, with little effort, be regained."*
>
> R. Lewcock, (1988pp. v-vi)

This paper is based on the study of selected mosques in Peninsular Malaysia. Although many scholars have successfully studied the typology of built mosques, most of the studies were based on mosques in the Middle-East. Looking at the evolution of mosques design throughout the centuries in Malaysia, with the help of typological analysis is very encouraging and challenging, especially when mosque design becomes one of the most influential built-form in showing wealth and power

among the ruling political parties. In this paper, "style" of mosques whether traditional, colonial or even hybrid, are examined through their internal spaces and not through their built form. This will allow us to find the quality of new styles, regain the missing values of the past and use their combination for the future design of Malaysian mosque.

Mosques unlike other public buildings are very specific in their usage with simple requirements. Looking back to the very early mosques built by Prophet Muhammad p.b.u.h. (Figure 1) the Messenger of Islam, Kuban (1974) mentioned that the functional elements of mosque have to do with the prayer ritual. Prayers must be performed in parallel rows, in order to follow the movements of the *'imam'* or the leader of congregation and to face Mecca or *qibla* (Petersen, 1996). With this notion, it should be understood that the lines parallel to the *qibla* wall are most of the time longer than the ones perpendicular to it. This is to ensure more space for the good length of 'safs' or rows that are provided for the followers or 'makmum' to pray closer to the 'imam' (Figure 2).

The first mosque built by Prophet Muhammad p.b.u.h., consists of a large square enclosure with long covered pavilion called the *'zullah'* along the entire length of the *qibla* wall (on the north side). It is very difficult to find the elements in present mosques which could also be found in the early mosque of the Prophet Muhammad p.b.u.h. Components of a mosque should be maintained as they were applied in the Prophet's mosque, as there should not be any changes made to the well defined ritual in prayer as mentioned in the 'Qur'an' and the 'Hadiths'.

On the other hand, there are still additional elements found in mosques built after the era of Prophet Muhammad p.b.u.h. In explaining this phenomenon, Rafique (1982) said that Muslims, throughout the Muslim world, in facing the modernization, have been re-evaluating their tradition and finding new adaptations in changing circumstances. This results in the alteration of the shape and form to buildings according to the region and culture which is in line with the needs of the believers, without examining the importance of historical value that could be the secret of building glorious mosques in the past.

Investigations should be made in order to trace the various changes made to the interior spatial arrangement of mosques in Malaysia as part of Islamic world architecture. Moreover, in the last twenty years, there are a lot of arguments made by scholars on the construction of contemporary mosques in Malaysia. These scholars came up with different views but with the same good intention for the betterment of Islamic architecture.

Tajuddin (1998) strongly believes that mosque should act as a community development centre, following the precedent set by the Prophet, where mosque acts as the core of all religious, political and social activities. In a different paper, Tajuddin (2001) suggested that mosques in Malaysia should follow the traditional Malaysian architecture as an identity, taking the monumental mosques in the Middle East and Mid-Asia as precedents is an unwise decision, as those mosques may not necessarily be the best examples in projecting the architectural message of Islam. He is stressing on the matter because nowadays, most of the contemporary builders and architects in Malaysia actually believe that domes and minarets are among the essential elements that will help make the mosques look gigantic and monumental. This descriptive research has influenced the study on the evolution of spatial analysis that will examine and investigate whether

the changes of mosque design should be made to address the religion and human needs or just the fulfillment of designers' ego.

The spatial typological analysis of mosques has been conducted earlier by Bandyopadhay and Sibley (2003). Their study is quite successful pertaining to differences in the mosques built by the Ibadis of Central Omani in comparison with the ones built by Sunni/Wahabi in Saudi Arabia. The invaluable finding established that the interesting exchanges in mosques form and organization of Central Omani are actually a result of different tribal migration patterns and sectarian incursions in Northern Oman and UAE. This finding supports the notion of different cultures affecting the architecture and design of mosques.

Prior to those scholars, Notkin (1989) did a typological study of interior spatial organization on mosques and civil buildings in Central Asia. He said such a study is important to prove the correlation between structural-genetic determination of spatial structure which is unfolding over a period of time and its functional implementation will be determined. As described by Bandyopadhay and Sibley (2003) the classification of spatial structure will give definite answers to the origin of the shapes.

The former and latter scholars support the notion of how different cultural needs affect the architecture and design of mosques. This signifies the need of typological analysis of mosques in Malaysia as the country has gone through a number of colonialisations, namely Portuguese, Dutch, Japanese and British and also immigrants from India and China.

The three scholars centered their studies on mosque buildings in the Muslim world of Central Asia, where they are assumed to be the origin of Islamic art and architecture. Since Islam reached South East Asia more than five hundred years ago, it is about time for Malaysia as one of the South East Asian countries to table out the sequence of changes resulting from the adoptions and adaptations for its own social and cultural needs. Only then could it be shown whether these adoptions and adaptations are actually needed in forming the mosques design for Malaysia.

Like residential buildings, mosques should be categorized under socially inspired type and studied together with its relationship to social factors such as users' needs. It should give the feeling of comfort through spatial arrangement that satisfy the psychological tranquility to the users in different cultural needs. Housing design holds a continuity of basic dwelling theme that is the need for privacy and community (Tice, 1993). This basic theme gives rise to the distinct housing types in diverse cultures constituting a housing framework that remains relevant until today. Mosques, too, should be examined thoroughly on the internal orientation and shape of spaces as the basic theme that is hoped to be used and remains relevant for years to come.

Typology as a Research Method

In his reinterpretation of Quincy, Younes (1999) elaborated that "type" does not literally mean images that can be reproduced or imitated exactly. The meaning is actually taken deeper as a process of getting the quality of formal arrangements. "Type" is not a model which has to be built according to the exact look, it is more independence, ambiguous but identifiable.

Examining a report made by Gulgonen (1982) "typology" is termed as the classification of objects; therefore "type" is an *abstract that* could only be identified by the person carrying the classifying activity, which is mostly determined by

material and cultural production of the architects and society. These two scholars gave similar interpretation of 'type'.

Typological formation study will mostly show the classification of mosques protracted to create an architectural inventory. The word classification itself relates substantially to the continuity in a certain system and this is agreeable by Muratori with his Italian school of thought as explained by Cataldi and Laisney (2002). Muratori's method of typology is based on critical literature and site visits of existing buildings, in order to find and formulate design process for the benefit of history and memory. In mosque formation, context has a continuous basic themes and usage that comes with general framework remains until today in spite of the diversity of cultures and modern technologies.

Bambang (2000) studies the statement made by many scholars that Javanese mosques have square plans with four pillars erected at the prayer halls. The result of his study on 127 selected mosques all over Java suggested that a detail typological research of plans and structures of mosques in Java consists of six other types. This findings show that typological research will provide complete existing data whilst giving new sets of studied data which would probably supersede some of the superficial statements.

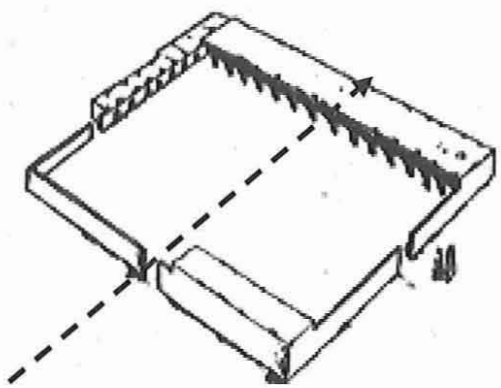
These selected scholars suggested that typology is the most suitable method for finding the evolution of mosque internal spaces. It gives the idea of offering ways in organizing decisions, providing orders and certainly to generate forms from the basic set of ideal type.

In applying the same method of analysis this paper will provide information that focuses on design and architecture, as basic intellectual instruments which could be expanded into ideas, whilst providing commemorative and informative values for the public. The authorities in the public sectors will have the opportunity to use this paper to assist them in the classification process of tangible heritage conservation works.

General Understanding.

Unlike other building types, the designers and builders of mosque generally understand the need to orientate the dominant space that is the praying area ('musolla') of a mosque to be facing towards a certain direction which is facing the qibla. There should not be any other focal points of this main space in a mosque other than towards the qibla. The entrance to the praying area which is usually directed toward the centre of qibla called 'mihrab' (normally indicated by niche), always emerges as a strong directional axis across the prayer hall. This formal arrangement can be seen in the Prophet Muhammad p.b.u.h. earliest mosque and many medieval mosques throughout 7th to 15th centuries.

As mentioned by Doty and Glick (1994), every typological study must be based on certain ***ideal*** type that will be the controlling factor in determining the level of changes made to the models under study. Mosque of the Prophet Muhammad p.b.u.h (Figure 1) in Medina is definitely the ***ideal*** type to be taken as the base for this study. This mosque shows the simplicity



axis

Figure 1 : The Prophet's p.b.u.h.mosque as illustrated by Creswel

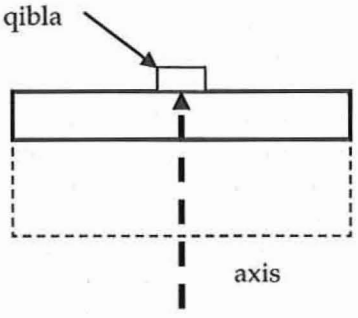


Figure 2 : Longer space parallel to 'qibla' (Author's own illustration)

of mosque spatial arrangement. Even though it is simple and straight forward in mosque design, it still provides all the basic necessities in performing *solah*.

Basic Elements of Malaysian Mosques

- *Entrance*

In some mosques *portal* as an entrance plays the role of concealing the interior from the external view, giving the feeling of tranquility from the hustle and bustle of the outside urban space, and acts as the threshold. Medieval mosques always have tall and monumental main portal which is in contrast with vernacular Malaysian mosques entrance which looks more humble and open.

Salamah (2001) conducted a study on the impression made by entrances. His study is significant for buildings concerning public usage. According to Salamah, building entrances should have certain qualities that can evoke a strong image, conveying silent, non-verbal messages reflecting the inner activities, whilst giving emotional effect on the users, feeling invited or repelled. Hence rise the need to take a closer look at the entrance or portal of mosques built in Malaysia with the hope to make them look more welcoming and inviting to the users and potential patrons. In articulating what ought to happen inside, the *'ideal type'* shows a good example by having a strong axis emerging the two points; entrance and mihrab (center of Qibla wall) ensuring clear visibility of the most important component that is the praying area/hall as shown in the Great Mosque of Damascus (figure 3)

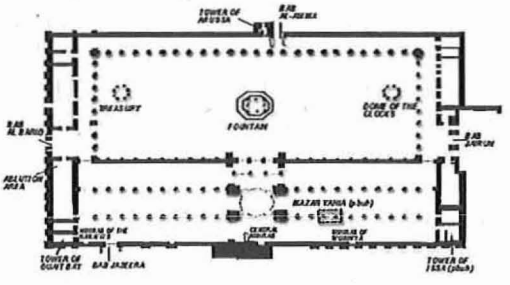


Figure 1. Details of the Mosque Plan

Figure 3 : Plan of The Great Mosque of Damascus (Saeed Arida ,2003)

- *Prayer hall*

Taken as the basic requirement of mosques, prayer hall is sometimes assumed as the sacred area. A prayer hall which is designated by constitution of rows is the most important space/area that exists in any mosque, even a state mosque. Most of the time the praying area is large and open where the devotees will perform their congregational prayers either during daily five time prayers, festivity prayers or Friday prayers. It is also an area where they gather to listen to sermons or preach. The roof over prayer hall is always given the most emphasis and strongest personality from the external feature.

- *Verandah and Corridor*

This element is one of the extensions from the basic form of mosque resulting from cultural diversity. Verandah always introduced in tropical climate buildings as a shaded space provided to cool off out door air before entering the building. In the context of Malaysian climate, verandah and corridor is one of the important components in building design including

mosque design. In most of the Malaysian traditional houses, the verandah acts as the transitional space between the public area (entrance) and the private area (living room and other parts of the house).

In mosque design, verandah mostly functions as a place for informal religious classes or sometimes used as a meeting place for informal discussion before or after congregational prayers. Verandah will also act as extra praying area and when the need arise, similar to the function of courtyards.

The Typology Analysis Study of Mosque in Malaysia

Fifty mosques were chosen and visited throughout the Peninsular of Malaysia, dated from 1730s onward. The mosques chosen are considerably significant due to the criteria set below:

- They are the significant representatives of mosques architectural differences among thousands other throughout Malaysia, over the decades.
- The earlier dates are mostly categorized under historical and tangible heritage of Malaysia.
- The contemporary ones are among the monumental with variety of design forms.

Out of the 50 mosques, only 24 were shortlisted to be shown in the matrix of this paper to avoid repetition of typology. (Table 1)

Arrangement of the three elements of mosque (entrance/portal, prayer hall and verandah), and the positioning of ablution areas have been studied and analysed. In referring to the mosque of the Prophet's Muhammad p.b.u.h as an ***ideal*** type, three elements mentioned above were chosen. They are considered to be the most significant historical elements to be considered to set for the controlling ***ideal*** type mosques in Malaysia. Furthermore, according to the space syntax analysis made by Aazam, (2007) the three elements are considerably the most active areas from the analysis on the visual points and prostration points segment. It is shown quite clearly that ablution also has a tendency towards similar spatial syntactic qualities and the most used space adjacent to verandah and praying area. Therefore, investigating the spatial arrangement of the spaces must be taken into serious consideration as they complement all the important activities in mosques.

Another scholar, Aksamija (2008), noted that historical elements of mosques should not just be a formal understanding but should set the bench mark to overcome the issues on how contemporary mosque design can be derived from conceptual. He prolonged his reinterpretation on the subject matter by bringing forward the principle of directionality, prayer enactment, volume of prayer and the various activities in mosques which will seek to bridge the gap between culturally and historically specific forms and functions of mosques. Muslim's prostration relies a great deal on the direction they face, i.e. *qibla* direction or towards *Ka'bah* hence the principle of directionality raises above all subject arguments. Upon entering a mosque, the first experience a visitor or user feel is the difference between internal and external via the portal or entrance threshold. Then looking deeper into the mosque central plan, through the prayer hall is where the focus should be. By pointing toward *Ka'bah*, the direction in which all Muslims pray i.e. the *qibla, mihrab* symbolizes the unity in a world diversified by cultures and earth's geographically spherical nature.

In order to confirm the functional and operational qualities of the spatial arrangement, this paper suggests the following factors for consideration;

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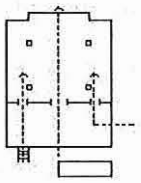
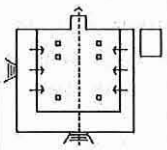
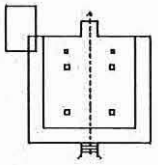
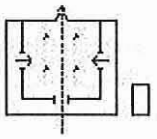
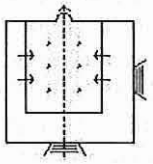
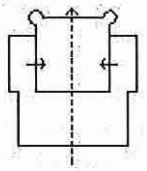
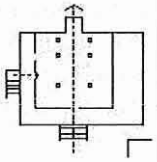
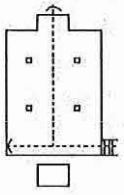
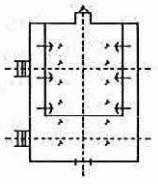
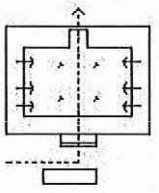
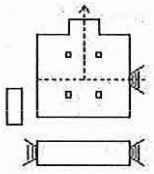
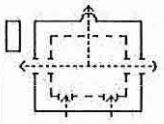
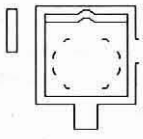
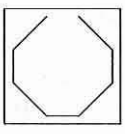
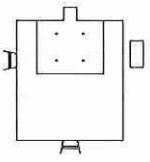
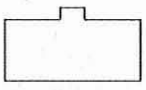
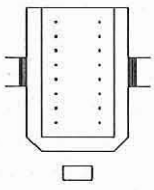
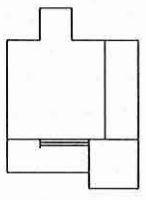
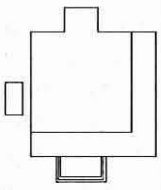
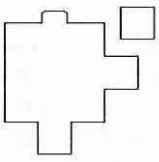
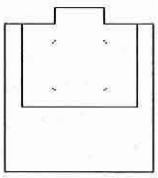
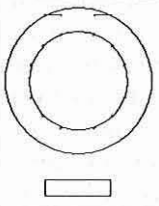
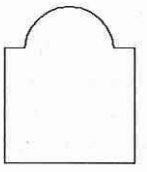
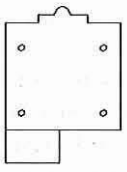
					
Kg Duyung 1850	Kampong Tok 1857	Muhammadiah 1867	Dato' Dagang 1876	Jamek Alawiyah 1890	Alaedddin Jugra 1898
					
Masjid Zahir 1912	Ubudiyah 1917	Jamek Seremban 1927	Tok Kenali 1936	Sultan Ibrahim 1939	Bukit Belimbing 1955
					
Jamek Alor Gajah 1960	Sultan Abd. Halim 1963	Perlis State 1973	Penang State 1977	Ismail Petra 1990	Putra Jamalullail 2005
					

Table 1: The outline plans of the 24 selected Mosques and their Built Dates.

1. *Spatial distribution of the three spaces*

As mentioned above: the floor plan should show coordination of the prostration activities, beginning with the act ablution to the finding of prostration space congregationally or individually.

2. *Clarity and high visibility of spaces especially in the prayer hall*

Positioning of internal columns in the prayer hall will determine the rows of congregation (safs).

3. *Contacts between the focal point inside the mosque and the external environment*

Clear and strong axis must be achieved when line is drawn connecting the entrance point and the mihrab, indicating the floor plan was designed with deep consideration of mosque orientation. This will then ensure the sense of welcoming to the visitors and users (Salamah 2001).

These factors will be highlighted in every mosque under study by doing a reverse study in relation to their spatial analysis. Hence, the spatial arrangement is clearly defined and the spatial quality will be determined by the high visibility of the users to find their desired area for individual prostration or guide them to fill in the praying rows (safs) during congregation.

The earliest mosques in Malaysia (18th century) for example Masjid Trangkerah and Masjid Kampung Laut, started with less columned and more clearly defined open space for prayers focusing on the *qibla* wall. The interior space is deliberately oriented towards the *mihrab* and *qibla* wall developing a strong axis as a datum collecting the three areas; portal, verandah (intermediate space) and praying area spearheaded by the *mihrab*. Most of them are categorized under vernacular mosques. According to Ghafar (1999), this type has strong influence from the Malay traditional houses, way of life and environment.

However, physical presence is not the main focus of this paper as the authors will look to discuss the orientation and internal spatial arrangement in accordance with the needs of the users. In Malaysia it is not unusual for the Muslimah (female Muslim) to perform prayer congregationally or attend religious activities in mosque, except for Friday prayers. Therefore, it has always been a custom to have a small area for the Muslimah demarcated by full height curtain or moveable partitions.

The Findings

Looking at each direct contact from the entrance towards the *qibla* wall, and the shape of the floor plans (Table 1), this study found that the mosques could be classified into three types as indicated below:

Type A: Direct focal point contact with the entrance point and best visibility from the entrance point to the centre of *qibla* wall. A strong axis is clearly indicated when the two points (entrance and mihrab) are joined. A well defined praying lines/rows (safs).

Type B: There is no direct contact from the entrance point to the *qibla* wall axis. The entrance is from the sides of building and focus the attention of visitors to the opposite side wall. When a line is drawn, it is in perpendicular with the Qibla wall axis. Still it has well defined praying lines (safs).

Type C: The entrance in relation to the *qibla* direction is weak as there is no clear axis and hence it is quite confusing to the visitors. The visibility is quite appalling as they are obstructed by columns and awkward shapes. Praying lines are mostly obstructed lessening the number of devotees to perform in one congregation.

All the mosques are grouped into these three classifications according to the year they were built and their types following the axis and floor plan. Table 2 shows the trend of changes of the mosque designs from 18th century until today. (Table 2).

Identifying Type *A* Category Mosques

Most of the Type *A* category mosques were built (between 18th -19th century). These mostly vernacular mosques are further segregated in detail as recorded in Table 3.

The existence of verandah in type *A* category traditional mosque floor plan has another important role apart from being the transitional space between entrance and prayer hall. Verandah often acts as extra room/space for safs during congregation.

Year built	Type *A*	Type *B*	Type C
1700s	Masjid Kampung Laut		
1728	Masjid Trangkerah		
1748	Masjid Kg Keling		
1800	Masjid Peng. Kakap		
1808	Masjid Leboh Acheh		
1811	Masjid Kapitan Keling		
1850	Masjid Kg. Duyong		
1857		Masjid Kg. Tok	
1867		Masjid Muhammadiah	
1876	Masjid Dato Dagang		
1890		Jamek Alawiyah	
1898	Masjid Alaeddin		
1912			Masjid Zahir
1917			Masjid Ubudiyah
1936		Masjid Tok Kenali	
1939		Masjid Sultan Ibrahim	
1963	Masjid S. Abd. Halim		
1973	Perlis State Mosque		
1977			Penang State Mosque
1990		Masjid Ismail Petra	
2005	Masjid Jamalullail		

Table 2: Matrix I The three types of mosque in Malaysia according to the year they were built

The best examples are Masjid Trangkerah and Masjid Leboh Acheh where verandah existed on the sides and at the entrance area, are all square or rectangle in plan. This ensures equal division of devotees praying in every saf.

It is well known that traditional mosque in South East Asia is of central pyramidal roof construction therefore the positioning of columns (normally four) inside the mosques are easily controlled. These traditional mosques are normally made of timber, built on stilts and have verandah either surrounding their prayer halls or only at the transitional area between the entrance and prayer hall. The verandah

replaces the existence of courtyard which is not the common practice in South East Asia.

In the middle of 19th Century, as a result of colonization, the construction material and the appearance of mosques began to change. The information board outside Masjid Pengkalan Kakap mentioned that the mosque was built using limestone mixed with clay, coarse salt, egg yolk and honey. Even though the overall look of the mosque is different, the interior organization is almost similar, with the exception that the floor level is not raised on stilts.

The terms vernacular and traditional are taken further into the floor plan of these mosques. In traditional Malay houses, guests will be greeted at the front door, and then invited to lounge at the semi private space normally in the form of verandah or terrace. Only relatives or close family friends were invited into the inner living room. These spatial arrangements were taken into consideration and laid down in the designing of traditional mosques.

The overall interior space is fully used, capacious and systematic. The ablution area, which is considered to be important in any mosques, is always placed where it could easily be seen and reached as performing ablution should be the first activity taken place before a devotee enters a mosque. The walk from the ablution area to the prayer hall should be considerably short to minimize the risk of getting foul.

Simplicity and deliberately oriented towards the *qibla* wall made these vernacular and traditional mosques the closest similarity to the ***ideal*** Prophet's Muhammad p.b.u.h. mosque.

Identifying Type *B* Category Mosques

This type is mostly built in the mid 19th century towards the end of the century, and is constantly repeated in some of the contemporary mosques (Table 4). As a result of British colonization, many of the mosques during this era were designed by British architects who thought that influences such as Moors and Moghul architecture were top of the range. There were no simpler wooden structures with pyramidal roof built but were replaced by *onion* shape and *spherical* domes that become the pinnacles of Islamic imagery. Monumental and grandeur design took over the humility and modesty being far away from the ***ideal*** type, the Prophet's p.b.u.h. mosque.

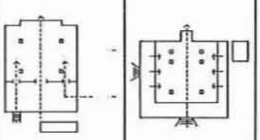
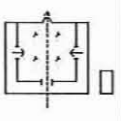
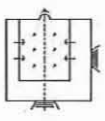
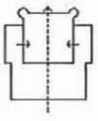
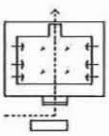
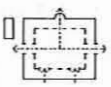
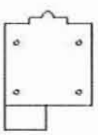
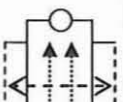
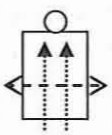
Kg Laut **1700s**	Trangkera **1728**	Peng. Kakap **1800**	Leboh Acheh **1808**	Kap. Keling **1811**	Dato Dagang **1876**	Alaeddin **1898**	Jamalullail **2005**
							
		Repeat Trangkera	Repeat Trangkera	Repeat Trangkera	Repeat Trangkera		

Table 3 : Matrix II :The development evolution of Type A

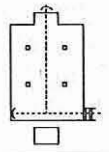
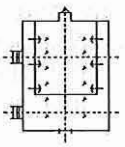
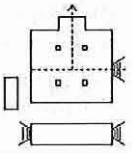
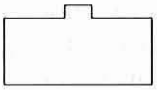
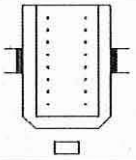
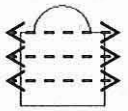
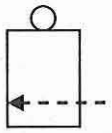
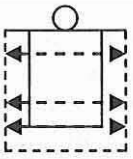
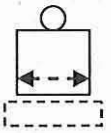
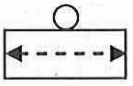
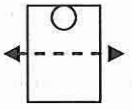
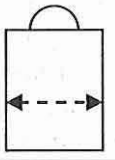
Kampung Tok **1857**	Muhammadiah **1867**	Jamek Alawiyah **1890**	Tok Kenali **1936**	Sultan Ibrahim **1939**	Ismail Petra **1990**
					
					

Table 4 : Matrix III The design evolution of Type B mosque

In order to accommodate the beautiful domes and gigantic building appearance, a lot of columns have to be erected inside the mosque including the prayer hall. As seen in the space analysis for Masjid Muhammadiah and Masjid Ibrahim, the focal point from the entrance is concentrated to the opposite wall of the entrance with a lot of distraction arising from the series of columns. Visitors and users are unable to visualize most of the praying area focusing on the *qibla* direction. If not for the lines on the carpeted floor and mihrab, the praying orientation could easily be misidentified. The ablution area is positioned quite a distance from the prayer hall or even the verandah compound especially in Masjid Ibrahim.

However, in the case of Masjid Tok Kenali is in fact a little different from the other two. The simplicity of traditional mosque with long safs still remains even though the entrance is positioned perpendicular to the Qibla wall (like the other two) This mosque is included in the study to differentiate the mosque built by the state government and the ones built by villagers in the same era. It is the only mosque under study that put careful consideration in maximizing the capacity of uninterrupted safs.

Identifying Type *C* Category Mosques

This final type started to appear in the 20th century until the contemporary period. Type *C* is defined with variety of focal points. (Table 5). The colonization effect is expressed further with great obsession on the monumental look of the external mosque features, for example the minarets that punctuated the skyward plane. The spatial organization of the floor plan is no longer set as the starting point of design element. The adoption and adaptation of Moghul architecture was taken too far without taking into consideration the culture and climate of Malaysia.

Masjid Ubudiyah for example, is a beautiful and picturesque mosque that has always been promoted as one of the tourist attractions. Unfortunately if studied thoroughly the floor plan layout represents extreme breaking up of unified space. To begin with, the entrance is confusing without any clues on where the focus should be. Upon entering one of the doors through the verandahs, looking inside the prayer hall it is quite difficult to look for spaces as the accentuation of the building main axis is weak.

The main shape of the building is actually two squares overlapping each other and rotated as shown in the diagram.

This is done in order to get the effect of an eight point star which is said to be an Islamic motif, resulting the *qibla* wall to be triangular in shape towards the direction of *Ka'bah*.

Consequently, an imaginary line of *qibla* has to be made by the users during the congregational prayers. This results in the maximum length of 'safs' (rows) are not evenly distributed. It is quite awkward to have the first 'saf' as the shortest where as in Islam, the first 'saf' is the optimum position for every devotee in performing his congregational prayer.

On the other hand, Masjid Negeri Pulau Pinang (Penang State Mosque) falls into type C because of its circular shape. This defeats the purpose of lining up the worshippers parallel to the Qibla direction. When devotees line up on the first row of prayer (saf), it has to be a bit further from the *mihrab* to allow an area or space equivalent to one 'saf' for the position of the prayer leader (Imam) thus causing quite a considerable space lost.

In the case of Masjid Zahir, obviously there is a clear axis between entrance point and the centre of Qibla. However it is still considered a Type C category because of the distraction in the prayer hall. There are a series of columns arranged in a circular manner which act as support to the massive dome above. This limits the number of devotees to perform prayer held in big congregation as the number of 'safs' is limited by the distraction/columns.

Conclusion

This study shows clearly how Malaysian mosques evolve in shapes and forms, over time. In the beginning mosques were built with the basic Islamic spiritual ideas. They were very simple using a single multi functional space which reflects the social and cultural value of the community that transformed into a vernacular architecture. In the 18th century the British colony influenced a new transformation and elements to the mosques by introducing new architectural styles, materials and construction technologies of that time. These changes had ignored the original function of the mosque and the targeted end user. They instead tried to impose its monumental physical image.

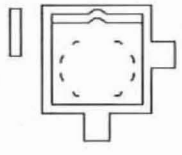
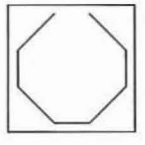
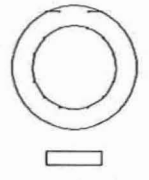
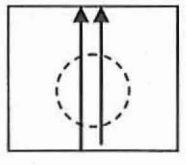
Masjid Zahir **1912**	Ubudiyah **1917**	Penang State **1977**
		
		

Table 5 : MatrixIV The evolution shape of Type C mosque

The changes over time also due to the fact that matters pertaining to administration of mosques are no longer under the supervision of the community alone, but mostly in the hands of Islamic rulers and leading political party in an area. The scenario is quite similar to the Middle East during medieval period, where mosques started to become the symbol of power by the ruling government after the Prophet Muhammad p.b.u.h. and his four companions, r.a. Nevertheless in the medieval case, in spite of having monumental physical look, the interior organization is still clearly defined with strong axis from the entrance point to the mihrab point as can be seen in the Great Mosque of Damascus during the Umayyad Period.

Malaysian traditional mosques built in the 18th century mostly provide clear and easy circulation to ease the users seeking directions. These positive qualities in spatial arrangement of Malaysian traditional mosque could still be adopted in the modern era to provide comfort and familiarity in the form and spatial arrangements to the users.

The British Colonial era marks the changing point of Malaysian mosque form, as British architects took the responsibility for the facelift of Malaysian architecture. They transferred the priority in mosque design from the humble taste of the village community to the superior needs of the rulers. Earlier design used to be more open in planning, colonization changed it into enclosed structure with big prayer halls that are under occupied most of the time and yet cannot be expanded when the number of users is unpredictably large.

In 1957, independence marks the freedom of design to Malaysian architects. With high enthusiasm, they probably got over excited in adapting new shape and 'style' of mosque architecture, that have not been properly studied on the suitability of the spaces outlined by liturgical (of Islamic prayer ritual) requirements.

In addressing public buildings such as mosque, the questions on *'style'* and *'origin'* are not the only problem that should be queried in explaining the identity of Malaysian mosque architecture according to its appearance. This study showed the classification of mosques by the spatial arrangement confirms the success made by the traditional vernacular mosques as the closest to the Prophet's in Medina.

When the spatial arrangement and its functional implementation are tabulated and unfolded over time, it is very easy to determine which of these mosques is of total congruence in functional and structural features. If the spatial qualities of the old mosques and the excellent facades of the new ideas are combined, the term *'inferiority complex'* towards Middle East mosques could be toned down.

In short, contemporary mosques in Malaysia are not entirely poor in design and floor plans, as there are mosques like Masjid Putra Jamalullail which was built in 2005, a modern and gigantic structure that still satisfies the qualities needed for a type A mosques in its orientation and internal space providing longer 'safs' and ensuring the smooth flow of Muslim prostration.

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