CHAPTER 4: RESEARCH METHODOLOGY

This thesis employs a historical research by using typological analysis of mosques during the Medieval period. These mosques were built during the period of Islamic dynasties from the Umayyad, Abassid, Fatimid, Safavids until Ottoman and during the spread of Islam in China. This study also looks at the evolution of Mihrab and Qibla wall forms and ornamentation in selected mosques of Malaysia. According to Lewcock (1998), studying the precedence from history provides strong basis for future undertakings. This supports the statement made by Rafique (1982) who earlier states his believe in historical values that could keep the secrets of glory in the past especially when dealing with mosque architecture where people keep on re-evaluating their tradition to find adaptations in order to meet with current needs. Therefore, in relation to history, this study outlines the suitability and appropriateness of form and ornamentation with regards to Mihrab by looking at the precedents from the earliest period to the contemporary and modern mosques in Malaysia.

In the 15th century, the prosperous Malacca Sultanates welcomed traders from the Middle-East and the Far-East. Then they were invaded by the Portugese, the Dutch and the British colony until Malaysia gained her independence in 1957. Chinese and Indian traders and immigrants (brought in by the British colony) add some variations to Malaysia’s rich architectural style, culture and tradition which should be preserved and conserved for generations to come.

This analysis looks into contemporary Malaysian mosque design that has been the most influential built form in showing wealth and power among ruling political parties. This approach will show the qualities of new styles whilst regaining the missing values of the past. The documentations preparation process includes collecting information which can further be used to assist with conservation works. In any conservation activity on
historical buildings and site proper research, systematic inventory, detailed plan analysis and structured documentation are mandatory (Yahaya, 2004). In this context, it covers shape, form, position, visibility and proportion of the Mihrab and Qibla wall.

According to Tajuddin (1998), the architecture of mosques today, especially in Malaysia, encounters identity confusions by introducing majestic monumental looks. The added designs get too carried away with glorious external look of hypostyle mosques while builders aim their building success on the external features or looks of the mosques. Additional external components such as huge domes, tall minarets and luxurious physical appearance have always been given extra attention in order to be captured on post cards and tourists guide books. Hence, the genuine intention of building a mosque as a place for congregational prayers and religious activities is made secondary.

Primary attention should be given on the mosque’s internal components instead of its external features as most religious activities are held inside the building. This research outlines the existence of variations to these components due to the variety of influences from different periods of time. Literature review on the design and ornamentation of Mihrab in mosques of the past should be done to show their contributions to the origin, culture and belief of the congregation and population during certain period of time.

Mihrab on the Qibla wall has always been queried by both western scholars (Sauveget, 1946) and Muslim scholars (Tajuddin 1998; 271) on its existence and origin. This topic needs to be clarified in order to avoid any wrong assumptions been made. For instance, some studies show that Mihrab is irrelevant to some quarters; and the ornamentation is presumed to be expensive. Therefore this study is timely to identify the balance so that the intention of Islamic beauty and perfection could be one of the agreed guidelines towards Islamic art and architecture of mosque design.
4.1 RESEARCH METHODOLOGY

Research gaps are first established through a thorough literature study done in the library i.e. from historical books, journals and collected data. This research also examined published and unpublished completed PhD thesis concerning mosque art and architecture, space analysis, psychological effects of spaces and Muslim religious thoughts. With the intention of answering research questions and achieving research objectives, this study is done by following the steps and explanations below; and as shown in Figure 4.4 page 95.

4.1.1 Identification of Mosques

(a) All historical mosques are taken into account and they are divided into two:
   
   (i) Traditional/vernacular and (ii) Colonials built between 1728 up to 1956.

(b) Post Independence and Contemporary Mosques built from 1956 to 2005.

Before venturing into historical research, it is imperative to note that all the information and knowledge concerning past events and circumstances must be extracted from trusted source as evidence (Robinson 1904 pp 1-13). In order to get the originality of evidence, historical research is carried out with primary sources, which is said to be its lifeblood. Secondary sources should complement or act as a supplement to the primary data in hand (Cohen et al 2001). These two scholars seemed to agree with each other even though their studies are almost 100 years apart.

Nowadays, being in the modern world, primary and secondary data as are easily accessible as there are systematic and up-to-date libraries and internet facilities where all the manuscript, aged thesis and books have been carefully digitized and republished in terms of hard or soft copies for the modern and high technology scholars.
Qualitative method has been adopted to obtain first hand information or primary data through actual visits. Before visiting, identification of these mosques needs to be done thoroughly. This is a tedious process as all the Islamic Religious Departments in Malaysia do not maintain a complete up to date record of mosques built in Malaysia. Even though Malaysia received Islam more than 500 years ago and had achieved her independence from the British in 1957, there is still no central body appointed to record the characteristics of mosques or even the built dates (Ghafar, 1997).

Mosques in Malaysia were not properly updated and documented. In achieving a good historical research, obtaining the dates, is very crucial. Therefore, three courses of action were taken at the “office-table” to overcome this problem.

1. Firstly, website visits were made to all the states' Islamic authorities, e.g. Wilayah Persekutuan Muslim Religious Department, Selangor Muslim Religious Department, Kelantan Muslim Religious Department etc. These websites provide a list of 179 mosques (Appendix A) managed separately by each state government in Peninsular Malaysia. However, these are very raw data as they are without photographs and built dates. Thus, more information was needed to proceed with the research. In cases where built dates cannot be obtained, verbal information via telephone conversations was gathered from Imams, mosque office bearers and the users.

2. Secondly, further information on the 179 mosques stated above were retrieved from other websites, books, journals, conservation bodies, local universities’ research centres, Islamic Museum and Ministry of Tourism, Cultural and Heritage of Malaysia. As a result, a new shorter list of 126 mosques (Appendix A: shortlisted column) is created because some of the information on built dates and photographs were not available on the other
53 mosques. This shorter list carries more information on its 126 mosques such as physical appearances from photographs and built dates; a small number with historical backgrounds and architectural drawings; and some with measured drawings.

3. Thirdly, the shortlisted 126 mosques are then prioritized with respect to historical mosques (based on a list produced by the National Heritage Authority), state mosques and national mosque. These mosques are then tabulated and mapped into four zones according to their states and built dates following the information from second hand data.

- Northern Zone : Perlis, Kedah, Pulau Pinang and Perak
- Central Zone : Selangor and Federal Territory
- Southern Zone : Negeri Sembilan, Melaka and Johor
- East Coast Zone : Pahang, Trengganu and Kelantan

These mosques are then located on a map to ensure they (apart from the national, states and historical mosques) are spread out fairly across all states and zones; and are well distributed across the peninsular.

4.1.2 Site Visits and Field Work

On sites, observational survey and interview sessions were carried out. First hand data was recorded and analysed which result in Typological analysis. After all the three courses of action were done, the research has come to the stage of onsite building surveys and analysis. Visits were made from zone to zone between October 2008 and June 2009 to all the 126 mosques listed. At every visited mosque, apart from taking the photographs, a prepared checklist was filled in on site (Figure 4.1, p: 8). The checklist was created in order to record on site findings of the visited mosque. The items recorded are
regarding mosque components especially the Mihrab and Qibla wall. This observational checklist is essential because photographs do not show the entire picture of the condition within the mosque. The information obtained is recorded in the observation column of written explanation and sketches of the mosque floor plans together with significant factors such as ornamentation.

During this first site visit, focus was put on the form, overall design of Mihrab and mosque floor plan. Some old/historical mosques have already been renovated and clues to the original look/built had been totally erased. Gathering information on the dates and sequence of renovations (especially on the Qibla wall section) is almost impossible since the activities were not recorded. Thus, informal interviews and discussions were conducted with the Imams, mosque office bearers and the users. Even though they are verbal and without evidence, the information gathered were taken into consideration as data collection.

Upon completing the field survey to the 126 mosques, classification of mosques types are made by looking at the influences gained by the Mihrabs. The 126 mosques consist of 37 historical vernacular/traditional mosques, 14 historical colonial mosques, and 75 after independence mosques; where a lot of repetitions are seen to the mosque overall layouts. The list is then screened again and this time, mosques with similar floor plan shape and design are reduced to avoid too many repetitions in the shape of mosques floor plans. Another screening is done to the mosques that come with the same influences. Moreover, there are cases whereby historical mosques are replaced by new mosques and the historical mosques are no longer active. Those historical mosques are also screened out.

The list then screened down to 75 out of the 126.
The sampling procedure that had been taken into account is purposeful sampling which gives the flexibility in choosing the samples out of the whole population. This research had opted for a large number of population sampling in the first stage to avoid sampling errors and distortions that could possibly arise in qualitative research. There are three common errors explained by Patton (1990): firstly distortions resulted by insufficient breadth in sampling; secondly distortions resulted by changes over time; and thirdly distortions caused by superficial data collection at each site.

All the data gathered from the visits were then classified in a table format to see the evolution of Mihrab design of the 75 mosques. The shapes of Mihrab niche are arranged to be analysed as typological research and using typological study classification of Mihrab formations throughout the years can be seen clearly. Report made by Gulgonen (1982) states that “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 designers, builders, users and societies.
Name of Mosque: Masjid Jamek Sultan Abu Bakar, Johor Bahru  
Year Built: 1894  
Built by Villagers/Government/State Government/…. Sultan Abu Bakar

<table>
<thead>
<tr>
<th>Part of Mosque</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portal/Entrance Celebration</td>
<td>The main entrances are located at the sides of the mosque. It is arched with semi-circular arches influenced by the British style. The entrances are holding the two tallest minarets.</td>
</tr>
<tr>
<td>Prayer Hall</td>
<td>Rectangular shape with eighteen pillars lifting Greek style arches.</td>
</tr>
<tr>
<td>Mihrab</td>
<td>At the centre of the qibla wall and has rectangular shape. The dimensions of the mihrab are about 8m by 5m (maximum) and its high is about 5.6m. It has ten ornamentations columns lifting semi circular arches. There are three large windows at the walls of the mihrab and top small windows allow light to let the mihrab and the arches. There is one row of column in front of the qibla has good influence in strengthen the mihrab.</td>
</tr>
<tr>
<td>Qibla Wall</td>
<td>The qibla wall itself has quite simple façade, except some motif above the walls and at the top windows. There are six big window at the wall, four of it can allow the penetration of light and air, while the other two are closed because it opened to Bilal room and Imam room. There are also six smaller windows on top of each big window.</td>
</tr>
<tr>
<td>Minbar</td>
<td>At the centre of mihrab, it is made copper. It has been enriched with Islamic motif of plants and geometric shapes. Perfect works on minbar gives it a precise appears.</td>
</tr>
<tr>
<td>Minaret</td>
<td>Three minarets are located above the entrances and the mihrab. The minaret above the minbar is the shorter then the other two. The minaret design is affected by the British style.</td>
</tr>
<tr>
<td>Dome</td>
<td>————</td>
</tr>
<tr>
<td>Courtyard</td>
<td>————</td>
</tr>
<tr>
<td>Ablution Fountain</td>
<td>————</td>
</tr>
<tr>
<td>Position of Mihrab</td>
<td>At the centre of qibla wall but perpendicular to the main entrances.</td>
</tr>
<tr>
<td>Proportion of Mihrab</td>
<td>8m length by 8m width and 5.6m high.</td>
</tr>
</tbody>
</table>

Shape of niche plan: Square/rectangle/semi circle/newly invented  
Overhead of mihrab: Semi circular ornamented arches above the (entrance of mihrab). On top of the minbar it self there’s quite small minaret lifted by Gothic dome. There are small windows on top of the entrance of the mihrab allows to enter of small portion of natural lighting.  
Motif and Ornamentation:  
Patterns and Geometry  
3D Arabesque  
3D Muqarnas  
Calligraphy styles  
———  
Calligraphy Verses  
———  
Lighting Effects  
Materials:  
Plaster cement, and copper.  
Repeatead on the Qibla wall any parts of mosque  
Repeated at the interior and exterior walls of the mosque, at the entrances, at the windows from and at the minaret.

Figure 4.1: Sample of Checklist Filled on Site
4.2 Typological analysis

As a result of the typological analysis, variation of designs in Mihrab on the Qibla walls of Malaysian mosques could be seen through a matrix of built years. This analysis gives the conclusion on the influences of Mihrab design in Malaysian mosques. At the same time it gives a general idea whether the three categories i.e. Vernacular/Traditional Mosques, Colonial Mosques and after Independence Mosques; have their own architectural styles on forming and designing the Mihrab.

There is a possibility that each period have different ways of designing the Mihrab as the mosques have different physical looks and styles of external features.
The next step is the selection of mosques. A more thorough and detailed analysis is focused the most towards Mihrab and Qibla wall sections. Typological analysis derived from the purposeful sampling showed different as well as repeating designs and forms of Mihrab and Qibla wall. Further selection is then made by screening out the repeated Mihrab designs to avoid duplication of Mihrab types.

The amount of ornamentations on the Qibla wall side is another factor to be considered in this screening. Mosques with little or insignificant or no ornamentation at all are screened out. After this screening process, the list is reduced to 23 mosques. This number is final and is considerably significant when they are read across time and states as shown in Table 4.1, page 90. Case study of the 23 mosques is then carried out in great detail.

In order to get the thorough investigation of the ornamentation on Mihrab and Qibla wall, visits for the second time were made in September 2009 to the 23 mosques. It can be summarized that the 23 mosques have been selected because of 4 factors;

1. The mosques show varieties of Mihrab shapes.
2. The mosques show varieties of Prayer Hall/overall mosque layouts.
3. The mosques have traditional vernacular ornamentation on the Mihrabs and Qibla walls.
4. The mosques have interesting design and ornamentation on the Mihrabs and Qibla walls.

The tabulation of the 23 chosen mosques is answering objective three where the types of mosque designs in Malaysia are classified according to their Mihrab designs. Final tabulation and classification of the 23 mosques is giving 6 Historical Traditional/Vernacular mosques, 10 Historical Colonials mosques and 7 after
Independence and Contemporary mosques. The mosques are tabulated across the Peninsular Malaysia in Figure 4.3 (page 94).

Table 4.1: List of the 23 Chosen Mosques

<table>
<thead>
<tr>
<th>No</th>
<th>Mosque</th>
<th>State</th>
<th>Built Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tengkerah</td>
<td>Melaka</td>
<td>1728</td>
</tr>
<tr>
<td>2</td>
<td>Kampung Laut</td>
<td>Kelantan</td>
<td>1730s</td>
</tr>
<tr>
<td>3</td>
<td>Batu Uban</td>
<td>Penang</td>
<td>1734</td>
</tr>
<tr>
<td>4</td>
<td>Kampung Keling</td>
<td>Melaka</td>
<td>1748</td>
</tr>
<tr>
<td>5</td>
<td>Sultan Zainal Abidin</td>
<td>Trengganu</td>
<td>1793</td>
</tr>
<tr>
<td>6</td>
<td>Kapitan Keling</td>
<td>Penang</td>
<td>1801</td>
</tr>
<tr>
<td>7</td>
<td>Melayu Leboh Acheh</td>
<td>Penang</td>
<td>1808</td>
</tr>
<tr>
<td>8</td>
<td>Kampung Tuan</td>
<td>Trengganu</td>
<td>1830</td>
</tr>
<tr>
<td>9</td>
<td>Muhammediah</td>
<td>Kelantan</td>
<td>1867</td>
</tr>
<tr>
<td>10</td>
<td>Sultan Abu Bakar</td>
<td>Johor</td>
<td>1892</td>
</tr>
<tr>
<td>11</td>
<td>Alaeddin Jugra</td>
<td>Selangor</td>
<td>1898</td>
</tr>
<tr>
<td>12</td>
<td>Jamek Kuala Lumpur</td>
<td>Wilayah Persekutuan</td>
<td>1908</td>
</tr>
<tr>
<td>13</td>
<td>Zahir</td>
<td>Kedah</td>
<td>1912</td>
</tr>
<tr>
<td>14</td>
<td>Ubudiyah</td>
<td>Perak</td>
<td>1917</td>
</tr>
<tr>
<td>15</td>
<td>Sultan Sulaiman</td>
<td>Selangor</td>
<td>1932</td>
</tr>
<tr>
<td>16</td>
<td>Sultan Ibrahim</td>
<td>Johor</td>
<td>1939</td>
</tr>
<tr>
<td>17</td>
<td>National Mosque</td>
<td>Wilayah Persekutuan</td>
<td>1965</td>
</tr>
<tr>
<td>18</td>
<td>Negeri Sembilan State</td>
<td>Negeri Sembilan</td>
<td>1967</td>
</tr>
<tr>
<td>19</td>
<td>Perak State</td>
<td>Perak</td>
<td>1978</td>
</tr>
<tr>
<td>20</td>
<td>Ismail Petra</td>
<td>Kelantan</td>
<td>1990</td>
</tr>
<tr>
<td>21</td>
<td>Pahang State</td>
<td>Pahang</td>
<td>1994</td>
</tr>
<tr>
<td>22</td>
<td>Wilayah</td>
<td>Wilayah Persekutuan</td>
<td>2000</td>
</tr>
<tr>
<td>23</td>
<td>Putra Jamallullail</td>
<td>Perlis</td>
<td>2005</td>
</tr>
</tbody>
</table>
Figure 4.3: Location of the 23 Chosen Mosques on 4 Zones
To examine the form and design of Medieval mosque Mihrab in order to determine the majority of Mihrab form and design in Medieval mosques.

To classify the types of Mosque design in Malaysia according to the built years to overview the possible influences gained by the Mihrabs.

To examine the level of Mihrab visibility from the entrance point/points in order measure the existence of liturgical axis that gives ultimate focus to the believers.

To identify types of Mihrab used in Malaysian mosques in order to generate typological analysis to the shapes and forms including their origins.

To analyse various styles of ornamentation on selected Mihrabs including calligraphy, two dimensional and three dimensional geometrical patterns in order to generate typological table showing motifs, ornamentation, their origins and influences.

Objective ONE

To study on the historical origin, first existence of Mihrab and Islamic standpoint towards Mihrab existence on Qibla Wall

To study on Islamic ornamentation and the Islamic standpoint towards ornamenting the mosques.

CHAPTER ONE: Introduction

CHAPTER TWO: Historical Background on Mihrab and Ornamentation in Islam Mosque Scenario in

CHAPTER THREE: Medieval Mosques Mihrabs

CHAPTER FOUR: Research Methodology

CHAPTER FIVE: Research Findings

CHAPTER SIX: Elaboration of the Research Findings

CHAPTER SEVEN: Elaboration of the Research Findings

CHAPTER EIGHT: Analysis of Findings

CHAPTER NINE: Conclusion, Suggestions, Limitations, Contribution to Knowledge

Thesis Structure

Figure 4.4: Thesis Chapters in Relation to the Research Objectives
Methodology

**LITERATURE:**
- Mosque Architecture in general,
- The Prophet’s Mosque,
- Medieval Mosques
  Mihrab Existence, its Design and Ornamentation

**SELECTION OF CASE STUDIES**
- Identification of Mosques (179) Analysis
- First Site Visit (126) Analysis

**SELECTED 23 MOSQUES**
- Site Visits to 23 Mosques  
  Detail Mihrab

**ANALYSIS OF CASE STUDY:**
- Mosque Overall Floor Plan: Mihrab, Qibla Wall Visibility and Saf Formation

**PRIORITY DATA COLLECTION**
- Visits to State Authorities, Libraries, Museums, Telephone Conversations  
  Mapping and Zoning
  Focus of Site Visits: Overall Floor Plans, Design Influences, Mihrab Overall Forms

**PURPOSEFUL SAMPLING**
- Photographs, Sketches with Dimensions, Interviews with Mosque officials,  
  Mihrab Design: visibility, positioning related to Safs and form, Mihrab Ornamentation

**ESTABLISHMENT OF MIHRAB VISIBILITY FROM ENTRANCE POINT**
- Sketches from site visits are compiled and redrawn  
  Axis line drawn from prayer hall entrance to middle of Mihrab,  
  Possible saf lines are rendered

**IDENTIFICATION OF MIHRAB TYPES**
- Sketches and photos of Mihrab translated into CAD drawings: plan, section, elevation,  
  Arranged in Typological index

**IDENTIFICATION OF MIHRAB ORNAMENTATION**
- Detailed photos and sketches arranged to mosque classification  
  Arranged in Typological Index for analysis and comparison

**CONCLUSION FROM HISTORICAL LITERATURE:**
- Strong Mihrab Visibility from Entrance, Significant Mihrab Shapes and Forms
  Significant Mihrab Motifs and Ornamentation, Mihrab important roles

**CLASSIFICATION OF MOSQUES**
- Historic Traditional/Vernacular
  Historic Colonial and After Independence

**MOSQUES OF MALAYSIA:**
- Some historical mosques are not active  
  Some mosques are not properly recorded (without built dates and records of renovation works)  
  Not much ornamentation on Historical mosques Mihrab

**THREE TYPES OF MOSQUE LAYOUT:**
- Direct entrance-Mihrab axis; mostly owned by traditional/vernacular  
  Non-direct; colonial and after independence  
  Obstructed; appeared during colonials

**FIVE TYPES OF MIHRAB**
- Semi circular concaved  
  Rectangular with arched ceiling  
  Polygonal niche  
  Recessed area without niche  
  Freestanding structure carrying Mihrab & Mimbar

**MIHRAB ORNAMENTATION:**
- Product of local cultural values and adaptation from Medieval Islamic arts

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Figure 4.5: Overall Representation of Research Structure