CHAPTER FOUR
MAPPING CASE STUDIES ACCORDING TO LYNCHIAN METHOD

4.1. INTRODUCTION
Finding one's way depending on environmental knowledge requires first to know what internally represented about his environment. Sketch maps and interviews can give us what's coded in people's minds about their environment. The degree of completeness of sketch maps and the way people use in describing a way for strangers can predict the degree of urban legibility; and outline the actual reasons behind wayfinding problems. Wayfinding problems in general result from difficulties in coding or recalling environmental knowledge in wayfinders minds, so the question is: why particular environments are easily to be coded and therefore easily to be navigated, while others are difficult to be internally represented and therefore have locational difficulties? This question addresses what mainly we intend to do in this chapter. Three Egyptian areas were chosen for applying Lynchian method on them. These areas are: Heliopolis, Maadi, and Cairo CBD. They are unique in character among Cairo districts, and being vivid and similar in form.

4.2. CRITERIA OF CHOOSING CASE STUDIES
4.2.1 Character
The area chosen for study should be unique in character, rich of its unique buildings, squares, landmarks and nodes, and seem, on first observation, to have high order of imageability, thus the ability of studying Lynchian elements can be available.
4.2.2 Urban Fabric

The area chosen for study should have a form reflecting its character. Whatever type of urban fabric, problems of disorientation may be emerged. This may refer to problems in urban fabric itself or to visual problems in general. Formal planning never means that a particular area is free of way-finding problems, since they may exist as a result of absence of roads hierarchy or isolation of some parts, etc.

4.2.3 Social Aspects

People differ in their cognitive maps construction according to their culture, gender, social class, age and many other factors influence their way of reading an environment.

4.2.4. Wayfinding Problems (Locational Difficulties)

The area chosen for study should seem on first observation to have wayfinding problems, then we try to find an answer to main research question: what is responsible for locational difficulties: visual image or structure of spatial system?. This question may lead us to new principles enhancing way-finding abilities.

4.2.5 Special Considerations

There may be other considerations influence choosing case study. These considerations may refer to size, history, or age of the chosen area.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Heliopolis</th>
<th>Cairo CBD</th>
<th>Maadi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Character</td>
<td>It has a unique character of Islamic look in facades that were ornamented by arcades.</td>
<td>It has a unique western-style designed in a combination of art deco, art nouveau, baroque and, a</td>
<td>It was built in English countryside cottage style. Its unique villas reflects its distinct</td>
</tr>
</tbody>
</table>


little later, neo-Islamic styles. It looks as a part of Europe.

**Urban fabric**
- It has a western urban layout presented in radical urban fabric with rigid grid pattern.
- It has a French touch in its layout like Hussman planning of Paris. It has a radical urban fabric.
- It has a radical urban fabric with rigid grid pattern.

**Social aspects**
- It is filled mostly with cosmopolitans and native aristocratic Egyptians.
- It shows a variety of residential districts ranging from slum areas within which low or middle class live to distinct housing as upper class and collar bills live.
- It is filled with Americans, plus an assortment of wealthy Egyptians, Gulf Arabs, and other nationalities that together comprise a distinct and broad international community.

<table>
<thead>
<tr>
<th>Table 4.1. Criteria of choosing case studies.</th>
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<tbody>
<tr>
<td><strong>Area</strong></td>
</tr>
<tr>
<td>Heliopolis</td>
</tr>
<tr>
<td>Maadi</td>
</tr>
<tr>
<td>Cairo CBD</td>
</tr>
</tbody>
</table>

**Table 4.2.** Results of a questionnaire distributed amongst 70 subjects. They were asked at what areas they had most difficulties in wayfinding.

Analyses were made of Maadi, Heliopolis, and Cairo CBD. Maadi is unique in its character, urban fabric; green areas along its streets, as well as it is distinguished by upper-class housing. Nevertheless, it has many problems in orientation and full of locational difficulties; Heliopolis for its unique
character, its unique landmarks and squares. Moreover, the informal talks with the interviewees showed that Heliopolis is easily to navigate. Therefore, we selected Heliopolis to be studied. Cairo CBD shows another example of suburb with several high-density residential districts, ranging from slum to upper-class housing; and distinct European-style, specifically French. Heliopolis area is about 7.2 km²; Maadi is about 5km²; and Cairo CBD is approximately 2.75km². The outer suburbs of Maadi, Cairo CBD, and Heliopolis formed their far-flung colonies. Both of Maadi and Heliopolis were constructed in colonial epochs as imitations of garden suburbs. “Maadi and Heliopolis are home to wealthy Egyptians and to large expatriate communities, and are among the most western-looking parts of Cairo” (Beattie, 2005: 183).

![Cairo CBD](image1.png) ![MAADI](image2.png) ![HELIOPOLIS](image3.png)

**Figure 4.1. Map of Case studies.**

### 4.3. ANALYSIS FRAMEWORK

#### 4.3.1. Field Reconnaissance Analysis

**Character**: It is the identity of place which reflects its architectural style, culture, landscape, etc.

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1 Lynch had taken in is case studies an area of approximately 2.5 by 1.5 miles (mile=1.6093 km).
**Continuity and Enclosure**: It is the ability of defining private and public spaces and continuity of street frontages.

**Ease of movement**: It is permeability and degree of accessibility between places which make them connected with each others and integrated.

**Legibility**: It is the degree of understanding environmental surroundings. Legible city is that has clear image and help people to find their way around.

### 4.3.2. Interview And Sketch Mapping Procedure

The aim of this procedure is to get cognitive maps and explore the degree of legibility through degree of accuracy and completeness of sketch maps. The more sketch maps are complete and accurate the more the environment is legible. Comparing the results of this procedure with field reconnaissance analysis will indicate the gap between physical maps and the maps in people minds.

### 4.4. HELIOPOLIS (MISR AL-GEDIDA)

#### 4.4.1. Historic Context

The earliest records of Heliopolis date back to the first decade of 20th century when Baron Edward Empain, the Belgain banker and business tycoon, bustled to Cairo in anticipation of the economic boom (Elsheshtawy, 2004). In 1905, Empain established the Cairo electric railway and Heliopolis oasis company. Boughos Nubar, son of the country's first prime minister, assisted Baron Empain in purchasing the 5,952 feddans (1 feddan = 4,200 square meters) of empty desert from the colonial government at one pound each on which he built Heliopolis. Baron efforts culminated in 1907 with the building of the new town of Heliopolis, in the desert ten kilometers from the center of Cairo, situated between the airport and the city center. In fact, Baron was no simple investor, he was an innovator and his dream was...
resting on solid foundation. It is said that he invited Ernest Jaspar\(^2\), the chief designer of Heliopolis, for a riding trip to the site of the project and said:

“\(\text{I want to build a city here. It will be called Heliopolis, a city of the sun} \) … 
\(\text{I want it to be magnificent. I wish that the architecture will conform to the} \) 
\(\text{tradition of this country. I am looking for a specialist of Islamic art. You} \) 
\(\text{like the mosques, you are an architect; would you submit a concept} \) 
\(\text{design?}.”\) (Dobrowolska & Dobrowolski, 2006: 37)

It was thought that it is risky and ridiculous to erect a city in the desert. Baron brought to the project some 70 architects from all over Europe. He lived in a small palace designed by Alexander Marcel\(^3\), Baron’s palace (Qasr al-Baron). The palace was built between 1907 and 1910. “\(\text{It still stands today} \) and remains one of the finest examples of early creative use of concrete, of which it was entirely built”\(^4\). Baron died in 1929 and was buried in Basilica, the Church which was also built by Baron and designed on Istanbul's Hagia Sofia\(^5\). Basilica, close to Korba, was designed by Alexander Marcel who specialized in fancies. There was a tunnel or crypt between the Baron's palace and Basilica which was constructed 300 meters away.

Heliopolis was designed as a paradise or "city of luxury and leisure". One can feel the influence of Haussmann's Paris in the plan of Heliopolis, as it was designed to have a garden type city: its master plan contained public

\(^2\) Ernest Jasper is a Belgian architect began his studies in 1893 at the academie des Beaux-Arts in Brussels. He designed most of the important buildings in Heliopolis.

\(^3\) A French architect born in Paris in 1860 and graduated from the faculty of architecture at the famous Ecole des Beaux Arts in Paris.


gardens, parks and playgrounds; restrict building rules were set (no more than half of the private lots could be built up), and buildings heights were also set. The suburb is no longer a small and luxurious, as it has expanded to take in part of the growth of the metropolis\(^6\). Moreover, the Helioplis company allowed land owners to build all the entire spaces the lands as a result of rise of land prices\(^7\). Consequently, many shops encroached on greenery.

There is a religious tolerance emerges vividly in the existence of many places of worship in the suburb such as Saint Maron and Saint-Rita church in Beirut street, a Jewish synagogue in Al Missalah street, and the mosques all over the suburb\(^8\).

Heliopolis suburb is full of recreational places. It contains many sporting clubs such as Heliopolis club (on Merghany street), El-Ghaba club (beside Suzanne Mubarak museum for child), El-Nasr club (located on Mahkama square); Heliolido club; many recreation areas such as The Merryland the famous recreational park; and modern cafes such as Cilantro, Costa Coffee, Beanos...etc\(^9\).

The Heliopolis War Cemetery is placed on Nabil El-Wakkad street. It involves the Port Taufiq Memorial, a memorial to almost 4000 men of the British Indian Army who fell in the First World War. The original memorial

\(^7\) http://weekly.ahram.org.eg/2005/742/fe1.htm.
\(^8\) http://en.wikipedia.org/wiki/Heliopolis_(Cairo_suburb).
was originally located in Port Taufiq but was conveyed to Heliopolis after its destruction in 1967\(^{10}\).

Figure 4.2. Heliopolis War Cemetery (source: http:// www.ww1cemeteries.com/othercemeteries/heliopolis_war_cemetery.htm)

Modern Heliopolis has always been the glamorous residence for cosmopolitans and native aristocratic Egyptians. “After the 1952 military coup d'état led by Nasser, it became home to much of Cairo's educated middle class”\(^{11}\). Today, Heliopolis has been absorbed into Cairo as a result of Cairo expansion. Furthermore, the gardens have mostly built over because of overpopulation\(^{12}\).

\(^{10}\) http://en.wikipedia.org/wiki/Heliopolis_(Cairo_suburb).

\(^{11}\) http://www.search.com/reference/Heliopolis_(Cairo_Suburb).

Figure 4.3. Satellite map of Heliopolis.
4.4.2. Field Reconnaissance Analysis

4.4.2.1 Character: A Place With its Own Identity “Sense of Place”

Heliopolis, the seat of power, original design is represented in grand avenues, spacious city squares linked by wide streets or arching boulevards; and a range of landmark buildings carefully placed to impose grand views on the cityscape. There was an attempt to give Heliopolis buildings an Islamic look, despite the fact that it has a Western urban layout. Today many of Heliopolis
old landmarks have disappeared and “…tree-lined boulevards turned into traffic and pedestrian battlefields, and greenery swallowed by asphalt”\textsuperscript{13}. The sunny sides of streets were ornamented with arches for three reasons: firstly, to protect passers from the searing rays. secondly, to make the change of perspective more attractive by limiting it to one vista at a time, the streets were designed in curves\textsuperscript{14}. Thirdly, to give the buildings an Islamic look.

\textbf{Figure 4.5.} Heliopolis arching boulevards: windows and arches accentuate the Islamic look to the suburb (source: photos taken from http://www.panoramio.com).

Korba and Roxy, the main of interest in Heliopoils, are the focus of Heliopolis historic character. They contain the best examples of the materials, built forms and townscape of Heliopolis. The suburb keep its unique and old style starting from Roxy square to Abo Bakr Elsdeeq avenue. After that, the rest of the suburb contains fewer buildings of quality but still reflects the area’s massing, plot vision, variety of heights and materials. Towards the northern edge, surfaces are largely hard landscaped with minimal traces of plant cover. We could consider Abo Bakr Elseddeeq St. the edge that separates two areas of different styles and urban fabric. Many villas were

\textsuperscript{13} http://weekly.ahram.org.eg/2005/742/fe1.htm.

\textsuperscript{14} http://weekly.ahram.org.eg/2005/741/feature.htm.
demolished and replaced by ill-considered high-rises that tend to mar the beauty of the old style.

Commercial uses dominate the core of Heliopolis. Korba, a great market area, is a lovely shopping district surrounded by old villas and apartment buildings which are very interesting to see. This extends to Roxy (shopping district), and Medan Ismailia. Another interesting area is the market area "Medan El Gamia" (Square of the Mosque) which is famous for jewelry shops. Damascus street (former Boulevard Tawfiq) is famous for auto parts shops. “The architectural style is a European fantasy of the orient set in stone” (Maxwell, et al., 2006: 135).

**Figure 4.6.** Abo Bakr Elseddeeq separates the old Heliopolis from new ill-considered architectural style.
“Despite the mix of styles and the doubtful taste of some of the constructions, Heliopolis presents a unity that is deeper than what might derive from the rules of urban development. The recurrence in the decoration of pseudo-Muslim motives (often borrowed from mosques) gives the city a certain charm … Heliopolis definitely has a style of its own.” (Raymond, 2007: 331)

Heliopolis relates itself to several architectural times. Its style is a whimsical and a unique mixture of the Moorish, Arabic and European styles which incorporate in a seamless mix represented in oriental buildings with covered archways in all the shopping districts. The designers attempted to perfectly implement the aesthetic and functional features of the three styles. Mixing the qualities of these types (Moorish\textsuperscript{15} facades, Arabic sections, European plans) in a homogeneous unit; suitable for\textsuperscript{16}:

1. The environmental conditions in the northern African countries (Implemented in sections).
2. The Arabic-Moorish sense of style in buildings (Implemented in facades). The recurrence of the decoration of pseudo-Muslim motifs gives the city a certain charm.

\textsuperscript{15} Moorish Architecture: the style developed by the Moors in the later Middle Ages, as in North Africa and Spain.

3. The customs and traditions of the Egyptian domestic life at the beginning of the century (Implemented in plans).

In fact, Heliopolis offers a wide range of architectural styles represented in many buildings like:

1- Baron’s palace a Hindu-style temple designed on the temples of Angkor Wat in Cambodia and the Hindu temples of Orissa. “Balconies and verandahs are supported by grotesque mythical beasts, and conical towers rise to taper off as round domes” (Beattie, 2005: 185). Garden of the palace is full of statues and busts of dragons, Buddhas, Shivas, and Krishnas (Lindsey, 2005). The architectural style of this palace is in contrast with Empain vision about Heliopolis style when he said “I wish that the architecture will conform to the tradition of this country” (Dobrowolska & Dobrowolski, 2006: 37).
2- The Basilica, a quarter-sized version of Haggia Sophia in Constantinople, Istanbul, was built between 1911 and 1913 at the geographical heart of the city (Lindsey, 2005). It looks incongruous with the neo-Islamic forms of the buildings around it. However, classic, Islamic, and Coptic styles are seamlessly blended in the design of the church.

3- Uruba palace, formerly the Heliopolis Palace Hotel, is located at the end of Baghdad street (Lindsey, 2005). It is gigantic and much more Islamic in style than the rest of the buildings around it.
In contrast with previous unique style, the central area of Roxy offers many different styles that range from modern style façades seen on many buildings such as Horreya Mall, Sook Alasr Mall, Florida Mall, Roxy Cinema, and Heliopolis Cinema along with the new cinemas in Horreya Mall; to classic ones such as Normandy Cinema in Al-Ahram street. Definitely, the old style of Heliopolis looks as a diamond in a trash heap, as many new styles crept on unique ones and turned the northern end of the suburb into cement jungle. Moreover, the old style was deformed by the random installation of air-conditioners, and the closing in of balconies. This pathetic and inferior imitation of modern architecture style lacks authenticity and produces pale facades. Furthermore, it causes discontinuity and visual noise.
Figure 4.11. Modern facades style in Roxy (source: http://www.panoramio.com).

Figure 4.12. Normandy Cinema in Al-Ahram street (source: http://www.flickr.com/photos/56043182@N00/tags/heliopolis/)

Figure 4.13. Somewhere in Heliopolis losses identity (source: http://www.panoramio.com).
Figure 4.14. Heliopolis architectural style.
4.4.2.2 Continuity And Enclosure

As with many of Heliopolis best urban qualities, Korba and Roxy exemplify good continuity and enclosure of public spaces except very few blank areas located in Alahram and Roxy squares. In Korba, streets are fine with active frontages that create continuous and well-defined urban routes.

Figure 4.15. Sense of enclosure: The enclosure of this street creates a strong sense of place –Korba –

Figure 4.16. Trees help to create enclosure in weakly contained routes.

Heights of buildings located between El-Merghany and Abo Bakr El-seddeeq avenues are of 3-4 storeys except high landmark buildings that have positive role to play in defining places as essentially urban in character such as Horreya mall. The low buildings height appropriate the width of subways and reflects the intimacy and enclosure in the area.
The strongly defined public environment of Korba and Roxy begins to breakdown to the north of Abo Bakr El-seddeeq, and the definition of public and private spaces becomes confusing when leaving the shopping heart of the area. At the north of Abo Bakr El-seddeeq, continuous and well-defined routes and urban qualities dissolve and modern structure creep into Heliopolis day by day causing confusion of undistinguished buildings and break of frontage continuity. Abo Bakr Elseddeeq, as mentioned before, divides Heliopolis into two different sub areas with two different styles and urban tissues. This division causes isolation and break of continuity.
4.4.2.3 Ease of Movement

Well-designed streets encourage people to use them and stroll through them. Streets should provide attractive pedestrian environment.

While some of Heliopolis avenues encourage ease of movement for all users, others such as Elhegaz and Al-Nozha are biased towards vehicle traffic movement at the expense of pedestrian. While path system looks well-defined by clear origin at the start point of a particular street and clear destination at the end, the walking paths and traffic movement are confusing in general and provide low permeability. For instance, in Osman Ibn Affan street, the movement on the sub-way that springs from Salah Eldin Sq. to Ismailia Sq. is very difficult, as there is no any separate line between tramway and vehicular lanes, so both drivers and pedestrians use the tramway for movement. The situation gets worse, as drivers are confused with that misuse of tramway lane: for any of the two ways street could they use the lane?. In fact, accessibility through most of Heliopolis squares is limited and Difficult because of interference between vehicular lanes, pedestrian walks, and tramways. The problem of traffic jams increases by using sidewalks as parking areas which therefore reduce the routes width. Eventually, pedestrian links are poorly defined.

Figure 4.19. Vehicular movement dominates avenues.
Although Abo Bakr El-seddeeq street is distinguished by trees and greenery lined along its sides, it is not welcoming and underutilized as there is no place to sit or any element of street furniture. This is a general phenomenon in the suburb overall except few seats located along tramway stations. Abo Bakr El-seddeeq street works as a physical line that separates Heliopolis old style buildings from new ones. Furthermore, the street could be seen as less well-defined edge that the individual perceives as a barrier. It is worth mentioning that The isolation caused by Abo Bakr El-seddeeq St. is visually not structurally, as the sequence of nodal points handle the integration between different parts of the suburb.

![Abo Bakr El-seddeeq St](http://www.panoramio.com)

**Figure 4.20.** Abo Bakr El-seddeeq St (source: http://www.panoramio.com).

Heliopolis is bordered by edges of highway streets like Gesr El-Suez from the west and Salah Salem from the east. Merghany street works as political southern edge because of its direct link with Uruba Palace. There are overhead edges borders the suburb such as El-Galaa bridge on Uruba street and El-Tagneed bridge on Gesr El-Suez. Likewise, tramway network provides weak edges among districts.
4.4.2.4 Legibility: A place that has clear image and is easy to understand

The central and most important place in the city is the square located in Roxy area within which the Catholic church Basilica laid out. The main street is Sharia Al-ahram (Pyramids street), on which stands the Uruba palace. From the palace, at the first intersection with the splendid street Ibrahim Laqqany (former boulevard Abbas), is the open air cafeteria Amphitrition. Al-ahram street ends at the suburb's main square “Alahram square” (previously Yabasat) where towers the dome of Roman Catholic basilica. On the other side of the square, the street branches diagonally into two: Uthman Ibn Affan street and Harun Al-Rashid street (formerly Rue San Stefano). Another major boulevards such as Baron street (now Nazih Khalifa street) cross the square perpendicularly. The avenues span widths of 30-40m and the main streets 20-25m (Dobrowolska & Dobrowolski, 2006).Uthman Ibn Affan and Harun Al-Rashid streets runs along the suburb and intersects perpendicularly with many routs such as Abo Bakr El-seddeeq and Salah Eldin to form many nodal points such as Ismailia, Salah Eldin, and Sapheer squares. Smaller streets and alleys filled the space in between. In fact, The urban fabric of Heliopolis is radical with rigid grid pattern, so it is remarked with many obvious squares such as Roxy, Korb, Alahram, Salah Eldin, Elgamia, Beirut, Triumph, St. Fatima, Elhigaz, Heliopolis, Ismailia, Sapheer
and Mahkama squares. Alahram square measures 190 by 250 meters, and is mostly covered by greenery. It is composed of five streets forming a star with wide facades on edges to allow long perspective onto the streets (Dobrowolska & Dobrowolski, 2006).

The Basilica, Catholic church situated in Al-Ahram square, is a famous landmark in Heliopolis. It is modern for its time in its simple, bold design and with its grand porch of columns and a large domed structure that never forgotten. The church is located in a strategic viewpoint, as the avenue of Alahram that intersects with the two main diagonal streets of Osman Ibn Affan and Harun Al-Rashid at Alahram square, and the perpendicular avenue that ends with the Baron's palace form Heliopolis’s simple, symmetrical framework (Dobrowolska & Dobrowolski, 2006).

Figure 4.22. Basilica church (source: http://www.panoramio.com).

Behind the Basilica on the northern side of Alahram square, two large colonnaded buildings look as a background for the church when seen from the avenue of Alahram. Each has an ornamented minaret with features of an Ottoman epoch top. The function of these two minarets was to form a part of the city landscape (Dobrowolska & Dobrowolski, 2006). The two minarets were damaged in the 1982 earthquake (Lindsey, 2005). If we continue walking a few blocks down Harun Al-Rashid street, we see Heliopolis First mosque (Built in 1911) located in Midan Gamaa. Left of Midan Gamaa is
Merryland garden, a park with entertainment center and large artificial lake (Lindsey, 2005).

Figure 4.23. Two old residential buildings with two minarets with an Ottoman epoch top. The minarets accentuate the Islamic feel.

Heliopolis is rich of distinct landmarks such as Basilica, St. Fatima church (The Red church), Baron’s palace, Africa planet restaurant, St. George Coptic church, Saint Mark's Church\textsuperscript{17}, the Heliopolis Palace Hotel, Eldar church, Saint Maron church, the English school, and other distinct buildings which imaged as focal points connected by wide and spacious avenues to create grand vistas.

Figure 4.24. Saint Mark's Church (source: http://www.panoramio.com)

Figure 4.25. Eldar church (source: http://www.panoramio.com)

\textsuperscript{17} the oldest church in Heliopolis.
Many streets have unique vista of landmark buildings at their ends. For instance, Baron street has the unique vista of Baron palace at its end, in Uruba St., which gives it a unique identity in the direction toward this end. This scene emerges in many of Heliopolis streets.
Figure 4.28. Heliopolis strategic points.
While Korba and Roxy are legible—Linear shopping streets with Landmarks (such as Basilica, the Heliopolis company building, St. Markos church, Saint Maron church) and clear visible routes and destinations—many other parts of the suburb are not. Legibility begins to breakdown to the north, and the
definition of districts becomes confusing when leaving the heart of Korba. Districts are separated from each other by obstacles such as tramways, and car parks.

- Heliopolis does not always give a clear message for either pedestrians or drivers. For instance, routes north of the central core are similarly unclear, as they have the same features (radical streets end with squares work as nodal points which approximately have the same dissolved pattern in plan as a result of intersection between tramways and vehicular routes). Walking routes in particular are very unclear and navigation across squares is difficult. Branching of routes and locating many landmarks away from decision points increase confusion and wayfinding difficulties. On the contrary, locating other landmarks at strategic points of Heliopolis radical urban fabric creates high legible views. For instance, locating the English School at the intersection between Haron El-Rasheed St. and Abo Bakr El-seddeeq St. increases the legibility of triangular area that defined by central points of Haron El-Rasheed, Ismailia, and Sapheer squares, as from any point of the triangle one can see the other two points. This high imageable view emerges in many other places such as view of Basilica in Alahram square.

- Although Heliopolis squares are underutilized and structurally ambiguous, many of them are visually vivid because of existence of many landmark buildings located nearby or around them such as Planet Africa restaurant on
Triumph Sq., St. Fatima church on St. Fatima Sq., Greek Orthodox church of the virgin on Salah Eldin Sq., the oldest mosque in the heart of the indigenous zone of Elgamia Sq., and St. George Coptic church on Heliopolis sq. Furthermore, many of them are decorated by various artifacts of historic significance.

**Figure 4.31.** Ismailia Sq.: It is hardly used because of its weak connection with buildings around it. Moreover, the edges of flower beds which people would normally use to sit are uncomfortable (photos from http://www.panoramio.com).

**Figure 4.32.** St. George Coptic church (source: http://www.panoramio.com).

**Figure 4.33.** Planet Africa restaurant (source: http://www.panoramio.com).
Figure 4.34. Greek Orthodox church (source: Dobrowolska & Dobrowolski, 2006).

Figure 4.35. Triumph Sq.: Various artifacts (Art wall, Roman column, memorial) are on display at the square (photos from http://www.panoramio.com).
Figure 4.36. Heliopolis image as seen in the field.
### 4.4.3 Interview And Sketch Mapping Procedure

In this stage of our thesis, subjects were interviewed about their ability to navigate and reach a particular destination in Heliopolis. They were asked to draw a sketch map of the area as if they were describing it for a stranger. Thirty volunteers – fifteen of them female, the other fifteen male, were tested and had to answer questions like these:

- What does Heliopolis mean for you?
- Do you see it easy to find your way?
- What elements do you depend upon to find your way?
- List ten of the most important elements for you and describe three of them?
- If you have two ways to reach a particular destination; one is longer with less changes of directions and the other is shorter with more changes of directions, which one you choose?

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Gender</th>
<th>Age</th>
<th>Profession</th>
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<td>Not familiar</td>
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<tr>
<td>Subject 2</td>
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<td>Commerce student</td>
<td>Fairly familiar</td>
<td>Abbasyia</td>
</tr>
<tr>
<td>Subject 3</td>
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<td>Psychology student</td>
<td>Fairly familiar</td>
<td>Sayda</td>
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<td>Employer</td>
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<td>Familiar</td>
<td>Ain</td>
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<td>Moderately familiar</td>
<td>Shams</td>
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<td>Familiar</td>
<td>Heliopolis</td>
</tr>
<tr>
<td>Subject 9</td>
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<td>21</td>
<td>Lifts technician</td>
<td>Very familiar</td>
<td>Helwan</td>
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<tr>
<td>Subject 10</td>
<td>Male</td>
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<td>Barber</td>
<td>Very familiar</td>
<td>Helwan</td>
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</tr>
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<td>24</td>
<td>English teacher</td>
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<td>Abbasyia</td>
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</tbody>
</table>

*Table 4.3. Subjects tested, Heliopolis.*
4.4.4 Imaginary Task Description

Subjects interviewed, were asked to draw an imaginary trip of a path starting from Roxy square to Triumph square. The path chosen for this trip is rich of many distinct landmark buildings along its sides which reflect the character of Heliopolis. Moreover, the path links old and new styles of Heliopolis. People were asked to describe all events and feelings that they may face along the path. The task consists of 3 subtasks that have to be performed in a sequential order.

<table>
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<th>Task</th>
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<th>Going to</th>
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<td>Ismailia square</td>
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<tr>
<td>Subtask 3</td>
<td>Ismailia square</td>
<td>Triumph square</td>
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*Table 4.4.* Tasks and subtasks at imaginary path trip in Heliopolis.

Most of Heliopolitans drew poor maps, with no details or clear descriptions. Nevertheless, their maps were handled by concentrating on the sequence of joints or nodes. Many of interviewers could not describe many important places such as the northern end of the suburb and Alahram Sq.
Figure 4.37. Sketch maps illustrate sequence of joints.
One of the most interesting streets is Alahram street that includes many distinct landmarks such as Basilica, Horryia mall, Amphetamine cafeteria. This street was omitted from the map for every person interviewed, even the one who was born and raised in the suburb. Moreover, Korba itself was a blank area on the cognitive maps except some famous landmarks such as President house and Groppi’s sweet shop. Korba is an area of substantial size containing some known elements such as Baghdad\textsuperscript{18} (former Boulevard Ismail) and Baron streets, but the paths themselves are not well-defined and the existence of restrict security and surveillance in the south end make the area itself as an edge for wayfarers.

\textsuperscript{18} The heart of chic Korba neighborhood and one of Heliopolis most elegant promenades.
Figure 4.39. A sketch map drawn by subject 4 presented Korba as a blank area: This map is defined by destinations (drawn as circles and named) rather than routes (drawn as lines and left unnamed). It emphasizes the arrival rather than the journey.
Roxy for many subjects is the core of their image of the suburb. Heliopolis, in general, means something more than just a place to live. When Heliopolitans were asked what comes to their mind when mention Heliopolis, the answer was quietness and ingenuity. On the other hand, many interviewers were angry because of dwarfinig chrome and beige art deco architecture by modern styles and unsightly billboards. They imaged the suburb as a place of their work not more. Some of them spoke about the suburb in the last times and remember its beauty describing their childhood and adulthood in it. They remember summer nights spent strolling the boulevards, the pure cool breeze and the scent of jasmine rising from the gardens of splendid villas. The scene that never forgotten is the enjoyment of Merryland picnics and sautrering through streets eating ice-cream from Groppi’s sweet shop.

Many residents imaged Damascus street as a place for selling diamonds, jewelry, and Auto parts. They mentioned many landmarks such as Horryia mall, Merryland, Groppi, Normandy Cinema, Roxy Cinema, Heliopolis Hospital, St. Fatima church (the Red church), Greek Orthodox church, Imam Ali mosque, Joseph El-Sahaby mosque, Planet Africa restaurant, El-Nasr club, El-Shams club. On the other hand, they listed many semantic attractions such as Pizza Hut and Amo Hosny cafeterias, giving no hint to very distinct elements like Basilica. In fact, listing all previous landmarks in people mind is a good result, as the suburb is full of huge number of landmarks that hard to be saved overall in peoples memory because of limit of man-mind memory. Consequently, respondents rarely use the same landmarks in mapping the mental image of the suburb. The key element for drawing and remembering the suburb was sequence of squares (Roxy, Korba, Salah Eldin, Elgami, Ismaila, Sapheer, Triumph, St. Fatima, Elhigaz, Heliopolis, Mahkama). All the maps drawn were about sequences of squares work as nodal points linked by routes and handled by many landmark
buildings located along them. This may be a natural result of radical urban fabric which reflects the importance of squares in original master plan. Most of cognitive map errors were in the true arrangement of squares, as some interviewers might locate a particular square before another. Moreover, subjects face problems in remembering streets names specially in Korba.

Table 4.4 illustrates Legibility of Heliopolis according to interviews and map drawings. The first column records the respondents; the second illustrate Lynchian elements; columns 3,4, and 5 evaluate how legible each respondent found paths, edges, landmarks, nodes, and districts, based on interviews and map drawings. Column 6 summarises characteristics of the sketch maps. Legibility was evaluated as high if half or over of survey respondents assessed the element as highly Legible, low if half or more respondents thought the element had low legibility, and moderate if legibility was more or less evenly divided between high and low.

<table>
<thead>
<tr>
<th>No. of respondents</th>
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<td>District</td>
<td>5</td>
<td>9</td>
<td>16</td>
<td>Low</td>
</tr>
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</table>

Table 4.5. Overall Legibility Score for Heliopolis.

From field reconnaissance and interviews, problems of Heliopolis image can be outlined. The most obvious problems are break of continuity, underutilization of nodal points, isolation, confusions, ambiguities, branchings, points of weak connection, and lack of character in many vital parts of the suburb. Figure 4.43 summarize these problems.
Figure 4.40. Heliopolis image as derived from sketch maps.
Figure 4.41. Heliopolis problems.
4.5. MAADI

4.5.1 Historic Context

Maadi, Cairo's greenest suburb, lies on the river Nile about 12 km upstream from Cairo CBD, on the east bank. Maadi denotes ferry boats and its name dates back to the late 19th century when it worked as important crossing point of the Nile.

The suburb tracks its modern history to 1904 when the railway between Cairo and Helwan was built. The whole area was laid out in the nineteenth century. It was planned in 1905 by a retired Canadian officer Captain Alexander J. Adams. There were very strict rules associated with residential development in Maadi with regards to the size of houses, how much of the property could be occupied by the house and how much had to be left for the garden, and the size of the sidewalks. “Even window shutters had prescribed colors (red or green)”19.

The river is paralleled by the Corniche, a waterfront promenade of the kind found in many Egyptian towns. The main road into Cairo follows the Corniche.

Many embassies are situated in Maadi such as the Peruvian, Mexican, Japanese, and Argentinean embassies. The Cairo office for the USAID is also placed in this suburb20. Maadi is a quiet residence for foreigners and some well-off Egyptians. Life style in Maadi differ from most of Egypt neighborhoods. you may see shops for selling pets food like Pets House. Do not get astonished if you noticed an advertisement about lost dog or cat, as this scene is a natural phenomenon of this high life.

Figure 4.42. Satellite image of Maadi.

Figure 4.43. Maadi outline.
4.5.2. Field Reconnaissance Analysis

4.5.2.1 Character

Maadi is the least densely populated neighborhood in Greater Cairo. It is a green paradise built in English countryside cottage style. Its streets are laid out in a mostly grid pattern; nevertheless, there are several wide boulevards running at angles across the grid. Maadi’s smart, low-rise apartments, and wide Villas line streets bristling with shady palms and sweetly-scented trees (Beattie, 2005). Maadi’s greenery and quiet streets are distinguished by the kind of flowers planted in them. For instance, some streets had roses while others had Jasmine. In fact, the landscape features of the suburb form its distinct character. Many of the houses have yards filled with flowers and even garden vegetables. Currently, there is a series of ugly, high, and fat constructions along the Corniche by the river, as well as in the newer, eastern part of Maadi, known as Degla21. Furthermore, Wadi Degla, a 60million year old valley, was threatened by the encroachment of urban activities.

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21 http://www.absoluteastronomy.com/topics/Maadi.
All the roads in Maadi are assigned numbers; vertical grid lines have a sequence of arrangement of roads numbers while horizontal ones have another sequence. In other words, the roads parallel to each others have the same sequence while those perpendicular on them have another sequence. Furthermore, the radial roads have another sequence of arrangement (or names of persons rather than numbers) differ from the previous two types. In fact, there is a logic to them similar to that established in English towns, and this demonstrates that the suburb was designed for foreigners.
Road 9, parallel to the Metro line, is the main business section of the area. It contains restaurants, coffee shops, Bakries, vegetable stalls, grocery stores, and souvenir shops. The suburb also contains many shopping malls such as Grand Mall. Maadi streets consist of typical kiosks selling snacks, newspapers, and candy.

Figure 4.48. Road 9 (source: http://www.oldroads.org/pastblogs/archive_2006_august.htm).

Figure 4.49. Maadi Grand Mall (source: http://www.panoramio.com).

Figure 4.50. Typical kiosks selling snacks, newspapers, and candy (source: http://www.oldroads.org/pastblogs/archive_2006_august.htm).
Maadi has geographical boundaries make it semi-isolated. The suburb ends at the flash flood line -Magra Al-Seil located under Tura bridge- where a man made duct separates it from Torah to the south. “The Autostrade and Wadi Degla Protectorate mark Maadi’s eastern border and to the west is the River Nile”.

4.5.2.2 Continuity And Enclosure

Continuity is weakened by the extensive green verges, frequent intersections, and loose houses arranged regularly to the streets which result in blank facades/ fences fronting streets. There is also break of continuity in facades fronting Corniche. Generally, the suburb creates a good sense of enclosure because of its narrow streets – the building heights have been well matched to the streets widths–, and the spaces have been enhanced by using plant materials that dominate most of suburb roads. Points of average enclosure spread allover the central area of the suburb. On the contrary, other roads like 250 showed less enclosure represented in facades on one side opposite kiosks and plant shops lined on railway.

Figure 4.51. Trees create good sense of enclosure (source: http://travel.maktoob.com/vb/travel52908/).

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23 Ibid.
4.5.2.3 Ease of Movement

The suburb is one of the most pedestrian-friendly areas in Cairo. Its quiet streets encourage strolling and enjoyment of natural scenes along them. Moreover, many roads are one way while others are tow lanes- tow ways without any island or barrier for separation except white line between lanes. This narrow width of roads provides low vehicular permeability and assure the priority of pedestrian movement. This semi-constant roads width has a visual dimension, as it causes confusion of differentiating main streets from subways.

Figure 4.52. Break of continuity and enclosure (source: http://www.panoramio.com).

Figure 4.53. Strolling in Maadi streets (source: http://www.panoramio.com).
The area is disrupted by strong edge formed by Al-Mahager railway. Everything stops at this barrier of the railway which separate the suburb physically into two parts. In fact, the railway forms a major barrier of movement in the area. Nevertheless, the railway is used as a landmark or linear reference point, since most of main roads end at and spring from it leading to green roundabouts; the roads are all either parallel or perpendicular to the railway. Furthermore, the railway itself is decorated by plant shops. Metro line also makes a clear edge separates the area located in Corniche from Degla and El-Sarayat. Nevertheless, there are two bridges pass over the metro line to connect parts of Maadi with each others, they are Maadi and Mahata bridges. As mentioned before, Maadi is geographically isolated from the rest of Cairo, bordered by the Degla desert on one side and the River Nile on the other, and this isolation influence negatively on its degree of accessibility and permeability to other areas.
4.5.2.4 Legibility

Road 9 is one of the most important roads in Maadi. It runs parallel to many important axes such as Metro line, Misr-Helwan road (parallel to the River Nile), 250 St., and El-Canal street. Roads 9 and 250 are connected with each others by important roads such as Port Said, Al-Nahda, and Mustafa Kamel. Road 250 has a great importance, as it runs along Al-Mahager railway and intersects with many roads forming a series of strategic nodal points represented in squares such as Midan Al-Golf (Al-Golf Sq.), and Midan Victoria (Victoria Sq.). This sequence of squares makes road 250 the main reference point of most trips in the suburb.

Most of Maadi squares suffer from underutilized potential. Very few people appreciate the quality of these spaces as nodal points. The situation gets worse, as the security polices around the buildings are very strict. Thus, pedestrians usually rush past these nodes towards more friendly ones.
Figure 4.57. Midan Victoria: The plaza has been fenced with a visually permeable fence which allows for visual connection but blocks physical access.

Road 206 has a distinct form in plan. It is crooked like half a circle springs from Digla level crossing and ends at Midan Abd Al-Minaim Riyad (Abd Al-Minaim Riyad Sq.). The area sandwiched between 206, and 250 roads contains two important schools: Victoria College (Al-Nasr), and Cairo American College (CAC).

Al-Nahda, another interesting street, runs from Abd El-Mineim Riyad Sq. in road 250 until Midan Al-Maadi in the cornich. The street consists of many landmarks such as Mexico embassy, and St. mark church; and nodal points such as Nahda, Port Said, Mahata (station) and Al-Gamia (mosque) squares. It intersects with many important streets like Oraby, and canal streets.

Although Maadi is a small size neighborhood distinguished by a significant style and overwhelming greeneries dominating its streets, it never give a clear message for either pedestrians or drivers. Strolling in Maadi is similar to that
in a maze; and the houses can be hard to spot. Almost universally they are guarded from direct views by trees and shrubs and completely blocked off the streets by the use of high walls or fenced with fences which block physical access and produce points of weak connections along streets. Consequently, most of roads have the same characters like tracks in a jungle. One may pass by a known building but can not spot or notice it at all. Vistas are usually opened, they end either with nothing or with an indistinct nodal point represented in a square with no landmark object in it. “It used to be next to impossible for a foreigner to locate a street in Maadi; the few signs that did exist were only in Arabic”\textsuperscript{24}. To find a road sign is like searching for oasis in the desert. You have to basically look at every corner, every wall and if you are lucky, you can find one with faded prints. The situation gets worse with the absence of clear hierarchy of roads, since most of roads are so similar in physical features of width, and views that one can not distinguish main roads from sub-ways.

\begin{figure}[h!]
\centering
\includegraphics[width=0.5\textwidth]{image.png}
\caption{Figure 4.58. Point of weak connection: the use of high wall blocks the buildings off the street.}
\end{figure}

\textsuperscript{24} Marlowe, J., May-Jun 1996, Scouting magazine, Boy Scouts of America, Inc, p34.
- Branching of paths with confusing directions is a frequent feature in Maadi. It is kidding that if you entered Maadi, you should take a taxi to get out of it. Furthermore, Drivers themselves avoid Maadi trips for the same reasons. In other words, You may waste along time searching for a particular place in this beautiful labyrinth. Unfortunately, some streets are off limits for both of cars and pedestrians, as there may be an American diplomat or wealthy businessman living inside a house located in them. Eventually, if you are to navigate in Maadi, it is advisable to have a guide to avoid falling into the trap of being lost.
Both of the river Nile, and Kobry Shmal Tora (northern Tora bridge) make strong clear edges, as the river Nile borders the area from the south west and Kobry Shmal Tora- overhead edge- from the south east. Maadi is adjacent to slum areas such as Arab Al-Maadi and Basateen within which low or middle class live. It's separated from them through few tiny streets and alleys. The vivid contrast in life style, housing and degree of quietness between Maadi and adjacent slum areas make the suburb a suitable place for crimes. Recently, we heard about Saffah El-Maadi (Maadi killer). This reminds me of *Garima Fe Alhay Al-Hadea* film (crime in the quiet district).

There is a paucity of recognizable landmarks except few distinct elements such as Grand Mall (in Abd El-Mineim Riyad Sq.), Maadi sporting &Yacht club (in Swares Sq.), Satellite transmission station, St. John the Baptist church (in Port Said St.), and St. Mark church (in Nahda Sq.). In their navigation in Maadi, people rarely depend on landmarks, as many of these landmarks are not visually accessible because of their locations behind trees and shrubs. The Corniche with its unforgettable view formed by ferryboats and distinct waterfront along it, is the main promenade of Maadi. Another favorite sight was that of the suburb lights at night, especially at Ramadan nights.
Figure 4.62. St. John church (source: http://www.panoramio.com).

Figure 4.63. St. Mark church (source: http://www.panoramio.com).

Figure 4.64. St. Mary church (source: http://www.panoramio.com).

Figure 4.65. Lights in Maadi night. (source: http://www.panoramio.com)

Figure 4.66. The river Nile as the main promenade of Maadi (source: http://www.panoramio.com).

Figure 4.67. Distinct façade of a nursery in Maadi (source: http://www.panoramio.com).
Figure 4.68. Maadi image as seen in the field.
4.5.3 Interview And Sketch Mapping Procedure

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</tr>
</tbody>
</table>

Table 4.6. Subjects tested, Maadi.

Maadi has a structure which is hard to be understood. The maps drawn by subjects were often fragmented, with large blank areas, concentrating most
often on clear edges and few unmistakable landmarks. Most interviews found it difficult to draw or image the suburb as a whole, and most obtained information was verbal more than sketched. In fact, there was a paucity of information sources about the environment for two reasons: firstly, the environment itself was nearly bare of its physical components like signs, landmarks, etc. Secondly, it was also nearly bare of people in its streets, although people are very important sources of information, whether we spoke to them or not, as a gathering of people may interpret the building function.

Subjects had great difficulty in picking up their way in Maadi even those who are very familiar with the suburb face problems with orientation too. They felt that the grid is like a maze. The grid pattern creates a huge number of intersections that work as nodal points or points of traffic interchange which cannot be distinguished from each other. Furthermore, quiet streets with illegible environment make it hard to search for someone to ask about directions except doormen and security. It is advisable to go a head in a main street ignoring all intersections located on it to get out of the maze, otherwise you will fall in the trap of being lost. Subjects referred wayfinding problems into two reasons: first, strong similarity in roads characters revealing that all views are repeated; second, confusion of streets names, as one may notice multi types of streets names converged of one section. For instance, Mustafa Kamel, 250, 87, 204, 206, and 208 roads spring all from Digla level crossing. Likewise, Port Said, 210 (Digla), 213, 216, and 20 spring all from Midan Victoria – Victoria square. The situation gets worse when notice that several names may be applied to one street. For instance, Sharifa Dina is also called road 78. Likewise, Digla is also called road 210. These several names definitely cause confusion.

25 Maadi’s mazy streets make it tricky for the people to navigate.
Wayfarers depend upon two clues to reach a particular destination. First, they never stop asking passers by about directions. Second, they follow the few streets signs. This means that they are totally confused with the path system of the area.

Figure 4.69. Sample of poorly drawn sketch maps.
Figure 4.70. Old Maadi presented in a sketch map as a blank area.
The problem of wayfinding emerges vividly in the following verbal interview:

“I decided to walk all the way back to my apartment at Maadi. Are you ready for my adventure? Get Set, deep breath...relax...and GOO. My starting point is the road called Misr-Helwanall. The buildings have the same colour and structure. The road names are mostly in Arabic and even if it's in English, it's erratic. I crossed the overhead bridge above the metro rail. Pedestrian and motorcycles are sharing the bridge and I believe donkeys use it too. I planned to take road 72 and connect to the long Road 77. After too many small alleys, I managed to "guess" my way into Road 12 (could't find any road sign) and reached the main Road - Ahmed Zaki Street. I couldn't find any sign to enter into road 77. But I re-positioned myself with the sighting of the big Maadi Sporting & Yacht Club. Road 77 is quite unique. It's long and it's was cluttered with shop houses, very old shop houses. I proceed and reached the intersection between road 77 and Abd Al-Mineim Riyad. I couldn't make up my mind where I should continue when I reached this junction. I couldn't find any sign leading to the smaller section of Road 77. Few buildings were torn down at this area and I believed they torn down the road sign on the wall as well. I spent around 20 minutes in searching for true way. I was happy when I see the rail road at Al-Golf square, at that moment I thought I was on the correct Road 77. I was wrong, but I was lucky also. Because it lead me to a distinguished landmark later. So I crossed this unguarded, no barrier rail road (while watching left and right just to make sure I don't get run over by a train), and walked happily towards the satellite station. I stopped for awhile at point H and realised that I was not on Road 77. I was not panic at all. I looked around and saw 2 giant white mushrooms not far away: big satellite dish! I know this place! Finally, I reached my home I decided to reward my self”.

In all this description we have three landmarks: Maadi sporting club, Mahagir rail way mark, and Satellite transmission station. We notice also
that this subject depends in his navigation on signs and streets names. Here is another example describes how to reach to the Church of St. John the Baptist - located at 17 Port Said Road near the intersection of Rd. 17 and Rd. 82-

“As from Maadi Grand Mall, go north across the railway tracks and then immediately turn Left. Go west approximately 1 km to the next major intersection (Port Said Rd). Turn right and go approx. 3 blocks. The church entrance is on the right. If traveling South into Maadi from the Corniche on the Nile, take the Maadi Square exit and proceed across the flyover to the Port Said Square go approx 1/3 around the square and exit onto Port Said Rd. The Church is 3 blocks up on the left”26.

In this description we have no visual image at all, as the description confined to just turns of left and right.

Figure 4.71. Mahagir railway mark

Figure 4.72. Maadi sporting club.

Figure 4.73. Satellite transmission station.

Although people took great delight in flowers, vegetation, and beauty of the suburb, they fear strolling in Maadi roads because of security spreaded all over the area. Consequently, subjects familiarity with the area is reduced. When asked to describe the suburb as a whole, the subjects used certain words: paradise; kingdom of numbers; high-class life; cleanliness; and a green heaven on earth with a rural village feeling.

Many subjects imaged road 9 as a linear commercial street consists of many known shops and cafeterias like Celantro. They listed many distinct landmarks such as Sharifa Dina villa, Grand Mall, Lycée Francaise, Cairo American College (CAC), Canal school, Satellite transmission station and Maadi sporting club.

![Figure 4.74. Maadi Canal school.](image)

Subjects mentioned many important nodal points like Midan Digla (Digla Sq.), Swaris and Al-Horryia squares. They also imaged many paths like Al-Nady, and Al-Golf roads. It worth mention that many subjects imaged short subways such as Al-Sharifa Dina street for the existence of the villa within which Sharifa Dina lived.
Table 4.7. Overall Legibility Score for Maadi.

<table>
<thead>
<tr>
<th>No. of respondents</th>
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<th>Moderate</th>
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<th>Overall</th>
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<td>District</td>
<td>2</td>
<td>7</td>
<td>11</td>
<td>Low</td>
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</table>
Figure 4.78. Maadi image as derived from sketch maps.
Figure 4.79. Maadi problems.
4.6. Cairo CBD

4.6.1 Historic Context

The real drive to modernise Egypt was made by Khedive Ismail’s ancestor, Mohamed Ali Pasha (1805-1848), who established the history of modern Egypt. Khedive Ismail (1863-1879) wanted to Europeanize Cairo and make it the Paris of the region. His visit to Paris in 1867, as a special guest of Emperor Napoleon III, was the starting point that influenced the future of Cairo. He observed the progress of Paris and admired of Hussman planning “the city of light”. He noted closely the new Paris and with his minister, Ali Mubarak, thought of a new style in Cairo similar to that in Paris. To be fair, Europeans played a powerful role in constructing the new capital, they were employed in Egypt's Ministry of Public Works, and also in private practice27. Ismail wanted to make Cairo the capital of enlightenment in the East, like Paris in the West. The first step he made was to convey the seat of power from the Citadel to Abdeen palace. He constructed Mohamed Ali Avenue to connect old city with his new capital28. After that, he planned the Cairo CBD district to be the business center of the city. Grand Beck, a French planner and a student of Hussman, was commissioned by Khedive Ismail to prepare a new planning scheme for Cairo CBD. The vision was to make Cairo CBD as an open air museum; wide and clean streets with areas for pedestrian only and spacious gathering points for cultural discussions. For instance, cultural nourishment was held in the music kiosks in Al-Azbakeya Garden. “The area around the Ezbekiyya Gardens was once a vast lake but was drained in 1837”29. Cairo CBD still maintains remarkable characteristics such as: squares, promenades, and streets (Elshahed, 2007).

Cairo CBD, or as the Arabic Speakers call it Wust El-Balad which literally means the center of the city\(^{30}\), stands for the area sandwiched between the old Fatimid Cairo and the river Nile to the west. The District was established from the late 19th and early 20th centuries. Cairo CBD is known as Khedivine Cairo or Ismailiyya because it was commissioned by Khedive Ismail vision for modernizing and westernization of Egypt. It was built over a span of forty years by landlords (Elshahed, 2007). The area was designed by prestigious French architects.

In 1869, Khedive Ismail gave instructions to erect an opera house to solemnize the opening of the Suez Canal in 1869\(^{31}\). The Italian architects Pietro Avoscani and Rossi were commissioned to designed the building. The Opera House was made mostly of wood. It was situated between the districts of Azbakeya and Ismailiyia in the new capital. Tragically, In the early morning hours of October 28th 1971, the opera house was entirely destroyed by a fire. Currently, The site is occupied by an ugly multistory concrete garage, but the square overlooking the building is still called Opera Square\(^{32}\).

http://www.modis.ispras.ru/wikipedia/Aga_Khan_Trust_for_Culture.html.)

Figure 4.80. Opera building in Opera square.
Figure 4.81. Satellite image of Cairo CBD.
4.6.2. Field Reconnaissance Analysis

4.6.2.1. Character

Cairo CBD forms a triangle, its three furthest points situated at Al-Tahrir Square, Ramsis and Abdin. It reflects the architectural ingenuity of nineteenth and early twentieth century: wide boulevards and even grander buildings European-style doorways and sculptures, designed in a mixture of art deco, art nouveau, baroque, Roman-Byzantine, and a little later, neo-Islamic styles. Many buildings have unique style with Tuscan columns or ionic pilasters and pedimented windows. Cairo CBD adopted straight, open-ended streets rid of narrow allies and dead-end streets. This urban fabric reflects the French character. On the contrary, the area sandwiched between Mohammed Ali St. and Gomhuriyya St. is of winding urban tissue consisting of very crooked and irregular roads, dead ends and narrow alleyways. Tragically, many historic and unique buildings were demolished and replaced by ugly high rises.

Cairo CBD contains a high artistic ornamentation of frontages like that established in Paris. In other words, one can observe the distinctive French touches in balconies: iron work, ornate cantilevers, marbles steps and entrances. Of course, over the decades much beauty has been tampered with, by both the hands of time and the absence of good maintenance.

Figure 4.82. Cairo CBD architectural vocabularies (source: Myntti, 1999).

35 Ibid.
Cairo CBD is said to be a robust environment as it offers more than a single use. It is a mixture of business, leisure, commercial, government, and residential uses. It is a vibrant urban environment for residents, workers, and visitors. The area serves as a great place to shop; ground floors were filled by commercial activities. We can see restaurants for western fast foods, clubs and bars (particularly in the hotels), cinemas, theaters, banks, street vendors, and all manner of shops\(^{36}\). The area is generally marked by the crowds.

Figure 4.83. Cairo CBD facades from 1927 (source: Elshahed, 2007).

\(^{36}\)http://www.touregypt.net/cairo/caironew.htm.
Figure 4.84. Colonial buildings loom over Cairo CBD (source: www.cultnat.org).

4.6.2.2. Continuity and Enclosure

Throughout the CBD area, buildings are typically built to the front edge of the property line. This historic street wall of facades is broken by ill-considered constructions. While many streets of Cairo CBD provide high degree of Enclosure, others are not because of frequent changes of buildings height, demolished buildings, vacant lands, and scattered parking lots. At points of highest enclosure, the streets are narrow and very tall buildings overwhelming the pedestrians and creating an unpleased enclosure, as people tend to avoid such areas making them deserted and insecure. Conversely, water fronts show less enclosure because of open scenes, and wide streets.

Figure 4.89. Sense of enclosure: Good sense of enclosure at Talaat Harb square (source: http://www.panoramio.com).
4.6.2.3 Ease of Movement

Cairo CBD is very crowded, no place to sit or walk, as vehicular movement dominates the streets; and Traffic and pollution are unavoidable. The streets are choked day and night with a ceaseless stream of ancient Peugot taxis, battered smoke-belching buses. The problem get worse for two things: first, most of roads are one-way which logically cause low permeability and increase traffic jams at intersections; Second, the area is full of nodal points along paths such as Cinemas, theaters, clothes shops, Malls, coffee shops, and restaurants. Moreover, crossing main squares and intersections is generally unsafe. Squares itself are confusing, as one may lost long time either waiting for traffic lights or thinking of how to find his way. All previous reasons are measurably decrease the use of plazas and increase the time of decision making.
People park their cars at any place as there is no clear parking spot. In other words, it is impossible to get a parking place. Passers can notice all kinds of vehicles penetrating streets. There is no place to sit or walk, as congestion dominate the views. Furthermore, many streets are scattered because of parking lots located haphazardly in them such as parking areas at Tahrir street; the corner of Shampilion and Kasr El-Nile streets; and the area facing Dar El-Kadaa El-Ali (Cairo supreme court) at 26 July street.

Cairo CBD has three strong clear edges represented in the River Nile (natural edge) from the west, 6 October bridge (overhead edge) from the northern-west and Kobry Al-Azhar (Al-Azhar bridge) from the northern-east. Although 6 October bridge provides a strong boundary, it conveys noise and fumes to residents of high stores. Moreover, it decreases degree of privacy and form a barrier facing facades. Furthermore, it causes isolation, discontinuity, and low permeability.
4.6.2.4. Legibility

Cairo CBD is a boom suburb; it represents the heart of the city activities; crowd, traffic jams, and smell of toxic fumes are at first overpowering. The streets are lined with a motley assortment of faded buildings, from baroque Colonial and streamlined Art Deco to brooding Soviet concrete monsters.
Nevertheless, it is rich of high imageable elements that enhance the legibility of the area. One of the most important nodes is Tahrir square- nucleus of CBD activities- that more heavily used as a recreation area than other squares of Cairo CBD. It was the location of Africa's first Hilton hotel, which today houses the Arab league building. Tahrir square, the vast public square at the epicenter of modern Cairo, contains numerous distinct buildings such as the Egyptian Museum, the bureaucratic city of Moga'maa Al-Tahrir building -opened in 1952 and located to the south of the square-, the modern Umar Makram Mosque, American University in Cairo\textsuperscript{37}, many famous hotels, retail outlets, travel agencies and restaurants. The Corniche, Cairo's main thoroughfare, runs from north to south parallel to the east bank of the River Nile. The east end of Cairo CBD is marked by Ataba square, the starting point of Islamic Cairo.

\textbf{Figure 4.95.} Tahrir square: 1,2) Moga'maa Al-Tahrir building 3)The Egyptian Museum 4) Samiramis Hotel.

\textsuperscript{37} Recently, moved from its campus near Tahrir Square, in the heart of Cairo CBD, to the suburb of New Cairo.
Sharia Tahrir (Tahrir street) springs from Tahrir Square. Down the street, towards the east, is Falaki square, a square located in Bab al-Lug area. At the far eastern end of the street is Midan Al-Gomhuryya (Square of the Republic), and Abdeen Palace Museum, where artifacts, mostly gifts and awards of former Egyptian rulers, are on display. Retrace our way up Al Tahrir street back west, passing the turn on it until we arrive at Talaat Harb street38.

The center of Cairo CBD is Talaat Harb Square, previously Sulayman Pasha square, located to the east and north-east of Tahrir Square "Liberation Square", previously Ismail square. Talaat Harb square is rich of many landmarks such as the statue of Mr. Harb, Groppi's tearoom, Madbouli bookshop, and Wahba Pasha building. The square forks into 6 branches causing confusion to visitors. Talaat Harb street is distinguished by many landmark buildings that work as nodal points located along the street such as Talaat Harb shopping mall; Miami, Metro, Renaissance and Mar Girgis cinemas; and Yacoubian Building. The street runs until coming to Midan Orabi (Orabi square), where eating establishments are scattered about. Talaat Harb street intersects with vital axes like 26 July, Adly, Abd El-Khalik Tharwat, and Kasr El Nile. Adly street is famous for the existence of the Shar Hashamain Synagogue, where the Jewish faithful still come to pray39. Likewise, 26 July street contains important buildings like Dar El-Kadaa El-Ali building (Cairo supreme court). In Cairo CBD one can also see several theaters located within easy walking distance of each others.

39 Ibid.
Al-Gomhuriyya street springs from Ramses square and ends at Midan al-Gomhuryya. All vital paths are perpendicular on it, Alfy street is connected with it from the east, Abd El-Khalik Tharwat street intersects with it at a parking tower that was once the Midan Opera. Many landmarks are located at strategic points of the CBD like Kakhia mosque, located at the intersection between Al-Gomhuriyya St. and Kasr El-Nile St.; Immobilia building at the intersection of Sherif Pasha and Kasr El-Nile streets; and Strand building at the intersection of Mohammed Nagib and Sherif streets. At the far end of Al-Gomhuriyya St. is Al-Gomhuriyya theater. Furthermore, end vista such as Abdeen palace at the far end of Al-Tahrir St. provide legible views.
Many of Cairo CBD squares are underutilized. For instance, while Al-Tahrir square is well paved with street furniture, it is unfriendly node. Likewise, Al-Gomhuriyya square discourages people from using it because of existence of security at the area of Abdeen palace. Since people tend to sit on the edge of spaces rather than in the middle of them, boundaries of plazas should be planned for seating and viewing. They should be divided into subspaces to encourage their use.

Figure 4.97. Abdeen palace: the palace has been fenced with a visually permeable fence which allows for visual connection but blocks physical access.
Figure 4.98. Al-Gomhuriyya street: 1,2) Opera square 3,4) Kakhia mosque 5) Al-Gomhuriyya theater.

Figure 4.99. Immobilia building (source: Gabr, 1998).

Figure 4.100. Closed vistas in Talaat Harb St.

Figure 4.101. Gamiaa Al-Fath emerges from Al-Gomhuriyya St. as a high imageable landmark.
Figure 4.102. Cairo CBD image as seen in the field.
### 4.6.3 Interview And Sketch Mapping Procedure

<table>
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<th>Subjects</th>
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<th>Familiarity</th>
<th>Place of Residence</th>
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**Table 4.8.** Subjects tested, Cairo CBD.
While most of verbal maps were rich of information which reflects their familiarity with the area, many sketch maps were approximately bare. many Subjects find it is a hard task to draw what in their minds. They were familiar with the area by the reasons of workplace and leisure. They listed a huge number of landmarks and nodal points through verbal interviews. Some of mentioned landmarks were the Egyptian museum, AUC, Moga'maa Al-Tahrir, Semiramis hotel, Talaat Harb Mall, El-abd shop, Groppi, Anglo bookshop, Sherif bookshop, Immobilia building, Dar El-Kadaa El-Ali, Yacoubian Building, and Metro cinema. Likewise, they mentioned important gathering points such as Al-Tahrir, Talaat Harb, Mustafa Kamel, Mohammed Fareed, and Opera Squares. However, most of these nodal points are intimidating and not welcoming, as most of them are devoid of planting and street furniture. Furthermore, crossing or entering them make subjects in danger of traffic jams. Consequently, people tend to path through quickly or stick to the roads sides. They can not enjoy using plazas to sit in the sun, eat a bag lunch, or as a pleasant walking-through space. Eventually, plazas create less pleasing visual appearance.
Figure 4.103. Sample of poorly drawn sketch maps.
Figure 4.104. Sample of a well-drawn sketch map.
Subjects were confused of path system, they dropped many important streets from their sketch maps. For instance, Ramsis street, in spite of its remarkable buildings such as the institute of Arabic music, Egyptian Society of Engineers, and Cadastral Registrar, was erased from all sketch maps. The reasons beyond disability of differentiation and way-finding problems of Cairo CBD may refer to branching of roads, weak entrances, spatial chaos, congestion, Cairo CBD's too many landmarks and similarity of buildings facades. Nevertheless, many respondents find no problem in orientation depending upon their familiarity with the area. They divide the area into three parts: The Corniche district; Main street of 26 July; and Talaat Harb
Area. Many subjects symbolized Cairo CBD as Heritage; great market of clothes; and leisure. On the contrary, other subjects posted that nothing special come to mind except chaos of Cairo, and lateness; one woman put it:

“Crossing the street, amidst honking and yelling a car stops short before me and a man shouts out his car window. I keep walking, smiling, I am just another part of Cairo’s wondrous chaos”

Figure 4.106. Remarkable buildings of Ramsis street, Cairo CBD (source: www.cultnat.org).


Figure 4.107. A sketch map illustrates branching of roads, Cairo CBD: Names are in the right order, but not geographically. The detailed sketch with street names guess that the subject has worked in the area for along time.
<table>
<thead>
<tr>
<th>No. of respondents</th>
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<th>Moderate</th>
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*Table 4.9. Overall Legibility Score for Cairo CBD.*
Figure 4.108. Cairo CBD image as derived from sketch maps.
Figure 4.109. Cairo CBD problems.
### 4.7. WHICH IS THE MOST IMAGEABLE?

Comparing previous three areas is definitely important to get the preliminary reasons behind wayfinding problems. Table 4.10 illustrates this comparison.

<table>
<thead>
<tr>
<th>Type of analysis</th>
<th>Heliopolis</th>
<th>Maadi</th>
<th>Cairo CBD</th>
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</thead>
<tbody>
<tr>
<td><strong>Character/Identity</strong></td>
<td>Heliopolis has a strong identity dominating the area except the part northern of Abo Bakr Elsedeeqe. Heliopolis is less in greenery and quietness than Maadi. The suburb is distinguished by clear Hierarchy of roads. The use of Heliopolis is more equally distributed between work and shopping.</td>
<td>Maadi has a unique character, as vegetation dominates the suburb. The suburb is the most greenery. Height of buildings is about 2-4 stores in general. It is the most quiet than other two cases. Miserably, hierarchy of roads is totally absent. The major use of Maadi is residence, so people's knowledge is limited in the parts which are distant from their active areas.</td>
<td>Cairo CBD has a unique character of French facades. It is higher in density than other two cases. Cairo CBD is crowded and noisy. Its streets are congested of traffic. Although there are main streets drawing its map, hierarchy of roads is approximately absent. The area serves a variety of purposes; commercial, residential, etc.</td>
</tr>
<tr>
<td><strong>Continuity and Enclosure</strong></td>
<td>The southern part of Heliopolis shows good sense of continuity and enclosure. The more we move towards north the</td>
<td>Landscape dominating Maadi streets provides a good sense of enclosure. However, facades</td>
<td>Cairo CBD is more enclosure than Maadi and Heliopolis. This is because of its high buildings dominating its</td>
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<tr>
<td>Ease of movement</td>
<td>Heliopolis has no problem of traffic flow except few sub-ways and some major nodes. Its main streets provide permeability higher than other two cases.</td>
<td>Although all of Maadi roads are one-way and have narrow width, there is no problem of traffic flow because of quietness that dominates its streets. However, the suburb itself provides low permeability. Moreover, it is geographically isolated.</td>
<td>Although Cairo CBD is highly accessible, it provides low permeability as most of its streets are one-way. The problem increases when know that Cairo CBD is a main destination for multi-uses, so there is always high density of traffic especially at entrances and exit points.</td>
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<td>Legibility</td>
<td>Heliopolis is more legible than Maadi and Cairo CBD. It is rich of strong identity, landmarks, nodes, districts, and defined paths. There is a strong interrelation among suburb elements compared to Maadi and Cairo CBD. In Heliopolis, the districts are joined with paths, and paths are connected with nodal points which distinguished by</td>
<td>Maadi is the most confusing suburb. This refers to many things: absence of roads hierarchy; ambiguity of paths caused by redundancy of ambiguous scenes; points of weak connections caused by fences, walls and off limit streets; underutilization of squares; isolation of the suburb and fear of navigation in it because of</td>
<td>Cairo CBD is rich of Lynchian elements, but there is a poor correlation among them. Furthermore, most of Cairo CBD nodal points are underutilized. Nevertheless, the familiarity with the area increased by reasons of work and variety of uses which activate the area and thus, expand the people's</td>
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</table>
landmarks. Clear hierarchy of roads provides a strong clue of defining paths. The problem of legibility is approximately confined to defining strong districts and ambiguity of some paths.

existence of security which intimidates pedestrians and reduces familiarity; and paucity of landmarks and nodes.

knowledge. Cairo CBD major problem is basically in path system. Branching of paths and low permeability influence Cairo CBD legibility negatively. Furthermore, weak system of hierarchy of roads double the problem. It worth mentioning that Cairo CBD's too many landmarks undermined their helpfulness. Moreover, the chaotic nature of Cairo CBD overwhelm our ability to discern which information is relevant.

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<th>Table 4.10. Comparison between case studies.</th>
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Notes:  ● Good  ○ Fair ○ Bad

It is noticed, in all case studies, that subjects tend to prefer longer routes with fewer changes of directions to shorter ones with more changes in direction. This may refer to reasons of safety, and enhancing better ability of arranging map categories mentally, as more changes in direction may cause wayfinding problems and increase complexity of map pattern. Fortunately, these results are congruent with space syntax principles. Space syntax method will be focused and applied in the following chapter.

4.8. CONCLUSION

This chapter tackled case studies according to Kevin Lynch thoughts.
First, we have showed the vital reasons upon which we have built our choice of the case studies. Some of these reasons are related to urban fabric characteristics and others to visual ones.

In the next part of this chapter, we mapped case studies according five elements of Lynchian map. The data of case studies were collected through the researcher’s site observation and interviews. The researcher’s site observation produced physical form maps whereas, results of interviews produced mental maps. The difference between the two types of maps predicted the degree of case study Legibility.

In the last section, we compared imageability of case studies. This comparison is crucial to reach the real reasons of wayfinding problems. Moreover, it enriched possibility of formulating useful recommendations for strengthening legibility of case studies. The outcomes showed that the stronger the city elements are, the legible the urban area is. The results also illustrated the influence of land use on city legibility, as the peoples’ familiarity and knowledge are limited in the parts which are distant from their active area.