

URBAN MORPHOLOGY AND PEDESTRIAN MOVEMENT OF
TRADITIONAL MARKET PLACE IN CASBAH ALGIERS

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MARKET PLACE IN CASBAH ALGIERS

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*My beloved mother and father, wife (Imane) and, my sweetheart daughters
RuaaKhadija and Israa,
For their support, prayers and understanding*

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ABSTRACT

Traditional market plays an important role in ancient urban life, especially in heritage cities such as Casbah, Algiers. Some traditional markets however are frequently criticized as inconvenient for users and consequently not well used. Improving performance of traditional markets is therefore a critical issue faced by the city planners and designers. Conventional model, which is described mainly in respect of maximum user's capacity or service radius is inadequate to give an account of the issue, hence a new theoretical model is needed for both research and operational purposes. This study, accordingly, indicates an alternative model approach and seeks an explanation from the urban morphology and the way it conditions pedestrian movement. Through investigating the relationship between urban morphology and pedestrian movement based on the Casbah city of Algiers, which particularly epitomizes various urban grids that have different consequences on the access and use of traditional market. The research first formulates a new conceptual model by synthesizing the findings of previous studies on relevant subjects. A new theoretical model for the traditional market is described mainly in terms of its permeable and visual links to overall urban layout. The study then models the urban morphology and pedestrian movement into a system of linear spaces by applying the techniques of space syntax. The interrelationships of these linear spaces are subsequently described by configurational variables called integration to capture their relatives within the overall layout. The implication for pedestrian movement is also analysed by correlating the configurational variables with the observed encounter rates. Finally, the analyses were compared with the observed level of use to identify the describe relationship between configurational (both physical and visual), pedestrian movement and the level of structural stability and morphogenesis of traditional market through applying the Catastrophe Theory coined by René Thom. The analysis of traditional market place in the Casbah city has revealed several major findings. Firstly, different morphological development have varying influences on the traditional market, especially their influence varies between one layout pattern to the others. Among these properties, it is their strategic location within the overall layout that plays a consistent role in their level of use. By contrast, the visual place is proven to be not relevant to the use of spaces in the sample layout patterns. The structural stability and morphogenesis, however, is proven to have a significant effect on the use density inside the spaces. While in the areas with diffused movement pattern, the interrelationship between urban morphology and pedestrian movement tend to be vanished. In light of these findings, the research has not only shaped a new approach to investigating place related issues in urban design fields, but also has revealed various data that are likely to be used to improve the performance of traditional market place, mainly in the urban areas of Algiers.

ABSTRAK

Pasar tradisi memainkan peranan yang penting dalam kehidupan perbandaran pada zaman silam terutamanya bagi bandar warisan seperti Casbah, Algiers. Sungguhpun begitu beberapa pasar tradisi kerap dikritik sebagai menyukarkan pengguna dan akibatnya semakin tidak digunakan dengan baik. Oleh yang demikian, memperbaiki prestasi pasar tradisi merupakan satu isu kritis yang perlu dihadapi oleh perekabentuk dan perancangan bandar. Model konvensional yang berkisar terhadap kapasiti penggunaan maksimum atau radius servis, tidak sesuai dijadikan model untuk berhadapan dengan isu ini, oleh itu satu model alternatif diperlukan untuk tujuan penyelidikan dan pengoperasiannya. Kajian ini sewajarnya menunjukkan pendekatan model alternatif dan meneroka penjelasan dari sudut morfologi bandar dan cara merangsang pergerakan pejalan kaki. Menerusi penelitian ke atas hubungan antara morfologi perbandaran dan pergerakan pejalan kaki di bandar Casbah, yang terletak dalam ibu kota Algeria itu, yang pada khususnya menzahirkan pelbagai grid perbandaran yang mengandungi tindak balas yang berbeza ke atas akses dan penggunaan pasar tradisi. Penyelidikan bermula dengan memformulasikan satu model konseptual yang baru dengan mensintesis dapatan dari kajian terdahulu tentang subjek-subjek yang berkaitan. Fokus pertama kajian ini adalah formulasi konsep model yang baru berdasarkan laporan daripada penyelidik terdahulu dalam subjek yang berkaitan. Dalam model baru ini, penempatan pasar tradisi dirujuk kepada kebolehcapaian dan hubungan visual dengan pola dan susun atur keseluruhan perbandaran. Kemudian, sistem pejalan kaki dimodelkan kepada satu sistem ruang linear menggunakan teknik *space syntax*. Saling menghubungkan di antara ruang linear ini seterusnya diperjelas menggunakan konfigurasi pembolehkan, disebut integrasi, bagi menggambarkan kedudukan relatif di dalam pola dan susun atur keseluruhan. Implikasi pergerakan pejalan kaki turut dianalisa melalui kajian kaitan di antara konfigurasi pembolehkan dan kadar '*encounter*' yang direkodkan. Akhir sekali, hasil analisa dibandingkan dengan tahap penggunaan ruang yang direkodkan untuk mengenal pasti hubungan diantara konfigurasi (fizikal dan visual), pergerakan pejalan kaki dan tahap kestabilan struktur dan morfogenesis pasar tradisi menerusi aplikasi teori *Catastrophe* yang dihasil oleh René Thom. Analisis 'tempat' bagi pasar tradisi di bandar Casbah telah mendedahkan beberapa penemuan utama. Pertama, pembangunan morfologi yang berbeza mempunyai pelbagai pengaruh ke atas pasar tradisi, terutamanya pengaruh tersebut berbeza di antara sesuatu pola susun atur dengan pola yang lain. Diantara ciri ini, lokasi strategik didalam pola keseluruhan merupakan ciri utama yang memainkan peranan konsisten dalam tahap penggunaan pasar tradisi ini. Secara perbandingannya, penempatan visual didapati tidak relevan dalam penggunaan ruang dalam pola susun atur keseluruhan sampel. Walau bagaimanapun kestabilan struktur dan morfogenesis dibuktikan memberi kesan langsung ke atas kepadatan penggunaan di dalam ruang perbandaran. Manakala bagi kawasan dengan corak pergerakan *diffusive*, saling hubungan di antara morfologi bandar dan pergerakan pejalan kaki lebih cenderung untuk pupus. Berdasarkan penemuan ini, kajian ini bukan sahaja telah membuka jalan kepada satu pendekatan baru terhadap isu yang berkaitan dengan 'tempat' dalam bidang senireka bandar, malah telah menyumbang berbagai data yang berkemungkinan boleh digunakan untuk memperbaiki prestasi pasar tradisi, terutamanya di kawasan bandar di Algiers.

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LIST OF ABBREVIATIONS

ICOMOS	-	International Council on Monument and Sites
OZP	-	Outline Zoning Plan
UCL	-	University College London
UNESCO	-	United Nations Educational, Scientific and Cultural Organization

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CHAPTER 1

INTRODUCTION

1.1 Introduction

If one were pressed to choose one word that comes closest to capturing the essential nature of Casbah culture, that word would be “placeness”; there is a place for everything and every person, and everyone and everything ought to be in its place. There is also placeness in time to time for certain words to be spoken, certain gestures to be made, and certain rituals to be performed. Placeness is a quality in every culture, but, because of the necessity of keeping cultures in their place, that quality is vastly exaggerated, *as indicated by Motloch (2000):*

Placeness occurs when a setting (place) becomes functionally, culturally, and aesthetically meaningful, and Jordaan (2001) defined “It is an effective response to a specific setting (place) and the perceptual and associational meanings imparted through perception and cognition. Perceived placeness is affected by the physical characteristics of the setting (place), and the individual’s anticipated place, intended behaviour, trait (preference) levels, value system, and experience stored in the mind. Individuals, through perception and cognition, translate setting and attribute placeness”....“Placeness study is the search for characteristics (physical, biological, cultural, social, technological, economic, and so on). Placeness study also includes the search for substantive models that explain interrelation between settings, mental

images, and behaviour, as well as normative models for managing placeness and designing psychologically healthy places (Einert, 2011).

In light of the above definitions the placeness in this research, study only physical characteristics relating to contextual information (morphology, pedestrian movement, accessibility and use of space) that combine to promote city structure behaviour to improve performance of traditional markets based on the Casbah city of Algiers therefore, Based on this understanding a new theoretical model is formulated needed for both research and operational purposes is called a “placeness model”, it is hoped to guide the design practice.

1.2 Research Background

The existence of urban (place) traditional market plays an important role in people’s lives, especially in tourism cities such as Algiers. While tourism cities are increasingly criticized for bringing overcrowding and other sanitation issues into the environment (Robertson, 1993; Troy, 1996; and Breheny, 2001), the provision of traditional markets as an evident measure to overcome the negative impact of intensive development has been introduced in the planning process of many ancient cities. It is commonly agreed that traditional market can offer and present a traditional living space within densely built areas (Mitra and Golder, 2002), allowing the penetration of traditional and culture movement, as well as providing commercial areas for living space within the dense areas.

Traditional market places were considered in the 20th and 21st centuries as a response to an increasing public demand for tourism as destination areas, with the aim of reducing local stress, which was threatening the existing social order and political systems (Heckscher, 1977; French, 1978; Schenker, 1995; and Davis and Meyer, 1999). Therefore, the original role of traditional market was mainly to provide passive and active commercial for people of all ages in local communities.

However, with the conservation of historic cities, traditional market has increasingly taken on more functions. That is, it is not just a local marketing device within the urban fabric, but also it is required to fulfil variety of needs of the inhabitants. For example, it is required to contain features meant to attract groups of people and to facilitate meeting (Lynch, 1984), to help establish a market's liveability by providing a backdrop for social interaction and communication (Lennard and Lennard, 1995), or as an essential element of the quality of life, it is required to reflect how well citizens relate to the city and to each other (Cybriwsky, 1999). Since the importance of traditional market is increasingly recognized, as a subject that urban design theory has to clarify, its design and performance have gained the attention of a number of authors. While most of the authors on the subject aim to find ways to create successful traditional markets for cities, there is an agreement among them that the success of a traditional market, to a great extent, relies on how far it attracts people to access and use within it (Marcus and Francis, 1990; Lennard and Lennard, 1995).

This study particularly examines traditional markets, which refer to the land used for purchasing and selling, for visiting out and walking around. It is usually in the form of streets, open spaces, living-out areas, and ancient urban surrounding etc., where people can enjoy the surroundings in a leisurely manner (Champion, 2008). The definition of placeness of traditional market can be broad in terms of its multiple functions. It can be soft land- used areas such as "road or street" or hard land used areas such as "plazas or open space". Whatever form or scale they may take, the spaces involved in this study should be open or partly open to the air, and freely accessible to the public. They can be local-used or none local-used, purpose designed or just have the potential to be used as a shopping for human gatherings.

1.3 Research Problem

1.3.1 Casbah Medina: A Historic City

The Casbah of Algiers dates back to the seventeenth century, and was originally structured along two streets, which led to the Higher and Lower Casbah

and to the market (*sūq* in Arabic). Major transformations to the compact structure of the Medina occurred primarily between 1830 and 1870, when the *sūq* was expanded into an arcaded boulevard. Around 1940 a large portion of the Lower Casbah was destroyed when apartment blocks replaced the traditional patio houses (Faghih,1980).

The Casbah suffers from the structural isolation imposed by the presence of new roads cutting across old lots. Entry into the Medina is now made through undefined and largely ruined spaces, which constitute a veritable slum. The destruction of many buildings has weakened the horizontal linkage of the town, leaving empty holes in the urban fabric. Filling these holes would intensify the already serious density problem created by the influx of newly urbanized rural masses (Faghih, 1980).

Casbah is among the Algeria's ancient cities with the highest population densities in Algiers. The population has climbed to 80,000 from 30,000 in 1962. Some houses have as many as 10 families in them, straining the structures and making them vulnerable to collapse in earthquakes and rain season (OZP, 2005). Owing to the constraints of its human activities and the increasing demands from rapid population and economic growth, Casbah is suffering from a limited supply of land for development, especially in its main urban areas.

The insufficient land supply has led to only 6,800 of the 12,000 Ottoman-era buildings considered to be in good condition, and preservationists worry the entire area might be uninhabitable in a generation (OZP, 2005). While the residents of Casbah in general have accepted high-density living as a way of life, a common criticism of the city is that it has produced an overcrowded urban environment, together with serious tourist rise. To tackle the problem, one of the measures adopted by the Casbah Government is to provide placeness of traditional markets within its dense urban areas. The provision of traditional market is thus achieved mainly by two means. In the newly developed areas, such as new markets, where the projects normally were carried out in a large-scale and were always regulated by a

preconceived master plan, traditional markets from the beginning have been considered as an integral part of the development and conservation. The constraints in these areas are relatively small, due considerations hence can be given to their relation to other types of land use. While in the built up urban areas, the circumstances are more complicated. The government had to acquire sites for traditional markets and other community facilities by road markets schemes, slum clearance, and urban renewal projects (Ouagueni, 1996). It is not surprising that such a purchase is an expensive and slow process, and is quite subject to financial resources being available and the approval status by the government (Ouagueni, 1996). Acknowledging the reality of short land supply and particular value of traditional market for people's life in the dense urban areas of Casbah, improving the performance of traditional markets in the ancient built areas is a critical issue faced by the planners and designers.

However, the provision has been moderate in the dense urban areas of Casbah. The supply of traditional market on the one hand was inadequate to meet the increasing demands. For example, compared to the other Arab cities, Casbah still ranks among the lowest in terms of traditional market provision. On the other hand, some spaces were located in the sites inconvenient for users, consequently leading to a low level of use (Ouahes, 1986). For example, *sūq al-Kabir* (Main Market) in martyrs square in the Central fails to draw people in, and Charter place contains an open square of concrete but lacks activities and interest, and finally has become just an extended passageway for the public (Figure 1.1). What is wrong with these spaces? Among the reasons for this, as pointed out by (Ouagueni, 1996), is that their location is wrong. When the economic policy adopted in Casbah was laissez-faire or positive non-intervention so as to encourage development, it is no surprise that the land for commercial use was always given priority over traditional markets in terms of economical justification. Traditional market, as a result, was distributed according to the availability of sites, and the locational qualities were frequently neglected in the site selection. When focused on human needs, the location of traditional market can be interpreted as a place problem, which has been confirmed to be a basic requirement for the use of open spaces as well as Traditional markets (Kaplan and Kaplan, 1990; Godbey *et al.*, 1992; Carr *et al.*, 1992).



a. *sūq al-Kabir* (Main Market) in *sahat shuhada* (martyrs square)



b. Amar Ali Market



c. Lyre (Bouzrina) Market



d. Amar al-Kama Market

Figure 1.1 a,b,c,d: Some Traditional Market Place in the Urban Areas of Casbah

The traditional market as an important issue is highlighted in the planning process through the control of three parameters. They are the size of traditional markets, design quality or attractiveness, and most importantly, the location within the urban layout (Kirca *et al.*, 2005). To provide readily place of traditional markets for the public, the distribution is always based on a hierarchical principle. That is, traditional market fulfil different functions with increasing size and distance from a given area or population (Figure 1.2). The principle assumes that traditional markets of equivalent status would offer the same quality of marketing recreational

experiences and would be equally accessible to all sections of the community (Quinn and Rohrbaugh, 1983). In light of the assumption, the place of traditional market is often examined with respect to the measures, such as maximum capacity users and service radius. An acquaintance with the spatial and social contexts is not essentially required (Bryson and Bromiley, 1993; Maruani and Amit-cohen, 2007). This, to some extent, helps to explain why the principle as an instrument for allocating traditional markets, has quickly expanded around the world since the end of the 19th century (Gold, 1973; Alterman and Hill, 1978). Likewise, owing to its ease of implementation, the hierarchical principle has also been employed in the planning of traditional markets of Casbah, not only in the new development areas, such as new buildings, but also in the conserved built up urban areas.

As a result, the distribution of traditional markets in the urban areas of Casbah, in most circumstances, has not satisfied the recommended placeness standards (Figure 1.3), and some of them, as mentioned, were still criticized as inconvenient for access and use even though they possessed essential design qualities and facilities. This seems to suggest that the conventional concept with respect to capacity users alone is inadequate to provide explanations for the placeness related issues in the real urban environment. If this is the case, there is a need for the research to understand how the placeness of traditional market is determined in reality and what the determining factors other than capacity users that would contribute to the placeness of a space. In light of these questions, this research offers an empirical study on the placeness and use of traditional market, particularly based on the urban context of Casbah.

The location of traditional markets in Casbah has been given much attention by a number of authors (Ouahes, 2006; Belmessaoud 2009). These authors have indicated that good accessibility is one of the most important qualities leading to success of a traditional market, although design quality and functional facilities also have evident functions. However, when carrying out the analysis concerning the place problem and its influence on the spatial use, most of the studies focused on to what degree the existing planning model was fulfilled; little attention had been paid to the locational aspects. A research in fact has suggested that the hierarchical and

even distribution throughout the urban fabric is not the best solution for traditional market provision (Gummesson, 1994). Traditional market should be integrated into urban lives (Force *et al*, 1999), because urban form plays an important role in defining their performance (Leveratto, 2002).

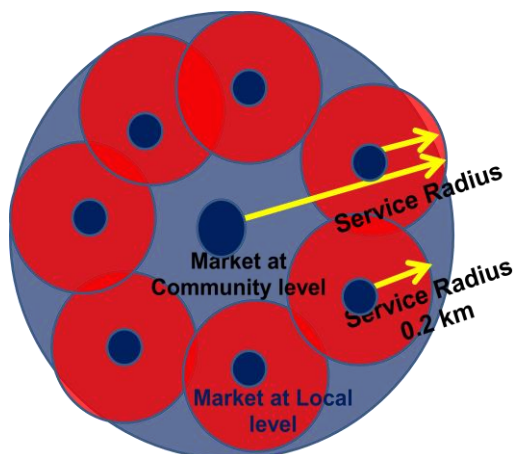


Figure 1.2: The Hierarchical Principle for Distributing Traditional Markets

(Source: Bryson and Bromiley, 1993; Maruani and Amit-cohen, 2007)

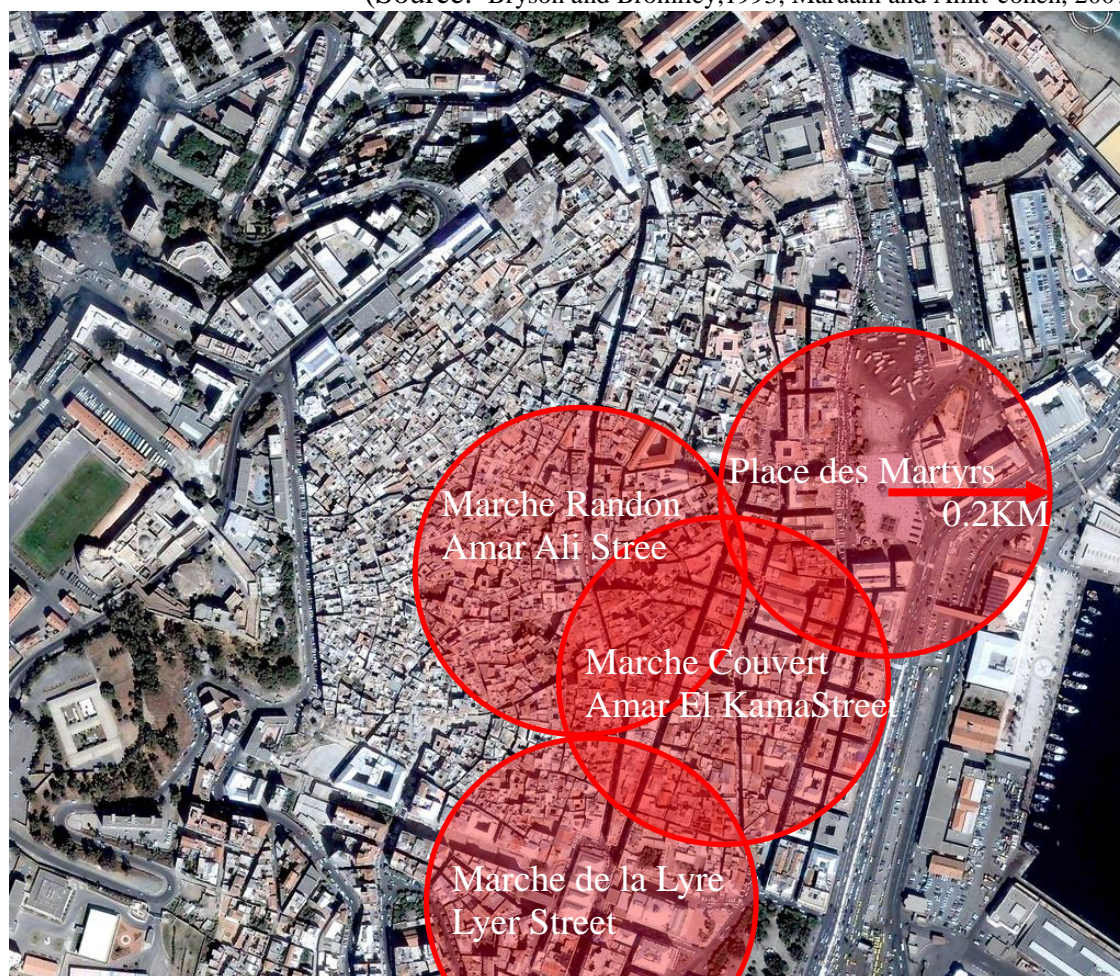


Figure 1.3: Distribution Pattern of Traditional Markets in the Urban Areas of Casbah

1.3.2 The Dilemma of the Conventional Concept and the Morphological Complexity in the Urban Areas of Casbah

As far as urban form is concerned, Casbah is characterized by its unique high density and compact pattern, and this unique urban form has aroused the interest of a number of authors in the urban design domain. However, such a compact urban morphology does not occur by chance, but by the dedication of a number of physical and socio-economic factors (Ouahes, 2006). Urban development in Casbah can be traced back to 1830, when Algeria was ceded to France. Initial settlement mainly took place in the northern part of Algiers, followed by expansion along the waterfront upwards to the foothills. With the ceding of the Casbah to the French Government in 1830, urban development was spurred on in Casbah, resulting in urban development mainly along the coastal strips around the inner harbour area. The Ottoman urban area, as a whole for a hill side, was planned in the true sense, but rather developed spontaneously through a progressive process of land reclamation. The colonial Government, made large-scale development plans for the urban areas and the change totally made in the waterfront part and long-term proposals owing to the consideration of cost (Côte, 1988). As a result of the bit-by-bit development, the urban fabric displays a seemingly fragmented and complicated pattern, where street grids were laid out on different reclaimed land, but where each of them has developed its own character over a long history (Figure. 1.4).

Later, in the 1960s after Algeria's independence, traditional market planning was carried out inside the built up urban areas based on a certain allocation principle, the question arises as how far the varying grid patterns can be taken into account. The subsequent question raised is that, whether varied spatial grids have different implications for the location of traditional markets.

To date, the urban areas of Casbah are still in the process of being conserved and redevelopment. During this process, different spatial structures were added or renovated to fulfil the ever-changing community aspirations. For example, the insertion of a vehicles road system into the urban centre, to some extent, has

reinforced the complexity of the layout patterns. To acknowledge the unique circumstances in the urban areas of Casbah, a more site sensitive, new model is required for both research and practical purpose. In other words, the placeness related research needs to seek an explanation from the complex urban layout where the traditional markets are embedded.



Figure 1.4: Morphological Complexity and Diversity in the Main Urban Areas of Casbah

As mentioned, from the start of urbanization, Casbah was not subject to a zoning plan. Historically, it was not required to have geographical separation of its urban functions. The industry was light, and the commerce sustaining its main activities was also highly compatible with residential zoning (OZP, 2005). Compared to the cities with zoning, it is quite usual for Casbah people to live in the city centre at high density levels. Owing to the limited land availability and expensive living in Casbah, different kinds of uses and activities were intentionally forced into close proximity. Thus, boundaries disappeared and various human activities were highly integrated, and a complex and compact city centre was then generated (Faghih, 1980)

When the traditional markets, through physical planning were distributed in these areas, a contradiction may arise with regard to their catchments effect. The definition of the catchments area of each space in conventional model, which was defined by a service radius as shown in Figure 1.3, actually is subjective and abstract in nature, and does not reflect the characteristics of the real urban fabric (Alexander, 1974). This, again, supports the view that the conventional place notion has limitations; it needs to be redefined by taking into account the morphological characteristics of the Medina.

When different land uses in the urban areas of Casbah are highly mixed and not easily separated morphologically (Ouahas, 1986), the intermixing, however, has shown some unique characteristics. That is, different functions not only mix horizontally, but also coexist in a single building; for example, the typical building type in the urban areas of Casbah is one that at ground level normally are retail shops, with a higher floor levels for offices or residential use (Ouahas, 1986). One consequence of such a mixing is that a variety of pedestrians are brought into the area, not only local residents, but also visitors from other cities. For instance, in the Casbah, local residents is about 80,000 it is estimated that up to 200,000 people commute to the Medina for school, work, shopping or entertainment every day, leading to a high pedestrian density across the streets. When urban areas are characterized by a considerably high movement density to support their dynamic urban life, the location of traditional markets is required to take into account the demand and use of these potential users, because the more human movement around a space, the higher the potential is for participants to use it (Hillier, 1996). Conversely, those spaces which fail to acknowledge the role of pedestrian movement would be singularly unsuccessful (Gehl, 1989; Hillier, 1996). In light of the argument, the present model of traditional markets, which only considers the amount and requirement of local inhabitants, needs to be reviewed and redefined.

Taking the above discussion together, sufficient evidences have shown that the conventional concept based on capacity users is inadequate to offer satisfied explanation for the use of traditional markets in the urban areas of Casbah, an alternative theoretical model is demanded for both research and operational purpose.

Acknowledging the morphological and functional complexity in the urban areas of Casbah, the research needs to define the model in relation to surrounding urban morphologies and pedestrian movement patterns. The necessity of investigating traditional markets place from the morphological point of view is also supported by the fact that, with few exceptions, cities always came into being through a process of growth and change over a long period of time so that they display neither spatial nor functional simplicity (Hillier, 1996). The urban area of Casbah is such an example that has experienced the spontaneous process of urban development.

Morphologically, this process has resulted in a continuous and interconnected spatial system through the organization of elements such as buildings. Within this system, urban spaces are not homogenous and isometric, but unique and differentiated from each other with reference to the whole (Hillier & Hanson, 1984). When traditional markets are embedded within such an urban system, they are unlikely as isolated entities. Instead, each location has its unique way to associate with the surroundings, not only with local environmental elements such as buildings and streets, but also with the overall plan layout. The varying associations may create different conditions for people to access to and use the space. Obviously, the conventional notion, such as capacity users based, cannot mirror the relationship; conversely, they tend to complexity and interface the relationships. This explanation once again provides supports for the study to investigate the relationship between traditional markets and urban morphologies to see how strong the placeness and use is influenced.

The above explanation is also consistent with recent empirical research, most notably by Whyte (1980, 1988) and other authors, including Chidister (1988), and Gehl (1989), who have challenged the idea of disregarding the relation of open space with urban morphologies. As stated by Whyte (1980, 1988), the relationship between small urban spaces and its adjacent streets and the surrounding level of pedestrian movement are key factors in its success, while other factors, such as design quality and functional variables, are complementary factors. Their studies are mainly based on a notion that traditional markets are not isolated objects within the urban fabric, but that their spatial arrangement in the urban layout is critical for their performance.

It is the visual and physical connection to its surroundings that are the important means of ensuring the high level of occupancy inside a space. However, these authors, in general, cannot provide a precise description of how small urban spaces (traditional markets) are spatially embedded in the overall historic urban layout? Or how their location and connection with pedestrian networks creates different conditions for the people to access and use the spaces? Finally, although they have listed some morphological aspects ensuring good performance of a space, quite often, the results are scattered and limited to qualitative description, and so far no concrete evidence can be used to guide the planning or design practice. Also, despite the fact that the role of pedestrian flows has been highlighted in their studies, how the surrounding pedestrian movement pattern can be captured for research purpose is another question as yet unanswered. To tackle the problems occurring in previous studies, the analysis of the relationship of traditional market and its surrounding urban morphology and pedestrian movement is required to be carried out in a precise way and in a systematic manner.

1.4 Hypothesise and Aim

Guided by the above discussions, the study then hypothesise that, while conventional model has difficulty in giving effective explanation for the placeness and use of traditional markets in the complex urban environment, an alternative model in relation to urban morphology and pedestrian movement may help to solve the problem, because morphological properties and pedestrian movement pattern may play an important role in the use of traditional market. Based on the hypothesis, the aim of this study is to investigate the relationship between urban morphology, pedestrian movement, and the use of traditional markets based mainly on the urban areas of Casbah. More specifically, the research investigates if and how is the traditional markets can be defined in terms of their relationship to surrounding morphological properties and pedestrian movement, and if and how the place conditioned by urban morphology and human movements has implications for the use of traditional markets.

1.5 Objectives and Research Questions of the Study

The objectives of this research are, through an empirical analysis of traditional markets in the dense urban area of Casbah:

1. To formulate a theoretical model, to be used to evaluate and analyse the traditional market in the urban areas of Casbah based on space syntax and catastrophe theory.
2. To provide concrete evidence to guide the design and planning practice of traditional markets.

In order to reach the objectives, four questions are formulated for a logical path towards that.

Question 1: How to define a theoretical model in relation to urban morphology and human pedestrian movement patterns? Or what morphological properties can be used to define the traditional market place?

Question 2: If traditional market is associated with urban morphology and pedestrian movement, how can the morphological properties and pedestrian movement patterns in the urban areas of Casbah can be captured for research purposes?

Question 3: When the model is defined by urban morphology and pedestrian movement, can it be used to measure and evaluate the traditional markets in the urban areas of Casbah?

Question 4: Does the model developed have implications for the study to guide the design and planning practice?

For these research objectives and questions, the research undertakes a case study in the Casbah's Market, whose morphological complexity and diversity is the consequence of a progressive urban development over the past 182 years (since 1830). To ascertain urban morphology implicated in the use of traditional market place, a total of four traditional markets in the Medina are selected as samples to carry out the analysis. It is hoped that the results from such an analysis may help to account for the performance of traditional markets in the other urban areas of Algeria.

1.6 Research Scope

According to the government's definition, traditional markets in Casbah Algiers include the Ottoman and colonial area. This study, however, focuses on the traditional markets in the main urban areas of Casbah rather than housing estates. Since the focus of this research is on the traditional market place at community level, those defined as regional or territory spaces, such as complex markets, kiosks, or those building spaces for shopping or for marketing purposes, are not taken into account.

Place in the context of this study refers to access for pedestrians, while the access for vehicles is not considered. Also, the concept of place is discussed in a general sense, not particularly referring to the local emotion. Although there may be many factors contributing to the traditional market place other than morphological properties; no attempt will be made to study the socio-economical, political and historical contexts of the sample spaces.

1.7 Outline of the Dissertation

Based on the research problems framed in section 1.3, the dissertation is accordingly organized into the following chapters:

Chapter 1, as described above, defines the research problems. The chapter first introduces the subject of use of traditional market and its significance for high-density urban environments, such as Casbah. Secondly, it uncovers the contradictions inherent in the existing urban places and the spatial and functional complexities in the urban areas of Casbah. The chapter suggests the need to redefine the concept of traditional market place by relating to contextual information, and further highlights the necessity of understanding the likely impact of urban morphology, and the way it conditions pedestrian movement. After stating the research problems and research questions, then outlines the thesis structure with reference to its objectives.

In Chapter 2, an extensive survey of the literature in relevant fields is carried out. Basically, it is divided into 4 sections. The first section deals with a critical review of different ideas about successful traditional markets, presenting the work of most influential authors. The purpose of such a review is to examine how the place and use issues have been addressed and analysed in previous traditional market works. Based on these ideas, the chapter aims to formulate a new model (placeness model) by synthesizing the findings of previous studies. Section 2 pays particular attention to the literature concerning the definition and measuring of place, from regional science to urban design fields, with the aim of identifying how previous notions of place have limitations to be applied in the research. Section 3 introduces various theories and methodologies for urban morphology and pedestrian movement modelling in order to establish a theoretical foundation and to provide appropriate analytical tools for the place related research undertaken by this study. Section 4 synthesizes the key morphological variables that have been claimed in the literature, and formulates the placeness model towards the end of the chapter to guide the following analysis.

Chapter 3 begins with a description of the research approach, outlining among other things: the criteria for selecting the case study area and sample spaces; the representation of traditional market; basic concepts and techniques for urban morphology and pedestrian movement analysis of traditional market. The chapter then introduces the methods and techniques for data collection and data analysis. By using these methods, a cross-variable correlation analysis is carried out in order to find out the relationship between morphological properties, traditional markets place in different grid patterns.

The objective of the Chapter 4 is to carry out a morphological analysis of the urban layout and pedestrian movement pattern in the Casbah markets. The Chapter starts by introducing the historical evolution of the urban layout of Casbah, and then carries out the morphological analysis, primarily including physical analysis, configurational analysis and predictability analysis. The purpose of the Chapter is to assist subsequent analysis in two aspects: first, the morphological properties obtained in this chapter are used as a reference to measure and evaluate the place of the sample traditional markets; second, it provides a framework to carry out the comparative analysis among different layout patterns.

Chapter 5 is divided into three sections. The objective of Chapter is to investigate if and how far traditional market place can be described and compared using common morphological properties. The traditional market place is measured and evaluated basically with reference to the model established in Chapters 2. Finally, a crossing correlation analysis between different measurements is carried out to test how far these variables influence each other and by their sample spaces

Chapter 6 concludes with a general discussion, bringing together the findings of the previous chapters. Through understanding the relationship between morphological properties, pedestrian movement in traditional market place, this study aims to examine whether the new model is effective and whether it can be used. The chapter further outlines the contribution made by this study to the academic field, as well as the suggestions for future studies.

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