Vernacular Imaginations: Significance of the Mental Images of Cities

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Abstract

Mental imagery plays a significant role in understanding how people interact with urban environments and how those environments affect their daily lives. It represents the impressions and perceptions that individuals have about the cities in which they reside or visit, and it is crucial in attracting investments and promoting tourism. A positive and attractive image of a city can improve its urban identity and encourage visitors and investors to engage with it. Therefore, it is essential to prioritize the mental image of cities in Iraq for comprehensive and sustainable urban development. Doing so will promote positive interaction between residents and their urban environment, resulting in more attractive and suitable cities for human life. The research explains both the physical and emotional aspects of the mental image.

The research focuses on the concept of the mental image in literary studies. It explores the key ideas and components of the mental image, including its dimensions, formation conditions, and influencing sources. To gather information, the study reviewed general theories such as (Lynch theory, Nassar theory, and Gestalt theory), as well as established literature to identify potential connections that would help clarify the mental image of the city.

The paper concludes by highlighting the significance of the mental image in the development of cities in the coming decades. Consequently, by understanding the mental image of the city, planners and designers can devise strategies for urban development and design public spaces that reflect the needs and aspirations of the population. This contributes to improving the quality of life, as well as fostering social and economic integration.

Keywords: Image of the city, Kevin Lynch's theory, Jack Nasar's theory, Gestalt theory, Mental image

Introduction

The way people perceive a city is influenced by their knowledge, experiences, emotions, and external motivations. The city itself plays an active role in shaping the interactions and relationships between its various elements and residents. Meanwhile, people are self-observers, often subconsciously, and select, arrange, and attribute meanings to what they see and experience. Factors such as demographics and age can influence these choices and result in a variety of mental images of

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

546

the city among different age groups. While each person creates their mental image, there tends to be consistency within groups that share similar characteristics.(Osóch and Czaplińska, 2019).

Research is being conducted to clarify the concept of mental city image, which refers to an individual's image of a city or urban area. Through this image, one can determine the location of landmarks or distinctive elements that hold value within the city, as well as the ways to reach them from any place or part of the city, and the urban spaces within it. Lynch (1960) identifies five elements of the physical urban environment: (Landmarks, Districts, Edges, Nodes, and Paths.) The mental image becomes strong based on the strength and clarity of these five elements, which aim to enhance the city's identity and structure through imaginative possibilities (Patel, 2023). Nassar (1990) shows that every person has feelings about his surroundings and its elements. Thus, he has developed a five-point scale based on a person's preference level for a place and its elements (Nasar, 2007). The Gestalt theory explains how people perceive different elements in the urban environment. It seeks to clarify which elements leave a lasting impact on the person's mind. This theory will be further explored to understand how a clear mental image of the city is formed (Wąsowicz, 2022).

In this context, this paper examines the concept of the mental image of a city, including related issues, details and theories. It aims to ensure the importance of the concept of the mental image in the comprehensive development of the city. Its objectives are:

1) To analyse the literature related to the concept of the mental image and the associated details.
2) To establish the importance of the mental image of the city in achieving comprehensive and sustainable development.
3) To proposes a measurement framework that clarifies the mental image by relying on theories addressing it, which can be applied to cities.

Research Methodology

The study involves combining more than one approach simultaneously, such as adopting both descriptive and deductive approaches. Data were obtained through literature studies, including journal papers and articles by architects on the concept of the mental image. Moreover, it involved examining theories addressing the concept of the mental image of the city (Lynch's theory, Nasar's theory, Gestalt theory), reviewing them, and formulating the research framework. Data collection was conducted to clarify the mental image of the city among individuals based on the study of the three theories, dividing them into two parts as follows:

- The theory of Lynch and the theory of Nasar were utilized to elucidate the clarity of the five physical elements of the urban environment and to articulate individuals' sentiments regarding these elements.
- The Gestalt theory elucidates how the perception of elements forms within the individual's mind.

Table 1: Theories associated with the concept of mental image
Source: Author

Theories	Associated Terms
Lynch's theory	The physical elements of the urban environment of the city clarify and reach five elements (Paths - Edges - Nodes - Landmarks - Districts)
Nasar's theory	The method of measuring people's feelings about the city's parts (positive or negative) shows and divided into five points (most liked, liked, liked/disliked, disliked, and most disliked areas**)**
Gestalt theory	Illustrating the way the elements perceive the urban environment of the city, which leaves an impact on a person's mind through its elements (proximity, symmetry, closure, Figure-ground, Common Fate, Continuity, Focal Point, Pragnanz or Simplicity)

After developing the research and detailing the framework of the three theories in detail, it reached a database through the theories of Lynch and Nasar. The database includes the primary and secondary vocabulary for each of the five elements, along with the people's feelings regarding each secondary term. At the end, this reveals the strength of the element, in addition to the individual's

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

547

feelings about it, and thus thinking about the strength of the city's mental image and clarifying the feelings of the population towards it. The theory of the Gestalt explains how to provide its basic elements in the urban environment. When realized by the recipients, they will leave an effect on their minds reflecting a picture of them, and form a mental image of the city.

Consequently, this mechanism can be applied to clarify the clarity and strength of the mental images of cities, as well as to clarify the feelings of the population towards it, whether it is negative or positive. Thus, it contributes to developing strategies to develop the city.

The Concept of Mental Image
Definition of mental image linguistically

The intermediate dictionary defines an image as "the shape and solid figure, and the image serves as an imagination in the mind or intellect," while the Larousse dictionary defines it as "the shape and solid figure." Webster's dictionary defines "mental image" as a common mental conception among a group of individuals towards a specific person or thing, condensing many details into a single scene, also serving as a retrieval of stored memory or a visualization of sensory perceptions. The term "mental image" originates from the Latin word "image," linked to the verb "imitate," meaning to imitate or represent, and although the linguistic meaning of the mental image suggests imitation and representation, its physical meaning is "reflection." The concept of the mental image became known as a term in the early 20th century after it was coined by the writer Walter Lippmann[1], and it has since been used to explain many processes that significantly affect the human mind. (AL-hammad, 2014)

Definition of Mental Image in Similar Studies

Lynch (1960) defines mental image as "the result of the cognitive process that occurs between the environment and the individual. The environment presents unique physical elements, their relationships, and the experiences that individuals go through. Each person organizes these relationships and distinctive features in his mind and links them to the meanings that they derive from their experiences, and then they compare the resulting mental image with the perceived visual elements in the environment. Usually, mental images are shared by a large number of city residents or are familiar to the majority. However, there are individual images, and mental images that differ depending on the activities practiced in the place in question or based on accumulated experiences. They stem from the memory of previous experiences between the individual and the environment, as well as from the momentary feeling experienced during the event that forms the basis for the mental image"

According to Neisser (1981), "the mental image is formed in a person's mind and changes based on acquired experiences and knowledge. It includes any elements that the individual notices in the place he lives or what he hears about that place. In addition, it includes impressions of appearance and location." The values associated with it, and thus the visual images that the individual notices become the mental image that serves as a map that guides the individual (Lang, 1987).

As Yi-Fu-Tuan (1976) says, the mental image is the result of all the experiences an individual undergoes. It involves organizing information through the expertise gained from these experiences by establishing connections between the elements of the place to be recognized. When the place is recognized, it means drawing a picture of the place and filling it with details, thus making the mental image readily available to the individual (Shalom, 2021).

Remedy (1992) argues that using the term 'mental image' indicates spatial integration and cohesion of parts or monuments in one location, which is seen independently Therefore, a mental image represents a comprehensive and general impression. When someone visits a city, for example, it produces a cognitive map and a mental image of it while he is walking in its streets,(Arthur and Passini, 1992).

As Rapoport (1969) & Bronzaft (1987) define the mental image is the representation of parts of a specific environment, which is perceived through the direct and indirect experiences of the individual. It combines the environmental and urban characteristics of these parts and combines them according to some laws derived from the experiences of the individual. These experiences contribute

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

548

to the formation of the mental image of a specific environment of the individual (Abbas and Wajeeh, 2010).

The Visual Image of Future Cities (2014) argues that the mental image represents an individual's perception of their city, viewed subjectively. This perception does not necessarily align with the visual or general image of the city, as the latter tends to be more encompassing. Over time, mental images can evolve or be constructed anew, reflecting a dynamic understanding of urban spaces. The efficacy of conveying meaning through mental images lies in their ability to accurately depict the perceived reality within the human mind. Therefore, mental images serve as cognitive representations that can be shaped and refined through sensory experiences (Kawther, 2014).

Table 2: Summary of definitions of the concept of mental image
Source: Author

No.	Architect or study	Summary of the study or definition
1	Lynch (1960)	A mental process between the urban environment of the city and humans in which the physical elements of the urban environment are of the greatest value
2	Yi-Fu-Tuan (1976)	Finding relationships between elements and organizing information from the urban environment within the human mind and through acquired experience
3	Neisser (1981)	The way to deal with the urban environment within the human mind is the result of acquired experience and expertise
4	Remedy (1992)	A general and comprehensive impression of the city and the integration and harmony between its parts
5	Rapoport (1969) & Bronzaft (1987)	A general and comprehensive impression of the city and the integration and harmony between its parts
6	The Visual Image of Future Cities (2014)	A general and comprehensive impression of the city and the integration and harmony between its parts

Procedurally, mental image of a city can be defined as the individual and collective perception of its inhabitants. It can be imagined as the mental representation of their urban environment, which includes how individuals and societies view the place where they live or their elements, including architectural and urban factors, distribution of facilities and public spaces, and daily experiences in the city. This mental image is a measure of the city's development and prosperity, as it is usually a city with a distinguished mental image and is characterized by dynamic. It can develop positively or negatively in response to changes in the urban scene, playing a vital role in development strategies and enhancing the quality of urban life within the city.

Components of Mental Image

Lynch (1960) referred to the mental image as being decomposable into three main components:

- **Identity**: The identity of an element is defined and distinguished from other elements present in a location (meaning it is perceived as a distinct entity). The identity of the place is conferred through three main elements that interact with each other: urban character, activities or uses of the place, and the meanings attributed to it. This uniqueness of the element is evident in how it is sensed and differentiated from other elements of the place.

- **Structure**: Refers to the interconnected relationships between elements, structures, or buildings with the surrounding spaces in a given location, as perceived by the observer. It embodies the framework of the urban environment and its elements perceived by the observer, including architectural and urban elements along with their visual and perceptual characteristics. These relationships or features manifest at specific points in time, contributing to the formation of signals about objects and initiating the formation of the mental image.

- **Meaning**: Refers to all aspects related to the expression, connotations, and implications of the urban environment. It signifies that the existing element carries a specific

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

549

meaning for the observer or viewer, which can be emotional or factual. The relationship between the element and its surroundings represents the value attributed to it within the place, as well as the impact or impression it leaves on the observer in that location. Understanding and studying meaning are challenging due to its connection with psychological factors rather than material ones (Al-Din and Al-Madhaji, 2015).

Dimensions of a Mental Image

The mental image of the city in general consists of three dimensions as follows:

- **The cognitive dimension**: This means the information that an individual collects about a city, urban area, building, monument, etc. This information and knowledge form the basis for building a person's mental image of a specific place or environment. The accuracy of the information obtained directly affects the clarity of the mental image of the city or urban area. According to this dimension, errors in forming a mental image result from acquiring inaccurate information or knowledge about the subject about which a mental image is to be formed.

- **The emotional dimension**: It means the feelings or emotions that an individual feels about a specific topic or place, whether positive or negative. The emotional dimension interacts with the cognitive dimension, but over time the cognitive dimension may fade and the emotional dimensions (which refer to feelings toward the subject) remain, forming the individual's mental image. The emotional dimension can range from positive to negative and is affected by several factors, including the available sources of information or knowledge, the nature of the individual's experiences, how they are experienced, and his acceptance of them.

- **The behavioral dimension**: This dimension reflects the behavior of the individual in a specific place or area, or towards a subject that depends on the nature of the mental image that they formed on this topic. The importance of the mental image in its impact on the behavior of the individual in the region associated with the mental image, and is often in a subconscious way due to its formation in the subconscious of the individual. In addition, it allows the prediction of an individual's behavior, as his actions are repercussions of the positions or opinions resulting from his mental image of the place or the region (Al-Khatib, 2011).

It is emphasized that the dimensions of the mental image formed by individuals, where each dimension plays a specific role within the person's mind to attain the complete mental image of the city is valid. Subsequently, this mental image influences how people interact within the city based on their perceptions.

The Importance of Mental Image

Lynch (1960) highlights the decisive and pivotal role of mental image in directing individuals inside the city and moving in its streets. This is achieved by the individual's ability to determine his position based on his mental forms, allowing them to formulate a strategy to move to the specified destination (Yavuz, Ataoğlu and Acar, 2020)

As follows:

- Smooth, purposeful movement of the individual is facilitated by pre-existing details in his mental image of the place.
- The mental image constructs a general structure of the city that individuals refer to as they move within it, allowing them to connect its parts based on their knowledge.

The mental image also highlights the importance of reducing the amount of information that an individual needs to perceive and retrieve when needed, whether at the urban or architectural level. Instead, it works to create a framework, method, or system that allows individuals to efficiently retrieve and correlate information, which contributes to saving individuals time and effort when interacting with the urban environment or reaching a specific location within it (Passini, 1984). The importance of the mental image in the urban environment lies in its ability to clarify the structural components of urban areas. The unclear mental image may lead to confusion in understanding the

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

550

formation of the urban environment. Moreover, it works to regulate and direct human behavior within the urban scene. A well-organized environment that enhances the feeling of safety and feeds an emotional relationship with individuals. On the contrary, a mysterious environment can cause feelings of anxiety and fear. Consequently, the mental image indirectly reflects the extent to which the urban environment meets human needs and satisfies contentment (Dehghan and Memariyan, 2012). Venemans (1993) illustrated the relationship between the levels of spatial scale (as delineated by Lynch into three levels: urban level, site level, and building level) and the factors influencing the clarity and strength of the mental image (Venemans, Daru and van Wagenberg, 1993), as depicted in Table 3.

Table 3: regarding the relationship between spatial scale levels and mental image clarity factors
Source:(Venemans, Daru and van Wagenberg, 1993)

Clarity factors / Vacuum scale levels	Ability to describe the site	Ease of communication	Ease of finding the goal	The ability to distinguish
Urban level	Location and the ability to find an intervention	Ease of access by public and private means	The ability to see buildings and elements clearly in the visual range	Appearance and appearance of buildings
Site level	site boundaries and the arrangement of buildings and their organization topographically	The relationship between the site entrance and the building entrances	Clarity of the site with its visual entrance, corridors, and node	Site entrances Main building entrances
Building level	the internal organization of the building	Ease of movement within the building and the inter-spaces within it	Clarity of the building's visual entrances with clarity of the general site	Designing areas for displaying guidance information, elevator locations, and decision-making points

The mental image formed within an individual's mind of the city exists on several levels, determined by the person's interaction with and movement within the city, based on their experiences and events encountered. Its significance lies in determining the approach to interacting with the urban environment and identifying the level of engagement with it.

Types of Mental Images
Mental images can be classified into several categories, as follows:

Classification by Kenneth Boulding
Boulding classified mental images into several types according to their functional characteristics, as follows:
1. **Spatial image**: It represents the location of the city or an environment spatially and is on the local scale or can extend to a location in the world according to the individual's culture.
2. **Relational image**: It represents the images that link the individual and his surrounding environment, and it can be said that the image of the surrounding environment.
3. **Temporal image**: It represents the location of an environment or an individual relative to a specific period.
4. **Personal image**: It is the image of a person within a group of residents within the environment or urban surroundings. It is determined by the person's social level and is connected to the relational image.
5. **Emotional image**: It is an image that is linked to a person's feelings, as it links the person to the place with emotional matters.
6. **Evaluative image**: It is an evaluation of the elements that make up the overall image on a scale of good, bad, appropriate, or inappropriate, and it is strongly influenced by the cultural composition of the person (Patalano, 2003)**.**

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

551

Classification by Donald Appleyard

Appleyard classified the mental image according to the way it is formed, as follows: -

1. **Sequential image**: It represents the path of a person's movement within the urban structure of an environment. It consists of observing the elements present during the person's movement and linking the paths of movement to the places or elements that were observed so that he can organize information about the environment over time and deal with complexities or observe more elements as they are completed. Image.

2. **Spatial image**: It is a process that focuses on the general formation of an urban environment and the distinctive landmarks, open spaces, and paths of movement within this urban environment. It shows the identification of the main directions to facilitate the process of movement within the environment in question, as well as the ease of access to any place within it (Arthur and Passini, 1992).

Conditions for forming a mental image

1. **The image must be authentic**: Deviating from reality quickly undermines the credibility of the urban area, leading to doubt and loss of trust, discouraging visitors from the urban area that has been established based on its mental image. Therefore, cities or urban areas must present themselves truthfully, both internally and externally.

2. **The image must be enduring**: Ideally, the image of the city or urban area should represent it for several years, as the longevity of the image indicates its effectiveness.

3. **The image must be positive**: This involves appreciating the qualities and merits of the specific city or urban area but without exaggeration.

4. **The image must be distinctive**: Particularly within city sectors with similar services, the city or urban area must work on developing its unique personality, building a distinct and unique image that sets it apart from its counterparts.

5. **Targeting through the image**: The image should be consistent with the values and beliefs of the targeted residents and visitors of the city.

6. **The image must be attractive**: It should have the ability to attract and captivate visitors who come to the city or urban environment for a specific purpose such as tourism or work, as well as to instill a sense of belonging among its residents and workers.(Hasiba and Sumia, 2020)

Factors affecting the mental image

The factors consist of two stages, factors related to the environment and the factors that concern the user as follows: -

The factors related to the environment

1. Experience: Refers to the amount of usage density of a building, urban space, or specific path within the urban or city environment. This building or space stands out in the mind of the user, and its presence is confirmed in their mental image regardless of its formal characteristics or symbolic significance. Time is the most influential factor in forming the mental image, as the longer the period spent in this space or path, the more accurate the image becomes through experiences and events that occur to the individual within it, and the increase in their knowledge about it.

2. Notable distinctions: Refers to the visual characteristics that distinguish a specific building or path within the urban environment. These features play a prominent role in the clarity of the individual's mental image, and historical areas or buildings possessing historical characteristics provide symbolic and meaningful dimensions that enhance the individual's mental image of the urban.

3. Movement: Refers to how individuals navigate within the urban environment or city (By walking, private car, or public transportation) and the speed of their movement. It determines the amount of information received by the individual from the urban landscape

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

552

or environment, aiding in distinguishing important changes and elements that contribute to forming the mental image of the urban environment or city (Al-Tai, 2005).

The Factors Related to the User

It is divided into two parts, namely social and physiological factors, as follows: -

1. **Social Factors**: These consist of three elements: gender, age, and socio-economic status as follows:

• **Gender**: The mental image differs between men and women, linked more to their social roles in life than to biological differences. Women often have less experience due to less mobility within the urban environment, focusing on details surrounding their homes. In contrast, men tend to have a more comprehensive mental image. However, if women are highly mobile, their mental image may resemble that of men.

• **Age**: The formation of the mental image varies according to age. Childhood (1-14 years) is a developmental stage where knowledge and perception are limited. Adolescence and beyond mark the stage of mental maturity, where individuals can acquire knowledge naturally from their surroundings. Elderly individuals differ from young adults in their mental image formation, as they often relate more to historical buildings and the past of a place rather than its contemporary reality.

• **Socio-economic situation**: This refers to a person's occupation, educational attainment, and income level, which influences the mental image. Individuals with higher incomes tend to have a broader mental image due to increased mobility compared to those with average incomes (Naser, 2017)

2. **Physiological Factors**: This point explains how physical differences among individuals affect the formation and construction of their mental images. Individuals who are visually impaired develop mental images based on heightened sensitivity to sound. Similarly, individuals with physical disabilities have mental images that differ from those of ordinary individuals in terms of scale and proportion rather than details (Lang, 1987).

Characteristics of the Mental Images

Mental images possess numerous qualities and characteristics, as as follows:

1. **Variability in the mental image**: This denotes that mental image differs among individuals, groups, and societies due to variances in sensory capabilities. However, convergence may occur, leading to a shared mental image within a group or society.

2. **The mental image as a control mechanism**: It functions as a gauge that influences and regulates individuals' behaviors and reactions to stimuli in the built environment, indicating the level of development of the urban environment or city.

3. **Emotional aspect of the mental image**: While not intrinsic, emotion often influences an individual's perception of an environment, adding a subjective layer to the mental image.

4. **Temporal dimension of the mental image**: Mental images are formed over time through accumulated knowledge, experiences, and events within the urban environment, rather than representing immediate perceptions.

5. **Composite nature of the mental image**: New mental images of the urban environment or city can emerge without relying solely on sensory abilities, drawing upon existing mental images shaped by previous sensory influences.

6. **Subjective, sensory framework of the mental image**: Rooted in human sensory abilities, the mental image reflects an individual's comprehension of the influences exerted by the built environment and its elements.

7. **Dynamic quality of the mental image**: It is subject to change, whether gradual or sudden, in response to new influences within the built environment and its evolving elements.

8. **Transcendence of time and place**: The mental image extends beyond the specific boundaries of the urban environment or city, encompassing broader geographical and temporal contexts, including past, present, and future scenarios.

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

553

9. **Predictive nature of the mental image**: It aids in forecasting the future behavior and actions of a city, the built environment, or its inhabitants based on the reflections conveyed by the environment's activity and elements.
10. **Acknowledgment of individual differences**: While reinforcing elements with significant knowledge and meaning, the mental image recognizes individual nuances and variations, appreciating the diversity of perceptions among different individuals (Hasiba and Sumia, 2020).

Theories of Mental Image

Several theories dealt with the city's mental image, including the theory of 'city image' of Keven Lynch (1960) and Jack Nassar (1990) 'the city's evaluation image'. In addition, Gestalt, developed by German scientists, aims to explain how the mind views different effects in its vicinity. This theory focuses on clarifying the cognitive processes involved in forming the mental image and interacting with the urban environment. Each of these theories will be clarified in detail, as follows:

Kevin Lynch

In his book "The Image of the City," Lynch (1960) focuses on the foundations through which individuals perceive elements of the city and what remains in their minds from these elements. The goal is to identify the physical visual elements that persist in a person's mind about the city. Lynch categorized these elements into five types: Districts, Paths, Landmarks, Nodes, and Edges. These elements play a fundamental role in shaping the mental image of the city, as illustrated in Figure 1.
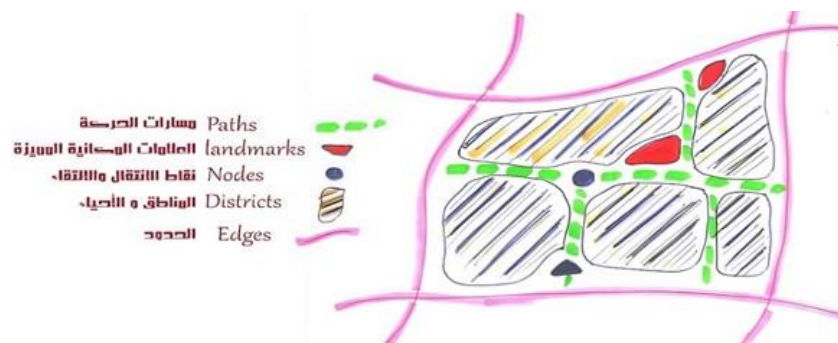

Fig. 1: Visual components of the mental image
Source:(Al-Meghary, 2015)

1-paths

Paths, including main streets, pedestrian walkways, railways, and bridges, serve as conduits for human movement within urban environments. These pathways can acquire significance through various means, such as frequent use, special activities or functions along the route, unique spatial features, and the architectural characteristics of surrounding buildings. Additionally, their proximity to the city center or notable landmarks can elevate their importance. Consequently, paths play a crucial role in shaping both the physical fabric and the mental perception of the city, often serving as the primary element through which individuals experience and observe urban landscapes as they navigate through them (Umar, 2022). These pathways also facilitate access to all parts of the city within its urban fabric. Consequently, they must possess continuity and delineation between different modes of movement within them (such as pedestrians and vehicles), while paying attention to their amenities (traffic and identification signs, etc.), security, and visibility to individuals, ensuring accessibility from all
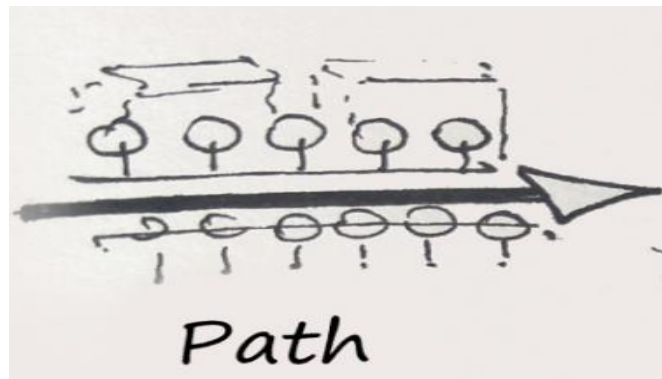parts of the city (Reveshty, Meshkini and Eshlaqi, 2021). This is shown in the Figure 2.

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

554

Fig. 2: Shows the paths in the city
Source:(Phillips, 2020)

2-Edges

These are the separators between parts of the city, often linear, requiring continuity and clarity, and difficult to penetrate to emphasize their function. Lynch (1960) identifies them as rivers, mountains, rows of buildings, walls in ancient cities, or rows of natural trees. Their significance lies in being visual boundaries with a strong impact on individuals' perception, especially in connecting spaces or defining the dividing line for areas or parts of the city, such as the confluence of a river with land. They give the area or city its distinctive identity, maintain its uniqueness, and play a crucial role in forming the city's mental image by possessing distinguishing characteristics that differentiate them from other elements, making them easily recognizable as they impart a unique and distinctive character to the area compared to others. They must be clear and emphasized, such as the Charles River in Boston (Achir *et al.*, 2021). The edges are also distinguished by their distinctive design, whether natural or man-made, as well as the attention to their finishing materials and the arrangement and shape of buildings along them. It's important to define their boundaries to separate between areas for clarity(Fattahi and Kobayashi, 2009), As in Figure 3

Fig. 3: The Charles River in Boston
Source: (https://sah-archipedia.org/buildings/MA-01-EC1)

3-Landmarks

These landmarks serve as recognizable symbols for individuals to identify a location even without physically reaching it. They vary in the city, ranging from simple physical elements that differ in size from their surroundings to those that contrast with the background, presenting a distinct shape. The primary characteristic of landmarks is their uniqueness and ease of recognition, with the shape being pivotal. They often stand out prominently in the cityscape, such as towering buildings with unique designs or distinctive features within the urban landscape. Landmarks can be categorized into two types: those significant to specific parts of the city, visible only from certain viewpoints, and those at a citywide level, easily visible and accessible, like the Eiffel Tower in Paris. They are elements widely agreed upon by people and strongly associated with their respective locations. Landmarks can establish spatial prominence through visibility from various points or by creating local contrast with adjacent elements (Lynch, 1960). These landmarks are intertwined with people's everyday lives; hence their perception varies from one individual to another. They differ not only in

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

555

appearance but also in significance, as they acquire meaning over time through nearby events and the value of the buildings within their vicinity. A landmark could represent a particular architectural style that is commonly repeated, making it a distinctive feature of the city and contributing to its identity (Lau *et al.*, 2021), As in Figure 4

Fig. 4: Shows landmarks in the city
Source: (https://eyluldenizkarakas.wordpress.com/2019/10/03/kevin-lynch-the-city-image-and-its-elements/

4- Nodes

These are the mental focal points in the city, serving as strategic hubs where individuals can enter and interact with its constituent elements. They may represent intersections of various types of movement paths or centers of specific activities. Nodes can include subway stations along transit systems or major railway stations, as well as public shopping areas, plazas, open spaces, parking lots, or bike stands. They are a fundamental element of the urban fabric unless overshadowed by events occurring within them. Generally distinctive, they excel in directing movement within the city and are pivotal in shaping individuals' mental image of the city, as most events and activities occur around them, giving meaning and identity to the place and thereby contributing significantly to the formation of the city's mental image (Qie *et al.*, 2019).

Nodes are the connecting points within the urban fabric, utilized for redirecting movement paths, facilitating encounters between individuals, or hosting various events. They reflect the identity of the buildings they contain or surround, seamlessly integrating with the city's fabric. They exhibit a gradual transition from general (street intersections) to specific (car and pedestrian separation spaces like sidewalks), with meticulous attention to aesthetic details. Some overlook prominent landmarks, such as riverside seating areas that form part of the riverfront, requiring careful consideration of their design and furnishings. At times, they may be located in isolated areas, like parking lots, to avoid impacting the city's image, while still maintaining a focus on their aesthetic and furnishing details (Wang, 2020), As in Figure 5
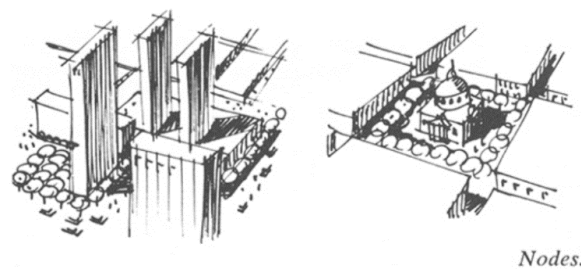

Fig. 5: Shows landmarks in the city
Source: https://eyluldenizkarakas.wordpress.com/tag/urban-design

5- Districts

They are parts that bear similarities and constitute the city together, with these similarities possibly manifesting in the form of population demographics, similar physical structures, regional functions, historical backgrounds, and so forth. People can mentally enter them based on the characteristics they possess and how they are perceived by their inhabitants and users, the physical characteristics defining these parts include (texture, space, shape, details, symbolism, building type, use, activity, population, maintenance level, topography, and more Sometimes), they are distinguished by unique features unique to them alone, while in other cases, they share similarities with other districts. Districts possess varying boundaries, ranging from strict and precisely defined

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

556

borders leading to the city's fragmentation in an unorganized manner based on the land's topography, to thoroughfares separating them from other districts. Some are interconnected, and districts can be considered as a group of residential neighborhoods or heritage areas like the old city center, industrial quarters, riverfront areas, and others (Møystad, 2023). It is essential to consider their shape, and they also help in connecting different parts of the city. They are characterized by a gradation in privacy and uses and often contain multiple functions. They can reflect the city's identity and heritage due to their size and incorporation of various architectural styles. Some may feature entrances that need to be highlighted, such as the historic city center or the riverfront area, which stands out as a district from the rest of the city due to its diverse activities and uses. They are a fundamental element in forming the city's mental image, as they constitute the largest and most influential element in shaping the city's form, identity, and mental representation (Gohari, 2019), As in Figure 6
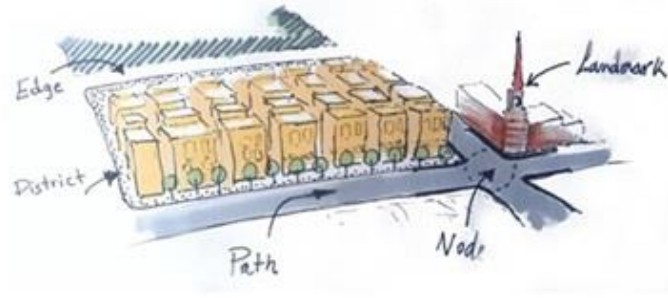

Fig. 6: Shows the districts in the city
Source: https://documents.manchester.ac.uk/display.aspx?DocID=53092

According to Lynch (1960), the physical elements of the urban environment have been delineated. Each element has been expounded upon, along with its significance within the city, and its mental image has been characterized to access the key primary and secondary descriptors associated with each of the five elements. Additionally, Nasar's theory (1990) will be elucidated to establish a framework for assessing the clarity and strength of the mental image, considering both the physical and emotional aspects of the urban environment.

Jack Nasar

The concept of the Evaluative Image, introduced by Jack Nasar (1990), builds upon Lynch's (1960) exploration of the city's image, serving as a complementary framework. While Lynch aimed to establish consensus within communities regarding elements that bolster the identity and structure of the city, Nasar's concept focuses on guiding individuals within the urban landscape, fostering a sense of belonging and enhancing their enjoyment of the city. Lynch's research provided valuable insights for depicting and planning cities, with the five elements elucidated above emerging as tangible components that contribute to shaping the urban environment (Nasar, 2007). To capture the exact essence of the city's image, Nasar (1990) adopted the Lynch (1960) approach this by delving deeply into 'people's impressions (feelings) around the city. It collected approximately 400 evaluations of population and visitors in Knoxville, and Chattanooga, Tennessee, USA. Each person was asked to refer to five favorite areas and five favorite areas in their city and explain the reasons. NASAR (1990) then assembled individual maps to create a global map representing the collective appearance of each city, highlighting the most appreciated and least estimated areas. In addition to noting a great consensus on the areas that sparked positive feelings, Nasr indicated that most negative assessments indicate commercial development, dirt, neglect, industrial areas, or human elements. On the other hand, green spaces, open areas, and landscapes were associated with positive assessments. Overall, Nasar (1990) has identified five dimensions contributing to urban preference and shaping the evaluative image of the city: natural areas, place maintenance, open and unobstructed environments, places with historical significance, and site organization versus chaos within places. The evaluative image can assist urban planners and designers in understanding how residents and visitors perceive the city. Nasar has (1990) attempted to create evaluative images through face-to-face interviews with individuals, followed by individual assessments for each area, and then compiling all evaluations on a single map specific to the city (Barros, Degbelo and Filomena, 2012).

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

557

The capacity for imagination alone is insufficient for constructing or developing a city's image, as humans have feelings toward the areas or elements they envision. People will remember the places they have emotional connections with, whether positive or negative. In this context, Nasar's study (1990) titled "Evaluative image of the city" complements Lynch's work (1960), giving greater importance to people's emotions. Nasar describes it as how city planning and design aim to create a pleasing image to satisfy residents, focusing on people's admiration for the cityscape or certain parts of it based on their experiences. Nasar(1990) identified five levels of liking for city areas or elements: (Topcu and Topcu, 2012), as shown in the Figure 7.
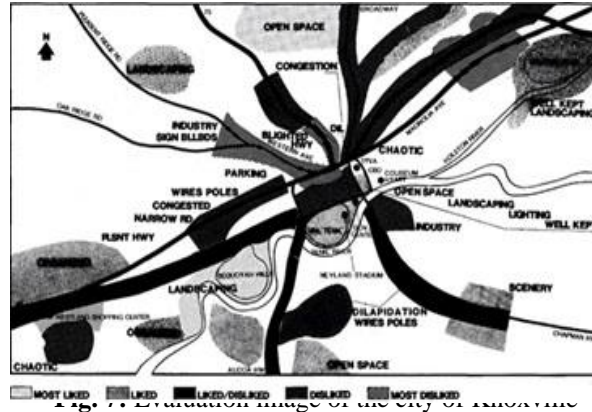
Fig. 7: Evaluation image of the city of Knoxville
Source: (Nasar, 2007)

According to Nasar's theory (1990), we emphasize the importance of residents' impressions (emotions) of the city and its parts, which play a significant role in shaping its evaluative image. Therefore, it is crucial to consider them to enhance the city's mental image, not merely relying on Lynch's physical elements (Districts, Paths, Landmarks, Nodes, and Edges). It is possible to align these elements with people's impressions of each element, allowing us to determine the best pattern for the city's mental image by clarifying the physical elements that individuals can imagine, shaping the urban physical environment of the city (the material form of the mental image). Taking into account people's feelings about each detail of these elements, whether positive or negative, through the use of Nasar's Evaluative image (1990) indicators, and by aligning the two theories, a measurement framework can be developed to assess the clarity and strength of the elements of the mental image and residents' feelings about them, aiming to achieve the best mental image of the city, as illustrated in Table 4.

Table 4: Indicators of the city's mental image
Source: Author

Basic elements of a mental image	Main vocabulary	Secondary vocabulary	Possible values	Jack Nassar Indicators				
				most liked	liked	Liked/ disliked	disliked	most disliked
Paths	Movement axes	Integrity and continuity of movement axes	Ensuring the safety of movement axes entails preserving their amenities and aesthetic details while also maintaining a clear separation					
		Furniture axes of movement and its aesthetic details						
		Separating movement between pedestrians and other means of transportation						
		Gradient Motion Axes						

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

558

		Activate motion axes	between vehicular and pedestrian traffic.					
		Revitalizing river transportation						
	Accessibility	Safety of movement axles	The axes of movement are among the most important urban links that connect the heart of the city to its outskirts					
		Pedestrian priority						
		Integration of movement axes with the urban environment of the city						
		Interconnection between city procedures						
	Easy access	Easy access to movement axes	Easy identification and clear categorization facilitate access for individuals of different types.					
		Clarity of movement axes						
		Separation of types of axes of movement						
Edges	Edge	Edge shape and finishing materials	Attention to the sector's entrances is crucial, emphasizing their design appropriately.					
		Distinctively designed edges						
		Shapes of buildings overlooking the edges						
		Interconnection of parts of the city						
	clarity	Differentiation between two parts of the city	The edge is characterized by clarity by distinguishing between different parts of the city.					
		Separation of land and river						
Landmarks	Brand	A building or monument with a distinctive design	The landmark stands out from its surroundings, easily identifiable and familiar to the residents.					
		A building or landmark of different size						
		River as a landmark						
	Meaning	Give meaning to place						

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

559

		The value of the building makes the place a landmark	Giving the place value and meaning within the city				
	Identity	Activate the city's identity	Activating the city's identity using the methods used				
		Using the architectural styles prevailing in the city					
Nodes	Open spaces	Spaces for people to gather and carry out their activities	This area serves as a gathering point for activities, enhancing its significance through a well-planned design aimed at providing comfort and safety for individuals.				
		The identity of the space through the surrounding buildings					
		Adapting the space to the rest of the city's spaces and context					
		Contains green or blue paths					
	Spaces of movement axes	Safety and security of movement axes spaces	These spaces are important nodes and their design, furnishing, safety, and pedestrian consideration must be given				
		Furniture of movement spaces					
		Gradation in spaces and aesthetic details					
	Parking and bicycles	Locate them and do not interfere with the field of view of the city	These locations must be identified in a way that does not conflict with the overall cityscape, considering their design to seamlessly integrate with the urban fabric.				
		Locate places far from the general façade of the city					
		Identify places that fit the fabric of the city					
		Parking furniture and securing its safety and security					
Districts	Good shape	Quality of shape of the urban sector	Considering the sector's shape, its integration with the city's				
		Material style and finishing materials					

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

560

		Land uses of the urban sector and its integration with the rest of the city	overall fabric, and its impact on quality of life and urban functionality aids in fostering connectivity and preserving the city's identity.					
		Possibility of connecting parts of the city						
		Space gradient by events and spaces						
		Quality of life within the urban sector						
		Reviving the city's heritage and identity						
	Entrances	Determine the clarity of the entrances to the urban sector	Emphasize the entrances of the sector, ensuring their design is highlighted effectively.					
		Highlight it through distinctive designs and the use of art						

Gestalt Theory

Gestalt psychology, originating in Germany and established in the twentieth century, is a school of thought that has been employed in modern perceptual studies. It is founded on the principle that "the whole is greater than the sum of its parts," dealing with the visual tendency to perceive what we see as a unified whole rather than individual components. The term "Gestalt" is a German word that lacks an exact equivalent in meaning; it could signify "form," "shape," "pattern," "structure," "model," "configuration," or "organized whole." However, it elucidates the process by which the general entirety or something general is assembled or structured. The principles of Gestalt psychology were originally formulated by scientists Max Wertheimer, and further developed by Kurt Koffka and Wolfgang Köhler (Khozaei *et al.*, 2019). One of its main principles is that the general formation should not contradict the parts; That is, all precedes the parts. When observing a house from the outside, our sensual perception gives us the impression that it has been completed. However, when accurate inspection and focus on the details that include the structure, such as triangles, rectangles, and squares, which constitute the general engineering form, the human mind builds connections to realize everything integrated and logical (Belal, 2021).

Proponents of this theory believe that the mind is an organizing force capable of transforming the universe's chaos into order according to specific laws derived from the nature of things themselves. These laws are known as sensory perceptual organization laws, and they are fundamental factors shared by all people. Through them, physical and sensory influences are organized into independent patterns or holistic forms that emerge in our perception field. Subsequently, everyday experiences and learning contribute to assigning meanings to these forms (Sakly, 2023). Based on what emerged, Gestalt psychologists developed a set of principles to explain perceptual organization, or how smaller elements are grouped to form larger overall shapes. These principles include proximity, similarity, closure, continuity, common fate, figure-ground relationship, simplicity, symmetry, and focal point, which will be detailed as follows:

1 - Proximity

Proximity in Gestalt psychology refers to the grouping of elements based on their closeness, where elements that are closer to each other are perceived to belong together more than those farther apart. It can be understood as a perceptual grouping of elements in space, where proximate elements

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

561

are perceived together. This principle also applies to temporal proximity, where sounds that are heard close to each other tend to be perceived as a whole (Adum *et al.*, 2020), This is in Figure 8.
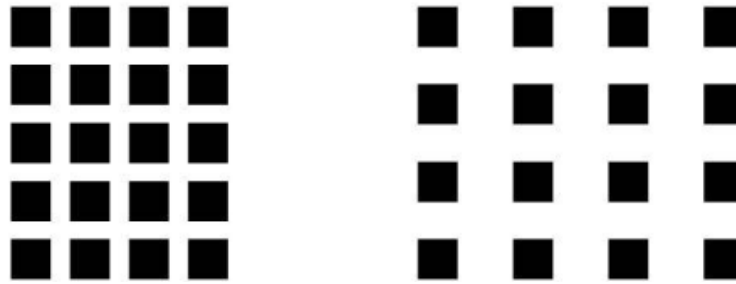

Fig. 8: Shows the proximity
Source: (https://www.baianat.com/ar/books/graphic-design/visual-perception-and-its-role-in-the-development-of-innovation)

2 - Symmetry
One of the principles of human perception is that God created humans in the best form and made them symmetrical around a vertical axis. Humans tend to perceive symmetrical objects (shape, color, size) more than others, viewing symmetrical elements as more cohesive. Symmetry conveys stability and a sense of comfort, indicating that everything is in its proper place and providing clarity within the site. On the other hand, asymmetry suggests an unbalanced appearance and reduces focus on elements. Therefore, it is necessary to deal with asymmetry cautiously, such as in the riverfront façade of Hamburg-Speicher Stadt (Hamed, 2022), As in Figure 9.
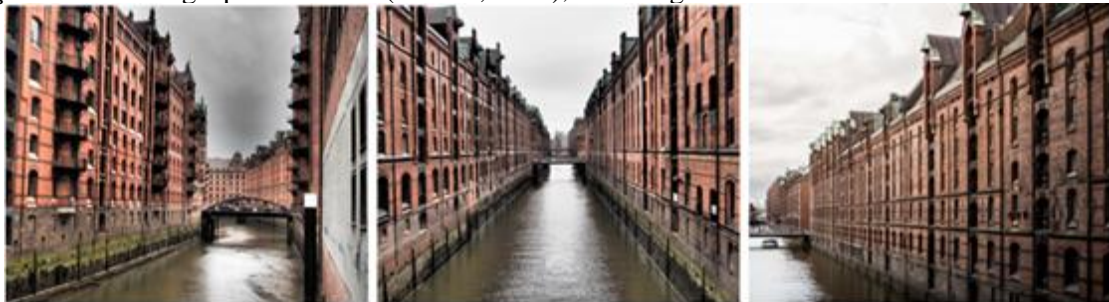

Fig. 9: Principle of symmetry/riverfront of Hamburg-Speikirstadt
Source: https://www.flickr.com/photos/nicholas-prink/34878344593/

3 - Closure
The concept suggests that despite gaps in the vocabulary, the mind perceives it as whole and self-contained, completing the missing parts within a holistic framework to achieve cognitive stability. Essentially, the principle revolves around creating incomplete patterns that the mind endeavors to fill, even in the presence of gaps (Safieddine and Hussein, 2018). This principle allows the freedom to use elements to compose a composition to give a certain image, indicate a specific, characteristic and possible shape, or become a symbol in a person's memory and thereby enter into the formation of the mental image of the city in general, such as the design of lighting modules (Sakly, 2023). This is shown in the Figure 10.

Fig. 10: Illustrates the principle of closure
Source: Sakly, 2023

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

562

4 - Figure-ground

This principle, pivotal in perception, consists of two integral components. The primary element, the shape, serves as the focal point, while the secondary component represents the background, enhancing the prominence of the shape. It considers the arrangement and interplay of elements, as individuals gauge their connection to their surroundings based on the observed interaction between shape and background. Understanding these dynamics aids in elucidating the urban configuration of the city, particularly in delineating the relationship between open spaces and buildings (Safieddine and Hussein, 2018), As in Figure 11.

Fig. 11: Shows the principle of Figure-ground
Source: (Safieddine and Hussein, 2018)

5 - Common Fate

This principle stipulates that the elements move in a common direction and one space and are perceived as belonging to the same group. They are more interconnected if they are located within the same area, as each element within these boundaries is seen as connected and outside it as separate (Hamed, 2022)**,** As in Figure 12.
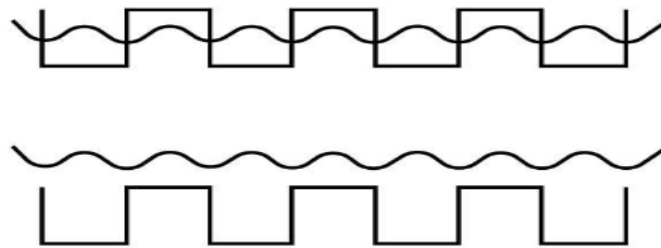
Fig. 12: Shows the principle of Common Fate
Source: (https://www.baianat.com/ar/books/graphic-design/visual-perception)

6 – Pragnanz or Simplicity

This principle underscores the human tendency to simplify complex images and structures, reducing them to their basic forms and streamlining the relationships between shapes, whether through symmetry, regularity, or simplicity. The resulting mental image is clearer and easier to comprehend. Consequently, it can inform the creation of a mental image by relating urban elements to familiar basic shapes, aiding in memorization and retention. Designers and planners can leverage this principle by aligning their approach with the recipient's understanding of these shapes (Adum *et al.*, 2020), As in Figure 13.

Fig. 13: The principle of Pragnanz or Simplicity
Source: https://arabcodeweek2021.alecso.org/activity/lw3

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

563

7 - Continuity

It states that the vocabulary that emerges from another vocabulary does not appear to the seer as independent but rather part of an existing sequence where it is within the vocabulary of one whole, where the elements arranged and regular on one line or curve are considered as related and easy to perceive (Hamed, 2022)**,** As in Figure 14.
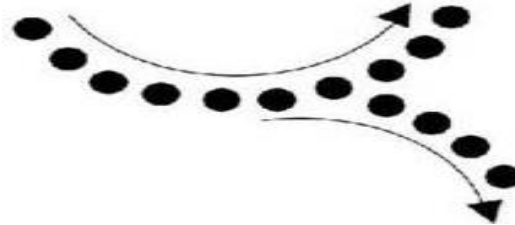

Fig. 14: Principle of continuity
Source: https://mjaf.journals.ekb.eg/article_20784_300ab3319ba4e08952c4f19bb6fd9c67.pdf)

8 - Focal Point

This principle holds great value in both design and realization processes. It gives spaces a sense of liveliness and excitement, often by emphasizing a particular element or contrasting it with the surrounding elements. Human nature tends towards realizing central points of focus, and this begins the process of creating a mental image. As a result, individuals tend to remember and prioritize distinct and centrally located items in their mental representations (Mahdavinejad, Rostam and Mahdavi, 2013), As in Figure 15.
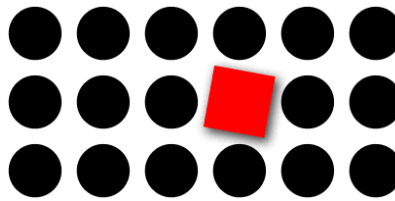

Fig. 15: Shows the principle of the Focal Point
Source: https://www.almrsal.com/post/1134901

According to Gestalt theory, which elucidates the way individuals perceive elements within their minds through its principles, it leaves a lasting impression on the individual's psyche. Consequently, it serves as a method for shaping the mental image of the city. Its principles can be applied to the urban environment of the city to illustrate the clarity of its principles and, thus, the clarity of the mental image of the city, as outlined in Table 5.

Table 5: The principles of Gestalt theory to demonstrate the clarity of the mental image of the city
Source: Author

Elements of the urban environment	Principles of Gestalt theory													
	The proximity			the symmetry			Pragnanz			the closure	Figure-ground	Common Fate	the Continuity	the Focal Point
	Integration	interpenetration	connectivity	Shape	Color	Size	Simplicity	Symmetry	regularity					

Conclusion

This paper provides an overview of the city's mental image, focusing on the concept of mental image. It offers insight into understanding the city's mental image and displays the views of various designers and authors on understanding the mental image and its composition in individuals. It not only stresses the city's remembrance through its physical environment, but also assesses human

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

564

feelings about the city, and considers it an essential and essential part of shaping the mental image of the city and thus its comprehensive development. In addition, it highlights the main characteristics that the mental image of the city (distinction, the control tool, timeline, dynamic, prediction in the future, ignoring individual differences, sensory frame), and also defines the important factors that affect the mental image of the city.

The paper underscores the importance of the mental image of the city, as it reveals the strengths and weaknesses of the current mental image of the city, shedding light on the necessary development and growth policies to address its weaknesses and provide for its future needs. This aims to create a city with a better quality of life for its residents and visitors, one that is progressive and comprehensive in all aspects (social, cultural, economic, recreational, and infrastructural), enhancing its future mental image to be clear, readable, positive, and distinctive from other cities. Moreover, this process is iterative, within a timeframe where the clarity of the city's mental image and the inclusion of residents' emotions enable designers and developers to continuously formulate development and growth policies to make the city better.

Finally, the paper provides an insightful perspective on the concept of the city's mental image, its intricacies, and how individuals form such an image. It focuses on theories that fundamentally address the concept of mental imagery, initially elaborating on these theories in detail and elucidating their vocabulary. Subsequently, it arrives at a measurement framework applicable to the city and its urban environment, consisting of two parts: the physical environment and the residents' emotions. This framework aims to highlight the strength, clarity, weaknesses, and strengths of the city's mental image, enabling proactive measures for city development and enhancing its future mental image to make it more attractive.

References

Abbas, S.S. & Wajeeh, S.M. (2010) 'The Role of Multi-Sensory Responsive Architecture in Forming Distinctness Images at Interior Space'.

Achir, P.Y. et al. (2021) '5 Elemen Pembentuk Citra Kota Di Kawasan Kota Lama Kupang'. UNDAGI: Jurnal Ilmiah Arsitektur Universitas Warmadewa.

Adum, A.N. et al. (2020) 'An appraisal of the use of gestalt principles in logographic communication among select graphic artists in a nigerian urban city'.

Al-Din, M.S. & Al-Madhaji, M.S. (2015) 'Studying and Measuring the Effectiveness of Mental Image to Identify Urban Empty Spaces of Cities "A Case Study of Sana'a City"', Journal of Science and Technology. Available at: https://doi.org/10.20428/jst.20.1.7.

AL-Hammad, K. (2014) 'Image of the Security Man On The Jordanian Public Opinion A Field Study'. University of Petra - College of Arts and Sciences, Department of Journalism and Media - Postgraduate Studies.

Al-Khatib, A.M. (2011) 'The Impact of Marketing Deception in Building up Consumers Image in the Jordanian Market Services'. Middle East University.

Al-Meghary, A.R.A. (2015) 'The Role of the Paths and Visual Endings in the Formation of the Image of the City (Case Study-Gaza City)'. Islamic University/ Deanship of Graduate Studies/ Faculty of Engineering/ Architecture Engineering Dep.

Al-Tai, A.M.A. al-R. (2005) 'Integration of movement and perception in achieving the character of the axial spaces of some movement paths in the Bataween area'. University of Baghdad - Higher Institute of Urban and Regional Planning - Center for Urban and Regional Planning for Postgraduate Studies. Available at: https://doi.org/Chronic ischaemic mitral regurgitation. Current treatment results and new mechanism-based surgical approaches.

Arthur, P. & Passini, R. (1992) Wayfinding: people, signs, and architecture. McGraw-Hill Ryerson.

Barros, M.S., Degbelo, A. and Filomena, G. (2012) 'Evaluative image 2.0: A web mapping approach to capture people's perceptions of a city'.

Belal, A.G.E. (2021) 'The impact of Gestalt theory on the photographic art image Composition'. Journal of Architecture, Arts and Humanities - Volume VI: pp. 34-45

Dehghan, N. and Memariyan, G.. (2012) 'Comparing the Dimensions of Spatial Legibility with Wayfinding Strategies'. International Research Journal of Applied and Basic Sciences.

Fattahi, K. & Kobayashi, H. (2009) 'City imaging after Kevin Lynch', 2009. WRI World Congress

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

565

on Computer Science and Information Engineering. Available at:
https://doi.org/10.1109/CSIE.2009.895.

Gohari, H. (2019) 'Structural Analysis of the Elements of Lynch's Image of the City based on
Space Syntax Theory: A Case Study in Bojnourd City'. Proceedings of the Institution of
Civil Engineers - Urban Design and Planning.

Hamed, E.A.E.-F.H.A. (2022) 'Gestalt theory and its impact on the development of the formulation
of interior architecture designs'. Art and Architecture Journal, Vol. 21: pp 34-41

Hasiba, S. & Sumia, T. (2020) 'The role of customer relationship management in improving the mental
image of the service organization'. Hammad Al-Siddiq Bin Yahya University.

Kawther, K.K. (2014) 'The visual image for the future city'. Iraq: University of Technology
Department of architectural engineering.

Khozaei, F. et al. (2019) 'The s tudy of Cypress appearance in the Persian art and architecture in the
light of Gestalt theory'. International Journal of Architecture and Urban Development.

Lang, J. (1987) 'Creating architectural theory', The role of the behavioral sciences in
environmental. design. [Preprint].

Lau, Z.Y. et al. (2021) 'A Study on Kevin Lynch's Urban Design Elements with a Case Study at
Taman Seri Juru in Simpang Ampat Town of Penang', International Transaction Journal of
Engineering. Available at: http://tuengr.comhttp//TUENGR.COM/V12/12A6A.pdf.

Lynch, K. (1960) 'The Image of The City'. London, England: Massachusetts Institute of Technology.

Mahdavinejad, M., Rostam, N.G. & Mahdavi, S. (2013) 'The role of the Gestalt Theory in
understanding persian architectural masterpieces, case study: fin-garden of kashan'.
International Journal of Management and Sustainability. Vol. 20: pp. 141-161

Møystad, O. (2023) 'Lynch meets Moser: cognition, brain and environment'. Journal estudos
semióticos - Vol. 19: pp.13-19

Nasar, J.. L. (2007) 'The evaluative image of the city'. London, England: Routledge.

Naser, F.S. (2017) 'Urban Renewal Policies and their relationship to the mental map of urban Scene
Case study (the center of Karkh)'. University of Baghdad - Higher Institute of Urban and
Regional Planning - Center for Urban and Regional Planning for Postgraduate Studies.

Osóch, B. & Czaplińska, A. (2019) 'City image based on mental maps — the case study of
Szczecin (Poland) Miscellanea geographica – regional studies on development.

Passini, R. (1984) 'Wayfinding in architecture'.

Patalano, R. (2003) 'Beyond Rationality: Images as guide-lines to choice'. Università di Torino.

Patel, J. (2023) 'Assessing Applicability of Kevin Lynch's Framework of The Image of the City in
the Case of the Walled City of Jaipur'. World Academy of Science, Engineering and
Technology International Journal of Urban and Civil Engineering.

Phillips, R. (2020) 'Legibility Analysis',Mmanchester 1824 The Uniiversity of Manchester
[Preprint]. Available at: www.seed.manchester.ac.uk/mudlab.

Qie, L.P. et al. (2019) 'A study on Kevin Lynch's urban design elements at bayan baru township,
penang', Vol. 11: pp. 1–12.

Reveshty, M.A., Meshkini, A. & Eshlaqi, M. (2021) 'Analysis of Physical Structure and Mental
Image in the Formation of Place Identity in Abresan Street of Tabriz'.

Safieddine, A.M. & Hussein, F.A.M. (2018) 'An analytical study of Islamic decorations according to the
principles of the Gestalt school'. Architecture and arts magazine-tenth issue.

Sakly, P.I. (2023) 'The design process from the womb of a living urban space'. Heritage and
Design Magazine-Volume III-issue XVII.

Shalom, Y.B. (2021) 'Being-in-the-world in terms of place and its relations to the work of art in Yi-
Fu Tuan, Gaston Bachelard, and Martin Heidegger'. Western Sydney University, p. 22.

Topcu, K.D. & Topcu, M. (2012) 'Visual presentation of mental images in urban design education:
cognitive maps'. Elsevier, Vol 23. pp. 577.

Umar, I. (2022) 'Identifikasi Elemen Pembentuk Citra Kota Marisa Menurut Teori Kevin Lynch'.
Indonesia: TOBA (Journal of Tourism, Hospitality and Destination).

Venemans, P., Daru, R. & van Wagenberg, A. (1993) 'Buildings and Wayfinding: a framework for
guidelines', in Power by design: Proceedings of the twenty-fourth Annual Conference of
the Environmental Design Research Association (EDRA), 31 March-4 April 1993,

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

566

Oklohoma City, USA, Vol. 81:pp. 233–240.

Wang, R. (2020) 'City Image: a dynamic perspective using machine learning and natural language processing'. MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

Wąsowicz, M. (2022) 'Strategy of the Void by the Office for Metropolitan Architecture in the light of Gestalt psychology'.

Yavuz, D.A., Ataoğlu, D.N.C. & Acar, D.H. (2020) 'The Identification of The City on The Legibility and Wayfinding Concepts: A Case of Trabzon'. Turkey: Journal of Contemporary Urban Affairs, Vol. 6 pp. 2.

Journal of the International Society for the Study of Vernacular Settlements [eISSN:2738-2222]
From Historical Vernacular to Contemporary Settlements

567