The Conceptual Landscape Reality of the City of Biskra: A Perceptual Approach to the Collective Mental Image

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Abstarct

A perceptual analysis of the urban landscape of Biskra seems essential to the understanding of its characteristics and specificity, we adopted the perceptual analysis of Kevin LYNCH treated by the interview, whose goal is to "understand the collective mental image of the city of Biskra seen by its inhabitants", thus analyzed the visual quality of the city of Biskra, via its mental representations in its inhabitants by emphasizing the legibility of the urban landscape.

The weakness of mental images must be reinforced, and the strength of mental images requires a reaction with their characteristics, in order not to lose their advantages, which requires in principle to define in a first step the mental image of the city.

Analytically, five interrelated phases can be distinguished in the process of defining physical clarity: identification, structure, modelling, meaning and affectivity. In an attempt to qualitatively evaluate the landscape image through the quality of imagibility, starting from these fundamental components of perceptual activity, and relating them to those of the landscape (sectors, routes, nodes, landmarks and boundaries), in addition to other components come into play: the value, the inhabitant, and the architectural and/or urban form of the experienced landscape,

Key words: collective mental image, Imagibility, perceptual analysis, physical clarity.

INTRODUCTION

Landscape is matter, form, movement and immateriality. Its apprehension is never neutral, even if it leaves one indifferent or displeased.

It is also charged with meaning (signification), but this meaning comes neither from the landscape-object itself, nor from the subject-observer, but from an irreducible link between these two components (DARTIGUE, 1972).

Each individual creates and carries within him his own image, but there seems to be a great deal of agreement between members of the same group. It is these collective images, expressing the agreement of a significant number of people that interest urban planners whose ambition is to shape an environment intended to be used by many people (ABDELDJOUAD Meriem, 2014).

This study will aim to go beyond the differences between individuals, as interesting as they may be for a psychologist. Its first concern will be what can be called "collective images", common mental representations of large numbers of inhabitants of a city: a zone of agreement that can be expected to appear under the interaction of the same physical reality, a common culture and an identical physiological nature (Kevin LYNCH, 1971).

With its historical richness and its chrono-typological characteristics varying between an old vernacular fabric, a colonial checkerboard and a full urban extension of industrial zones, the city of Biskra surely requires a perceptual landscape study that deciphers the perception of its inhabitants on the one hand, and characterizes its urban landscape on the other.

In this article, we will try to understand how the inhabitants of Biskra see the urban landscape of their city. To determine the collective mental image of the urban landscape of the city. And what are the components and specificities of this landscape?

MATERIAL AND METHOD

LYNCH's Reading of the Urban Landscape

The most influential work in this category is Kevin lynch's "image of the city" (1960), which has influenced all subsequent research, (...) sometimes Lynch's approach is seen as a continuation of the picturesque studies, but it is the "image" that people make of the environment that is sought, by the professional observer, Kevin LYNCH, inventing this notion of the "mental image", explaining that in the urban landscape there are areas that seem mentally erased and others present the character of identification that it must be protected.

The quality of images depends on three criteria: identity (individuality, uniqueness), structure (spatial and paradigmatic) and meaning (emotional or practical). These are minimal principles, i.e. an element of the city must be able to be perceived both as distinct from others and in relation to others:

A usable image first requires the identification of an object, which implies that it is distinguished from other things, that it is recognized as a separate entity. This is called identity, not in the sense of equality with something else, but in the sense of individuality or uniqueness. Secondly, the image must include the spatial or paradigmatic relationship of the object to the observer and to other objects. Finally, the object must have meaning, either practical or emotional for the observer. Meaning is also a relationship but quite different from the spatial or paradigmatic relationship (Kevin LYNCH, 1971).

In addition to the three previous keys (identity, meaning, structure), LYNCH is very interested in his study by the concept of imagibility, he defines this notion in the following way: "It is, for a physical object, the quality thanks to which it has a great chance of provoking a strong image in any observer. It is this shape, color or arrangement that facilitates the creation of vividly identified powerfully structured and useful mental images of the environment. This could also be called "legibility" or "visibility", taken in an extended sense of the quality of objects that not only have the possibility of being seen, but also the ability to present themselves to the senses in a sharp and intense way".
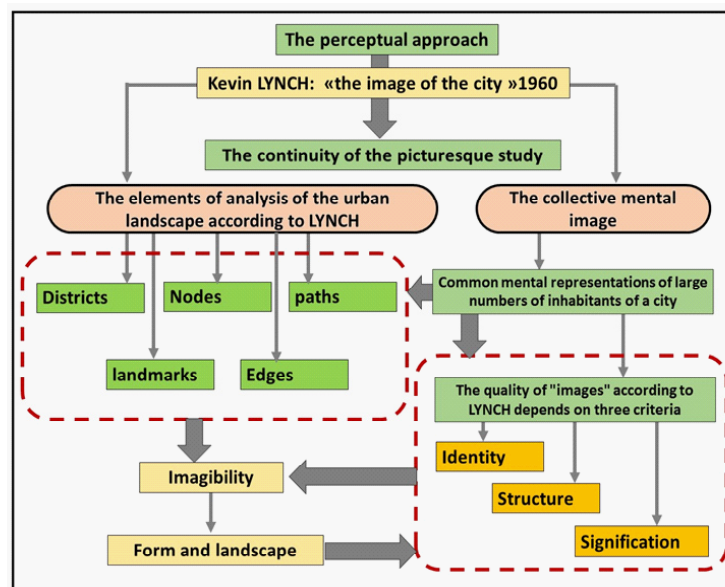

Figure 1. Flow chart summarizing the perceptual approach, (Author 2017)

The Perceptual Approach

Kevin LYNCH's Method

LYNCH based his method on the survey carried out by interviews, which is divided into two essential parts: the survey; the part that contains the questions asked to the inhabitants of the city concerned by the study, carried out in Los Angeles, Boston and New Jersey, and the second; was based on the set of photographs of the same study area; photographs taken to cover the entirety of the district in question in a systematic way but presented at random to the interviewees, here the survey questions are asked according to these photographs.
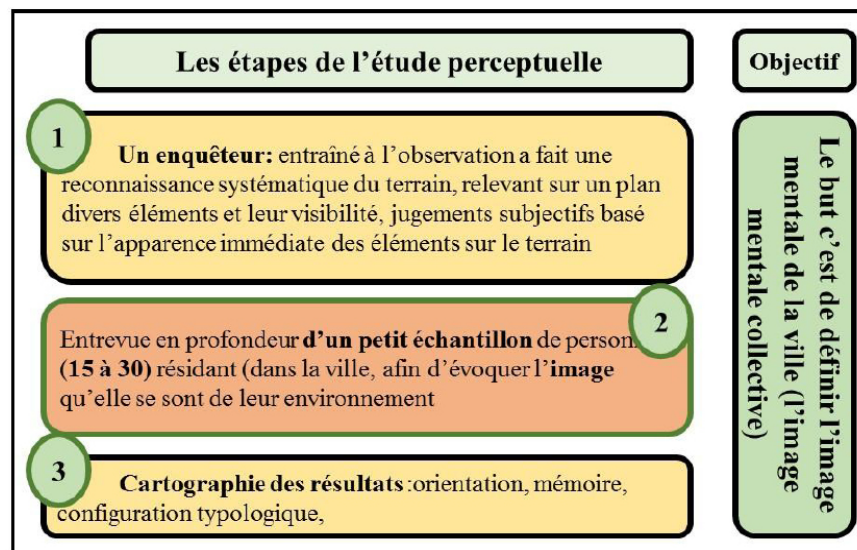
Figure 2. Basic techniques of Kevin Lynch's method (K.LYNCH, 1960, Author, 2016)

Kevin LYNCHE's first objective in his study is to define physical clarity through the three keys of the mental image (according to Lynch) which are meaning, structure and identity, in an attempt to evaluate the quality of the landscape image through the quality of "*imagibility*".

Inquiry Strategy

We adopted the second part of the Lynch interview; it is the part done with "photography" (it is the easiest to read and the most universal). To restructure the latter in order to build the main body of our investigation. We have therefore selected a group of photographs taken in the city of Biskra as it also describes the two figures 4and 5 in parallel to an interview scheme composed of (9) questions

In this interview, the interviewees were shown a set of photographs representing the city of Biskra, as well as several other photographs representing other cities that were mixed in the collection. This interview was conducted with 200 people, using 52 photos divided into two groups (Figure 3 and 4).

Nine questions were asked in a hierarchical way in order to achieve an analysis of the collective mental image of the city through four elements of the urban landscape: sectors, routes, nodes and landmarks (excluding the element of 'boundaries').

In the first question, the observers will classify the photos into two groups: photos taken in the city of Biskra and the other group, photos taken in another city.

Then, we will proceed to interview the people according to this classification, where we asked the rest of the questions for the group of photos classified by the observer as taken in Biskra. The two questions 2 and 3 have the objective of analyzing the "sectors" of the city of Biskra,The fourth question analyses "pathways", Questions 5, 6 and 7 focus on the "landmarks" of the city. The last two questions are used to analyses the "nodes" in the city of Biskra.

Criteria for the Choice of Photographs

We made several walking tours in the city during which we took many photos, in addition to collecting archive photos and Google earth.

In fact, the choice of this selection of photographs was not random, but following a main objective that these photographs are elements that help to reach the required mental image, in fact to reach this objective these photographs must be:

➢ Representative of the urban fabric of the city of Biskra This is ensured by a sampling process (Figure 3 and 4)

➢ Clear, visible and legible.

➢ Avoid repetition of photographs.

➢ Minimize the number of photographs, in fact the large number of photographs leads to boredom for the respondent and can lead to an incorrect or incomplete mental image.

➢ They must be representative of the elements of the urban landscape reading which are: sectors, routes, nodes, landmarks and boundaries (table 1)

These 52 photos are divided into two groups 5, each of which conducted an interview separately to ensure that the interview was not very long.
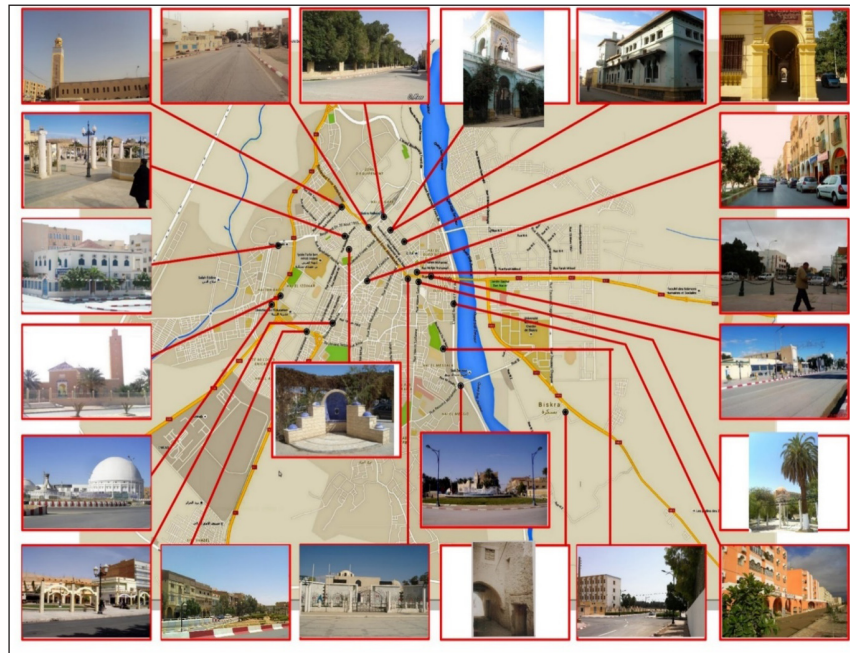

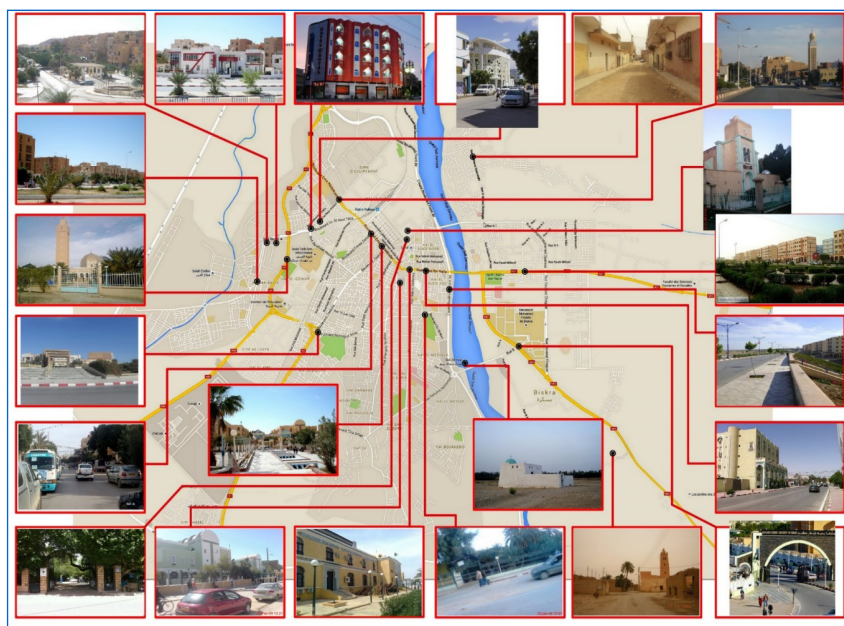**Figure 3.** Sampling of photographs used in the first survey (Author 2016)

Figure 4. Sampling of photographs used in the second survey (Author 2016)

Moreover, the photographs selected in the interview classified according to a number of objectives set to get closer to the "collective image" from the five elements composing the urban landscape (cited by K. Lynch) which are: sectors, routes, limits, landmarks and nodes, these five elements can not be analyzed separately, each element does not exist alone in the city, but in fact, it is the set of these elements that compose the urban landscape of the city.

Therefore, a single photograph can represent all these five elements but with different degrees. In this perspective, we give these elements of scale by order of importance in the "analysed photo" in the interview, as it is described in the following table:

Table 1. The presence of sectors, paths, landmarks and nodes in the photos analyzed by the interview (Author 2016)

Interview 01					Interview 02				
Picture	Sectors	Pathways	landmarks	Nodes	Picture	Sectors	Pathways	landmarks	Nodes
P1					P27				
P2		/		/	P28			/	/
P3					P29				
P4					P30				
P5					P31				
P6					P33				
P8					P34				
P9					P35				/
P10					P36		/		/
P11					P37				
P12					P39				
P13				/	P40				
P14				/	P41				
P15					P42				
P16					P43				
P18					P44				/
P20					P46				
P21					P47				
P22					P49				
P23					P50				
P24					P51				
P26				/	P52				

					Legend
Degrees of presence of the 5 urban landscape components according to color intensity					

Note: In order to study the mental image and its power (strong or weak), the photos taken outside the city of Biskra (or in other cities) are chosen according to the following two principles: Either they represent neighbourhoods (places) similar to others existing in the city of Biskra. Either they are totally different from those in the city (identification by distinction or mental comparison).

Conceptual Schemes of Research in Urban Landscape Perception

Scales of Analysis of the Results

According to the Five Components of the Urban Landscape

We have delved into the visual components of the urban landscape as a field of study where we have analyzed the urban landscape through its socio-cultural components as an object of experience and perception far from being a simple sensory phenomenon but a system based on the human mind. In our analysis, we will take into consideration the components of the latter, which are sectors, paths, nodes and landmarks, as structuring bases of our method.

According to the components of the collective mental image

The mental image depends essentially on the "community" or "social groups" studied, it is based in the first place on the human mind, "which functions according to a certain scheme whose major components are: identification, modelling, meaning and affectivity" (Luc Bureau, 1977). In the second place, on the socio-cultural specificities of the inhabitants of Biskra.
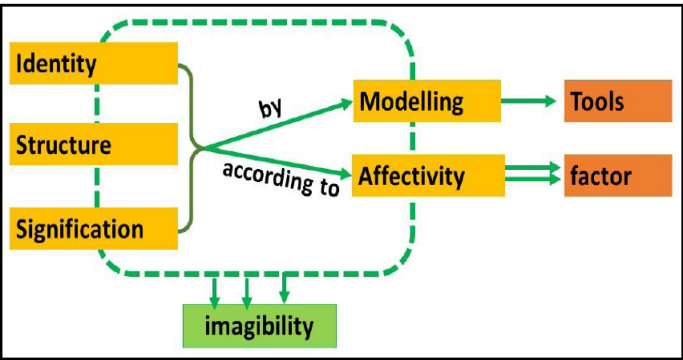

Figure 5. The components of the collective mental image (Author, 2017)

Therefore, it can be concluded that: the components of the collective mental image and the urban landscape are those presented in the following figure:
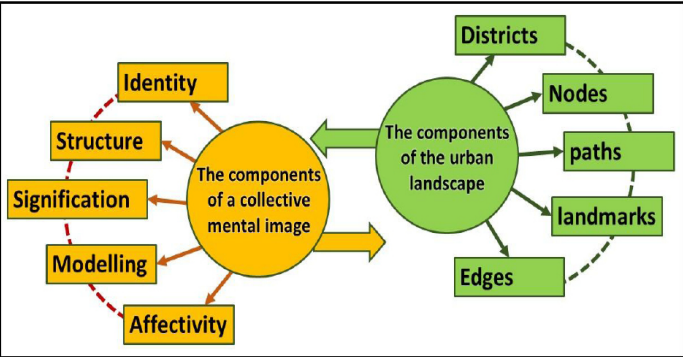

Figure 6. The synergy between the components of the collective mental image and the components of the urban landscape (Author, 2017)

Depending on the synergy between the objective components of the urban landscape and the subjective components of the mental image

The image of any space comes precisely from the interrelationships between these various components of the collective mental image and the description or analysis of each of these components in isolation, focusing on the strong links that unite them in reality, in order to construct a mental image representative of the society under study,

The relationships between these component elements of the mental image are very important for the correct reading of the landscape and for strengthening the collective mental image; the following table shows these 10 relationships.

Table 2. Mutual relations between the components of the mental image (Author 2017)

	Identity	Structure	signification	Modelling	Affectivity
Identity					
Structure	identification of the structure				
signification	significance of identity elements	Significance of structure			
Modelling	identification through modelling	structure through modelling	Significance through modelling		
Affectivity	identity by affectivity factor	structure by affectivity factor	Significance by Affectivity Factor	modelling according to the affectivity factor	

Themes of Investigation

Perceptual scenarios of the urban landscape

In the first place, this image constitutes a message that has to be understood or identified or structured according to a certain code or model. However, the value of the message itself comes from the meaning and interest (affectivity) it has for the receiver. These various phases of the perceptual scenario are illustrated in the following table:

Ces diverses phases du scénario perceptuel sont illustrées dans le tableau suivant :

Table 3. The various phases of the perceptual scenario of the urban landscape (Author 2017)

The components of the collective mental image		Reading According to:	Reading with:	possible mental images
Message	Identification	Filtering	Uniqueness	Uniform picture
		Phenomena	Individuality	single picture
	Modelization	The comparison	Reference	Image that has the value of being a reference
			Archetype	Repetitive image
	Structure	The cone of perception	High density	Picture closed
		Repeated use	Low density	Open picture
		the rate of presence in space		
Values	signification	Meaning	emotional meaning	Useful / useless image
		Premises	practical meaning	
	affectivity	Observer (age, gender, etc.)	Desirability	Desirable picture
		Environment (culture, society, education, etc.)		Unwanted image

The process of forming the	Reading methods	reading tools	Reading results

Thematic grid: the interaction between the various perceptual components

A systematic combination between the various components of the collective mental image and these phases of the perceptual scenario reveals 21 possible and necessary themes of investigation for a comprehensive perceptual analysis of the urban landscape.[1](*)

Table 4. The structuring themes of the collective mental image according to its five components (Author 2017)

Themes	Identification	Structure	meaning	Modelization	affectivity
Uniqueness	X	/	/	/	/
Individuality	X	/	/	/	/
Dominance	X	X	X	X	X
Correct or not	/	X	/	/	/
Low density (open image)	/	X	/	/	/
Hyper (high) density (closed image)	/	X	/	/	/

1   (*)(X) signifies landge the presence of the theme and (/) signifies the non-apresence of the theme.

The historical value	X	X	X	X	X
Items signified	/	/	X	/	/
Reference	/	/	/	X	/
Archetype	/	/	/	X	/
Layout	X	X	X	X	X
Readability	X	X	X	X	X
The visibility	X	X	X	X	X
Time	/	/	/	/	X
Colors	X	X	X	X	X
Form (objectivity)	X	X	X	X	X
Emotion (subjectivity)	X	X	X	X	X
Age	/	/	/	/	X
Sex	/	/	/	/	X
School level	/	/	/	/	X
Function (use)	X	X	X	X	X

According to these representations, the common points between the components of the collective image are : Dominance, historical value, layout, legibility, visibility, colours, form, emotion, function (use) and culture.

Table 5. Interaction between the various perceptual components (thematic grid)(Author 2017)

	identify		structure				modelization		affectivity			
	Uniqueness	Individuality	Correct or not	Low density (open image)	High density (closed image)	Meaning	Reference	Archetype	Time	Age	Sex	School level
Dominance	X	-	-	X	X	X	X	-	X	-	-	-
The historical value	X	X	-	-	-	X	X	X	X	X	-	X
Layout	X	X	-	X	X	X	X	X	X	-	X	X
Readability	-	X	X	X	X	-	-	-	X	-	-	-
The visibility	X	X	X	X	X	X	X	X	X	X	X	X
Colors	X	X	-	-	-	X	X	X	-	-	-	-
Form (objectivity)	X	X	X	X	X	X	X	X	X	X	-	X
Emotion (subjectivity)	X	X	-	X	X	X	X	-	X	X	X	-
Function (use)	X	X	-	X	X	X	X	X	X	-	X	X

In fact, the reading of the photographs used in our interviews will follow these 21 themes in addition to the ten combinations generated from the mutual relations between the constituent elements of the mental image (Table 2).

The interaction between the components of the urban landscape and those of the collective mental image

The previous discussion allows the elaboration of a general search strategy where the components of the image are related to those of the landscape.

Table 6. The interaction between the components of the urban landscape and those of the collective mental image(Author 2017)

	Sectors	paths	Nodes	Landmarks	Limits
Identification	Average relationship	Weak relationship	Average relationship	strong relationship	Average relationship
Structure	Weak relationship	strong relationship	strong relationship	Weak relationship	strong relationship
Signification	Average relationship	strong relationship	strong relationship	strong relationship	Weak relationship
Modelization	Average relationship	Weak relationship	strong relationship	strong relationship	Very weak relationship
affectivity	strong relationship	Weak relationship	Average relationship	Average relationship	strong relationship

Method for Evaluating the Results According to the Feedback from the People Interviewed

Here the 3 factors that play the main role in the analysis of the results are:

- The validity of the answers: correct or incorrect answers
- The speed of response: fast or slow response
- The number (percentage) of respondents with the question

According to the "validity of answers" factor: The answers of the people questioned with this interview are classified according to the degree of validity of the answers in three categories:

- **Correct answers:**represent the correct classifications of the photos exposed during the interview (in two groups: photos taken in the city of Biskra and photos taken in another city).
- **Incorrect answers:**represent the false classifications of these photos.
- **Indefinite:**represents the photos undefined by the observer.

The following table presents the rating scale of identification in relation to the nature of the respondent's response.

Table 7. The identification rating scale according to the validity of the observers' answers(Author 2017)

answers Comments	Correct	Incorrect	Indefinite
Correctly identify		/	/
Confusion in identification	/		/
Not identifiable	/	/	

Note that "weak identification" is necessarily equivalent to "strong confusion" of the observer.

According to the "response speed" factor: Three speeds of interaction of respondents are recorded during the survey:

- Quick interaction: direct response without taking time to think.
- The average interaction: quick response after a few seconds of reflection.
- Slow interaction: slow response after a good moment of reflection.

The dialogue between "response validity" and "response speed" forms the basis of the "meaning" analysis.

Table 8. The hierarchy of degrees of "practical significance"(Author 2017)

		The speed of meaning		
		Fast	Mean	Slow
The practical signification	Correct	Strong	Mean	Weak
	Incorrect	strong confusion	Medium confusion	Low confusion
	Indefinite	Bad	Bad	Bad

According to the "number of people interviewed" factor: As we mentioned earlier, our objective in carrying out this interview is to define the "collective image of the city", which is why it seems logical to take the results according to the number (percentage) of stakeholders. that is, to prioritize identity, meaning and structure according to this factor as follows:

Table 9. The hierarchy of significance according to the percentage of responses(Author, 2017)

Percentage of responses		The meaning	legend
Not identifiable	0%	Nil (unidentifiable)	White
Meaning (correct)	Between 1% and 15%	Very weak	
	Between 16% and 35%	Weak	
	Between 36% and 55%	Mean	
	Between 56% and 75%	Strong	
	Between 76% and 100%	Very strong	
	Between 76% and 100% with 0% confusion	Perfectly meaningful	
Confusion (incorrect)	Between 1% and 15%	Very weak	
	Between 16% and 35%	Weak	
	Between 36% and 55%	Mean	
	Between 56% and 75%	Strong	
	Between 76% and 100%	Very strong	
No mean (unidentifiable)	/	/	White

RESULTS AND DISCUSSION

The results can be classified into two:

1. Results concerned by components of the collective mental image: modeling, identification, structure, meaning and affectivity:

2. Results concerned by components of the urban landscape (routes, landmarks, nodes and sectors)

a-Results concerned with the components of the urban landscape of the city of Biskra:

The 4 elements analyzed in this interview (node, landmark, route and sector) are elements that are complemented by each other even if we study each separately from the other, this is why the synergy between these components can be summarized in the following pairs:

The Nodes/path couple: The node and the route are two active and strong elements in the reinforcement of any landmark and the type of movements of the observers play an important role in their perceptions of the landscape.

The node/Landmark couple:

➢ In general, a landmark located in or near a node is a strong or very strong landmark in the city.

➢ The knotwhich has a great importance in the city of Biskra (by its size, its traffic distribution and its location in the city) is characterized by a very strong emotive significance by the observers interviewed and it represents the role of landmarks in the city of Biskra.

The Landmark/course couple:

➢ There is an integrative relationship between landmarks and paths where one notices that the importance of the path feeds the marking of the landmark. The importance of the latter plays the same role with these courses.

➢ The main streets that have a great importance in the distribution of traffic are the most identifiable by the observers interviewed.

➢ The majority of observers have succeeded in the correct classification of the importance of streets and lanes.

➢ Most of the people who intervened mean the streets not by these names but by the landmarks in situ, whether: Built landmark: (A monumental building, a building that has an important function), or not built (Square or small square, circle- point).

➢ The importance of the street (by its function as a secondary main street or other) is an element of attraction that helps to create a strong identification and therefore a strong meaning

➢ The observers interviewed have a strong "identification of the structure" of the city (Biskra).

➢ Landmarks are among the elements that facilitate the meaning of the structure of a city.

The sector/benchmark couple:

➢ The presence of a landmark which has a strong importance in any district, gives it a strong identity, indeed this landmark is also considered as an element of significance of this district.

➢ In addition, the sector which does not have "a landmark" is difficult to identify and sometimes unidentifiable.

➢ Sometimes the sector (the district) itself is a point of reference (as for example the case of the district of the station in the city of Biskra).

➢ The reference points (elements) must be clear and easily visible, indeed two reference points in the same cone of visibility can trivialize the importance of one or the other (sometimes both). Here, the role of landmark in the making of the mental image is lost.

➢ In fact, the reference point whatever its strength (importance) it becomes weak if it has been compared with another stronger reference point and the grouping of the two reference points in the same cone of vision does not reinforce the meaning of these markers. But, it weakens it because it causes the observer to compare between the two; this visual competition between the two landmarks strongly affects the "mental image" of the city or this part of the city.

➢ Indeed, the observer links the notion of "identity" with "landmarks", he often sees that "the landmark building" is in itself an element of "strong identity".

➢ The architectural style currently present in the city is in itself an element of meaning and landmark that can be called «an emotional landmark».

➢ Colonial buildings/districts in general have a strong or very strong emotional significance, which confirms that the observer is very aware of the history of his city (Biskra).

Spaces or elements (architectural or urban) that have a timid presence in the city of Biskra (such as gardens and large trees) have a strong emotive meaning(signification), which increases their strength as a landmark.

b-Results concerned with the collective mental image of the city of Biskra:

The observer concerned by this interview knows the architectural style that prevails in the city, it is characterized by careful observation with regard to architectural details (appearance).

The majority of the people questioned have the ability to analyze the facades in a typo-morphological way mentally (type of windows, colors, shapes, proportions, ornaments ...) the observer is therefore characterized by a strong direct observation .

We can note after the realization of this interview, four types of comparison: direct, indirect, positive and negative which are presented in the following figure:
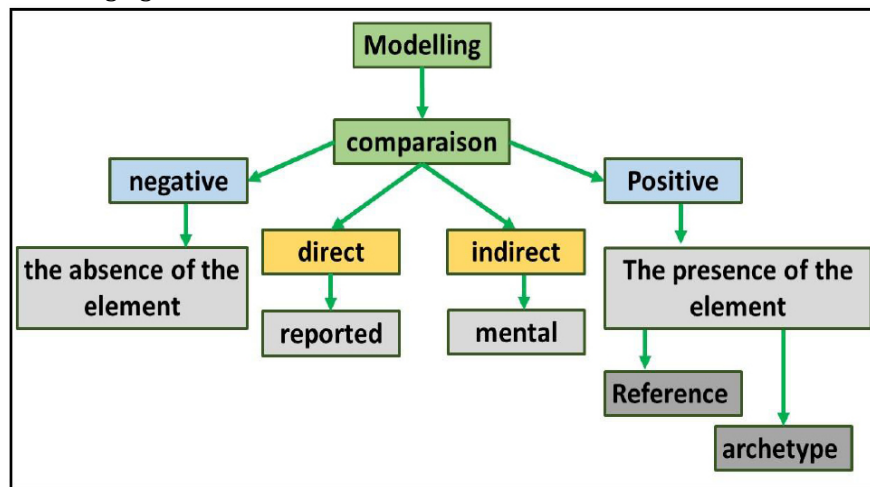

Ficture 7. The types of modeling that were encountered during the interview(Author 2017)

It is necessary, in any urban, architectural or landscape operation in the city of Biskra, to treat with caution the elements, which are considered by Biskri observers as elements of identity, which are, according to the analysis results, the following:

➢ The architectural style (here the time factor comes into play, it is affectivity) and The building materials.

➢ The beauty or ugliness of the item (aesthetic judgment).

➢ Façade morphology (typo-morphology).

➢ Repeated architectural elements.

➢ Rare or singular architectural elements.

➢ The distinctive architectural elements by their size, shape, color...

➢ The functional importance of the element (and/or building) and the treatment of the couples: function / form, function / surface, and function / façade.

➢ Street furniture and exterior layout (the presence or absence) and above all the layout of public places and its relationship with comfort (functionally and formally).

• The timid presence of some elements in the city such as "the big trees". Making these elements attractive plays a key role in the identity aspect of the city of Biskra.

• Low eye contact leads to low mental image (of a space, building, place) and vice versa.

We can therefore classify the landscape mental images of different components of the urban landscape of the city of Biskra, whichare analyzed during the interview according to their strength.in the following board:
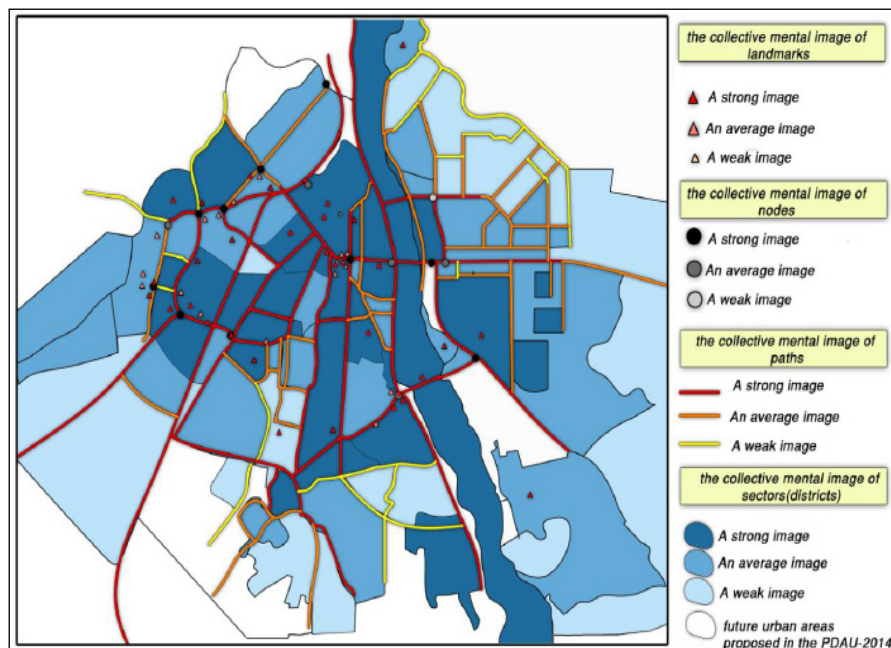
Figure 8. The superposition of the components of the hierarchical urban landscape according to the results of the interview(Source: Author, 2016)

CONCLUSION

Indeed, «The image of the city» is the result of a back and forth between the observer and the observed object, an operation in which the external physical form, on which an urban planner can act, plays a role major.

In addition, other elements related to the reading of the landscape can be determined by the present study, these are the readability and the complexity of the landscape, according to the number of constituents, and according to the ease of understanding. of their organization, It should be emphasized that the degree of complexity of the landscape plays a significant role in the construction of the mental image of the inhabitant.

The isolated description of each of the concepts (landscape component) should not mask the indissoluble nature of the links between them in reality. The image of any space comes precisely from the interrelationships that intertwine between these different components. But the very value of the message derives from the meaning and interest (affectivity) it has for the recipient.

Indeed, the disparity between the degrees of mental images of one place or another in the same city requires a careful analysis, which essentially affects the social perception of the urban landscape in order to define these mental images of the city of study (Biskra)

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