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The Built Environment Changes
in the Touat
From a Sociolinguistic Perspective

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Dedication

*To the memory of my beloved wife
I dedicate this humble research paper.*

MARHLOUFI Abdelkrim

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"...Praise be to Allah who has guided us to this (felicity), never could we have found guidance had it not been for the guidance of Allah..."

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List of Abbreviations

C.....	Consonant
MSA.....	Modern Standard Arabic
TSA	Touat Spoken Arabic
V.....	Short vowel
VV.....	Long vowel

List of IPA Symbols for Arabic

Symbol	Letter
ʔ	ء
b	ب
t	ت
θ	ث
ʒ	ج
ħ	ح
χ	خ
d	د
ð	ذ
r	ر
z	ز
s	ص
q	ض
t̪	ط
z̪	ظ
ʕ	ع
ʁ	غ
s	س
ʃ	ش
f	ف
q	ق
k	ك
l	ل
m	م
n	ن
h	هـ
w	و
j	ي
p	پ
v	ف

General Introduction

Both language and architecture, or rather the built environment, are the production of the human mind faculty that arise from two different kinds of needs. Language stems from the human need to communication whereas architecture emerges from the human requirement to shelter. One of the main shared characteristics between the two is that both of them change according to the development of human demand and life-ways.

The built environment, as a concept, refers to the man-made surroundings. That is, everything made by human being is an aspect of the built environment, comprising even the physical space used by human beings in their daily routine. In fact, the man made physical spaces are always changing in terms of size, form, shape, building materials and in terms of naming too.

During the last few decades people's life-ways, in the county of the Touat department of Adrar, have changed dramatically from living in houses built of local natural resources (clay, bricks) to living in buildings made of materials brought from thousands kilometers away. Furthermore, instead of using traditional house equipments and kitchen utensils made of wood and clay, people have started using modern equipments made of glass, crystal, aluminum, etc. Besides, some instances of linguistic changes are attested too. For instance, people used to call the room [qu:s] but nowadays this term has been replaced by the term [ʃa:mbra]. Hence, many questions need to be answered at this level:

- 1- What are the different social and physical characteristics of the [qu:s]?
- 2- How do people perceive it?
- 3- What are the various social and physical features of the [ʃa:mbra]? And, how do people perceive it?
- 4- What are the factors that led to this shift?
- 5- Does the shift concern only the linguistic level, or are there other levels? If so, what are they ?

In order to study this subject , the present research work is divided into two main parts. The first one is theoretical and contains two chapters. The first chapter settles down the linguistic and sociolinguistic bases, whereas the second one gives an insight into the built environment scope of studies. The practical part is concerned with the fieldwork by applying linguistic and sociolinguistic theories on the actual situation of the built environment in the Touat.

Part One

Theoretical Part

Chapter One

Linguistic and Sociolinguistic Concepts and Definitions

Introduction

The study of human languages is always generating new concepts, ideas, and fresh insights into the complex nature of human beings. Therefore, the study of the linguistic sign in isolation, which is the main concern of linguistics, might disconnect it from its nonlinguistic construction. Yet, linguistic and sociolinguistic theoretical bases are relevant tools in investigating the human linguistic behavior toward the man-made physical objects in the environment.

1.1 Definition of Linguistics

Linguistics is often defined as the scientific study of natural languages (Linguistics). Therefore, human languages are a complex system of knowledge and abilities, that is, enabling speakers to communicate with each other. Additionally, linguistic phenomenon is a central feature of human beings. Thus, the part of linguistics which concerns itself with the study of language structure is divided into the following subfields:

- a. Phonetics - the study of the physical aspects of speech sounds
- b. Phonology - the study of the cognitive aspects of speech sounds
- c. Morphology - the study of the formation of words
- d. Syntactics - the study of the combination of words to form sentences
- e. Semantics-the study of meaning
- f. Pragmatics - the study of language use

1.2 Semiotics

The last three subfields of study; syntactics, semantics and pragmatics, define what is referred to as *semiotics*. Umberto Eco states that "*semiotics is concerned with everything that can be taken as a sign*" (1976:7), nevertheless, semiotics involves anything which 'stands for' something else. In other terms, signs take the form of words, images, sounds, gestures and objects. Furthermore, semiotics also studies non-linguistic sign systems.

Language is a system of signs, arbitrary and socially conditioned; it is a supra-individual, abstract, and hierarchical system of signs, their interrelations, values and combinatory possibilities.

1.3 Urban semiotics

Wikipedia, the free encyclopedia, presents urban semiotics as a subfield of semiotics which focuses on physical objects of the built environment such as streets, squares, parks, and buildings, but also cultural products such as building codes, planning documents, un-built designs, real estate advertising, and popular discourse about the city, such as architectural criticism and real estate blogs. It is based on social semiotics and considers social connotations, denotative meanings of signs and meanings related to ideology and power structures. According to urban semioticians, urban structures often become recognizable because they have symbolic meanings far away from their functional meanings (Urban semiotics).

Urban semiotics is used by some researchers in empirical studies of the construction in order to investigate the meaning in urban environments. Therefore, in order to examine the role of class in shaping mental models of the city, Raymond Ledrut has used questionnaires and interviews about viewers' responses to sets of photographs. On the other hand, Martin Krampen carried out studies concerning photograph recognition so that to detect the level of facade detail required to identify the types of buildings, and to analyze the role of socioeconomic status in shaping preference for building styles (Social semiotics).

1.4 The Linguistic Sign

Ferdinand de Saussure advocates the sign as the basic element of a language. In other terms, the sentence is a sequence of signs, where each sign contributes to the whole meaning of the sentence. The sign, according to De Saussure is a two sided mental contrast, basically composed of what he calls: signifier and signified (1916: 65-66).

1.4.1 The Signifier

It can be also referred to as the acoustic image or the thing which signifies. It is auditory in nature, or rather, it is the sound we say when we pronounce a name of an object (1916: 67).

1.4.2 The Signified

The signified is the concept, the mental image rather than the sensible form of the said object (De Saussure, 1916: 67).

1.4.3 The Sign

The sign is the link that unites sounds and ideas, signifier and signified. Furthermore, it is abstract in terms of properties but rather concrete in terms of outcome and result (1916: 67).

1.5 Characteristics of the linguistic sign

Within the Saussurean model, the linguistic sign is characterized by the following features:

1.5.1 Arbitrariness

This means that there is no real link between the acoustic image, .i.e. the signifier, and the concept, the signified (Joseph, 2004: 72-73). Actually, linguistic signs are essentially psychological and conventionally agreed on. For instance, the sound [teibl] has no relationship with the concept of the object itself. It is the speakers of that language who have agreed that these letters or sounds evoke this specific image, that is, a sort of social convention (1916: 68-69).

1.5.2 The Linearity of the signifier

The signifier is mainly perceived by the auditory sense in the form of sounds and waves, that is, this phonic unit unfolds in time only. Signifiers are presented in succession; as a chain. Hence, this feature becomes prominent in the written form where the spatial line of graphic marks is substituted for succession in time. In contrast to visual signifiers which can offer simultaneous groupings in several dimensions, auditory signifiers have at their command only the dimension of time (Joseph, 2004: 72-73).

1.5.3 Immutability and Mutability of the Sign

De Saussure argues that languages change, but no one can change them. Therefore, he sees that the arbitrary nature of the linguistic sign protects the language from any attempt at modifying it. In other terms, the immutability has a social dimension, that is, the language is an integral part of everyone's life ; as a result this creates a collective resistance to any change initiated by any individual.

When it comes to mutability, De Saussure states that language change always results in "displacement of the relationship between the signified and the signifier". For instance ,he gives an example from Latin the word *necare* ' to kill' which has become in French *noyer* 'to drown' via several steps of changes in sound and meaning.

Furthermore, De Saussure deduces that the reality of language change can not be understood without taking into consideration its social and historical dimensions in addition to the arbitrariness of the linguistic sign (Joseph, 2004: 72-73).

1.5.4 Synchronic and Diachronic Axes

As it is derived from Latin, the word 'synchronic' is made of two parts. The first element is 'syn ' which means 'with' or 'together' and 'chronos' which refers to time. The synchronic analysis investigates the language at a given point in time. It tackles the language as a system at a particular point in time, either in the present or in the past. Thus, synchronic analysis can take also dead languages as its subject. Synchronic linguistics is contrasted with what is known as historical linguistics or what De Saussure refers to as the diachronic analysis in his dichotomy. The prefix 'dia' means 'through' or across and as such the diachronic axis concerns itself with the study of the language evolution and change over time. According to the encyclopedia Britannica, modern linguistics emphasizes the synchronic study over the diachronic one if it is opposed to the traditional view to language; because the latter is supposed to be a synchronic analysis at several points in time (synchronic linguistics).

1.5.5 Paradigmatic and Syntagmatic Axes

According to Ferdinand de Saussure, the meaning stems from the differences between signifiers. Therefore, there are two types of differences or rather dimensions:

the horizontal dimension, which concerns position or what is called syntagmatic, and the vertical dimension or axis, which concerns substitution, or what is labeled as paradigmatic (1916:123) . In Roman Jakobson's view the syntagm is the linear sequence of oral or written language whereas the paradigm is that of replacement. In fact , the two dimensions, presented often as axes, define actually two planes ,a syntagmatic and a paradigmatic (Paradigmatic/Syntagmatic relations, 2007).

Example:

S y n t a g m a t i c a x i s

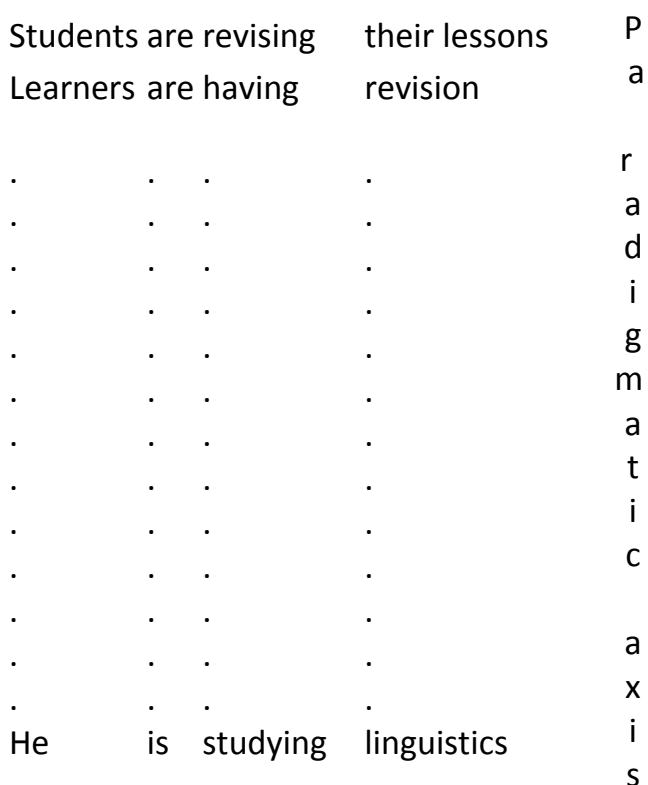


Fig.01 Paradigmatic and Syntagmatic axes

1.6 Classification of Distinct Types of Signs

Actually, there are various relationships between sign vehicles and what is signified which define what is referred to as ‘Classification of Distinct Types of Signs’ (Chandler, 2007:36).

1.6.1 Symbols

According to Peirce, a symbol is “a sign which refers to the object that it denotes by virtue of a law, usually an association of general ideas, which operates to

cause the symbol to be interpreted as referring to that object” (Peirce, 1997: 58). On the other hand, De Saussure focuses on the arbitrariness of the linguistic sign, such as the arbitrary symbolism of mathematics (Chandler, 2007:38).

1.6.2 Iconic signs

In his definition of iconicity, Peirce uses the term *‘perceived resemblance’*, that is, an iconic sign represents its object *‘mainly by its similarity’*, in other terms , there are some shared features between the icon and the object represented, for instance sign where the signifier resembles the signified is the picture for example. Yet, despite the name, icons are not necessarily visual (Chandler, 2007: 40).

1.6.3 Indexical Signs

What characterizes the indexical sign, according to Peirce, is the genuine relation that connects the sign and the object represented. Although there is no similarity between the two elements as the case of iconicity, yet there is what he refers to as *‘contiguity’* , that is, indexical signs *‘direct the attention to their objects by blind compulsion’* . As an example: when the signifier is caused by the signified, such as, smoke signifies fire (Chandler, 2007: 42).

1.6.4 Denotation and Connotation

Denotation and connotation describe the relationship between the signifier and the signified. Therefore the difference between these two terms is at the level of the meaning, that is, the signified.

Denotation is described as the literal, or common-sense meaning of a sign. Linguistically speaking, the denotative meaning is what we find in a dictionary when looking for the meaning of any word. On the other hand, connotation is the secondary meanings of signs; or the socio-cultural and *‘personal’* associations (ideological, emotional, etc.) of the sign.

According to Roland Barthes, De Saussure in his model of the sign emphasized denotation at the expense of connotation (Chandler, 2007: 42).

1.6.5 Codes

Codes are the vehicles of signs, without which they are senseless. Thus, the status of a sign is conditioned by its functioning within a code. The signifier and

signified are correlated with each other through code with regard to the paradigmatic and syntagmatic axes. Furthermore, codes are considered to be conventions of communication appropriate to their socio-cultural context (Chandler, 2007: 40).

1.7 Signs and Things

The nature of signs with regard to their referents in the real life is a subject matter in the semiotic study. For instance, some semioticians argue that signs are involved in the construction of reality, others take the stance that words are abstractions, and there is no real link between words and things in the world. Thus, the fact of disagreement over the models of sign itself is the source of these implications (Chandler, 2007: 59).

1.7.1 Naming things

Some academicians believe that words are simply mirror objects in an external world, that is, “words are only names for things” which exist independently of language prior to them being labeled with those words. Accordingly, there is one to one correspondence between word and referent so that language is simply ‘*nomenclature*’. However, De Saussure claims that this was ‘the superficial view taken by the general public’ (Chandler, 2007: 61).

Actually, the majority of words in the lexicon of language are nouns which refer to things, yet in addition to physical objects there are abstract concepts too. Therefore, lexical words exist at a high level of abstraction especially when referring to concepts or classes of things, and in fact language loses ‘*the one-to-one correspondence*’ of word. For example the term ‘furniture’ has no correspondence with a specific physical object but rather a group of items. Furthermore, language consists of function words or grammatical words such as: above, within, etc, which do not refer to objects in real life. Although, we use language in referring to things in everyday life but it is only one of its functions.

Additionally, languages differ in the way they categorize the built environment, that is, the signified in one language does not necessarily correspond to that in another language. In addition to this, signifieds are subjects of development and historical changes (2007: 62).

1.7.2 Referentiality

In Peirce' stance, signs are the sole way to know reality as representations are the only access to reality. Thus, the referent, according to Pierce, is something beyond the sign to which the sign vehicle refers (Chandler, 2007: 63). For instance, in his model of the sign, Pierce includes what he calls referent or the physical object itself. *The representman* refers to the signifier in Saussure's model, whereas *the interpretant* refers to the signified. In fact, unlike the signified, *the interpretant* is a sign in the mind of the interpreter. In other terms, Pierce defines the sign on the basis of referentiality, that is, the relation between two objects in which the first one, or the sign, (the sign vehicle in Pierce's terminology) refers to the second one "the referent" (2007: 63).

Here is a version which is quite often encountered and which changes only the unfamiliar Peircean terms (Semiotics for Beginners):

- a. Sign vehicle: the form of the sign.
- b. Sense: the sense made of the sign.
- c. Referent: what the sign 'stands for'.

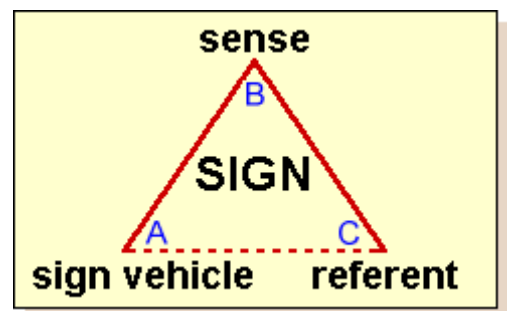


Fig.02 Peircean Model of the Linguistic Sign

1.8 Different Fields of Linguistics

Linguistics has several connections and interdependence with many disciplines in the social sciences, and natural sciences. For this reason other perspectives on language are represented in some interdisciplinary branches such as:

- a. Historical Linguistics
- b. Sociolinguistics
- c. Psycholinguistics
- d. Ethnolinguistics (or Anthropological Linguistics)
- e. Dialectology
- f. Computational Linguistics
- g. Psycholinguistics and Neurolinguistics

1.9 Sociolinguistics

Sociolinguistics emerged in the 1960's as a semi-autonomous discipline, William Labov's work found the background of its theories and methodology. Peter Trudgill sees that "Sociolinguistics is that part of linguistics which is concerned with language as a social and cultural phenomenon. It investigates the field of language and society and has close connections with the social sciences, especially social psychology, anthropology, human geography and sociology" (2000:32). According to Wikipedia, sociolinguistics is "the descriptive study of the effect of any and all aspects of society, including cultural norms, expectations, and context, on the way language is used, and the effects of language use on society"(Sociolinguistics).

Unlike the sociology of language which investigates the effect of language on society, sociolinguistics focuses on the impact of society on language. The aim of sociolinguistic research is to achieve more understanding of the nature and operation of human language by the study of language in its social context, and because of this it overlaps to a considerable degree with pragmatics (Sociolinguistics).

Sociolinguistics studies the way language varieties differ from one group to another with regard to social variables such as age, gender, social status, religion, ethnicity, etc. (Sociolinguistics). Accordingly, the sociolinguistic research falls in one of the four following axes of investigation:

- a. Speech variation.
- b. Language acquisition
- c. Language change
- d. Social communication

1.10 Languages, Dialects, and Varieties

Languages exist in a number of varieties; the simple example is the different varieties of English language such as: American English, Australian English, London English, etc. In fact, such variation is a basic feature of linguistic phenomena. Therefore, in some cases, we may find a multitude of language varieties but with different usage in terms of form, official recognition, and prestige. For instance, everyday language used by Arabs, though it is labeled Arabic, it is markedly distinct from that

used by the media, not only in lexicon but also in terms of forms. Modern Standard Arabic, the language used by the media, exists in a written form unlike dialectal Arabic. For this reason, denominations such as dialect, language variety, and language emerge in order to reveal the status that a given language variety occupies (Wardhaugh, 2006: 25).

1.10.1 Language and Dialect

The term 'dialect' is defined by the encyclopedia Britannica as "a variety of a language that signals where a person comes from. The notion is usually interpreted geographically (regional dialect), but it also has some application in relation to a person's social background (class dialect) or occupation (occupational dialect)". Dialects of the same language can differ in some features of linguistic structure, that is , grammar (specifically morphology and syntax), vocabulary, and morphology (word formation). Haugen states that language and dialect are ambiguous terms, and hence, the use of these terms interchangeably may dive into dangerous water because of non-linguistic factors such as political, religious and social ones (1972:68).

Although sociolinguists often use the expression language variety to avoid the ambiguity of terminology, there are some noteworthy differences between language and dialect (Difference Between Dialect and Language):

- a. **Prestige:** language has a history .
- b. **Standardization:** that is, the language has experienced all the five stages; selection, codification, elaboration, implementation and acceptance.
- c. **Size:** since language is the sum of individual dialects, it is bigger than a single dialect.

1.10.2 Regional Dialects

Regional dialect is the term generally used to refer to dialectal differentiation between neighboring local dialects; though, they are usually small, yet, in going farther in the same direction, differences rise more and more. The sole criterion used to judge if two dialects belong to the same language is what is called mutual intelligibility, yet

the dialect continuum may prove the failure of this criterion in some cases. Actually, the use of dialectal maps demonstrates the existence of alike political boundaries which separate two different varieties in terms of sociolinguistic features. Therefore, sociolinguists label each area an '*isogloss*' (Wardhaugh, 2006: 44-45).

1.10.3 Social Dialects

As stated in Wikipedia, a social dialect is defined as “ a variety of language (a register) associated with a social group such as a socioeconomic class, an ethnic group (precisely termed ethnolect), an age group, etc” (Social dialect). The social stratification is an important axis of differentiation. In fact, in many localities, dialectal differences are closely linked to social classes, educational levels, etc. For instance, highly educated speakers often tend to use prestigious features which belong to the standard language. Unlike regional dialect, social dialect focuses on the unique linguistic feature rather than geographical subdivision (Social dialect).

1.11 Codes

Language can be referred to as code if it is looked at as a system of communication. Although this term is brought from information theory, it helps avoid the drawbacks of terms like dialect, language, style, standard language, pidgin, and creole. On the other hand, it can refer to any system of communication used by two persons or more (Wardhaugh, 2006: 88).

What matters more is; what are the factors that guide the choice of what code to use in a particular situation? Why is a given code chosen rather than others? What are the reasons behind code switching? (2006:88).

1.11.1 Bilingualism

According to Webster's dictionary, “bilingualism is the ability to speak two languages. It may be acquired early by children in regions where most adults speak two languages” (Bilingualism). Bloomfield defines bilingualism as ‘the native-like control of two languages’ (Hamers and Blanc, 2000:6) . But Macnamara , in contradiction to Bloomfield argues that a bilingual is anyone who possesses a minimal competence in only one of the four language skills in a language other than his mother tongue (2000:6). Between these two extremes a great number of definitions one may

encounter (2000:07). One of the drawbacks of these definitions is that they focus only on the level of proficiency in both languages and ignoring non-linguistic dimensions (2000:07). For instance, In terms of competence, a bilingual may have very high levels of proficiency in both languages or may have only limited proficiency in one and be far more proficient in the other. Therefore, the use of the term 'bilingual' is thus dependent upon: context, linguistic proficiency and purpose (Bilingualism).

1.11.2 Diglossia

In Charles A.Ferguson's article "Diglossia", in the journal *Word* (1959), diglossia was described as a kind of bilingualism in a given society in which one of the languages is (H), that is, has high prestige and another one is (L), that is, has low prestige. In Ferguson's definition, (H) and (L) are always closely related.

Four language situations are identified by Ferguson which show a diglossic phenomenon: Arabic, Swiss German, Haitian (French and Creole), and Greek. In Algeria, Arabic is the official and national language, and it appears in its two forms: Modern Standard Arabic and colloquial Arabic. Colloquial Arabic is the spontaneous spoken variety for the Algerian speaker, that is, the language of everyday life. Whereas, Modern Standard Arabic is a descendant of Classical Arabic. The second language officially recognized is French. It is mainly used in public institutions, education, industry, etc. Additionally, several Tamazight varieties are still used in many areas in Algeria such as: Kabylie in the North-East, Chaouia in the south of Constantine, Touareg and Zenete in the deep South, etc.

1.12 Language Variation and Change

The ways languages vary are various and even common people sometimes point out to this issue by saying the accent of a particular person is strange or different. Actually, terms such as regional dialects, social dialects, accent, etc were brought in order to analyze carefully and cover such variation. Therefore, sociolinguists today are more concerned with social variation rather than regional variation; however studies of

social variation in language grew out of studies of regional variation (Wardhaugh, 2006:135).

In this regard the study of variation in languages can help us understand better the way they work and how they change.

1.12.1 Regional Variation

The main concern of dialectology is the study of language variation with regard to the geographical distribution and its associated features. Sociolinguists concerned with linguistic features that correspond to regional areas are often called dialectologists. Within this type of language change any variation found within a language should always be attributed to the two factors of time and distance; e.g., the British and American varieties of English are separated by over two centuries of political independence and by the Atlantic Ocean. Dialectologists reproduced their findings on maps in what they called dialect atlases (Wardhaugh, 2006:136).

1.12.2 Social Variation

The social variable is related to society and how it is structured. For example, the social class can be used as a social variable; lower class, upper class, and middle class. That is, the social stratification concerns the hierarchical structure of a society, resulting from inequalities of wealth and power. Social network identifies the relation of the individual with his or her peers, that is, the dimension of solidarity between individuals in their everyday contacts (Wardhaugh, 2006:143).

1.12.3 Social Network

Any individual in a social system may have strong ties with some people and weak ties with others; these kinds of relationships are the basic elements on which that person establishes his or her social network. Accordingly, network varies in strength on the basis of what Milroy and Milroy refer to as **density** and **multiplexity**, and which are defined as follows;

A maximally dense network is one in which everyone knows everyone else, and a multiplex relationship is one in which A interacts with B in more than one capacity (for example, as workmate and friend).

In this view, language tends to change more slowly in case of strong networks, and low-status language items persist (Social Network [Sociolinguistics]).

1.12.4 Social Stratification

Almost all societies are organized in hierarchical structures, although not necessarily in the same type. Social stratification may change over time as in the case of Europe, societies started to change from a hierarchy of rank to a hierarchy of class. In the rank society, people are born with a certain rank, and there is low social mobility. In societies based on class, people are born into a certain class, but there is a high social mobility (Social Stratification).

The language situation in a society is always influenced by these differences. When people move «upwards» in the class hierarchy they try to change their language, in the direction of people higher up in the hierarchy, to fit their new social status (Social Stratification).

1.12.5 The Sociolinguistic Variable

Many techniques used to describe the language variation derive from the work of William Labov. The use of the 'linguistic variable' is the basic conceptual tool necessary to investigate the processes of language acquisition as well as language change. A linguistic variable is a linguistic item which has identifiable variants (Wardhaugh, 2006:143). Labov cites the ideal sociolinguistic variable to (linguistics):

- be high in frequency,
- have a certain immunity from conscious suppression,
- be an integral part of larger structures
- be easily quantified on a linear scale.

For instance, terms like drawing and painting are sometimes pronounced as /drɔ:ɪŋ/ and /peɪntɪŋ /. In these terms, the final sound might be considered to be a phonetic variable /ŋ/ with its two variants [ŋ] in painting and [n] in paintin'.

Sociolinguistic variables might be lexical in nature as well as grammatical such as the frequency of negative concord which is known as a double negative (linguistics).

1.13 Types of Linguistic Changes

Most linguists agree with De Saussure and Bloomfield that linguistic change can not be observed. Although it may be possible to observe variation in language, linguistic variation is of slight importance. Dialect mixture and free variation are considered to be the main sources of variation within languages. The most important changes in language are those which have structural consequences. According to Marcel Cohen types of language change can be classified under the overall headings of the external evolution and internal evolution of languages (Language change).

1.13.1 Internal Changes

Throughout time, a distinction between two sounds may be lost in a language, in English for instance the vowels of meet and meat or horse and hoarse have fallen together, and vice versa a distinction may occur as in a house with [s] but to house with [z]. Accordingly, we may find instances in which contrast existed before but disappeared by time. This phenomenon is called phonemic coalescence, and cases in which contrast developed by time are referred to as phonemic split. Morphological and syntactic changes in language occur in the same way as the phonological change (Language change).

1.13.2 External Changes

Borrowing is the main source of this kind of change. This type is quite noticeable if compared to the changes that come about internally. They may be somehow strange and unusual in their characteristics. The reasons behind borrowing have social and cultural attributions, and the linguistic borrowed items might be names of objects, e.g. pajamas, kangaroo, or scientific words.

Although the external changes are more noticeable and they are subjects of public reactions, linguists consider the internal changes as being more important (Language change).

Conclusion

The more the sociolinguistic study of the linguistic sign goes further and deeper, the more it unveils the complexity of linguistic behavior with regard to its sociolinguistic context. A great deal of complexity is due to the interdependent relationship between society and language. Besides, language varies through numerous ways to the extent that it engenders several theoretical difficulties for linguists (Wardhaugh, 2006:383).

Chapter Two

The Built Environment: Definition and Scope

Introduction

The concept of 'the built Environment' emerges out of the need to an interdisciplinary field which encompasses; the design, construction, management, and the use of these man-made surroundings as interrelated physical elements, rather than each particular unit in isolation, or at a single moment in time. This concept is one of the fundamental bases of the sustainable development which aims at smart growth.

2.1 Definition of the Built Environment

There is a multitude of definitions of the built environment, but it may be helpful to define it by its basic features. Tom J. Bartuska in 'Values, Architecture and Context: The Emergence of an Ecological Approach to Architecture and the Built Environment.' points out four interrelated characteristics of the built environment when he says:

First, it is everywhere; it provides the context for all human endeavors. More specifically, it is everything humanly created, modified, or constructed, humanly made, arranged, or maintained. Second, it is the creation of human minds and the result of human purposes; it is intended to serve human needs, wants, and values. Third, much of it is created to help us deal with, and to protect us from, the overall environment, to mediate or change this environment for our comfort and well-being. Last, an obvious but often forgotten characteristic is that every component of the built environment is defined and shaped by context; each and all of the individual elements contribute either positively or negatively to the overall quality of environments both built and natural and to human-environment relationships. (1981:05)

2.2 Components of the Built Environment

The built environment has several interrelated components and thus its diversity and complexity make it quite awkward to be analyzed .Therefore, breaking it up into several components, or rather layers, may facilitate the task. Hence, layers are classified in a hierarchical order, on a sized based organization, in other terms, from the smallest layer to the highest or biggest one:

1.2.1 Products

Products are all materials and tools made to do certain tasks or perform specific activities. Generally speaking, products can be divided into three major groups (Bartuska, 1981:06):

- a. **Tools** : this group includes all pieces of equipment which are used with hands to make or repair something such as : pen, knife, weapon, etc.
- b. **Materials**: all physical substances which things can be made from are included in this group, for example: metal, wood, aluminum , concrete, plastic and glass, etc.
- c. **Machines**: they are tools composed of several parts which generally use power to perform specific works; this group includes, as an example: computers, cars, engines, satellites, etc.

1.2.2 Interiors

The physical spaces surrounded or defined by an organized grouping of products and enclosed within a structure are referred to as interiors. Their aim is to protect users from the external factors and ensure comfortable and safe area. Therefore, all kinds of buildings (with different sizes and forms) belong to this group, for example: rooms, housing, schools, stadiums and public buildings, etc (Bartuska, 1981:06).

1.2.3 Structures

Structures are combinations of constructed products related together in an organized way that each structure perform, or dealt with, as a unified system (Bartuska, 1981:06) .Thus, three main types or levels of structures can be distinguished:

- a. **The Built Physical Space**: at this stage, all types of constructions are included such as: housing, schools, public building, etc.

- b. **Traffic Infrastructure:** this type includes the infrastructure on which the traffic depends, in other words, roads, streets, bridges, tunnels, highways, etc.
- c. **Network Infrastructure:** all types of services which are characterized by a network system are considered to be part of this type, such as; clean water supply, contaminated water, electricity, phone, gas, etc.

1.2.4 Landscapes

Landscapes are the combination of both built and natural environments. In other terms, landscapes refer to the exterior areas of constructed groupings of spaces and structures, or actually, they are the natural sites which envelop all structures. Thus, landscapes include country-sides, parks, gardens, farms, forests, etc (Bartuska, 1981:06).

1.2.5 Cities

The concept of city or cities refers to the urban fabrics which are the combination of the two previous layers: landscapes and structures; therefore, groupings of structures and landscapes of varying sizes and complexities, clustered together, define a community. In fact, these elements define the basic framework of the economic, social, cultural, and/or environmental aspects of any city regardless of its size, that is, districts, villages, towns, etc (Bartuska, 1981:06).

1.2.6 Regions

The systematic organization of cities and landscapes define what is referred to as regions. Therefore, regions are characterized by common social, economic, environmental and even political features. Regions may vary in terms of size, physical aspects, and the hierarchical classification according to the political distribution, i.e. this last might result in different names such as: counties, departments, states, etc (Bartuska, 1981:07).

1.2.7 Earth

The inclusion of the Earth as a layer in the built environment might seem quite weird; however, it is the principal support of all previous layers. Thus, the combination

of regions consisting of cities and landscapes or rather the entire planet may be considered the ultimate artifact (Bartuska, 1981:07). In fact, the impact of human beings on Earth is clearly evident through the various problems which affect the planet as a whole such as: global warming, ozone layer depletion, climate change, loss of biodiversity, and nuclear wastes and radiation issues.

2.3 The Built Environment as a Reflection of Human Needs

Language arises from the human need to communication, whereas the built environment principally arises from the need for shelter; however, the built environment comes to be not only a means of communication, but also a tool of identification to the extent that, the historian, Arthur Cortell says *“Tell me the landscape you grew up in and I will tell you about yourself.”* In other terms, the man-environment relationships can be more understood through exploring human wants, values, or rather, needs to be more specific (Bartuska, 1981:08-09).

In this regard, Abraham Maslow, a psychologist, organized the different human needs in terms of their potency. The basic needs, the strongest ones, are physiological such as: for oxygen, water, nutrients, etc. Then, the need for reproduction comes in the second level; physical security, security of resources, livelihood, family and possessions. The third needs are security and bodily protection; free protection, law, and government. Protection from social dysfunction of insult is the fourth one, it includes: ethics, sense of community and mental health services. The fifth set of needs is protection from anxiety and the need to belonging. The sixth kind of needs are cognitive and aesthetic i.e. the need for creativity and the appreciation of beauty (the arts) (1981: 08-09).

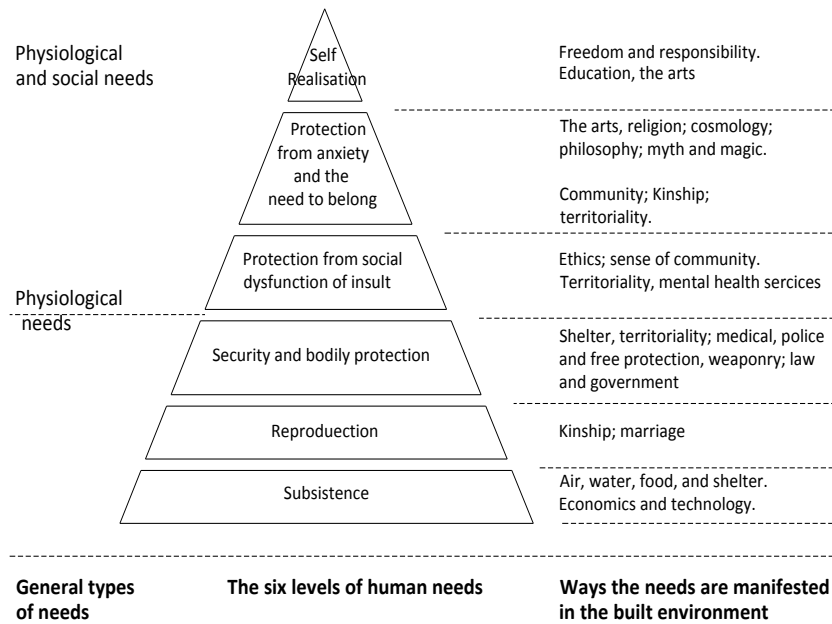


Fig. 03 Human Needs and Various Ways they Are Manifested in the Built Environment (Barutka, 1981:09)

The organization of needs in the form of a pyramid puts emphasis, according to Maslow, on the idea that the more potent needs at the bottom of the hierarchy take precedence over those above and must be satisfied before a person could progress. Correspondingly, this pyramid investigates the ways needs are manifested in the built environment.

2.4 The Built Environment as a Reflection of Human Values

The ways human beings build do satisfy their needs, yet they express human culture too. Therefore, personal, social values and principles are much more abstract if compared to the different needs we have seen before, but they are highly manifested in the way human beings deal with their environment, solve their problems and integrate with their surroundings. Human values, beliefs, opinions, and attitudes influence the setting of priorities (Bartuska 1981:10).

Ethics and values are the basic principles of every step in designing .For example, the traditional tendency in the Arab world concerning windows position while designing buildings especially houses was to get them have sight inside the houses rather than outside. This feature is referred to as introversion and such houses are

called introverted houses. Thus, the ultimate aim was to produce a physical space of high level of intimacy, in other terms, no visual contact between the inside and the outside surrounding. In fact, this was a direct reflection of religious principles. However, nowadays, most buildings have windows which give sight outside in an extroverted manner and, hence, this feature has several cultural reasons.

2.4.1 Lawrence Kohlberg's Moral Development Theory

In the 1970's, **Lawrence Kohlberg**, a Harvard University professor investigated the various human values through a theory called **Moral Development**. According to Kohlberg, since human beings develop philosophically and psychologically, they progress in terms of moral reasoning too. He based his research on short stories, thus, he would ask children and adults how they could solve moral dilemmas contained in those stories. What mattered Kohlberg were not the answers themselves, but rather, the moral reasoning behind. The moral developmental theory outlines three levels and each level contains two stages (Lawrence Kohlberg's Stages for Moral Development).

Level I: Pre-conventional Morality

Two pre-conventional stages are ascribed in the early childhood period:

Stage 1: it is referred to as **reward and punishment** stage. The judgment is based only on the outcome of the action; is it punishment or reward? In other terms, it doesn't take others into consideration except one's own pain or pleasure.

Stage 2: the exchange stage, there is increased recognition of others' interests during this stage which should be taken into consideration, though they are still understood in a basic fashion, as a simple exchange or reciprocity. Despite this, developed concepts are not conceived yet such as justice.

Level II: Conventional Morality

It is the elementary school period, and hence, children by this time can conceive conventional morality.

Stage 3: it is called **the good boy/good girl** stage. The child tries to seek approval of others. By this time, some concepts such as loyalty, trust, and gratitude are understood

Stage 4: the law-and-order is the name of this stage. The whole social system view could be taken now by children .Therefore, social rules, and respect of authority are crucial during this stage.

Level III: Post-conventional Morality

This level is confined to just some adolescents and adults who go a step further and rise above moralities based on authority to ones based on reason.

Stage 5: in the **social contract** stage , the world is viewed as having different opinions, rights and values. Such perspectives should be mutually respected as unique to each person or community. Laws are regarded as social contracts rather than 'rigid edicts'.

Stage 6: it is referred to as the stage of **universal principles or ethicals**. Universal principles are the bases of moral reasoning. Social laws and customs are no longer out of question and criticism, yet actually, they take clear back-seats.

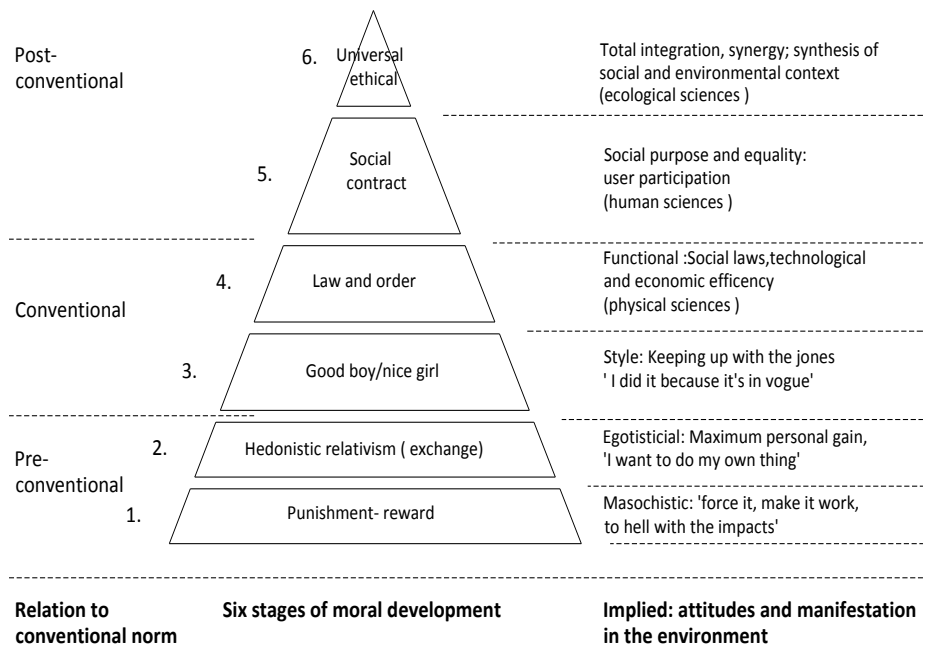


Fig. 04 Human Values and Various Ways they Are Manifested in the Built Environment (Barutka, 1981:11)

Although Kohlberg’s scale has been criticized as too Western, too male-oriented and even anti-caring, it may help us get better understanding of where people are coming from when ideas are in conflict over issues of design (Bartuska 1981:11).

2.5 The Architecture (Built Environment)- Language Studies

The study of architecture and language goes back to the ancient classical analogy between linguistics and visual style. During the renaissance era and while looking for principles which govern architectural rules, architecture was likened to linguistic and literary imitation (Clarke and Crossley, 2000:02).

The sixteenth century theorists created a grammar of ornament that equaled a syntax. Thus, the architect’ style was compared to literary style and, therefore, architecture was compared to eloquence. The evolution of architectural style was likened to the growth of natural language, and the elements of architecture were related to the linguistic structural components. For example, the part or element in the building represented to architecture what represented a word in a sentence to language. As a result, the linguistic analogy provided architecture with a vocabulary of criticism as well as a theoretical framework (2000:02).

2.6 The Built Environment as a Non-verbal Language

The introductory lectures of an architectural university student are usually about the potentiality of the built environment to communicate with people in a very special way. Therefore, the French poet Victor Hugo summarizes this when he says "Architecture has recorded the great ideas of the human race. Not only every religious symbol, but every human thought has its page in that vast book" (Wang Qi, 2008:15). However, Johann Wolfgang von Goethe, the German writer, points out the artistic dimension of the built environment by saying "I call architecture frozen music" (2008:15). As a matter of fact, the communication phenomenon has attracted not only architects but also many scholars and, hence, the built environment was considered as a language.

But the timely question to be answered at this level is: in what way, or from which perspective can we consider the built environment as a language?

2.7 The Meaning of the Built Environment

In his book, '*The Meaning of the Built Environment a Nonverbal Communication Approach*', Amos Rapoport sheds light for the first time on the importance of meaning in the built environment. He says, "It appears that people react to environments in terms of the meanings the environments have for them. One might say that environmental evaluation, then, is more a matter of overall affective response than of a detailed analysis of specific aspects, it is more a matter of latent than of manifest function, and it is largely affected by images and ideals" (1990:60).

Accordingly, while investigating the meaning in the human world, it has been suggested that the built environment can be tackled as signs (which guide behavior), affective signs (which elicit feelings), and symbols (which influence thought). Therefore, there are at least three major ways to develop the theoretical perspective (1990:36):

- a. By using linguistics via semiotic models.
- b. By studying symbols
- c. Through nonverbal communication models

2.7.1 Semiotic Approach

Within the semiotic tradition, everything could be considered as a sign, and therefore, semiotics is the process by which something functions as a sign. Moreover, the semiotic analysis emphasizes the syntactic level, that is, the most abstract over the study of meaning. Therefore, it is by analyzing which elements function, how they influence emotions and behaviors that they can be understood. The pragmatic aspects are tightly relevant to the understanding of how built environment effects behavior and communicates meanings. In fact, the reading of the meaning requires some cultural knowledge in addition to the situation and the context. Hence, various cues can reinforce the meaning such as: size, location, shape, natural materials and some concepts. For instance, the contrast of humanized and non humanized space, yet, the dichotomy of good or bad in terms of values can be reversal between the relative meanings of town and forest. As an example, in the early colonial America, white towns were seen as safe or good places, but, forests were dark and scary, whereas, their meaning now is completely the reverse; actually urban areas, full of crime, are considered to be unsafe, in other terms, bad if opposed to unspoiled forest. In the majority of cases, it is the contrast that draws one's attention, that is, when an element is different from the context it becomes perceptible and hence indicating special sense (Rapoport, 1990:36).

2.7.2 Symbolic Approach

Symbols are defined as any object, act, event, quality, or relation which serves as a vehicle for a conception. Yet, as such, almost everything becomes a symbol. Roughly speaking, the symbolic approach was useful only in studying the classic architecture, vernacular environment and the spatial organization of some houses, Temne house, the order in the Atoni house, the Ainu house, the Berber house, or the Thai house (Rapoport, 1990:36). Whereas, it was almost disregarded in the field of environmental design. Therefore, some researchers claim that there is a problem of variability and disagreement over the symbols, images and meaning held by different groups; as a result, symbols may elicit very different reactions from various groups; for this reason, it is difficult to use symbols in a multi-cultural social context such as our

own. In this regard, Hayakawa proposed a distinction between discursive symbols, which are lexically and socially shared and non discursive symbols, that is, '*idiosyncractic*'. He argued that in the past, there was a great deal of social agreement about symbols; especially between the public and designers. A given environmental element would elicit at least responses within a narrow range (those intended by the design). While, nowadays, it is much more difficult to design in a fixed set of shared symbols, that is, '*associational environment*'. As a matter of fact, designers have associated themselves to the '*perceptual world*' (1990:36).

2.7.3 Non-verbal Communication Approach

People communicate verbally and non verbally, yet verbal behavior is much more codified than non verbal one. However, both of them act together and, hence, reinforce or weaken the message. Thus, non- linguistic aspects of speech clarify spoken language. Tone of voice, facial expressions, stances, and relationships of participants help to clarify the meaning of spoken language beyond the study of grammar, structure, and so on. Verbal behavior is perceived by the auditory sense, whereas a non-verbal one is received mainly by the visual sense. According to Rapoport, the concept of non verbal communication in the man–environment interaction can be used in two different ways (1990:43):

- a. Since environments provide cues for behavior but do not do it verbally, they represent a form of non-verbal behavior.
- b. Non-verbal cues can help verbal communication and indicate the ends of verbal statements

As a result, the association of man-environment is tightly linked in terms of interactions, communication, and meanings. Yet, the non verbal behavior lacks the linearity of language; in other terms, there are no clear articulated grammar rules. Furthermore, environment as a non-verbal language has not clear cut lexicons as verbal language possesses. Nevertheless, in any communication process certain elements are essential according to Roman Jakobson's model of communication:

- a. a sender (encoder)
- b. a receiver (decoder)

- c. a channel
- d. a message form
- e. a cultural code (the form of encoding)
- f. the context or scene, which is part of what is being communicated.

2.8 How the Built Environment Affects People

In a scientific study carried out to study the effect of the built environment on negotiators, researchers discovered that the physical environment transmits non-verbal messages that can be extremely important to negotiators. Key elements of the environment include (Non-verbal Communication: Describing How the Physical Environment Affects Negotiations):

- a. The negotiation conference facility.
- b. Conference table configuration, size, and seating arrangements.
- c. Physical distance between negotiators.
- d. Relative elevation of the negotiators.
- e. Visual aids.

2.9 Similarities Between Architecture and Language

Edwin Lutyens, the English architect, links language and architecture to the extent that he says:

I require of a building, as of an individual, that a statement should be made gracefully, perhaps with distinction and humor. Many modern buildings, to me, are just shouting very loud and quite unintelligibly. I catch a phrase here and there, recognizing a scrap of English or Italian, may be. There is vitality, heaps of it. But there seems to me no grammar and little sincere effort at style.

(Language and Architecture, 2008)

2.9.1 Language and Architecture Can Be Likened to a Tree

Both of them, language and architecture, have historical roots and many branches. Therefore, architecture is like a tree in the sense that it has history, roots, which represent the origin that keep providing the branches with the nourishment, although they are not past. In other terms, history and present are connected to each other in a way that history continues to inform the present. On the other hand, language has a long history too, which is embodied in the current language. The deepest root words are still part of some of our everyday words. Actually, it is the roots that have formed the branches we know today (Language and Architecture, 2008).

2.9.2 Systematic Organization

Architecture and language work the same way. Both of them are formal systems. These systems exist as a set of rules which governs the whole system. Accordingly, linguistic system has a multitude of sub-systems or levels, and each subsystem follows its own rules. Therefore, we can examine the existence of four subsystems. The first one is the sound level which includes all the inventory of sounds and logical rules for combining those sounds to create words. The word level is the second one; therefore, each language has its own building rules that are used to produce new word forms such as affixes (suffix, prefix or infix). The following level, third one, concerns the sentence or utterance structure and how words are combined together in a coherent and cohesion way to create meaningful linguistic units. Context level is the fourth one which takes us to the situation –where and when- this language is used, thus it deals with the meaning of the linguistic unit in the social context, and sometimes it is referred to as pragmatics. These rules make form possible. The ability to express is provided by the armature of these languages.

On the other hand, architecture is a system of rules too. In this respect, Hassan Fathy, the Egyptian architect says, “The architect does not put his project on the interstellar space but he establishes it in two environments; the first one is created by

God , and the second by man .If he does not respect the first it is a sin and if he does not respect the second it is lack of respect...”.

L'architecte ne met pas son œuvre dans l'espace interstellaire mais dans deux environnements, l'un crée par dieu, l'autre par l'homme ; s'il ne tient pas du premier c'est un péché, s'il ne tient pas du second c'est un manque de civilité à l'égard de ceux qui l'ont précédé s'ils ont eux même tenu compte de l'environnement crée par dieu.

In other words architectural rules stem mainly from two different sources:

- 1- Natural rules
- 2- Social rules and moral values

2.9.3 Natural Rules

They are principles which guide the human interventions in the natural environment, in other terms, taking into consideration all the various elements of the natural environment while designing and planning. The natural environment is considered to be divided in terms of its components into three major elements:

- a. **The Site:** it is the physical area which includes, in its turn, three elements; fauna, flora and the substance of the site itself in addition to its geomorphology.
- b. **The Climate:** climate is the sum of atmospheric elements and their variations; it includes solar radiation, temperature, humidity, clouds and precipitation, atmospheric pressure, and wind (speed and direction).
- c. **Sunshine:** this includes the study of the sun movement throughout the four seasons in addition to its light and rays.

2.9.4 Social Rules and Moral Values

Each society has its own rules, beliefs and moral values and, hence, a successful designer should take them into consideration. Therefore, the social parameter is central to make a judgment about how effective any built environment is.

Conclusion

Language and the built environment share many features. The first one is that both of them are aspects of human cultural manifestations. The second one is that the two arise from two basic needs of human beings. Language arises from the human need to communication whereas architecture or rather, the built environment is based on the need to shelter. The third one is that both of them originate from human mind, and hence, they evolve and change over time. Furthermore, they follow the same adjustment process on newly imported elements, that is, through an 'adopting and adapting system'.

On the other hand, there are also some differences between built environment and language. The most prominent feature is that the built environment is seen as a tangible medium of human culture, whereas language is considered to be a non-tangible one.

Part Two

Practical Part

Introduction

This part deals with the practical side of this research. Firstly, the analysis of the sociolinguistic context of the Touat through : the inventory of the phoneme system, afterward the syllable, and then lexicon .Secondly ,a brief description of the Touat built environment context will be presented through a comparison between the authentic local architecture and the modern, or rather, contemporary way of shaping the environment. The traditional architecture is not only an object to be preserved but also the identity, existence and continuity of the inhabitants. It is a part of cultural heritage, that is, the physical artifacts of society. Thus, the best way to understand and master our actual and future built environment is through establishing a link between the past and present, the authentic and the contemporary. Finally, investigating the lexical changes by comparing and contrasting linguistic units of three layers of the built environment; products (tools) , interiors, and landscape.

3.1 Geographical Situation of the Touat

Touat, the county, refers to the geographical area comprising; the Gourrara, the Touat and the Tidikelt. In fact, those three regions in addition to Tanezrouft constitute what is called now the department (wilaya) of Adrar . As one of the biggest wilayas of Algeria, the department of Adrar is delimited to the North by the department of Elbayadh and to its South By Mali. To the East and North-East, it is bordered by Tamanrasset and Ghardaia, respectively. Bechar and Tindouf are in the West and South-West of Adrar.

The capital city is named Adrar too; it is 1543 kilometers away from Algiers, the capital. The department of Adrar comprises eleven administrative subdivisions (दौरا) and twenty three municipalities and more than four hundred ksars. The geographical distribution of those ksars traces a line , from the extreme North to the deep South, which identifies the path of the caravans that used to travel from North Africa to its south.

3.2 Research Instruments

The practical part of this research is based mainly on a fieldwork investigation. Thus, two different methods are used in this stage; the built environment investigation requires some special techniques such as;

- visiting the sites where the buildings were constructed
- taking photos
- drawing sketches when necessary
- exploring the functions allocated to each physical item or space.

On the other hand, the sociolinguistic side of the research necessitates also its own techniques, for instance, asking the inhabitants about the names they use for tools, kitchen utensils, rooms, etc and recording their answers .In spite of informing our interviewees about the recording, actually we made them forget about it through marginal discussions. Thus, we managed to get the information we need by asking indirect questions.

In order to study the lexical changes that took place we have to study firstly the traditional built tissue, and then the contemporary one at the linguistic, sociolinguistic and even socio-perceptual level.

3.3 The Inventory of Phonemes of Touat Spoken Arabic

It is noteworthy to shed some light on the phonological features which characterize Touat Spoken Arabic.

Obviously, Arabic language varieties and Classical Arabic are genetically related; for this reason, most linguistic researches take Classical Arabic as a reference, especially, in linguistic variation studies. Classical Arabic is marked by its limited vocalic system and a rich consonantal one (Watson, 2002:01). There are three basic vowels and a rich inventory of guttural consonants which include both the laryngeals /ʔ,h/ the pharyngeals /ħ,ʕ/ and the uvular fricatives/χ/ and /ʁ/.

3.3.1 Vowels

The vowel system of Arabic consists of three vowels /a,i,u/, with a phonemic contrast of short and long. Unlike Classical Arabic, Touat Spoken Arabic demonstrates the use of other forms of vowels such as the vocoids (Bouhania, 2012:115) which are sounds made with an open oral cavity, such that, there is a little audible friction in the mouth [Ø:,Ø,e:,e,æ:,æ,ə,α,α:] (Glossary of linguistic terms).

3.3.2 Consonants

The eighth-century consonantal phoneme inventory of Classical Arabic determines twenty-eight consonantal phonemes in nine places of articulation, yet modern Arabic dialects do not keep neither the same number of phonemes nor the same places of articulation (Watson, 2002:13). Therefore, Touat Spoken Arabic has, in addition to the phonemes known in Arabic, two loan sounds [p] and [v] (Bouhania, 2012:117).The velar nasal [ŋ] is also attested in some phonetic contexts or in borrowing words (2012:117).

a) **Bilabials**

The bilabials, /b/ and /m/, exist in Touat Spoken Arabic as in all modern Arabic dialects. The voiced bilabial plosive, /b/, has [p] as an allophone, in other words, the voiceless bilabial stop [p] can be interchangeably used without any change in meaning especially in loan words, for example:

Pompe (water pump) [pu:mpa] → [bu:mba] (Bouhania, 2012:218) .

The majority of foreign words are from French, and therefore, they have the sound [p] in their phonemic inventory, unlike Touat Spoken Arabic. For instance, we can find several examples:

*Parpaing*¹ [parpa]

Pillier (pillar) [pi:li:ja]

¹ **NB:** words in italic characters are French words

Pneu (tire) [pnu:]

Permis de conduire (driving licence) [pərme]

b) Labio-dentals

The voiceless labio-dental fricative /f/ is maintained in Touat Spoken Arabic. In some cases, especially with borrowing words, [f] occurs as a phoneme of the sound /v/, for example;

Village (a village) [filæʒ]

La grève (a strike) [lægrif]

Eau de javel [jæfi:l]

The voiced /v/ is a quasi-phoneme which is restricted to loan words in some modern Arabic dialects, such as Cairene dialect (Watson, 2002:14).

c) Dentals

The actual situation of Touat Spoken Arabic, as well as all modern dialects, demonstrates the use of four dental stops of Classical Arabic /t,d,ʈ,n/ (Watson, 2002: 14). The distinctive feature of Touat Spoken Arabic is that all V+ dental spirants merge to /z/. For instance, the sounds /d,ð, ḍ, z/ tend to be phonetically realized as [z] (Bouhania, 2012:119). In Classical Arabic, the emphatic voiceless dental plosive /ṭ/ is a voiced sound, yet, in the majority of dialects today it is pronounced as a voiceless pharyngealized dental stop (Watson, 2002:14). In some cases the sound /ṭ/ is de-emphaticised as /t/, (Bouhania, 2012:122), as in:

/ṭaːʔira/ → [tija:ra] 'plane'

/ṭabaχa/ → [tbaχ] 'he cooked'

/ṭaːχ̣i/ → [taːχ̣i] 'tyrannical, despotic'

d) Interdentals

It is noticeable that the interdental fricatives /θ,ð/ and /z/ merged with the dental stops /t/, /d/, /ḍ/ in the big cities of Syria and Lebanon and the sedentary

dialects of Egypt, as well as several neighboring areas (Watson,2002:15). The original interdentalals have sibilant reflexes such as /s/, /z/, /ʃ/ in dialects of Northern Mesopotamian, Arab Afghanistan and Uzbekistan (Watson 15).

In Touat Spoken Arabic /θ/ is pronounced either as [t] or as [s], except some cases where it is preserved in its original pronunciation (Bouhania, 2012:119). The sound /ð/ is also pronounced in two different ways: as [ð] or as [z] (2012:144). However, the dental [z] may be uttered as [ð] in some cases, this is referred to as hypercorrection. In other words, words containing [z] might be identified as [ð], and vice versa (2012:145).

Touat Spoken Arabic speakers pronounce the interdental emphatic spirant /z/ in three different ways; the first one is the classical Arabic pronunciation which is rare, the second way is its pronunciation as voiced dental spirant [z], and the in third manner, it is realized as [dʒ] (2012:149).

e) Sibilants

The sibilants /z/, /s/, and /ʃ/ are maintained in the majority of modern Arabic dialects (Watson, 2002:15). In Touat Spoken Arabic the voiceless dental spirant /s/ keeps its original pronunciation in addition to two allophonic realizations; as a voiced [z], or as an emphaticised consonant [s̤]. The dental emphatic spirant/ ʃ /, in Touat Spoken Arabic, has a co-articulatory backing effect, that is, it makes the neighboring segments noticeably emphaticised (Bouhania, 2012:151).

The voiced dental spirant, /z/, is realized in two different manners; as [z], the original pronunciation, or as [ʒ]. When /z/ occurs next to one of the following consonants palatal/ʃ/, velar/k/, pharyngeal /ħ/ and uvular nasal /N/ it becomes [ʒ] (2012:151).

f) Palatals

In early Classical Arabic, /ʒ/ was realized either as a voiced palatal stop or as a voiced palatalized velar stop, yet in most dialects today it is described as a voiced palato-alveolar affricate or velar stop (Watson, 2002:16). In Touat spoken Arabic, /ʒ/ has four reflexes [dʒ, ʒ, z, g] (Bouhania, 2012:153).

g) Liquids

The lateral /l/ is retained in all dialects. Plain /l/ has an emphatic counterpart /l̥/ in most modern Arabic dialects (Watson, 2002:16). Arabic researchers claim that emphatic /l̥/ occurs when /l/ is in the environment of emphatic consonants (Bouhania, 2012:158); however, this claim was rejected by Ferguson (2012:158). In Touat Spoken Arabic, alveolar lateral liquid, /l/, has two forms; the original one and as an emphaticised [l̥] in addition to emphatic /l̥/ (2012:158).

Arab Grammarians (Sibawayhi, Alzamahchari, Ibn-Yaich) claim that /r/ has two phonetic realizations of CA “rolled” /r/, i.e. “râo mufaḫḫama” versus “râo muraqqaqa”. Most modern dialects retain the dental tap /r/. Yet, the reflex of /r/ is a voiced post-velar fricative similar to Parisian /r/, in some Iraqi dialects (Watson, 2002:16). Touat spoken Arabic has an emphatic variant of /r/, /r̥/ whose distribution is sometimes determined by phonological context, that is, it depends on the environment in which it occurs (Bouhania, 2012:162).

h) Velars

The voiceless velar stop, /k/, is retained in Touat Spoken Arabic as well as most Arabic dialects (Watson, 2002:16). The palato-alveolar affricate /tʃ/ replaces /k/ in Central Palestine dialects, yet in the North of the Peninsula, in Jordan and in Iraq, /k/ has /tʃ/ as an allophone, especially in the environment of front vowels (2002: 17). In Touat Spoken Arabic, the voiceless velar stop remains without any crucial change (Bouhania, 2012:124).

i) Uvulars

Although the original uvular stop, /q/, is maintained in many Syrian and North African dialects (Watson, 2002:17), it has a number of determined allophones [q, g, ʔ, k], for instance the word /qala/ is pronounced as [gal] in Oran, [ʔal] in Tlemcen, [qal] in Algiers; whereas [kal] in some regions in the East of Algeria such as Skikda. Uvular stop [q] characterizes urban dialects; [g] is a beduin or rural reflex, whereas [ʔ] is “peculiar for Maghrebine Judeo-Arabic and other Muslim urban dialects...” (Bouhania, 2012:128). In the large cities around the Mediterranean, including Cairo, Jerusalem, Damascus, and Beirut /q/ has a glottal-stop reflex; however, it has a voiced

velar stop reflex, /g/, in Bedouin dialects and the dialects spoken in the central region of Northern Yemen, including San'ani (Watson, 2002:17). In Touat Spoken Arabic both pronunciations [q] and [g] are used (Bouhania, 2012:129).

The uvular fricatives, /χ/ and /ʁ/, are retained by Touat Spoken Arabic. For many dialects they are phonetically and phonologically better described as velar or post-velar (Watson, 2002:17). In addition to its original pronunciation, /χ/ might occur in two different ways of realization; either as [q], for example : [χa:ba] ----- [qa:ba] 'palm tree trunk', or as [ħ] especially in women speech when reciting the Koran, for instance: [lladi: χalaq] may be pronounced as [lladi: ħalaq] '(God) who created...' (Bouhania, 2012:155). /ʁ/ keeps its original realization in Touat Spoken Arabic apart from some instances of substitution for [q] such as [yubra]----- [qubra] 'dust' , or hypercorrections with /ʁ/ instead of /q/, as in: [jajra: tta:lab lχa:tba] instead of [jaqra-] 'the Taleb reads the sermon' (2012:155).

j) Pharyngeals

The pharyngeals /ħ/ and /ʕ/ are maintained in Touat Spoken Arabic. Sibawayhi (Bouhania, 2012:155) describes both [ħ] and [ʕ] as sounds coming from the middle of the pharynx. /ʕ/ has the glottal stop as an allophone in Touat Spoken Arabic such as in: [Inzegmi:r] → [ʕajnzegmi:r] 'Ain Zegmir', place-name (2012:155)

k) Glottals

The glottal stop or [hamza], as it is called in Arabic, was described as a voiced sound according to Sibawayhi (Bouhania, 2012:141). Unlike Classical Arabic in which all prosodic positions are attested, glottal stop in Touat Spoken Arabic rarely occurs in initial position; however, the majority of words containing /ʔ/ in initial position were identified as having a zenete origin. Additionally, Hamza may exist in literary borrowings from CA/MSA. The glottal stop tend to be replaced by other consonants with a higher frequency of occurrence or by some dialectal variants (2012:141). In fact, the difficulty of pronunciation might be one of the reasons of its low frequency of occurrence (2012:141).

I) Glides

/w/ is both a labio-velar and semi-vowel. Although it is maintained in Touat Spoken Arabic, it may replace the glottal stop /ʔ/ in some cases such as :

[jwaddan] instead of [jʔaddan] from CA /juʔaddin/ 'he calls for prayer'

[wa:kal] instead of [ʔa:kəl] from Classical Arabic /ʔa:kil/ 'he ate' (Bouhania, 2012: 164).

/j/ is palatal which functions either as a consonant or as a semi vowel in Touat Spoken Arabic (2012:164).

3.4 Places of Articulation

The variety in speech sounds is mainly resultant from the nature and the specific area in which the sound is produced. Although, phonologists do not agree on the places of articulation of all the sounds, one of the most adopted sub-division is as mentioned in this table.

	Bilabial	Labio-dental	Inter-dental	Dental-alveolar	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosives	b			t,d	ʒ	k	q		ʔ
emphatic				ṭ					
Fricatives		f	θ, ð	s,z	ʃ		χ, ʁ	ħ, ʕ	h
emphatic			ḏ	ṣ					
Nasals	m			n					
Lateral				l					
emphatic				ḷ					
Tap				r					
Glide					j	W			

Table n°01. Consonantal Phoneme Inventory for Eighth-Century Classical Arabic (Watson, 2002: 13)

3.5 Patterns of Syllables of Touat Spoken Arabic

As it is a descendant of Classical Arabic, Touat Spoken Arabic inherited all its types of syllables additionally to two other kinds of syllables .

Classical Arabic has two kinds of syllables known as : “open”, and “closed”. Open syllables can have short or long vowels at the end. Whereas, closed syllables are characterized by having consonants at the end (Aniss, 1960:87).

Examples :

- [daχala] is composed of three open syllables

- [maʕmal] is composed of two closed syllables

The analysis of the Arabic lexicon demonstrated that there is no word composed of more than seven syllables including all the affixes (1960:91). For instance;

-[fasajakfi:kahumu] is composed of seven syllables

-[ʔanalzimukmu:ħa:] is composed of seven syllables

These two cases remain exceptions in Arabic; whereas, the majority of words have only four syllables maximum (1960:91). Closed syllables are more common than open ones, and therefore, the succession of open syllables especially with short vowels is quite rare. Old Arab grammarians saw that words built up from four open syllables do not exist in Arabic, nevertheless, it is very common to find terms composed of four closed syllables (1960: 91-92).

Example:

-[ʔistaχdamtom] is composed of four closed syllables

The types of Arabic word combinations are as follows (1960:92):

1 - C + VV

2 - C + V

3 - C + V + C

4 - C + VV + C Closed syllables

5 - C + V + CC

The vowels do not occur at the beginning of Arabic words, and thus two successive vowels have to be separated by one consonant at least and two consonants maximum (1960:92).

Some instances from Touat Spoken Arabic:

- [ʃu:r] one syllable type 4
- [məʃħa] one syllable type 3+ one syllable type 2
- [ʃa:la] one syllable type 1+ one syllable type 2

In addition to the previous patterns of syllables Touat Spoken Arabic has two other types (Bouhania, 2012:170) :

1. CCVC: [sʃaħ] a roof terrace
2. CCVVC: [rki:na] a corner

Note

The lexicon of Touat Spoken Arabic is rich in linguistic items which start with a glottal stop /ʔ/ followed by the long vowel /æ:/. For instance;

- [ʔæ:fkər] a traditional key
- [ʔæmæ:zər] a piece of cloth used to level water flow
- [ʔæ:gʒəm]a cave in the tunnel of the Foggara

Although there is no scientific evidence, these words are said to be of Zenete origin. Some of them seem to be of Arabic origin, for example;

- [ʔæ:ħfi:r] which is a trench around a castle is composed of the sound [ʔæ:] plus the word [ħfi:r]. This last one is derived from the word /ħafara/, which means he dug.
- The word [ʔæ:dgi], which refers to a small stone mortar, contains the sound [dgi]. This part assimilates the TSA word [dæg], in other terms the Arabic word /daqqa/ which means to pound.

Accordingly, these words might be borrowed from Arabic, and adopted by Touat speakers and then adapted to the Zenete language variety.

3.6 The Traditional Built Environment Lexicon

The traditional built environment in our case, or rather architecture is what is sometimes referred to as '*the earthen architecture*', yet the local term used is '*Ksar*'. It is made by a cultural group in order to fulfill the daily needs. The building material is adobe, which is composed from sand, clay, water, and some organic material usually shaped into bricks by the means of molds and dried in the sun. Palm trees are crucial elements in making several components in a building such as roofs, beams, etc.

3.6.1 Definition of the Traditional Built Environment

According to Wikipedia, the free encyclopedia, *ksar* is the North African Maghrebi Arabic term for "castle", possibly loaned from Latin *castrum*.

Ksar, as an urban traditional form, witnessed a diversity of social communities which contributed to its development throughout history. Each phase, or rather, part constitutes a distinguished physical unit which adapts to the precedent part and the natural environment. Consequently, this resulted into one consistent unit of built environment, harmonious and homogenous.

The ksar is a combination of lofts and housing; it is rather a small village highly protected and generally built within, or near to, oases to be secured from nomad attacks. It is a specific kind of agglomeration of buildings characterized by fortified traditional forms; its implantation depends on two crucial criteria:

- a) The availability of water resources.
- b) The defensive site

Agriculture is the main economic activity ensured by the ksar. Therefore, this last is a collection of lofts in which cereal crops are stored; additionally, it is the area where objects of value are in security. The reason behind such a hypothesis is that, the Algerian south-west region is characterized by hot dry weather because of rainfall irregularity which leads to food insecurity; hence, the ksar is allocated the function of storage security.

Goods are the richness as well as the only means of survival. Thus, high attention is paid to them ; therefore, a special physical space is destined to their storage which is named “makhzen”. The great importance of makhzen makes it under the direct command of the family chief. Actually, the patriarchal family system reinforces the authority of the eldest ones among all the members of the community.

3.6.2 Definition of Some Concepts

The terms linked to the ksar, as a specific kind of built environment, could not be understood unless they were firstly dealt with as concepts, not just a simple naming of given elements or items. Secondly, they have to be put in their real context; in terms of time and space. Here we have the definitions of a few important concepts related to the ksar.

a) Casbah [gəsba]

The term casbah, [gəsba], is widely used in North Africa and Mali. The origin of this word refers to a fortified castle. This term, as used in the south, means a group of houses encircled by a wall.



Fig.05 Physical Space Distribution of [gəsba]



Fig.06 [gəsba] From Outside

b) Addar, [ədda:r]

One single term refers to the inhabited space. The general meaning of this word refers to territory; /da:r ʔalʔahd/, treaty territory; /da:r ʔal ʔarb/, war territory, /da:r ʔalʔi:ma:n/, faith territory; /da:r ʔalʔisla:m/, Islam territory. Those nominations show that before identifying the term /da:r/ as house it was destined to refer to a distinguished and appropriate physical space on which a chief or group of people exercise their authority.

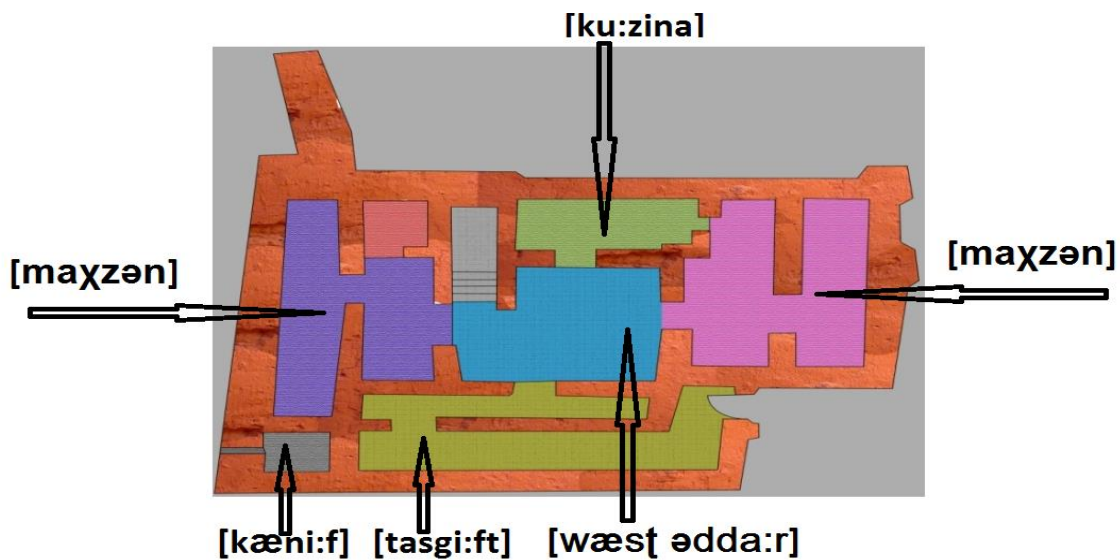


Fig.07 An Instance of Physical Space Distribution of [ədda:r]

a) Burdja [bərʒa]

Burdja is a high square building which occupies the corners of the casbah. This term originated from the Arabic word /burdj/ which means 'tower'.



Fig.08 [bərʒa] in a Dilapidated State

3.6.3 Layers Terminology related to the Traditional Built Environment

The scope of study is confined to the most important layers in the traditional built environment which are products, interiors, and landscape.

a) Products

Traditional materials and tools are generally made from local natural resources except some products which were brought from neighboring countries such as

Morocco, Mali and Niger. Clay, rocks and wood are the basic construction materials which the majority of products are made from. This layer, products, covers two kinds of materials; kitchen utensils, and farming tools.

Products terminology is mainly derived either from Arabic or Zenete.

[særut] a key

[məhræ:z] a mortar

[gəʃʎa] a round dish made of wood, used for serving food especially couscous

[mæ:ʎu:n] a dish

[χærfija] a bowl

[mʃərba] a round wide bowl , used especially for holding liquid

[əʒæ:ka] a big couscoussier (a steamer for couscous)

[gəlla] a large pot made of baked clay

[gərbæ] water bladder

[əʔɑ:ʃ] a jug

[bərba:r] a big couscoussier

[mdəgga] a stone mortar

[tæbu:t] a coffin

[ʔænu:r] an oven made of baked clay

[lχæ:bija] a date storage hole usually reinforced by clay-clad

[ʔæ:zir] a small jar made of baked clay used to keep dry food

[lʃəkka] fat bladder

[ləmləmmæ] a wrapped piece of cloth used with the stone mortar

[ʃæ:dgi] a small stone mortar

[ləmkəbb] a dish cover made of palm fronds

[tbi:gæ] a dish made of palm fronds

[tadæ:ra] a container made of palm fronds

[lɣəllu:s] a jar made of baked clay

[zlæ:fa] a bowl made from stoneware

[ləmnæ:ʂəb] a metal frame used as support on cooking fire.

b) Interiors

As it is mentioned in the first chapter, this layer covers any physical space enclosed within a structure. The inventory of words related to the traditional physical space comes out with the following list of words. Actually, just adult people are familiar with these words and some spaces disappeared from existence. The origin of these words is either Arabic or Zenete.

[əddar] the house

[qu:s] a room

[wæst ədda:r] a hall in the middle of the house

[sɟi:fa] the roofed part of a house; it is mainly the earth floor

[əstəh] a roof terrace

[əraħba] the yard

[ənæ:dər] a place to put the wheat in the farm

[kæni:f] a toilet

[ʃi:ʃma] a toilet

[əlmənzəh] a room on the roof terrace

[əʂɑ:la] a salon

[lwəsʕa] a hall in the middle of a house

[fəm ədda:r] the house entrance

[əssellu:m] the stairs

[əssabɑ:t] a corridor

[dæhli:s] a cave

[rki:na] a corner

[əruχa] a small area in the house

[ətægəmi:n] the animals shed

[ʔæ:fkər] a traditional key system

[zgæ:g] a narrow alley

[dəkkæ:na] a public sitting place

[ʔæ:qərbi:ʃ] a koranic school

[ʔæ:ħfi:r] a trench around a castle [gəsba]

[ku:wwa] a hole in the wall or the roof

[tæ:bi:q] the first floor

[ʃɔ:r] a wall

[maxzən] a storage room

[maʃri:ja] a storage room

[mæʔmu:ra] a cave for keeping food

[mifja:r] a small building composed of several rooms for keeping cereal crops.

[lhu: ʃ] a toilet

c) Landscape

In the sub-Saharan areas, the ksar is enveloped either by the oasis, which ensures the means of survival (water and food), or by the wilderness of the desert. Therefore, agriculture is the main economic activity which is based on the foggara, a traditional subterranean irrigation system made to extract water from earth by gravity, that is without any pumping. By a system of soft sloping draining galleries, the foggara conveys groundwater to the surface of earth. Along its line, it is equipped with wells of aeration and evacuation.

The foggara is an important feature of the Touat culture, though its uncertain origin is still a matter of controversial discussion (Bouhania, 2012: 25).

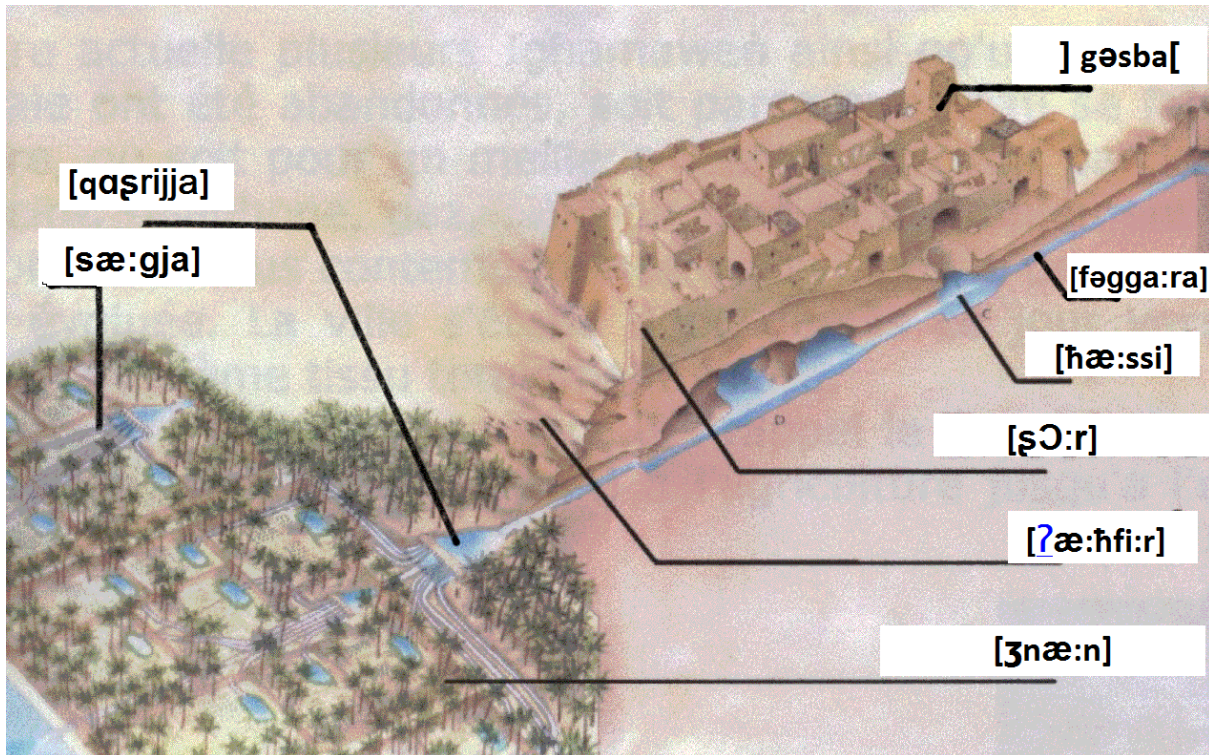


Fig.09 The Foggara System in the Landscape

The inventory of the foggara terminology comes out with the following list of terms :

[fəgga:ra] a subterranean man made irrigation conduit

[kra:ʃ] a sub-part of the foggara like a branch in a tree

[ənfæ:d] rivulet

[sæ:gja] ditch

[qəsrījja] a main distribution frame of the foggara

[mə:ʒən] a basin

[ʔæ:zərdæ:b] the sub-part of a basin made from clay

[gəmmu:n] a parcel

[ʔæ:ba:du:] a small river between parcels

[ʔæ:məqqu:s] fire made in the farm to burn small dry herbage

[kijjæ:l] the person in charge of measuring and distributing water

[si:jjɑ:r] a measurer

[ɣʒsru:] the middle part of the Foggara between the underground and the superficial part

[tæ:bu:t] rivulet

[zəmæ:m] a register

[ħəbba] the measure unit of water

[ʔamæ:zər] a piece of cloth used to level water flow

[ʃma:ma] a piece of cloth used to block water flow in rivulets

[məʔrəg] a row of parcels

[ʒnæ:n] a garden

[ʔæ:gʒəm] a cave in the tunnel of the Foggara

3.7 Contemporary Built Environment Lexicon

The actual situation of the built physical space is influenced by different inventions and technologies, especially two major elements;

- 1- modern construction material :cement and concrete
- 2- modern means of transport.

The use of cement and concrete in the building sector has offered plenty of choices compared to using clay. The building's shape, size, height and color have lost their uniformity dictated by construction material.

On the other hand, the introduction of the new means of transport, especially “the car”, has reshaped the traditional tissue and brought about a new type of built environment. Therefore, various old physical spaces, or rather, “concepts” disappeared as a result of these changes, yet other concepts came to existence. For instance, the window is a new element that found its place in the new, or contemporary, built environment. Thus, this reflexes not only changes in terms of words and concepts but also mutation in terms of perception of the physical space, and a shift from denying the idea of “being seen” to the idea of “see and be seen”.



Fig. 10 Style Duality: The Traditional Versus the Contemporary Built Environment

3.8.1 Layers Terminology Related to the Contemporary Built Environment

It is really difficult to determine all the components of the current built environment because of its diversity in terms of type and largeness in matter of number. For this reason, we preferred to take just a limited number of linguistic items from each layer of the built environment.

a. Products

One of the prominent features of the contemporary lexicon is the extensive number of new words besides their borrowing character which stamps the majority of them. Those words have been adopted by Touat speakers, and then adapted to the local language variety; the great majority is from French.

Unlike the terminology of traditional products, the contemporary ones are related to three categories; developed tools, sophisticated machines, and products made from industrial materials. Additionally, the best part of these artifacts is manufactured abroad and imported into the local market, so they are likely to bear the names put by their inventors. Here we have the following words as examples:

[fu:r] an oven

[mæqla] a frying pan

[friʒidi:r] a fridge

[gølla:ʒa] a deep freeze

[ku:ʃa] an Oven

[pri:z] a power outlet

[køntak] a light socket

[la:mba] a lamp

[səxxæ:n] a furnace

[klima:tizu:r] an air-conditioner

[rijæ:ʃa] a fan

[ru:bØ] a Robot

[fri{wɑ:r}] a brush

b. Interiors:

The contemporary style of buildings brought about not only new construction materials but also new concepts, new spaces and new names too. Therefore, some terms remain; others disappeared, while others are changed for new ones. For instance, we have the following list of new words:

[ʃa:mbra] a room

[ʔɔ:l] a hall

[fi:si] a toilet

[terɑ:ʃ] a roof terrace

[lɦu:ʃ] a courtyard

[pla:kɑ:r] a cupboard

[ki:rwa:r] a corridor

[ba:lku:] a balcony

[li:ʔaʒ] the first floor

[əskæ:li] the stairs

[tæ:qa] a window

[pu:ʔaʒin] a kitchen bench

[plafɔ:] a ceiling

[lavabu:] a washbasin

Despite the changes, some terms are still used, and other concepts resist the invasion of modernity. For instance, the concept of [əddar] as a private and appropriate physical space is reinforced by [wæst̪ ədda:r] as the center of the house. This concept was about to disappear, but for many socio-cultural reasons this physical space came back to existence. As instances we have :

[əddar].....the house

[maxzen] a warehouse

[ʃa:la] a salon

[lwəs̪a] a hall in the middle of a house

[əssellu:m] the stairs

[wæst̪ ədda:r] a hall in the middle of the house

c. Landscape

Actually, the natural aspect of the virgin Saharan landscape has noticeably changed; therefore, two new types of infrastructure were introduced:

- 1) **Traffic Infrastructure:** roads, streets, bridges, tunnels, highways...etc
- 2) **Network Infrastructure:** clean water supply, contaminated water supply, electricity, phone, gas...etc

Accordingly, new physical objects and items mean new concepts and terms too. Hence, this enlarges the built environment lexicon. Yet, what matters is the impact of these changes on the terminology of the traditional built environment. Therefore, the investigation is restricted only to the field of agriculture as it is opposed to the most important field in the traditional built environment. Here we have some new terms;

[basæ:n] a basin

[gu:tægu:t] a drip irrigation system

[hæ:si] well

[bu:mba] a pump

[ʃu:nda] a well made by probing

[fu:raʒ] a well made by drilling

[tiju:] a water pipe

[ʔistisla:h] new kind of farms

[bərɾa:ka] a greenhouse

3.8 Lexical Variation

In order to analyze the lexical variation, the following question was set up:

- How far is the traditional built environment terminology understood and conceived by the young generation?

To answer this question we used questionnaires. A list of words divided into three main parts: products, interiors, and landscape. Each part consists of an average of 25 words. We asked our informants to cross the box 'yes' for the familiar words, that is, they know their meanings, and the box 'no' for unfamiliar words. Exceptionally, adults and, especially, illiterate informants were asked verbally, because they could not read the questionnaires.

Since our main concern is the young generation, the questionnaires were addressed to the secondary school students to be filled in. Four institutions were chosen; Khaled Ibn Elwalid Secondary School, Hakkoumi Laid Secondary School, Mansouria Secondary School, and Aougrouit Secondary School. The different characteristics of the sample are as follow:

Institution (Secondary School)	Male	Female	Total
Khaled Ibn Elwalid	19	22	41
Hakkoumi Laid	17	19	36
Mansouria	20	18	38
Aougrouit	22	21	43
Total	78	80	158

Table n°02. Different Characteristics of the Sample

Three parameters of analysis, or axes, of variation were chosen:

1. Spatial Variation
2. Gender Variation
3. Age Variation

In order to investigate the variation according to the urban and rural axis, we have selected one institution from a rural area, (Aougroust Secondary School) and two institutions from an urban area (Khaled Ibn Elwalid Secondary School and Hakkoumi Laid Secondary School) in the town of Adrar. Mansouria Secondary School is considered to be in between, neither pure urban area nor rural zone.

High attention is paid to Adrar Spoken Arabic because of the prestige it has among the Touat speakers. For this reason, we have examined the gender variation only in Khaled Ibn Elwalid Secondary School and Hakkoumi Laid Secondary School which represent Adrar the city.

The variation according to the age is examined by taking three age grades:

- 18 years old (the previous sample)
- 32-42 years old
- More than 55 years old

3.8.1 Spatial variation

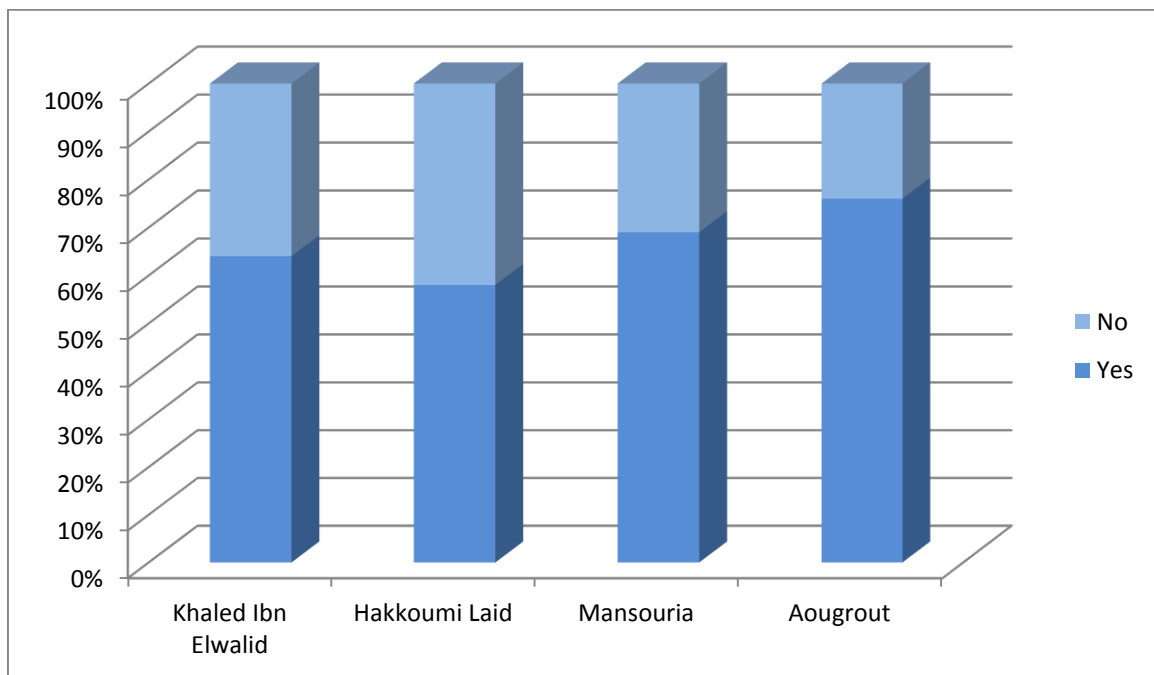
The aim behind this analysis is to detect the degree of variability between rural and urban areas in terms of maintaining traditional built environment terminology. The age grade taken was twenty years old (secondary school students). The institutions of Khalid Ibn Elwalid and Hakkoumi Laid represent the urban area versus the secondary school of Aougroust which represents the rural area. Although, the secondary school of Mansouria seems to be part of the urban tissue, the rural characteristics of the area are much more noticeable. Thus, it is chosen as a transitional, or middle, area between the urban and the rural zone.

a. Products

The results are as follows:

Institution (Secondary School)	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
Khaled Ibn Elwalid	761	64	428	36	1189
Hakkoumi Laid	763	58	553	42	1316
Mansouria	859	69	386	31	1245
Aougrouit	947	76	300	24	1247
Total	3330		1667		158

Table n°03. The Results of Products Layer



Graph n°01. The Histogram of Products Layer

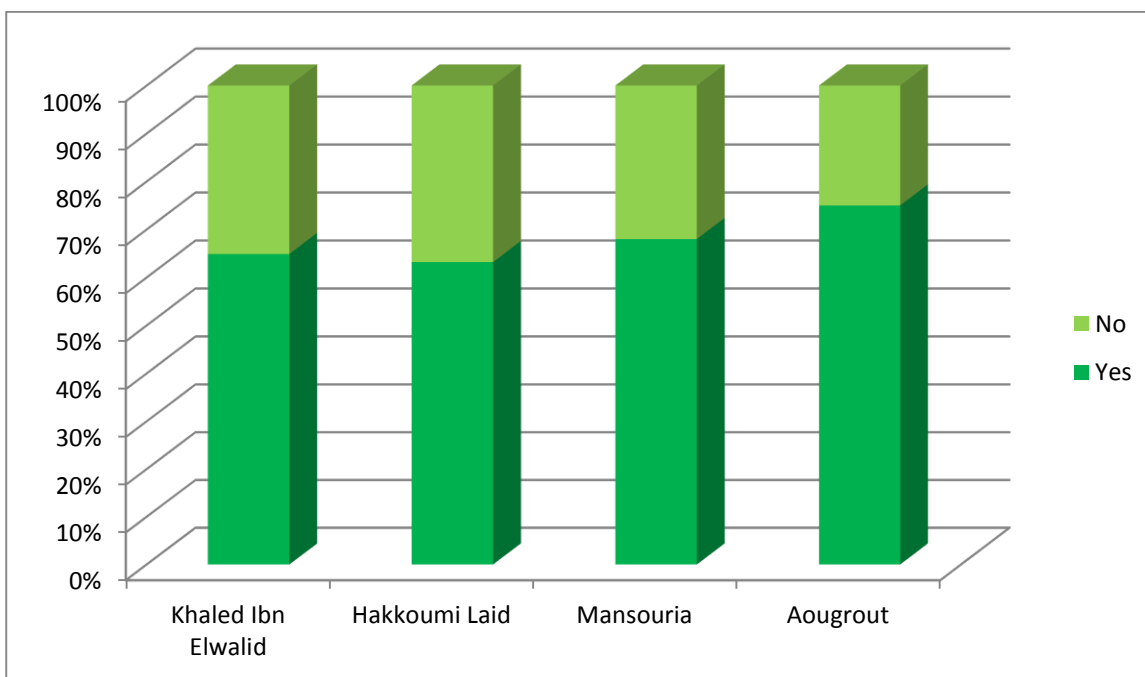
The highest percentage of the positive answers is scored by Aougrouit Secondary School (76%) ,whereas the lowest result (58 %) is scored by the secondary school of Hakkoumi Laid.

b. Interiors:

The results are as follows:

Institution (Secondary School)	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
Khaled Ibn Elwalid	828	61	530	39	1358
Hakkoumi Laid	810	67	399	33	1209
Mansouria	866	68	407	32	1273
Aougrouit	960	75	320	25	1281
Total	3464		1656		5121

Table n°04. The Results of Interiors Layer



Graph n°02. The Histogram of Interiors Layer

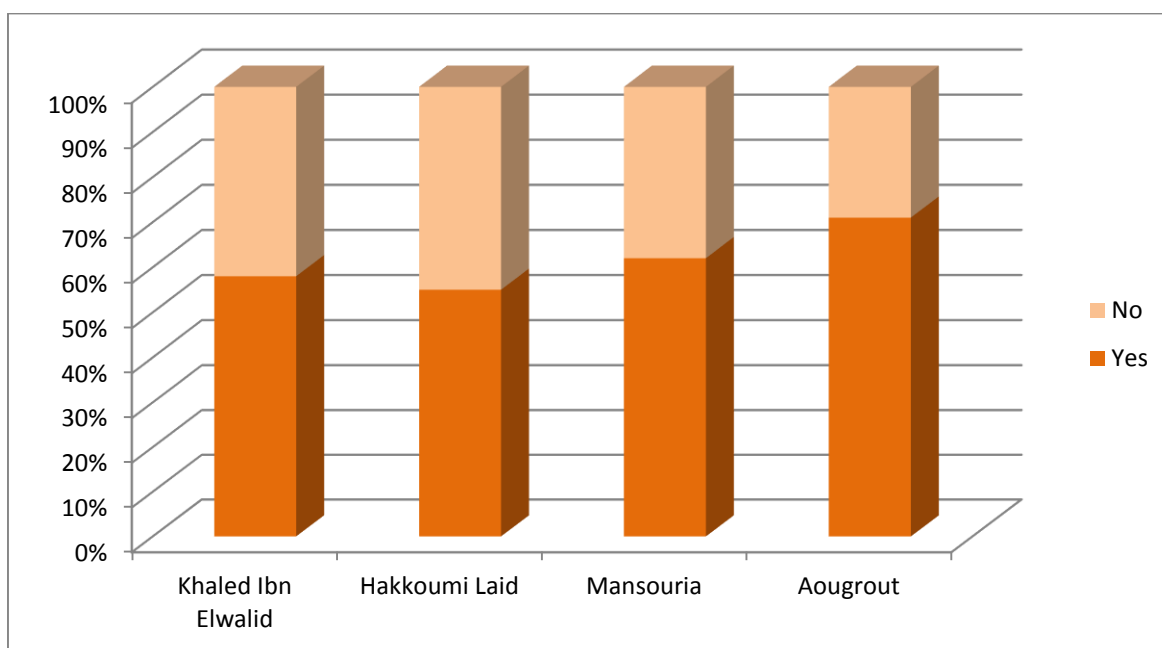
The lowest result (61 %) is scored by Khaled Ibn Elwalid secondary school, yet the highest percentage of the positive answers is always scored by Aougrouit Secondary School (75%).

c. Landscape

The results are as follows:

Institution (Secondary School)	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
Khaled Ibn Elwalid	476	58	344	42	820
Hakkoumi Laid	396	55	324	45	720
Mansouria	471	62	289	38	760
Aougrouit	611	71	249	29	860
Total	1954		1206		3160

Table n°05. The Results of Landscape Layer



Graph n°03. The Histogram of Landscape Layer

Although, the secondary school of Aougrouit scored a low percentage, (71%), compared to the previous layers, it has always the highest percentage of positive answers. Hakkoumi Laid secondary school scored less than fifty five percent (55 %), which is the lowest percentage below both Mansouria (62 %) and Khaled Ibn Elwalid (58 %), respectively.

Comment

By analyzing the results of the three layers we can observe that;

- All the results of the positive answers are between 76 %, the top, and 55 % at the bottom, that is, there are nearly 24 % of negative answers. This means that, this percentage corresponds to the number of words unknown by the informants, and hence, they are lost and have disappeared.
- The gap between 76% and 55% represents the number of words which are in a critical period. In other terms, they are known by some informants and ignored by the others.
- Throughout the three layers, the highest results of the positive answers are scored by Aougrou Secondary School, yet the lowest results are scored by, either Hakkoumi Laid or Khaled Ibn Elwalid secondary schools. The table below sums up the results:

Number	Layer	Highest Score Institution	Lowest Score Institution	The Variability =Highest-Lowest
01	Products	76% Aougrou	58% Hakkoumi Laid	18 %
02	Interiors	75% Aougrou	61% Khaled Ibn Elwalid	14%
03	Landscape	71% Aougrou	55% Hakkoumi Laid	16%
The Average of the Variability = (V01+ V02+ V03)/3				16%

Table n°06. The Average of the Variability

Accordingly, we can conclude that there is a high degree of variability between rural areas (Aougrou) and urban areas (Adrar) in terms of maintaining traditional built environment terminology. This unveils the character of regional dialects of Touat Spoken Arabic versus social ones towards the built environment terminology.

3.8.2 Gender Variation

The study of the gender differences with regard to the knowledge about the traditional built environment terminology is the aim of this analysis. The sample taken

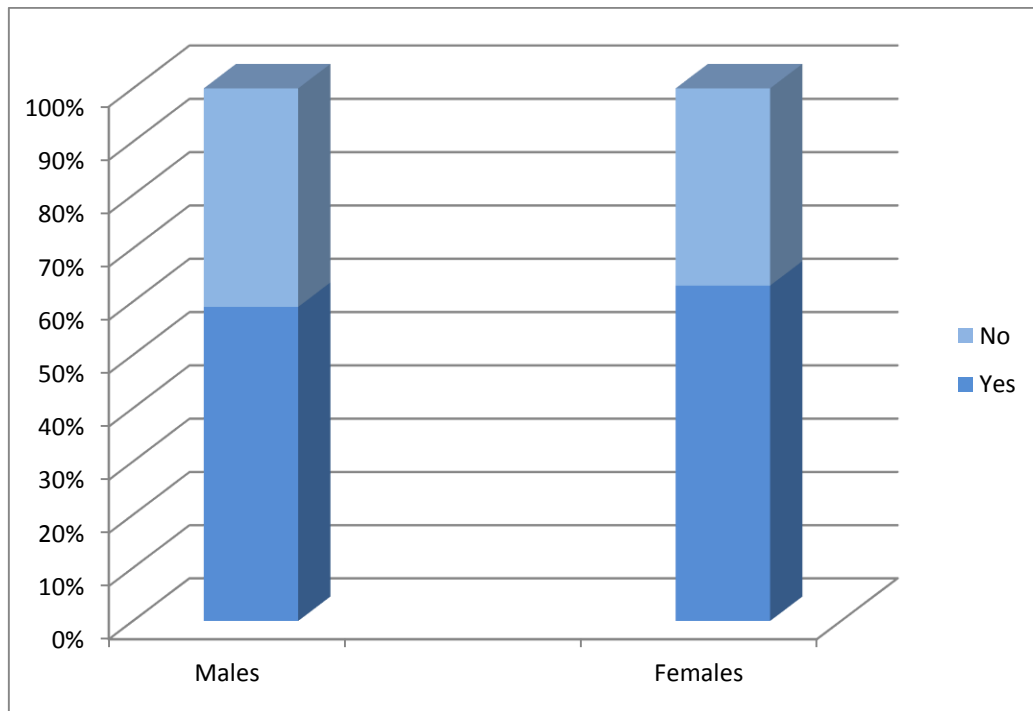
is composed of the students of the two institutions, Khalid Ibn Elwalid and Hakkoumi Laid. Yet, they were divided on gender basis (males and females).

a. Products

The results are as follows:

Gender	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
Males	629	59	444	41	1073
Females	749	63	440	37	1189
Total	1378		884		2262

Table n°07. The Results of Products Layer



Graph n°04. The Histogram of Products Layer

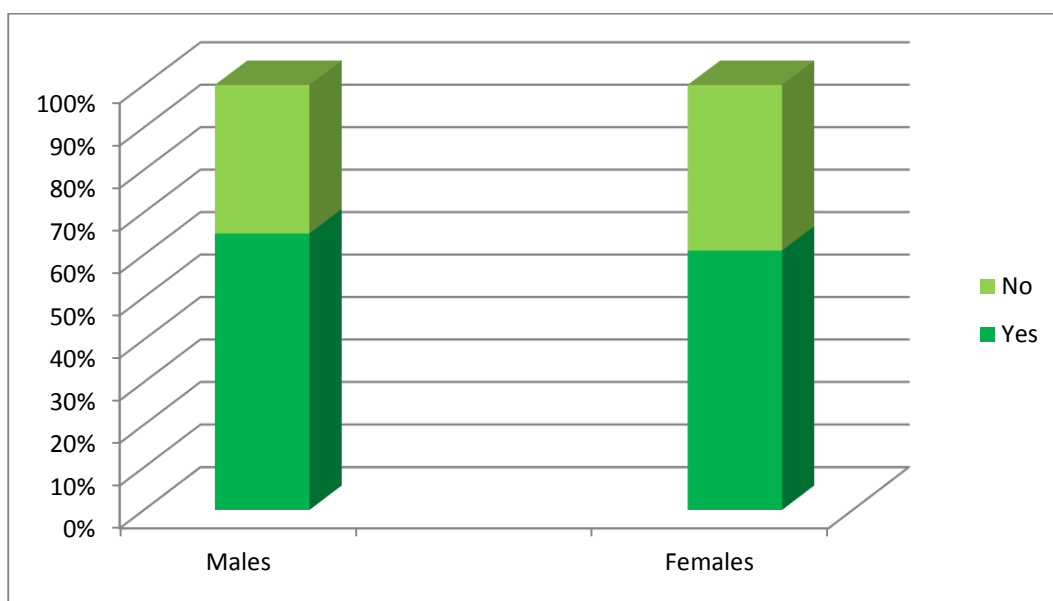
Although, the females have the highest result of positive answers (63%), there is only a difference of (5%) between the two genders.

b. Interiors:

The results are as follows:

Gender	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
Males	721	65	389	35	1110
Females	750	61	480	39	1230
Total	1471		869		2340

Table n°08: The Results of Interiors Layer



Graph n°05. The Histogram of Interiors Layer

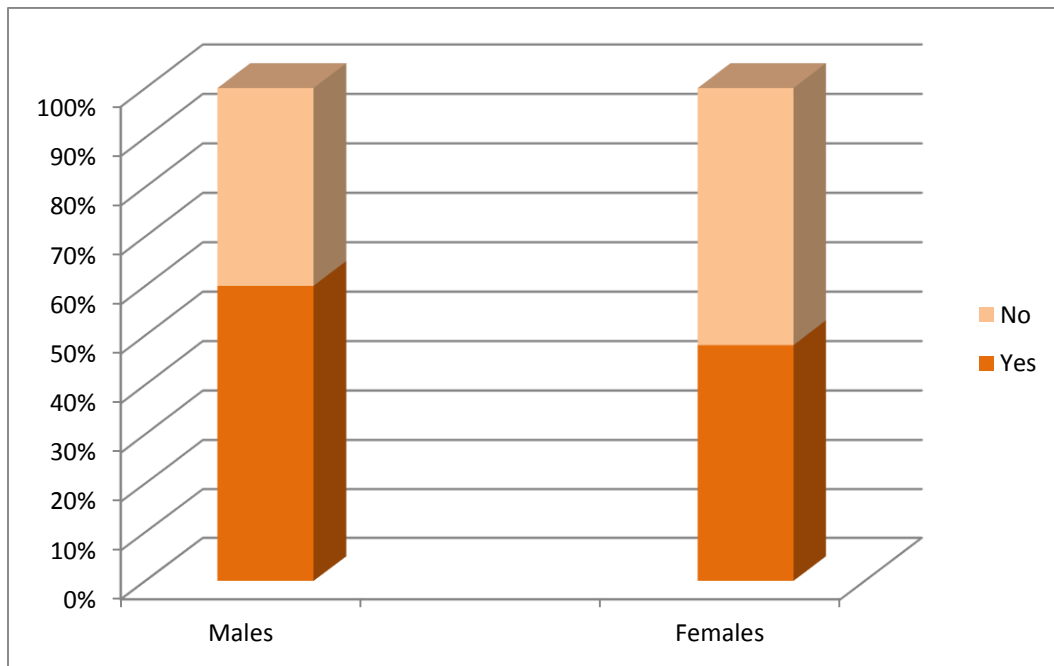
The category of males is higher than the category of females by only 4 %, thus both of them have more than sixty percent of positive answers.

c. Landscape

The results are as follows:

Gender	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
Males	444	60	296	40	740
Females	394	48	426	52	820
Total	838		722		1560

Table n°09: The Results of Landscape Layer



Graph n°06. The Histogram of Landscape Layer

Females scored only 48 % of positive answers, that is, less than the half, whereas, the males scored 60 %.

Comment

Apart from the third layer, landscape, gender variation seems to be unimportant in the first and second layers, products and interiors. Yet, the degree of variability in the landscape layer is high (60% - 48% = 12%). The terminology of landscape is tightly linked to agriculture, and more specifically to the foggara; therefore, the high score of males can be seen as the outcome of being more likely to work in the gardens compared to their female peers.

3.8.3 Age variation

Through the analysis of age variation we can explore the steady lexical changes. In other terms, we can apply a synchronic study on different age grades to deduce the diachronic lexical changes. Therefore, three groups were chosen, and each one represents a given age grade, or rather generation. Thus, a gap of an average of 25 years is kept between each two successive groups.

The groups differ in terms of size and gender; this is because of the difficulties we faced. So we focused only on the first age group (18 years old) in order to get a homogenous and middle sized group.

Age Group	Male	Female	Total
The 1st group (18 years old)	37	41	78
The 2nd group (32-42 years old)	23	12	35
The 3rd group (More than 60 years old)	17	03	20
Total	78	80	158

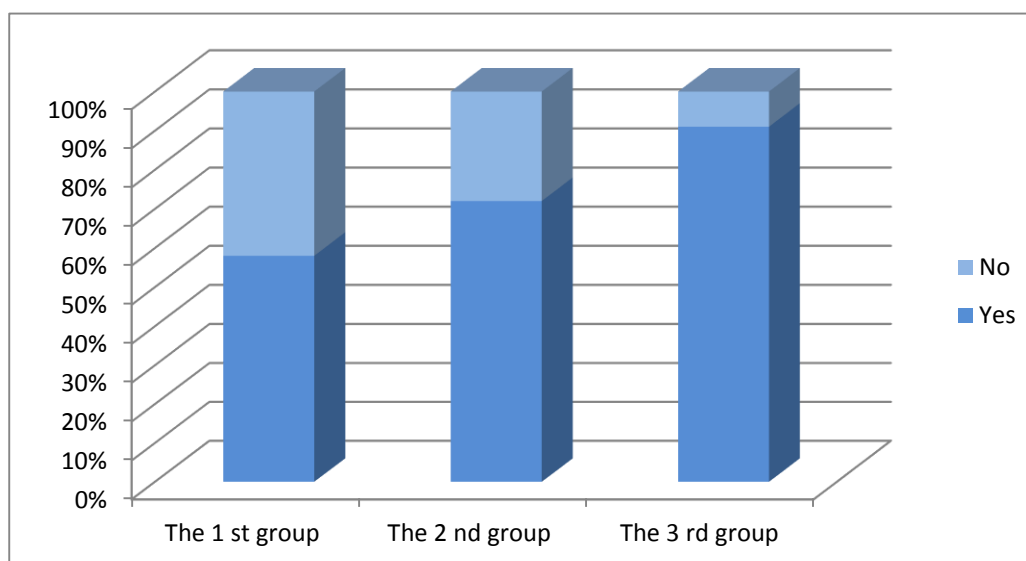
Table n°10: Different Characteristics of the Sample

a. Products

The results are as follows:

Group	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
The 1st group (18 years old)	1312	58	950	42	2262
The 2nd group (32-42 years old)	731	72	284	28	1015
The 3rd group (More than 60 years old)	60	91	540	09	600
Total	2128		1784		3912

Table n°11. The Results of Products Layer



Graph n°07. The Histogram of Products Layer

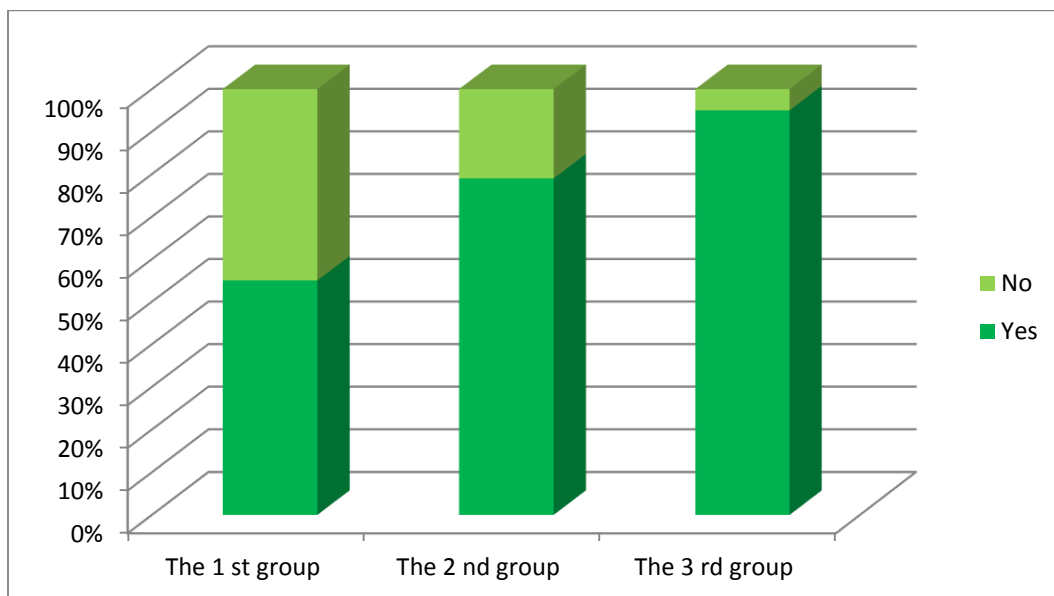
The 3rd group has got the highest score (91%), followed by the second group (72%), and finally the first group only 58 %.

b. Interiors:

The results are as follows:

Gender	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
The 1st group (18 years old)	1474	63	866	37	2340
The 2nd group (32-42 years old)	830	79	220	21	1050
The 3rd group (More than 60 years old)	574	99	06	01	580
Total	2850		1085		3935

Table n°12.The Results of Interiors Layer



Graph n°08. The Histogram of Interiors Layer

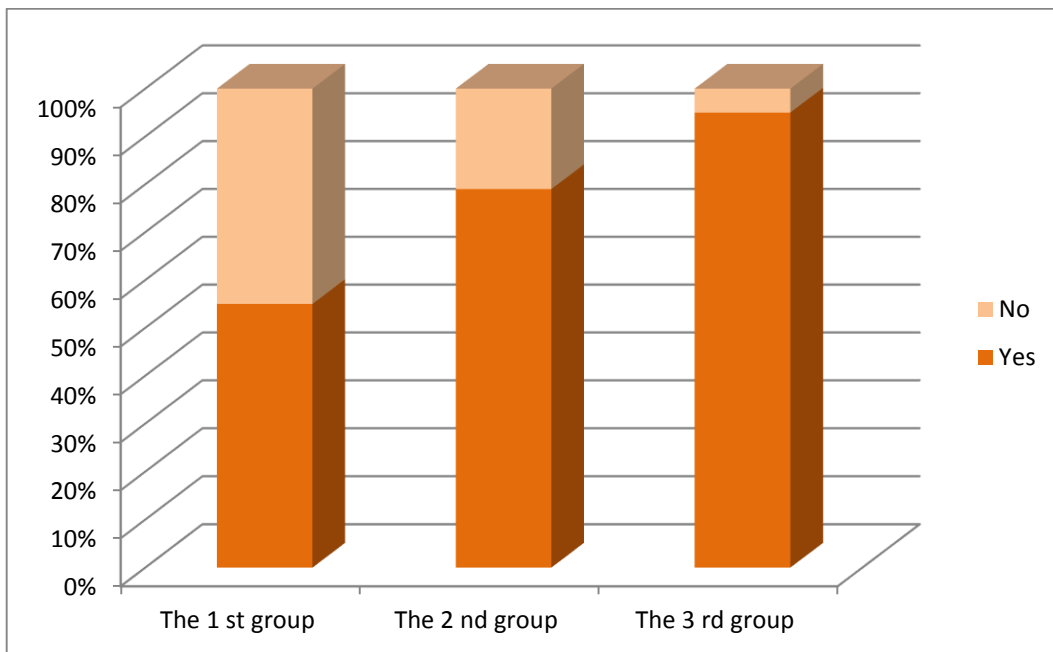
The 3rd group is always in the top position by (99%) of positive answers, whereas the first group is the last one (63%).

c. Landscape

The results are as follows:

Age Group	Yes (Number of tokens)	Percentage %	No (Number of tokens)	Percentage %	Total
The 1st group (18 years old)	858	55	702	45	1560
The 2nd group (32-42 years old)	553	79	147	21	700
The 3rd group (More than 60 years old)	395	95	20	05	415
Total	1806		869		2675

Table n°13.The Results of Landscape Layer



Graph n°09. The Histogram of Landscape Layer

As in the previous layers, products and interiors, the second group is always in the mid-position (79%). It is preceded by the third group (95%) and followed by the first group (55%).

Comment

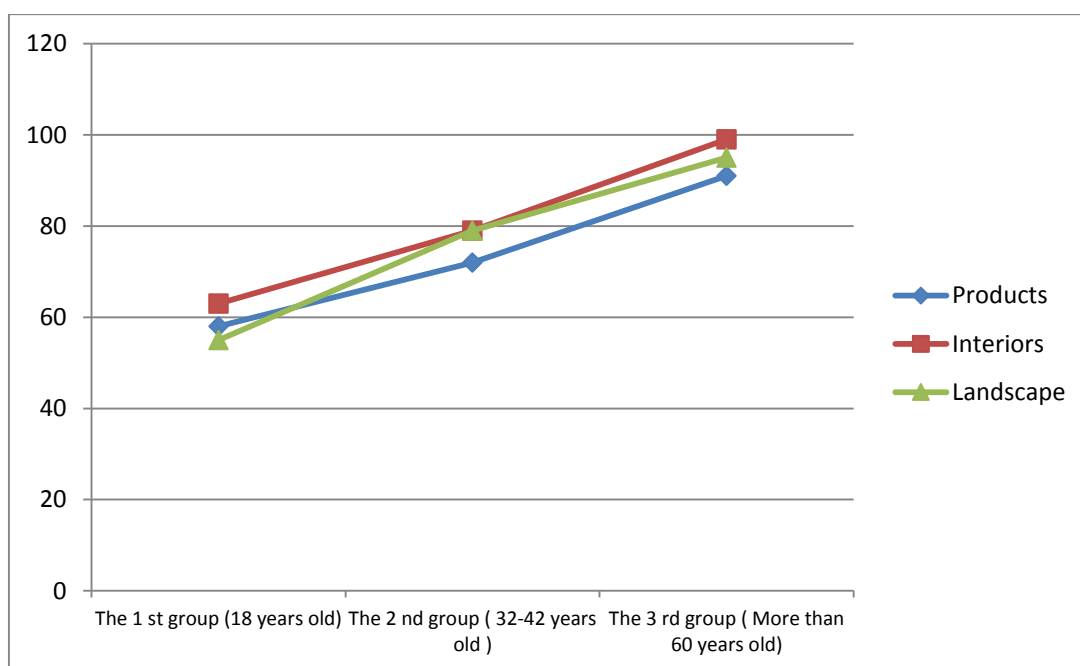
Despite the high variability between the three age groups, there is a steady variability between the layers of the same age group. The table below sums up the results:

Number	Age Group	Highest Score Layer	Lowest Score Layer	The Variability =Highest-Lowest
01	The 1 st group (18 years old)	63% Interiors	55% Landscape	8 %
02	The 2 nd group (32-42 years old)	79% Interiors/ Landscape	72% Products	7 %
03	The 3 rd group (More than 60 years old)	99% Interiors	91% Products	8 %
The Average of the Variability = (V01+ V02+ V03)/3				8 %

Table n°14.The Average of the Variability

Accordingly, 8 % is the percentage of variability between the highest and lowest scores of layers in the same age group. In other terms, all the layers of the built environment undergo approximately the same rate of change.

The following graph represents the rate of change throughout the three generations.



Graph n°10. The Graph of Variability

We can notice easily that from one generation to another nearly 20 % of the whole lexicon disappears.

Conclusion

This chapter, the practical one, indicates that there are steady changes in the built environment terminology, and this is supported by spatial variation, gender variation, as well as age variation.

The fieldwork investigation indicates that:

Some terms are still understood by Touat speakers, yet they are not widely used such as the term, [fəm ədda:r]. It is easily deduced that it means the house entrance, though its usage is rare.

Some terms has changed for others such as the term [qu:s] which leaves its place to the word [ʃa:mbra] and the term [kæni:f] which becomes [fi:si]. Some terms disappeared such as [dəkkæ:na] because of socio-cultural and spatial changes.

The remaining lexicon is still facing the challenge of survival, because of the different evidence of actual and future changes.

General Conclusion

The aim of this research is to study the relationship between language and the man made surroundings, or what is referred to as the built environment. In the first part, a theoretical support was set up through presenting sociolinguistic definitions besides various perspectives to the concept of built environment.

The second part is devoted to the fieldwork investigation. At the first stage, Touat Spoken Arabic was tackled by analyzing the phoneme inventory, then the syllabic system. At the second stage, both traditional and contemporary built environment lexicon were explored. At the third stage, three variation parameters were adopted so that to study the lexical variation.

As a conclusion, we can sum up what we have seen in the following points:

- Language and the built environment share various features and differ in others. Thus, the factor 'evolution and change' seems to be a prominent feature among both of them. Besides, the tangible nature of the built environment versus the non-tangible substance of language stands as the most distinctive features between the two.
- Since the sociological element is a crucial agent in the variation of both of them, this might simplify and unify the different factors behind any evolution. On the other hand, the human behavior is too complex to study and predict its variation and change.
- The investigation of the lexical variation proved that the changes in the built environment context affects directly the linguistic support of the physical object of the man-made surroundings. In other terms, the two phenomena go forward along with each other by mutual interactions.

That is, we can assume that by studying the changes in one of them we can predict the changes in the other one.

Conclusively, the study of the interdependence of language and the built environment, though it aims at the deeper understanding of the socio-cultural human nature, raises more questions than it answers.

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