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Language –in- Education Planning in Algeria :

Between Myth and Reality

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Statement of Originality

I hereby declare that this material that I now submit for assessment is my own effort and my own work. With a great respect to other writers who wrote about the same title as mine. All their works have been cited and acknowledged by stating the exact references.

Dedication

This dissertation is dedicated to:

My parents, my husband, my sisters, my brothers, and my daughters.

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Abstract

The present study aims to measure 1st year students' and teachers' of Dr Tahar Moulay University of Saida attitudes towards arabizing sciences. The significance of this research work lies in investigating the effects of the medium of instruction on students' achievements, taking into account that in Algeria pre-university education is Arabized and that up to secondary school, Arabic is the medium of instruction. Data are collected and analyzed by different research tools such as classroom observation, questionnaires, and interviews; qualitative and quantitative data reveal that the students' low achievements in scientific streams are due to the abrupt shift in the medium of instruction. Students' are suddenly faced with a new language of instruction, the fact that affects negatively their learning attainment. Accordingly, the respondents expressed positive attitudes towards arabizing sciences compared with extremely negative attitudes towards French. Another central finding is made upon the negative attitudes that the teachers expressed, either explicitly or implicitly towards the Arabization of sciences, refusing any kind of top-down imposition of Arabic as a medium of instruction. The other vital result is that some students and almost all the teachers expressed the urgent need for the use of English as a medium of instruction of sciences in the Algerian universities.

Keywords: attitudes, Arabization, the medium of instruction, Arabic, French, sciences, Algerian university-

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List of Abbreviations

AA: Algerian Arabic
CA: Classical Arabic
CALP: Cognitive Academic Language Proficiency
DA: Dialectal Arabic
ESA: Educated Spoken Arabic
H: High Variety
L: Low Variety
L1: First Language
L2: Second Language
LiEP: Language-in-Education Policy
LP: Language Planning
LPP: Language Planning and Policy
LWC: Language of Wider Communication
MGT: Matched-guise Technique
MI: Medium of Instruction
MSA: Modern Standard Arabic
SA: Standard Arabic

List of Acronyms

AAAS :American Association for the Advancement of Science

ACB: Science Arabization Coordination Bureau

ABEGS: Arab Bureau of Education for the Gulf States (ABEGS)

ALESCO: Arab League, Educational, Cultural, Scientific Organization

BICS: Basic Interpersonal Communication Skills

HCA: Haut Commissariat à l'Amazighité

IRCAM : Institut Royal de la Culture Amazighe

General Introduction

Language planning and language policy have traditionally been regarded as a meeting ground where linguists and experts attempt to solve language problems. As a powerful social source, language affects not only every day and applied social interactions but also impinges at the macro-sociological as well as public levels. Therefore, an understanding of this process, that affects different social contexts and cultures, is the heartland of the study of language policy and language planning. The latter have extensive research tradition rooted in an array of disciplines. Sociolinguistics, sociology of language, the social psychology of language, anthropological linguistics, communication, and discourse analysis have all made contributions. The intersection of language policy and language planning, traditionally defined as a deliberate intervention on linguistic problems, with the above-mentioned disciplines may be explained by strong factors such as high rates of illiteracy, ethnic conflicts, immigration, nationalism, school dropout, and globalization that require societal multilingualism.

The present study aims to examine language planning and policy in the Algerian education system focusing on the medium of instruction in higher education. In the aftermath of independence, the Algerian authorities carried out an interesting project to recover the Arabic language in all the sectors of life. Such a project is called Arabization which may be defined as the restoration of Arabic to regain the country's national identity and culture. In fact, in late 1980s, all the educational levels were Arabized, and Arabic has succeeded to replace French as the exclusive medium of instruction in the pre-university stage.

However, in higher education, the competition between Arabic and French, as a medium of instruction, is still going on. The use of French in Algerian universities, especially in the scientific fields is the norm rather than the exception. After twelve years of Arabic based education, students are faced with a sudden shift in the medium of instruction. They are obliged to cope with French if they wish to carry on in scientific fields. This reality has engendered multiple problems such as negative cognitive consequences and high rates of academic failure. In this context, the research at hand attempts to measure the possibility of Arabizing the scientific fields to solve the students' obstacles caused by the medium of instruction.

Several studies have demonstrated empirically that learning science in the native language is easier for students than using a foreign language. It is important to recall in this context that Arabic has a long history of use as a language of scientific expression, and its use as a medium of instruction of science in many Arab countries indicates the feasibility of teaching science in Arabic at all the levels of education (Soleiman, 1999). Another reason behind the conduction of such research is the students' weak command of French. Hence, Arabizing science education may ease the learning process at the university. Furthermore, the high rates of failure among students of Science and Technology Departments in the Algerian universities explain their preference to change the field of study where instruction is provided via Arabic.

The aforementioned reasons are believed to be the direct result of contradictions that exist between official texts of the constitution and their implementation in practice. The gap between what is set in the constitution and the practice is due to the absence of a real political will. The Algerian governors change of ideology has remarkably affected the status of languages especially Arabic in Algeria. The law of 1991(N91.5) which set July 5th, 2000 the date of generalization of the use of Arabic at all levels (including scientific education at university level) was passed during the presidency of Chadli Ben Jdid (1979-1992). Such a law was reinstated during the presidential term of President Zeroual in 1996, resulting in arabizing a great number of scientific and technological institutions. Unfortunately, during President Bouteflika's advent to the presidency in 1999(-2019), the law was put apart and Arabization witnessed real drawbacks. Arabization has been slow and sometimes problematic due to many socio-cultural, political and linguistic factors that are in the center of this study.

Another important reason for the failure of Arabizing sciences at university is the non-consideration of the community's views and attitudes while taking decisions about languages. The decision about a language change or a language reform should be taken after surveying the population's attitudes mainly those specialized such as teachers, linguists, and educationalists. The present research hence is based on socio-psychological orientations; it aims at measuring students' and teachers' attitudes towards arabizing sciences in higher education. More importantly, it attempts to investigate students' and teachers' readiness to support the policy of Arabization.

To find an answer to this research problem, the following research questions were asked:

1/Does the change of the language of instruction at the university level represent a handicap for students' achievements in scientific streams?

2/What are students' perceptions and attitudes At Dr.Tahar Moulay University of Saida towards Arabic as a medium of instruction?

3/What are the teachers' attitudes towards the policy of Arabizing sciences in the Algerian Higher education?

To find answers to the above research questions, the following hypotheses have been formulated:

1/The Change of the medium of instruction is the reason for students' poor achievements in the scientific fields since they had the habit to learn in Arabic from their early ages i.e. from primary till secondary school.

2/Students' attitudes to Arabic as a medium of instruction are positive since it is the language they know more than any other language.

3/The teachers have negative attitudes towards Arabization, thus Arabizing the scientific streams is impossible in Algeria. It is believed that because of the scarcity of scientific and technical vocabulary and books in Arabic, besides the French – based education that the teachers have received, Arabization for these teachers is difficult.

The methodology used in the present work includes both quantitative and qualitative research methods. The study also uses the taxonomy development model of exploratory and explanatory sequential mixed methods which allow the researcher to conduct inductive and deductive investigations at the same time. This research is exploratory as it investigates the attitudes of both 1st-year students and teachers Dr. Moulay Tahar University of Saida towards the teaching of sciences in French and the possibility of using Arabic as a medium of instruction instead. It is also explanatory as it investigates the statuses of the different languages existing in Algeria in the form of past, present and future consideration of language policy in education. Accordingly, it involves a total of 200 students from the University of Saida in addition to 30 teachers from the same university. The prevalent sampling procedure is random sampling as the majority of participants notably for the interview are selected with no specific criteria.

Data collection encompasses various research instruments. Both qualitative and quantitative methods are employed to either confirm or disconfirm the hypotheses speculated in the present research. Data collection tools comprised the use of classroom observation, questionnaires, and interviews. Consequently, mixed research methods are used to meet the research objectives, leading to triangulation that helps to assure the validity and reliability of the research findings. Data analysis is based on converting data into numerical and descriptive elements. It also includes textual and software analyses that are applied to different research instruments. For example, the Statistical Package for the Social Sciences (SPSS) program was employed to analyze the data obtained from the questionnaires associated with some statistical measures as graphs.

To achieve the objectives of the research, this work is divided into five chapters. The first chapter represents the theoretical part of the study; it is made up of two parts. The first part provides a general explanation of the key concepts of language planning and language policy research (definitions, types, goals, actors, and process), in addition to the history of language planning and policy in the Arab world, notably Algeria. The second part presents an overview of language attitude, its formation, change, and measurement, in addition to the relation of attitude with other terms. At the end of the chapter, the relation of language attitudes and its importance in language planning and policy was highlighted

The second chapter of this study provides a lens to language planning and language policy issues in the Algerian education system. It provides a thorough description of the status of languages from the pre-colonial era and so far. Also, abruptly, it covers the main steps and measures carried out by Algerian leaders vis à vis the policy of Arabization. The diglossic characteristic of the Algerian society and its consequences on the pupils have been investigated, and solutions to overcome such a phenomenon were provided. As for minority language rights, Tamazight's origins and process of officialization were sketched and the recent measures towards it were examined. As far as French is concerned, the status of this language in colonized and independent Algeria was portrayed to uncover the reasons for its omnipresence in present Algeria.

Chapter three is about the methodology used in conducting the present research. It outlines the study design, the sample population, the research site, and its tools. The researcher used the direct approach in the measurement of the students' and teachers' attitudes relying on

mixed methods that help collect sufficient data through a triangulation approach. The chapter describes thoroughly the research instruments

As for chapter four, it aims at analyzing, discussing, and interpreting the collected data through the above-mentioned research tools. The chapter also attempts to answer the research questions raised above. The fifth chapter is set to afford summaries to the findings of the study to answer the questions and confirm or nullify the research hypotheses. It suggests as well some recommendations to solve linguistic problems related to the medium of instruction. The chapter ends with different implications for further pieces of research in this field.

As for the writing style, the researcher has adopted the 6th edition of the APA manual commonly used to cite sources in psychology, education, and social sciences.

Chapter One: Review of Related Literature

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Theoretical Concepts in Language Planning and Language Policy Research**1.1 Introduction**

Questions related to language use and language development attracted much interest and social attention. Different interventions such as the selection of official languages, the development of terminologies, the role of minority languages in education, spelling reforms, and the designation of the medium of instruction at different educational levels are all the concern of language planners and sociolinguists. In sociolinguistics, all these examples are treated as a part of a unified field known as language planning. Decisions about language are generally taken by policymakers, whose first task is to take account of the people's attitudes towards a language change.

The chapter is divided into two parts: the first part begins by providing a general overview of the field of Language Planning and Policy (LPP) research. It discusses the actors of LPP, its goals, its levels and the different types and agencies that contribute to the implementation of a language change. Part one of Chapter One concludes with portraying LPP in the Arab World with more focus on Algeria. The second part describes how the concept of attitude is represented in the literature by exploring the definition of the term and its components, besides providing the different methods of attitude measurement. This part ends with a discussion of the importance of language attitude for language planning decisions.

1.2 An Overview of Language Planning

Language planning in its vast sense is as old as human beings on earth. The early conquerors of new territories tended to learn about the languages of the conquered inhabitants. The latter found themselves obliged to learn the conqueror's language to communicate with them. Recently, the concept of LPP took new dimensions. Its real existence comes back to the late fifties and the early sixties as an inevitable upshot of the collapse of former European colonialism and the emergence of new states in the map of the modern world (Spolsky, 1998). Thus, LPP, as it is known today, started with some arising concepts such as nationalism and national language.

Newly decolonized countries as Algeria and Morocco have tried to regain their native languages as a symbol of unity and independence. However, this accessible enthusiasm for nationalism has been faced by many problems. The widespread of colonizer's languages touch all the aspects of the life of the colonized countries, besides the linguistic variety of these countries due to their ethnic varieties. Consequently, one of the urgent and recurring measures

was the establishment of a national language that would replace the colonizer's language for wider communication. These types of problems and with the rise of mass education, language planning came to find solutions to language problems as a government's strategy to implement change, a fact that makes language planning of great interest and a serious process to which huge budgets are saved.

1.2.1 Towards a definition of language planning

Generally speaking, language planning (LP) is the deliberate intervention on the form or the use of language. To put it differently, it is an activity that is undertaken by the government aiming at determining (among many other activities) which language to be used as a medium of instruction and at which level. In this sense, Kaplan and Baldauf (1997) provided the following definition of LP in their reference book *Language Planning: From Practice to Theory* as follows:

Language planning is a body of ideas laws and regulations (Language policy change of rules, beliefs and practices intended to achieve a planned change (or to stop change for happening) in the language use in one or more communities. To put it differently, language involves deliberate although not always overt future-oriented change in systems of language code and or speaking in a societal context. The Language planning that one most hears about is that undertaken by government and it is intended to solve complex societal problems, but there is a great deal of language planning that occurs in other societal contexts at more modest levels for other purposes. (p.3)

Since the emergence of the term LP as a field of research in the 1960s, sociologists of language did not agree on one unified definition. The reason may be referred to as the complicated issues that may be involved when discussing language in society. The intersection of LP with a variety of disciplines such as sociology, anthropology, linguistics, and social psychology has complicated the researchers' task to account for one unified definition of the term. Sociolinguists as Cooper (1989) conceptualized LP, in one of the most often cited definitions, around the question of "What actors attempt to influence what behaviours of which people for what ends under what conditions by what means through what decision-making process with what effect?" (p.45). Accordingly, the author considers language planning as "Deliberate efforts to influence the behaviour of others concerning the acquisition, structure, and functional allocation of their codes" (p.45). Whereas, Fishman

(1974) regarded LP as “An organized pursuit of solutions to language problems”, these solutions stand from a given goal that must be given precise direction and boundaries. The goal determines the direction of change (Hornberger,1990).

However, the distinction between language policy (the plan) and language planning (plan implementation) is usually difficult. That is why the two terms have frequently been used interchangeably in the literature of LPP. A sharp distinction has been made between language policy as “referring to the policy of a society in the area of linguistic communication” which is usually formulated in an official document and language planning, “referring to a set of concrete measures taken within language policy to act on linguistic communication in a community” (Jliddicoat & Baldauf 2008). Some researchers consider the two terms as totally different whereas, others use them interchangeably.

The term language policy "as official planning, carried out by those in political authority and has clear similarities with any other form of public planning" (Ager, 2001,p.180). It involves formulating laws, regulations, and official positions of the language used by the government or by any political organization like the Ministry of Education. As for language planning, Baldauf (2006) described it as the above-mentioned activities to realize the policy. In the same line of thought, Bradely (2012) associated corpus planning with language planning and status planning with language policy asserting the distinction between the two terms. Language policies, thus, are usually associated with the state and with political decision making.

Other terms have been usually used in LPP research, for instance,Spolsky (2009) use the term language management as privileged to terms such as planning, engineering, or treatment. The author defines language management as “conscious and explicit efforts by language managers to control language choices”(p.1) and as the “Explicit and observable effort by someone or some group that has or claims authority over the participants in the domain to modify their practices or beliefs”(2009, p.4). Throughout this work, the two terms i.e. language planning /language policy or the combination of them LPP is used interchangeably to avoid any terminological ambiguities.

1.2.2. Brief history of language planning and policy research

The area of research in LPP has grown considerably since the mid-twentieth century. The following section outlines the development of this academic field, in addition to some key findings that contributed to shaping present-day theory. LPP emerged during the early 1960s; the main focus had been on the linguistic challenges faced by post colonized nations,

such as countries of North and South Africa. For these people, linguistic issues such as which language should be appointed as an "official" language (status planning)? How to codify the lexicon? How to standardize syntax (corpus planning)? Is it better to retain colonial languages, or reallocate mother tongues to public domains were the main concern?

The influence of positivism¹, which dominated sociological thought at that time, gave rise to the 'rational' model which regarded multilingualism as problematic rather than positive. Researchers as Fishman, Ferguson in (Fishman, Ferguson, and Das Gupta, 1968), consider language planning as a means to build the nations of the newly decolonized countries. They believe that nation-building may be achieved through a monolingual policy, asserting the Western philosophy that "states optimally operate with one national language" (Phillipson & Skutnabb-kangas, 1996, p.437). Nevertheless, such a vision was criticized for its failure to cover the multiple influences of language use.

Post-modern theories, however, developed as a reaction to the positivist outlook sought to explain policies in the light of cultural, historical and economic influences. Sociolinguists as Pennycook (1989) and Tollefson (1991, 1995) raise the problem of language inequalities in both developed and newly decolonized developing countries, in addition to the impact of ideology on language planning and language policy. They have also considered LPP as a manifestation of decision-makers and the dominating elites to protect their interests in governmental institutions. Therefore, individuals are constrained by such ideologies.

LPP research today, focuses on the topic of language ecology, with a special interest in multilingualism and the state of endangered languages. From the 1990s, academics such as Fishman (1991, 2001), Romaine (2006), Muhlhauser (1996) and many others have published researches on language shift and the threat posed to thousands of the world's languages from the dominance of other languages. While English continues to displace other languages across the globe, other languages such as French have also played a part in the weakening and extinction of indigenous (a language that originated in a specified place and was not brought to that place from elsewhere) languages.

Researches such as Coulmas (1991), Roland, Landa, & Moore (2006) also focus on linguistic human rights and their law. Most of them concerned conditions in Europe and North America, notably related to the European Union and a concern for its minority languages (Paulston, 1997). These are all areas that enriched academic literature in recent years. Further

¹**Positivism** is a philosophical theory stating that certain knowledge is based on natural phenomena and their properties and relations. Thus, information derived from sensory experience, interpreted through reason and logic, forms the exclusive source of all certain knowledge.

research could involve more insight into how politics and economics may determine the use of language in the 21st century. The role of micro language planning and its influences may also be at the heart of the study of LPP research.

1.2.3 Actors of language planning

Some definitions restrict LP to activities undertaken by governments, governmental agencies, or other authoritative bodies. The fact that makes researches on macro-level planning the most prevailing and prestigious in the field (Kaplan & Baldauf, 1997) outlined four basic areas working as actors of language planning. These actors are involved in any LP project and are responsible for their success or failure. These areas are outlined as follows:

1-Governmental Agencies, 2-Education Agencies, 3-Other Quasi-Governmental or Nongovernmental Organizations, and 4-all sorts of other groups and individuals working in the field. Each of these bodies will be briefly defined:

A/Governmental agencies

Are involved at the highest level, they are concerned with the government's intervention in LP issues. This kind of intervention began by the late 20th century when the overwhelming majority of colonized countries came to be independent. These linguistically heterogeneous populations with the widespread use of a foreign language,(the language of the former colonial power), needed governmental intervention, taking in regard that the government has the power to legislate and the ability to change linguistic behaviours by enforcing planning decisions(Kaplan & Baldauf, 1997).

B/Education agencies

These agencies are sometimes acting under the higher-level structure, and instead of it in some cases, the entire burden of planning language has been allocated to the Education Ministry. This sector has a great influence, especially on children who represent the future of any nation. Yet, not only children between 5or 6 till 15or16 are influenced by education. It may also influence adult, technical, distance, and special education for other groups of individuals. The education sector has to make many language policies and planning decisions. Some of them are briefly introduced by Kaplan and Baldauf (1997, p. 8):

- First, it has to determine which language(s) will be taught within the curriculum, to determine when in the curriculum the introduction will occur and its timing. It determines also what sort of proficiency is required to meet society's needs by the end of the instruction.

- Second, it must define the teacher supply, taking into consideration who teaches the language(s) included in the curriculum. It is also concerned with teacher's training and pre-service training to produce proficient teachers.
- Third, the Education sector determines what segment of the student population will be exposed to language(s). It studies strategies to accumulate parental and community support for any plan. These strategies are widespread in developed countries.
- Fourth, it determines what methodology (es) to be used in the educational system, what materials will be used to support these methodologies, how and by whom these materials will be prepared.
- Fifth, it defines the assessment processes: formative and summative testing.
- Sixth, it needs to determine how to support all of this activity fiscally and physically and where the resources will come from. (Kaplan& Balduaf,1997,p.8).

C/Quasi/non-governmental organizations

These organizations are influential actors in language policy development. Such quasi-governmental organizations as the British Council, the Alliance Française play a vital role in propagating respectively English and French worldwide. Another example of such organizations is represented by national language academies. These types of academies were put in place since the seventeenth. This function was to preserve the purity of the national language. L'Académie Française was the oldest and the most known one. Those academies prepare dictionaries and produce policies regarding standard grammar, spelling use, and foreign language borrowing that can be permitted(Kaplan &Baldauf,1997).

D/Other organizations/individuals

This final actor represents all sorts of other groups or in some cases influential individuals who act without the intervention of the government. These groups spread their own beliefs concerning linguistic issues. Such beliefs participate in shaping the country's language policy and planning regarding any project or plan(Kaplan &Baldauf,1997).

1.2.4 Types of Language Planning

Academic research has outlined many differing types of LPP. Language planning has been categorized according to aims and ways in which it functions within societies. It has also been categorized according to the ethnolinguistic environment of territories or countries into which it is implemented. The diversity of political, ethnic, and linguistic situations can greatly influence the formation and outcomes of LP. Status planning and corpus planning were first used in the language planning literature in 1959 (Hornberger) as cited in(Almahmoud

(2012,68),later on, other contributions from other scholars added two other types:acquisition planning and prestige planning.

Cooper(1989) added acquisition planning to ‘status’ and ‘corpus’ categories of LPP.Status planning is concerned with the allocation of a community's languages to various functions or uses. It is hence concerned with furthering a language's many uses. Acquisition planning which is similar yet distinct from status planning focuses on increasing the number of users of the language (Cooper, 1989). Spolsky and Shohamy (1999) acknowledged these three types of language planning and included a ‘diffusion’ policy as a sub-category of acquisition policies. Diffusion policy or diffusion planning is concerned with promoting a language outside of the national borders such as an overseas educational policy to widen the use of the language. The British Council represents one example of an institution to further the linguistic spread of English. More precisely and to delimit the activities of each type, they are mentioned below:

1.2.4.1Status planning

It involves the allocation of languages to different social domains, such as the official sphere, education, business, media, etc(Gadelii, 1999). It also refers to the efforts of state governments to recognize the significance of one language over others in a community (Richards & Schmidt, 2002). Activities that may result from status planning are changes in language functions, the use of language, language choice, medium of instruction, implementing and changing the official language, shifting from the use of one language to another, and the organization of a community's language resources(Cooper,1989; Gadelii,1999). Status planning refers also to the allocation of languages or language's varieties to given functions, e.g. medium of instruction; the vehicle of mass communication i.e.it is associated with deliberate efforts to influence the allocation of functions among a community's languages.

1.2.4.2Corpus planning

Corpus planning refers to efforts to change the internal structure or corpus of a language, in contrast to status planning which is based upon a government, organizational, or individual interest in the relationship between languages and community, corpus planning is based upon the linguists' efforts to make changes within the language itself(Djité, 1994). Although the differentiation between status and corpus planning, in theory, Cooper (1989)claimed that,“their practical application appears to be tightly connected” (p.76). Activities of corpus planning may include: coining new terms, reforming spelling, and

adopting a new script. It is also related to the creation of new forms, and the modification of old ones. The language cultivation, reform and standardization mentioned in Haugen's definition² and the selection and elaboration of linguistic features, specified in Gorman's.(Gorman 1973, in Cooper,1989).³ represent instances of corpus planning. An example of corpus planning is the establishment of the 'Académie française'(Gorman 1973, in Cooper,1989)..

1.2.4.3 Acquisition planning (or language –in- education planning)

Prator's definition⁴ of language, planning considers language teaching as an object of policymaking and suggests a third focus of LP, namely acquisition planning. When planning is directed towards increasing a language's uses, it falls within the rubric of status planning. But when it is directed toward increasing the number of users, speakers, writers, listeners, or readers, another category of LP is discussed. Consequently, acquisition planning is related to language distribution, which can involve providing opportunities to use a particular language to promote the number of users. Moreover, Djité (1994) pointed out that "whenever the government of any nation-state makes a decision vis à vis the language of its educational system, this decision may be classified within the realm of language -in- education planning at the societal level"(p.77). He claimed that the education system contributes to the maintenance and spread of the language of instruction selected by the government and of the languages that should be studied in schools. It is argued thus that language –in- education planning is only part of status planning and a result of educational spread.

1.2.4.4 Prestige planning

Harrmann(1974) as cited in In Cooper (1989). has suggested another range of language planning activities to complete the status and corpus planning introduced in Haugen's model. He argues that prestige planning represents a separate range of activities. When corpus and status planning are productive activities, prestige planning is a receptive or value function which influences how corpus and status planning activities are received by people. It is hence concerned with altering or promoting the image of a language. On another hand, Ager (2005)

² " As I define it, the term LP includes the normative work of language academies and committees, all forms of what is commonly known as language cultivation, and all proposals for language reform or standardization" (Haugen 1969 in Cooper;1989)

³ The term LP is most appropriately used in my view to refer to coordinated measures taken to select, codify and in some cases to elaborate orthographic grammatical, lexical, or semantic features of a language and to designate the corpus agreed upon"

⁴ « Language policy-making involves decision concerning teaching and use of language, and their careful formulation empowered to do so, for the guidance of other's). (Prator cited in Markee 1986 in cooper; 1989).

pointed out that “this type of planning is concerned with the image of the language”. According to Ager, prestige planning refers to “three separate activities: promoting a language, manipulating the image as a method of implementing language policy, and something deeper to do with the motives of the language planners themselves” (p.1083). After reviewing the four types of language planning, it is worth mentioning that the distinction between them is only theoretical. In practice, the four types are tightly interrelated. Yet, what can be concluded from this distinction is that language planning deals with four key aspects: society (status planning), language (corpus planning), learning (acquisition planning), and image (prestige planning).

1.2.5 Levels of Language Planning

After discussing the different activities that represent the types of LP, it is appropriate now to consider whether these activities belong to the category of macro, meso, or micro language planning. Government activities are the top-down, macro-level components of LPP. In contrast, meso-level activities are more limited in scope and are often aimed at a specific group within society (Kaplan & Baldauf, 1997). Local government initiatives form part of a meso-level category of LPP via top-down policies that are implemented in given administrative areas. Micro planning (bottom-up influences) involves small scale organizations such as supplementary schools, family units and individuals. The three levels mentioned above can be outlined as such:

1.2.5.1 Macro-level planning

This involves 'top-down' national government policies. An example of this planning is the Arabization policy in Algeria which was launched in 1962, to Arabize the country which was dominated by French colonization and language for more than 130 years. This planning, i.e. macro planning does not include local-government initiatives or the planning activities of regional communities or individuals. As for meso-level language planning, it embraces local government operations; these consist in mainstream schools, public services (e.g. public libraries), and educational organizations. It does not involve language activities from individual households, groups or people.

1.2.5.2 Micro-Level Planning

The micro ‘bottom-up’ level of planning includes private initiatives such as individual supplementary schools, local groups (e.g. cultural community groups), individual households and the language use of individual people. Consequently, micro-level LP is locally driven; for and in specific contexts (Baldauf, 2005). It reflects efforts by local groups (indigenous people,

linguistic minorities, etc.) to determine and shape language situations based on their own needs and priorities. Usually micro and macro planning influences each other: for example, governmental funding supports local initiatives. This study is therefore focused on Meso-level planning activities plus macro-level support.

1.2.6 Goals of Language Planning

The diversity of the objectives of language planning and policy make researchers attempt to draw a set of goals for the conduction of such activity. The different scholars' classifications differ from one to another, but no scholar could put the final classification. Influencing works of Cooper (1989), Haugen(1983), Hornberger (1994), Kaplan and Baldauf (1997, 2003), and Nahir (1984, 2003) have all investigated the application of LP research and its activities through determining its goals. Only Nahir's(1984) and Kaplan and Baldauf's (2003) classifications are summarized in the present study. First, Nahir(1984) set out eleven language planning goals; the first four goals are concerned with status planning, whereas the others are concerned with corpus planning

1.2.6.1 Goals concerned with status planning

✓ **Language Revival:** the process that occurs in a situation where a language has either entirely died off or is on the verge of dying off. Language revival aims at reincorporating a 'dead language' that has no surviving native speakers or a language with few speakers into the communication structure in society. This process reflects the desire to preserve national identity and heritage. Examples of reviving languages are Hebrew and the Irish language.

✓ **Language Spread:** aims at increasing the number of speakers of a language deliberately. This phenomenon happens at the cost of another language or languages in some cases. Language spread is like language standardization, it is usually considered as the goal of newly decolonized countries. An example of a successful language spread is Indonesia; the number of speakers of Malay Indonesian increases from one million to more than 125 million.

✓ **Interlingual Communication:** (Nahir, 1984) suggests that interlingual communication focuses on 'facilitating linguistic communication between members of different speech communities by enhancing the use of either an artificial (or 'auxiliary' language or a' language of wider communication' as an additional language'. Interlingual communication may be summarized in the efforts to simplify the communication between speakers from different speech communities. An example of this LP goal is the use of English as a lingua franca.

✓ **Language Maintenance:** an activity that aims at preserving a language from factors that decrease its status and threaten its existence. Language maintenance may occur at the level of minority as well as dominant languages. Many linguists around the world have stressed the importance of language maintenance and especially minority languages maintenance as a means of communication, a cultural heritage, or a symbol of group integrity and national identity.

1.2.6.2 Goals concerned with corpus planning

✓ **Language Purification:** there exist two types of purifications, external and internal. External purification aims at protecting the language purity from the influence of other languages. Replacing borrowings is an example of external purification. Internal purification refers to the process of preserving the accepted standard language code from deviation. An example of internal purification is what language planning agencies may address through several applications such as language checks for the press or telephone services that provide advice on 'correct language'.

✓ **Language Reform:** occurs in situations where a language has a sufficient vitality but is not able to deal adequately with domains and registers that are new. This process represents the conscious modifications of an aspect of language to facilitate its use, such as changes in orthography, spelling, or grammar. Factors such as politics, ideology, and religion all affect language reform. An example of this language planning goal is the language reform occurred in Turkey where its orthography, writing system, and lexicon were changed.

✓ **Language Standardization:** this goal refers to the selection of a language or a dialect to be the only language of a nation. For example, standardization has been applied in the majority of postcolonial or newly independent countries like Algeria. When the newly decolonized government attempted to make Arabic the national language of the country.

✓ **Lexical Modernization:** an activity that refers to the process of vocabulary formation or adaptation to an idea or concept borrowed from another language. This language goal issued from the capacity to deal with new concepts which have come into use in society.

✓ **Unification of Terminology:** aims at unifying terminologies through defining them and clarifying their use. Terminology unification is widely used in the technological and scientific fields to solve communication ambiguity; such as medicine, chemistry, and pharmacy to solve communication ambiguity.

✓ **Stylistic Simplification:** is an attempt to make texts readable, more clearly addressed to the audience. It aims to simplify lexicon usage and style, especially between professionals. For

example, the language used in law and medicine is not always comprehensible to individuals who are not specialized, the fact that leads to miscommunication. Consequently, some governments all over the world have presented legislation to require contracts to be written in simple rather than technical language.

✓ **Auxiliary _code standardization:** is the modification of the marginal parts of language such as signs for the deaf, place names, and rules of transliteration and transcription, either to reduce ambiguity, to improve communication, or to meet social needs (Nahir, 2003). It should be noted that some of the goals discussed above have closely related objectives. For example, language maintenance cannot be realized without language reform or language revival. Nahir's classification is very important to language planners, as it provides a broader perspective of what they attempt to achieve.

LPP goals are usually discussed in terms of 'policy' planning goals and 'cultivation' planning goals. The former refers to form i.e. the selection of norms. However, the latter refers to the function that is the implementation of these norms (Haugen, 1983). Based on Haugen's typology, Kaplan & Baldua (1997) suggest another categorization of language planning goals referring to each type. The table (1.1) below illustrates Kaplan & Baldauf's classification of LPP goals that can be summarized as follow:

- ✓ **Access policy:** concerns the selection of languages to be studied and at which level of education.
- ✓ **Personal policy:** decisions that concern the teaching staff, the number of teachers, how to employ them and their training.
- ✓ **Curriculum policy:** deciding about what to be taught, the time allotted to each subject, and at which level.
- ✓ **Method and material policy:** what are the methods, tools, and materials that should be used in education?
- ✓ **Resourcing policy:** decisions about the budgets to be spent to teach a language.
- ✓ **Community policy:** community should be involved in supporting the education of their children.
- ✓ **Evaluation policy:** planning how, when, where to test the language learners.

Table 1.1 *A framework for language planning goals*

Approaches Types(overt-covert)	1.Policy Planning (on form)	2.Cultivation Planning (on function)
1.Status Planning (about society)	<i>Status Standardization</i> .Officialisation .Nationalisation .Proscription	<i>Status Planning</i> .Revival .Restoration .Revitalisation .Reversal .Maintenance .Interlingual Communication .International/Intranational Spread
2.Corpus Planning (about language)	<i>Standardization</i> Corpus .Graphisation .Grammatication .Lexication Auxiliary Code .Graphisation .Grammatication .Lexication	<i>Corpus Elaboration</i> .Lexical Modernisation .Stylistic Modernisation .Renovation .Purification .Reform Unification .Stylistic simplification .Terminological simplification .Internationalisation
3.Language-in-Education Planning (about learning)	<i>Policy Development</i> .Access Policy .Personnel Policy .Curriculum Policy .Methods/Materials Policy .Resourcing Policy .Community policy .Evaluation Policy	<i>Acquisition Planning</i> .Reacquisition .Maintenance .Foreign/Second Language .Shift
4.Prestige Planning (about image)	<i>Language Promotion</i> .Official/Government .Institutional .Pressure Group .Individual	<i>Intellectualisation</i> .Language of Science .Language of Professions .Language of High Culture

Note 1. Adapted from Kaplan and Baldauf (1997, p.202)

1.2.7 Language Planning Process

Language planning is perceived as an activity undertaken to introduce systematic change and solutions to language problems. Specialists in the field of language planning agree that there are three interrelated processes: planning (determining objectives), implementation

(applying these objectives), and evaluation (assessing the application of these objectives (Karam, 1974: 109). The following figure summarizes the above-mentioned processes of LP:

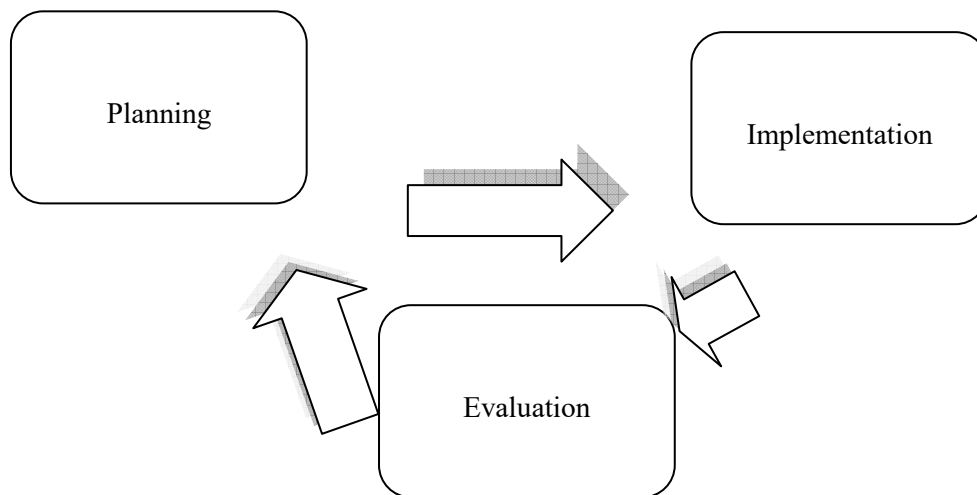


Figure 1.1: Language planning process (adapted from Karam, 1974, p. 109)

According to the figure, all language planning activities take place in a particular sociolinguistic setting, and the nature of the planning cannot be understood but in this setting. Introducing a change at the level of a language requires a deep understanding of the social attitudes and perception vis à vis this change. The target population should be asked about its preferences towards languages, to investigate its readiness to adopt any change. Investigating the population's acceptance and beliefs can be done by conducting a survey, what is called the planning stage. The latter is made up of a set of well-organized questions. Hence, it is clear that the kind of data needed to reach language policy decisions must be carefully defined. According to language planning specialists, the success or failure of individual language policies is achieved through careful observation of the broad sociolinguistic context in which decisions are made. This includes the speech community's linguistic habits and practices, the cultural belief, the sociopolitical conditions of languages use and the interests of the different groups that are engaged in language planning, after determining the sociolinguistic settings where the language change will occur. After a careful review of the report and the resulting recommendations, those policy decisions, if generally accepted, will create a need for an implementation plan.

Implementation includes all the activity necessary for the execution of the plan. Various factors should be taken into consideration at this stage. Factors such as economy, politics, the culture of the community where the language change is to be introduced are all of paramount importance in the implementation stage. Thus the language planning process is complex and necessitates 'negotiation' between different players at all levels (Djité, 1994):

The term 'negotiation' itself emphasises the fact that the solution to the problem is not always a mathematical one. Language issues are inextricably linked with political processes and important national goals which are not easily managed or governed by reason alone, but are inevitably value-laden and involve powerful sentiments. (p.70)

Evaluation as the last step is an important issue that affects directly all the other areas, it involves monitoring and assessing the results of both the planning and implementation activities, besides providing them with the feedback to introduce any needed change.

1.3 Language Planning and Language Policy in the Arab World

Arab population estimated to be approximately 315 million (World Almanac) encompass a vast geographical region that extends from Iraq in the east to Morocco in the west. They occupy the whole of Mesopotamia, Middle East, Arabian Gulf, North Africa, as well as some parts of East and West Africa. Arab population are distributed on 23 different countries, namely: Algeria, Bahrain, Comoros, Djibouti, Egypt, Eritrea, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, United Arab Emirates, and Yemen.

From a geographical perspective as well as a historical and linguistic perspective, the Arab World can be generally divided into two parts: 1) Eastern Arab countries (the Arab Mashreq countries including Egypt, Sudan, Syria, Lebanon, Palestine, Jordan, Iraq, Saudi Arabia, and Gulf states⁵.) Western Arab countries (the Arab Maghreb countries) including Algeria, Morocco, Tunisia, Libya, and Mauritania.

Currently, the language spoken in the Arab World is Arabic, yet it is not the only spoken one. There exist several varieties of Tamazight used by the Berbers in North Africa, notably Algeria and Morocco, while Kurdish is spoken in parts of Iraq and Syria.

⁵ Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates.

However, some countries, such as Saudi Arabia, Kuwait and Qatar, consist of homogeneous ethnic populations that speak only Arabic. The history of Arabic makes it central to national unity, asserting the construction or the reconstruction of Arab national identity.

Language planning in the two parts of the Arab World can be summarized in what is called ‘Arabization’; a policy that has been launched in almost all the previously colonized countries. The result of a long and fraught history of colonization was remarkable in some Arab countries particularly in the case of Algeria, 132 years of colonization attempted to eradicate the Algerians’ Arabo-Islamic identity. Gadelii(1999) claimed in this respect that “the linguistic colonial influence was limited in the Mashreq countries if compared to the Maghreb ones” (p.16).

The practice of LPP vis à vis the Arabic language is as old as the language itself. Arabic linguists(from Ibn Djinni and Abu AlasswadAdouàli to modern ones as Mortad and Al Mossaddi) made considerable efforts to plan for the language. A number of these activities may be classified under corpus planning actions. For instance, the Arabic script was reformed as early as the 7th century AD by using dots to distinguish between similar letters (such as ب, ت, ث). Another important reform is that of using signs for the short vowel Arabic letters (such as َ, ُ, ِ), which was implemented first by Abu AlAswad Al-Du'ali (603–688) and developed by AlKhalil ibn Ahmad (718–791). Concerning grammar, Sibawaih's book (796_797) that is called Alketab [the Book], is considered as the first book that set the Arabic language grammatical rules. Besides grammar and syntax, Sibawayh discussed the phonology and the morphology of the language.

Recently, language planning activities in the Arab World can be represented in the establishment of official language planning agencies. These agencies are responsible for any linguistic change. The oldest of them is the Arab academy of Damascus that was founded by Muhammad Kurd Ali (1876_1953). In 1932, the Royal Academy of Cairo (still in existence but now called the Academy of the Arabic Language), and theIraqi Academy of Sciences that came to being in 1947. Arabization Coordination Bureau (ACB) established under the supervision of the Arab League Educational, Cultural, and Scientific Organization (ALESCO) in Morocco in 1962, besides the Jordan Academy of Arabic in 1976. In 1983, the Tunisian Academy (Beit El Hikma Foundation) was established. Following this, the establishment of the Libyan Arabic Language Academy in 1994, and the Supreme Council of the Arabic Language in Algeria in 1996.

As for the Arab Gulf Countries, the Arab Bureau of Education for the Gulf States (ABEGS) was established in 1975. This bureau was more interested in educational issues rather than linguistic ones. According to Holes(2004), the aims of these academies can be summarized as follow:

- The protection of Arabic against dialectal influence.
- The maintenance of language purity by ridding the language of intrusive foreign lexical elements brought in via the press and the radio besides some writers.
- The adaptation of the language to modern needs, and particularly in the area of science and technology.

Throughout the Arabic World today, efforts in all of the Arabic language planning academies can be classified according to three major attitudes that were pointed out by Maamouri (1998). The first is the Classissicts' view, a traditionalist view that is against any change in the Arabic language. They consider it as a rich language that may meet all the needs of modern society. However, this conservative opinion is not shared by all Arabic linguists or language planners. Modernists' claims that the use of CA is the only reason for educational failure in Arabic societies. Thus they tolerate the use and study of dialects and accept the need for modifications and enrichment in the areas of vocabulary, grammar, and orthography. This view is considered as an extreme pragmatic point of view. Between these two extremist opinions, some linguists call for a 'cultivated middle language' (Maamouri, 1998). They express their preference for simplification and standardization of the Arabic language. This position seems to be more practical and logical.

Generally speaking, Arabic language planning efforts are successful to some extent. After long years of colonization, Arabic could regain its position as an official language in almost all the Arab countries; except for some shortcomings in some aspects of language planning practice (Gadelii,1999). These shortcomings may be referred to as the lack of coordination between the different Arabic academies, for example, each academy may coin a different term for the same concept. Another problem is that there is no guarantee that society in general or even linguists will follow the recommendations of the academy because these agencies have no authority (Bassiouny, 2009). Consequently, workers in this field should try every means to reach their audience and coordinate their efforts to promote the Arabic language.

1.4 Language Planning and Language Policy in Algeria

Before the French colonization of Algeria, Algerians had a traditional educational system with mosques as the sole place for teaching and learning based on religion. The French occupation of Algeria (1832-1962) attempted to eradicate this kind of instruction by imposing a new language that represented a real threat not only to Arabic (considered as a holy language) but also to the Algerians' social values and customs.

The Algerians' resistance to the colonizer's language is as old as the French intervention in Algeria. In this respect, Ferhat Abbas⁶ claimed:

Arabic is to Islam what the church is to the Catholic religion, one could not live without the other. The belief of an illiterate Muslim is a web of indigestible superstitions. The reading of the Quran is everything. It stands at the cement of our faith. Is it then necessary to declare our commitment to the teaching of the Arabic language the basis of our belief?

(Collot, 1978, p. 66)

In 1962, and after long years of hard-fought military struggle, the Algerians excluded the French colonizer and gained their independence. The consequences of 132 years of colonization were disastrous at all the levels, notably the cultural one. Language as an important component of identity was damaged and the French language penetrated in the Algerians' daily lives. After independence, Algeria, as well as other colonized countries, attempted to restore its Arabo- Islamic belonging through promoting Arabic and strengthening the position of this language as the sole national language.

It is in these circumstances that Arabization policy was declared to be the new language policy of the country of Algeria. It was adopted by President Ben Bella the first president of the Popular and Democratic Republic of Algeria (1963- 1965). Linguistically speaking, such policy has two terms 'Arabicization' or 'Arabization' used interchangeably to refer to the Arabic term 'Ta'rib' (Benrabah, 2007). The first sense is used in the Arab Middle East in addition to Libya and Egypt. It refers to the three types of language planning: status, corpus, and acquisition planning. Language planners in these countries replaced the colonial language by Arabic as a medium of instruction in all cycles of the educational system, and they started promoting and enriching the language by borrowing, deriving or reviving some dead words.

⁶served as provisional Algerian president of an interim government established between 1958_1961 during the height of the Algerian cause for independence.

Unlike Middle East countries, in North African countries (Algeria, Morocco, and Tunisia) Arabization, the second term, means replacing French by Arabic in all aspects of life (administration, media, education, etc).

Thus, while Arabicization is a linguistic process, Arabization is both linguistic and more significantly cultural and ideological. As far as Algeria is concerned, "Arabization issue was ideology- oriented and has never been freed from political considerations"(Benrabah, 2007,p.57). In the same line of thought, Sirles(1999) pointed out that "language planning activities, more systematic and assertive in Algeria than in the other two Maghrebi countries, have been carried out with some kind of 'revolutionary' zeal "(pp.122-123). Consequently, Arabization as any other language policy measure cannot be understood or analyzed as a free-standing document (Ricento,2000). According to Grandguillaume(1998), the reasons for Arabization policy can be summarized as follow:

- The cultural aspect of Independence: French was the colonial language and had been imposed, so it's natural to replace it with the Arabic language.
- Language of Islam: there was a determination among the Algerian population to restore Arabic and Islam.
- Language of the Arabic nation: Algeria wanted to show to the world that it belonged and still belonging to the Arab World (p.4).

The reasons stated above, yet ideological can be considered as justifiable. Though the shortcomings of Arabization policy, it is a legal duty of any decolonized country that suffered from a long occupation of soul and mind. Algeria was one among the colonized countries that defended its political sovereignty as well as its linguistic one. According to Ricento(2000), Arabization may be classified among the first epoch of LPP field⁷ i.e., 'macro sociopolitical' process between the 1960s and 1970s. At that time the slogan of One nation One language was at its zeal it "was the model which at least implicitly informed language planning in decolonized states in Africa, Asia, and the Middle East"; whereas, multilingualism was seen as a hindrance to nation-building (Ricento,2000,p.198).

1.5. Part II: The Socio-Psychological Research of Language

The study of Attitude is one of the original significant interests of social psychology. Indeed it is impossible to imagine this field without attitudes. The American psychologist Gordon Allport (1935) claimed that attitudes are "the most distinctive and indispensable

⁷According to Ricento two other periods are characterizing LPP research: 'epistemological archetypes' (early 1970's up to the late 1980s) and the intended strategic goals for which LPP investigation is conducted (started around the mid-1980s).

concept in American social psychology". This famous dictum is said to be true at that time and is still true even today (Prislin & Crano, 2008, p. 3).

1.5.1. Definition of attitude and its components

Attitude is a broad concept, which makes researchers attempt to provide it with a single definition but a utopia. The sole reason for this is that attitude researchers can be classified into two categories according to the approach they adopt: the mentalist approach vs. the behaviourist school of thinking. An early definition of attitude represents the mentalist view, provided by Allport in 1935. This American psychologist defines attitude as "a mental or neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Quoted in Oppenheim, 2001, p. 178).

On the one hand, the mentalists believe that "an attitude is not an aspect of behaviour that can be directly observed; it must be inferred from a person's actions, thoughts, and words" (Acosta, 2003, p. 17). They also consider that attitude is an internal mental state which "cannot be directly observed: it is latent and can only be inferred from the direction and persistence of external behaviour or self-report data" (Putz, 1995, p. 245). Though the hard task of investigating internal/mental states, most research on attitude is based on the mentalists' point of view (Ihemere, 2006). It is worth mentioning in this respect, that though the adoption of the mentalist perspective as the most suitable approach to unveil attitudes, many problems are posed because internal and mental states cannot be directly observed and the researcher need to deduce it implicitly from overt behaviour or from individuals' reports about their attitudes what may often raise problems of validity and reliability of the findings (Fasold, 1984).

On another hand, the behaviourist view of studying attitude is based on the investigation of observable responses to a specific situation. Research conducted from this approach is said to be more straightforward (McKenzie, 2010) than that conducted from the mentalist approach, simply because it requires no self-reports. However, the behaviourists' view can be criticized from different perspectives: first, it considers attitude as the only dependent variable emphasizing the perfect correlation between attitude and behaviour (McKenzie, 2010) neglecting other important variables such as age, ethnic group, sex, linguistic belonging, which may affect attitude. Second, observation of external behaviour cannot alone provide a full explanation of the attitude (Baker, 1992). In other words, attitudes cannot be understood from a superficial observation of overt behaviours. Consequently, the

behaviourist view to attitude gains little interests among researchers, though it should not be completely refused since attitudes can sometimes influence behaviour.

1.5.1.1 Components of attitude

The theoretical definition of attitude was notably based on the attitude components, though behaviourists consider the attitude of one structure emphasizing on the affective dimension. Fishbein(1967) pointed out that an "attitude is the amount of effect for or against a psychological object"(p.258), focused thus on the affective model illustrated in (figure1.3) of attitudes often referred to as the 'tripartite' approach (Olson and Kendrick,2008)⁸.

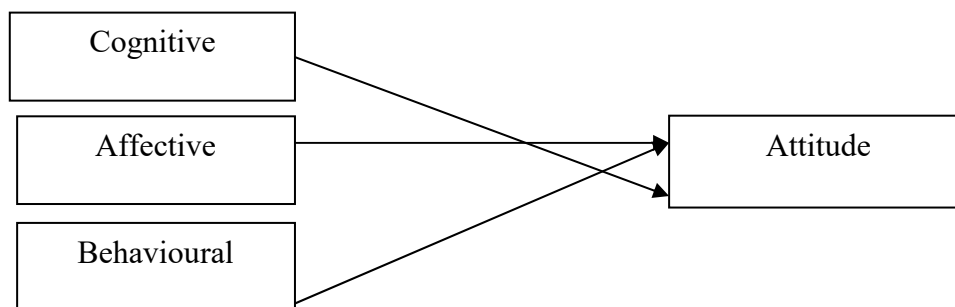


Figure1.2 The Tripartite Model of Attitude(Adapted from Olson and Kendrick,2008)

They argue that the attitude structure is made up of cognitive, affective, and behavioural components (called also: knowledge, emotion, and action. Consequently, the components pairs (cognitive/knowledge), (emotion/affective), and (action/behaviour) have the same meaning. The cognitive component also referred to as knowledge or information is related to any information or knowledge relevant to an attitude including individuals' beliefs, thoughts and values. Inferring an attitude from beliefs vis à vis an object requires making judgements about the information, then applying this information when making an evaluation. This framework was put by Fishbein and Ajzen's (1975), in what is known as an expectancy-value model. The model describes the process by which one gets information (the 'I know' or 'I think' aspects) and putting this information in usage to decide how to evaluate it (Olson and Kendrick,2008).

⁸In Prislín, R., &Crano, W. D. (2008).

Closely related to the cognitive component, there is another component which is the affective/emotional. An attitude can be formed as a result of emotional responses related to an object. The affective component is at the end of attitude formation since it is considered with the evaluation of positive, negative, or neutral feelings that a person may have towards objects. Forming attitudes by beliefs about an object or by experiencing some emotional feelings may sometimes fail. In this situation, one may infer an attitude by recalling a past behaviour toward an object. Accordingly, the behavioural component or conative is the individuals' action vis à vis an attitude object.

To summarize these three components, Omdal (1995) stated that: “before a person can react consistently to an object, he or she must know something about it and is then able to evaluate the object positively or negatively; this knowledge and these feelings are usually accompanied by behavioural intentions”(p.86). To illustrate this, one may believe that reading books is important in nurturing the brain and making one's strong personality (the cognitive component); one likes to read (affective component), in the end, these two components may affect in once behaviour towards reading.

It can be concluded that the above-mentioned components are tightly interrelated. Yet, some researchers argue that an attitude may be uniquely related to feelings about the object, whereas others may be related solely to beliefs about the attitude object and that there is no relation between the belief of an individual and his behaviour. Indeed, sometimes one may believe positively in something, but his behaviour does not reflect these beliefs. Generally speaking, the weight of the components varies across individuals and differs from an attitude object to another (Hadock & Huskinson,2005).

1.5.2. *Attitudes and related terms*

The definition of attitude usually confronted with a particular problem. Attitude may be used interchangeably with concepts in social psychology such as belief, opinion, value, ideology, and motivation. Though these terms have semantic nuances, they are usually used one instead of the other. To avoid ambiguity, precise definitions of related terminology are of paramount importance. In what follows, the researcher provides a distinction between the terms mentioned above respectively and the concept of attitude.

1.5.2.1 *Attitude and belief*

The most prevalent discussion among researchers is on attitude and belief. The latter may be considered as only one component of attitude, and it is cognitive. Eagly and Chaiken(1993) assumed that “beliefs about an object lead to attitude formation, and therefore the belief is the 'building block' of attitude”(p.99). As a result, inferring attitude requires individuals’ many beliefs (Fishbein,1967), without neglecting the other components role in attitude structure i.e., the affective and the behavioural components.

1.5.2.2 *Attitude and opinion*

Opinions can be defined as overt beliefs and are verbal. They can be distinguished from attitudes in terms that the latter is latent (dormant) and may be conveyed by both verbal and non-verbal processes. However, the most important distinction between attitude and opinion is that ‘opinion is an overt belief without affective reaction; whereas attitude embraces affective reactions (Baker,1992).

1.5.2.3 *Attitude and value*

As far as the term value is concerned, it may be considered as a higher ideal that an individual strives to achieve, and an important guiding principle in life. In this regard, Maio , Olsen, Bernard& Luke (2006) described values as “abstract ideals that people consider to be an important guiding principle in their lives”(p.285). Another distinction between the two terms resides in the concrete nature of attitude (e.g. a person or thing), whereas the abstract nature of values (e.g. Freedom, belonging). To draw the essential nuances between terms such as values, attitudes, opinions, and beliefs, Oppenheim developed a ‘tree model’ classifying them from the most superficial level to the deepest level(see figure 1.4).

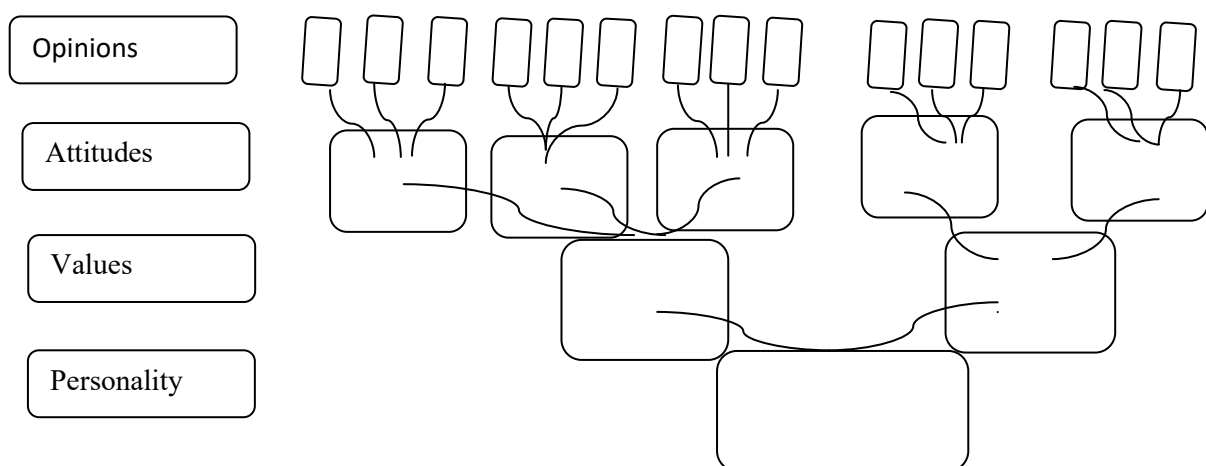


Figure 1.3 Oppenheim’s Tree Model of Attitude Level (Adapted from Oppenheim, 2001,p. 177)

As illustrated in the figure, Oppenheim considers opinions as to the most superficial level, the next one, attitudes, at deeper level values, and the deepest level personality. He labelled accordingly these distinctions from top to bottom as changeable versus stable and specific versus general.

1.5.2.4 Attitude and ideology

Another term which may be differentiated in the field of social psychology is the term ideology. Dyers and Abongdia(2010) summarized the difference between language attitudes and language ideologies in two points:

- Ideologies are constructed in the interest of a specific social or cultural group, notably dominant groups, without neglecting that subordinate groups also have their ideologies. This is because individuals can refuse the dominating ideology, imposed by the powerful, shaping their own.
- Attitudes come from individuals while ideologies are expressed in societies in which personal attitudes are formed. Ideologies thus are social constructions but attitudes are related to the construction of people's individual and even group identities. To sum up, the difference between the two terms is apparent in the scope of the study, when language ideology is a central concept in the field of sociology whereas; attitude is a key term in social psychology scholarship.

1.5.2.5 Attitude and motivation

As well as the above-mentioned concepts, motivation has been a subject of confusion between social psychologists and language learning researchers. According to the former's assumptions and findings, "it has been argued that attitude and motivation are two distinct concepts which are related in some complicated details"(Eagly & Chaiken, 2005, p.753). First, it has been argued that motives can affect attitudinal processes, some of them such as accuracy motivation, defence motivation, and impression motivation were assumed to influence the processing of information (Chen & Chaiken, 1999) what may automatically influence attitude formation and change (Wood, 2000).

Second, attitudes may be at the origin of motivation emergence i.e. attitude may be the cause for motivation. In this respect, Atkinson and Feather(1966) proposed a model of motivation determining the role of attitudes. The authors argued that engaging in behaviour refers to one's expectation for success and the value of this behaviour.

Similarly, researchers in language learning described attitudes as components or precursors of motivation. In the same context, Gardner and his collaborators proclaimed that “attitudes are seen to cause motivation” (Gardner, Lalonde, Moorcroft, and Evers, 1987, p.42). After reviewing social psychologists' and language learning researchers' conceptualizations of attitudes and motivation, it may be concluded that they are distinct constructs that differ in structure, generality, content, relationship with behaviour, but tightly interrelated in very small details.

Drawing a better understanding of the term attitude requires a full examination of the above-explained concepts. Though sharing some features; these constructs are different in structure and content. What notably makes attitude different than the other concepts is its evaluative nature. Another conclusion is that the terms: belief, attitude, value, opinion, motivation can be held individually, however, ideologies are a social construct. Furthermore, attitudes can be expressed through beliefs and are the reasons for motivation. At the same time, there is little evidence that attitudes are powerful in changing values and ideologies. The following section represents a description of the most important and most intensive research on attitude i.e., the relationship between attitude and behaviour.

1.5.3 Attitudes and Behaviour

Behaviour is generally defined as “the overt action of an individual” (Albarracín et al., 2005, p.3). Investigating the relationship between attitude and behaviour has been the subject of hot debate among social psychologists. Some researchers defined attitude about behaviour by making guiding behaviour a defining aspect of attitude (Oppenheim 1982, Ajzen, 1988), unlike other social psychologists who consider attitude as before behaviour. The question that may be raised in this context: Does attitude guide behaviour or does behaviour guide attitude.

On the one hand, proponents of the first claim argue that attitude predefines the response, and this is believed to be the mentalists' assumption. Consequently, a person who holds a favourable attitude toward some object will perform favourable behaviours. Similarly, a person with an unfavourable attitude is expected to perform unfavourable behaviours' (Ajzen & Fishbein, 1977). To illustrate, as well as language attitudes (the concern of this study) are concerned, it can be assumed that a person who has positive attitudes toward a foreign language will express favourable behaviour; s/he will learn it and strive to be competent in this language (which is not always the case in this study).

The theoretical assumption for this claim was provided by Fishbein and Ajzen(1975) in their theory of reasoned action that was improved as the theory of planned behaviour. The authors described a consciously deliberative process where intentions mediate attitude-behaviour relationship. For Ajzen(1991) "intentions are assumed to capture the motivational factors that influence behaviour, they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, to perform the behaviour"(p.182). Thus intentions are believed to be the first predictor of behaviour, the second predictor is the subjective norm; defined as the perceived social pressure to perform or not to perform the behaviour. The last predictor according to planned behaviour theory is the perceived behavioural control that refers to the perception of the easiness or difficulty of the behaviour performance (Ajzen,1991).

It may be concluded that these three predictors can be considered as functions of behavioural, normative, and control beliefs. According to the theory of planned –behaviour, the above-mentioned predictors can be influenced by many factors which may be illustrated in the following figure:

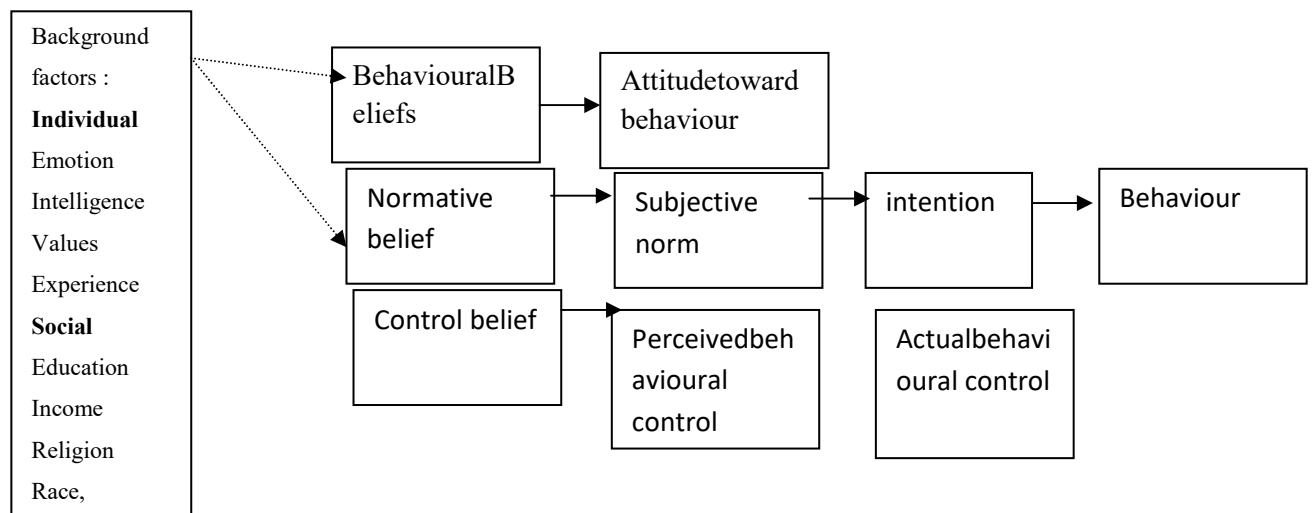


Figure 1.4: The Theories of Reasoned Action and Planned Behaviour (Adapted from Azjen& Fishbein,2005,p. 194)

On the other hand, theories of reasoned action and planned behaviour were heavily criticized on the basis that attitude can guide behaviour not only through deliberate conscious processes but through spontaneous processes as well. For example, a doctor is aware of the ever harmful effects of smoking on the human body. He may advise his patients to stop smoking, but at the same time, he is addictive to smoking. In this case, attitude does not reflect behaviour.

Regarding languages, ethnic groups with minority languages find themselves obliged to learn and speak the language of the state; where their language is marginalized. This ethnic group may bear unfavourable attitudes toward the majority language, yet they must learn it to get access to several professional domains. The case of Berbers in Algeria is clear evidence; Tamazight is the language of the minority group, though constitutionally agreed as a national language is still marginalized in Algeria. Berbers have a negative attitude towards Arabic (This claim cannot be generalized), but as being the sole language of instruction mainly in primary, middle, and secondary schools they must learn it and speak it. Consequently, the two examples show that attitude does not guide behaviour. The theoretical assumption of this claim was provided by Fazio(1986). He suggested the attitude –to- the behaviour process model, which assume that behaviour is a spontaneous process. According to this model, “attitudes influence the perception of an object and result then in a subsequent behaviour”(p.207). Behaviour is described thus as “a function of the individual’s perception in an immediate situation” (Fazio & Toweles-Schwen,1999,p.98). The spontaneous processes of behaviour can be illustrated in the following figure:

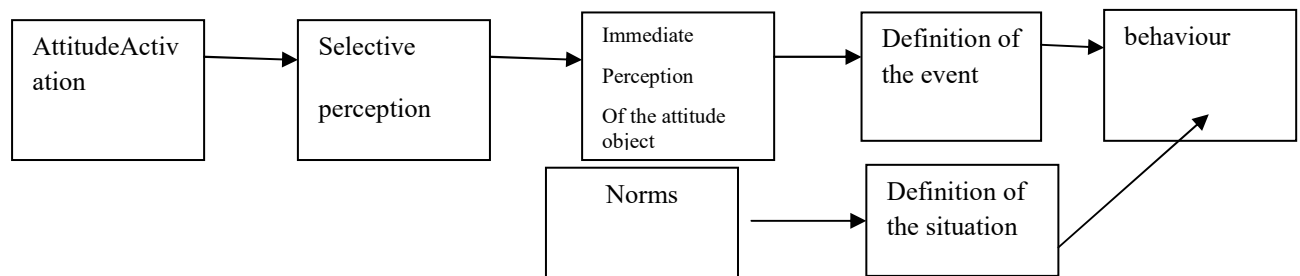


Figure 1.5 The attitude-to-behaviour Process Model Adapted from Fazio (1986,p.212).

To fill in the gap between deliberate and spontaneous processes of behaviour, the so-called MODE model was developed. Fazio (1986, 1990) combined the previous models in one model where motivation and opportunity are the only determiners if the person will engage in deliberate or automatic (spontaneous) processes. The dissonance theory is another theory that defended the view that behaviour guide attitude. Festinger(1962) argued that when an individual performs a free choice behaviour which is not consistent with his attitudes, this person will readjust these attitudes with his behaviour. Accordingly, the dissonance theory refutes the consistency between beliefs, values, behaviours, or between the actual behaviour and cultural norms or past experiences (Olson and Stone,2005).

As a reaction to Festinger's dissonance theory, Bem's (1972) perception theory proclaimed that people get their attitudes from their behaviour an example is when observing others' visible behaviour in experimental research to deduce the respondents' attitudes towards an object.

Finally, one can argue that attitude influences behaviour, and behaviour influences attitude. The description of the two dimensions of attitude-behaviour relationship help for a better understanding of their interdependence. Consequently, the attitude has the power to moderate this relationship i.e., strong attitudes guide behaviour and weak attitudes follow behaviour.

1.5.4 Language Attitudes

Language attitudes have been the focus of a great deal of research in social sciences. Social psychologists approached attitude to the study of language as early as the 1950s with the rise of the mentalist approach; that considers language as a mental activity. Recently, researches on language attitudes appear in several fields of study. Besides social psychology, education is another discipline that investigates the relation between a favourable attitude and successful language learning on one hand, and the effects of negative attitudes on L1/L2/or foreign language learning. Sociolinguistics is another domain that has the lion share of the study of language attitudes. In planning for languages, decision-makers need an evaluative and exploratory tool in all the four language planning types; status planning, corpus planning, acquisition and prestige planning. This evaluation can be achieved by examining attitudes toward a language a dialect or any language variety, since "the identification of language attitudes is essential and is considered a prime step in all language planning phases"(Ting,2003,p.195). Moreover, the study of language attitudes toward a language or language variety enables language planners to evaluate the success or the failure of the language plan and then decide which reforms should be introduced.

1.5.4.1 Defining language attitudes

Generally speaking, the Longman Dictionary of Language Teaching and Applied Linguistics define language attitudes as: "the attitudes which speakers of different languages or language varieties have towards each others' languages or to their language" (Richards & Schmidt,2002,p.286). Similarly, Crystal (2003) pointed out that, "language attitudes are the feelings people have about their language or the languages of others"(p.265) .What is evident thus that providing one definition to language attitude is out of the reach of specialists. Another definition provided by Garrett(2010) defined language attitudes based on Sarnoff

(1970) definition. He stated that: "an attitude is an evaluative orientation to a social object of some sort, whether it is a language, or new government policy, etc." (p.20). To sum, language attitudes can be distinguished from any other type of attitudes through their object (Fasold, 1984) and language in this context is the object that can be seen as favourable or unfavourable (Baker, 1992).

The conceptualization of language attitudes does not only concern attitudes towards linguistic variety or even language use, it includes as well attitudes toward speakers. In this regard, Richard, Platt and Platt (1992), suggested the following definition:

The attitudes which speakers of different languages or language varieties have towards each other's languages or to their language. Expressions of positive or negative feelings towards a language may reflect impressions of linguistic difficulty or simplicity, ease or difficulty of learning, degree of importance, elegance, social status, etc. Attitudes towards a language may also show what people feel about the speakers of that language. (p. 199)

Language attitudes, however, can be considered as an umbrella term; which includes a broad range of empirical studies, related to several specific attitudes. According to Baker (1992), language attitudes cover the following areas:

- Attitude to language variation, dialect, and speech style.
- Attitude to learning a new language.
- Attitude to a specific minority language.
- Attitude to a language group, communities, minorities.
- Attitude to language lessons.
- Attitude of parents to language lessons.
- Attitude to uses of a specific language.
- Attitude to language preferences.

According to the same author, these different areas or language-related objects represent language attitudes' definition. The objects may be identical, strongly correlated, or may have no relation with another. In some cases, a positive attitude toward a language or a language variety may coexist with a negative attitude toward its speakers. However, one can have an unfavourable attitude toward a language but a favourable attitude to learn it. In the same time objects may affect each other, for example, "Attitude towards a language might arise from, or be influenced by the attitude towards the people who speak that language"

(Sharp, Thomas, Price, Francis, & Davies, 1973, p. 37). Another characteristic that distinguishes attitudes objects is specificity (Gardner, 1985) in the sense that language attitudes can be various from the most general (attitudes toward foreign languages, toward French, toward Arabic) to the most specific (attitudes towards French as a language of instruction, attitudes towards English, etc.). Furthermore, the author differentiated between educational and cultural contexts that may affect students' attitudes while learning a second language.

According to the characteristics explained above, one describes attitudes based on Eagly and Chaiken's (1993) definition as "The psychological tendencies expressed by evaluating favourably or unfavourably a particular language ... they are learned through experience, they have a certain degree of stability but can also change through time" (p. 1). About the present study, and taking into account the complex linguistic, socio-cultural issues on the Algerian linguistic situation, one is in a position to elaborate a definition of the term attitude to language based on Adegbiya's (1994) definition:

Language attitudes will be seen from a broad perspective which accommodates evaluative judgments made about a language variety, its speakers, towards efforts at promoting, maintaining or planning a language, even towards learning it. In our view then, attitudes could be observable or internal, or both simultaneously, temporary or lasting; or, of a surface level or deep-rooted nature. (p. 32)

1.5.4.2 Language attitudes formation

Two major themes have been of paramount importance in attitude and language attitude research, and the prevailing question in this respect how attitude is formed and how does it change? Traditionally, researchers argued that attitudes have three foundations: emotional/affect foundation, cognitive foundation, and behavioural foundation.

A/Emotional foundation of attitudes

A key element of an attitude is the effect or emotion associated with this attitude. Attitudes may be formed through emotions rather than logic or thinking. Two types of conditioning generate emotional attitudes: operant attitude and classical conditioning. The former refers to the construction of an attitude thanks to reinforcement through reward or a pleasant experience or discouragement through punishment or unpleasant experience. However, the latter called also Pavlovian conditioning referring to Pavlov who considered that the stimulus-response (SR) form an association in the minds of individuals. Thus

conditioning or the context is a way to form negative or positive attitudes towards objects (Walther & Langar, 2008)

B/Cognitive foundation of attitudes

Another theory in attitude formation relates the construction of attitudes to a cognitive basis that involves understanding and elaboration of persuasive information. According to Katz functionalist theory (1960), attitudes are formed to enhance our self-image or existing values. In other words, attitudes are developed based on one's psychological needs. For example, Algeria's language policy of Arabization as a policy of homogenization, by which decision-makers attempted to unify the country, resulted in countless unfavourable attitudes towards existing languages in Algeria. Tamazight, for instance, is viewed by the majority of Algerians as a threatening variety for the Algerian national unity. Berbers, on the other hand, may also have negative attitudes towards Arabic, for one reason, that it does not meet their wants.

C/Behavioural foundation of attitudes

Attitudes may also be formed out of behaviour, indeed two main theories account for how attitudes can be formed out of actions. First, according to self-perception theory, attitudes can result from automatic actions. An Individual may look to his behaviour and infer his attitude based on what he does or is doing. Second, dissonance theory which suggests that one strives to make his attitudes and behaviour consistent and when the two do not match, a new attitude may be formed. Sometimes, attitudes can be the result of imitating others' behaviour, mainly famous people. About language, the behaviour of famous people may affect ordinary people's way of speaking and their language as a whole resulting in new language attitudes. The next section discusses attitude and more specifically language attitude change processes.

1.5.4.3 Language attitude change

As well as language formation topic, language attitude change has attracted much interest in social psychological studies. One of the main assumptions is that language attitudes are changeable. The question that may be posed in this context: what are the reasons that make attitudes change? At the individual level, language attitudes may change as a result of changing needs, motives, and social situation of an individual. According to social psychological attitude theory, motivation, values, ideologies, behaviours can all affect attitude. Other factors such as violence, mass protests, guerilla activity, the government imposed policies may all result in attitude change (Baker, 1992).

At a social level, where more than two languages are in contact, the relationship between groups has an important role in language attitude change. The first condition is community integration, especially if these members of the community decide to settle together. Second, common goals, cultural activities, sports, religion, hobbies, and same interests may foster language attitude change. Consequently, the closer the relationship between the groups the easier language attitudes change. Furthermore, a well-studied status planning is useful in promoting attitude change. Encouraging speakers to use the language outside the speech community and practising it in wider spheres enhance the ability for a change in attitude.

Moreover, in status planning efforts, it is the supportive environment (political, economic, or cultural) provided by the government or any language planning agency that foster attitude change towards language. Schools and educational institutions have also a very important role in language attitude change, as the best sphere of socialization, they can play a vital role in developing language attitudes either negatively or positively. For instance, the use of a language as a medium of instruction is a way to promote favourable attitudes towards a given language (Baker, 1992).

Another factor that may affect attitude change is mass- media. Researchers usually associate AC with it; they argue that they usually serve to reinforce existing attitudes and opinions, and in some cases, they serve as an agent of change (Oskamp & scultz,2005). In the same context, Baker explained that the change is usually related to teenagers i.e., mass media influence more this category of people. Variables such as age, gender, previous experiences, religion, and so many others are worth mentioning as determinants of language attitude change (Baker,1992).

Finally, language attitude change can be successful when language planners consider all the actors where the change is to have occurred. The linguistic problem in Algeria is due to the neglecting of some properties that characterize the Algerians' national identity, notably their multilingual nature.

1.5.5 Language Attitude Measurement

As a mental hypothetical construct, it is no easy task to measure an attitude. The several attributes related to language attitudes open hot debates concerning its measurement. Nevertheless, researchers proclaimed that though complicated, attitudes can be measured in this respect, Thurstone(1931) pointed out:

An attitude is a complex affair which cannot be wholly described by any single numerical index. For the problem of measurement, this statement is analogous to the observation that an ordinary table is a complex affair which cannot be wholly described by any single numerical index. So is a man such a complexity which cannot be wholly represented by a single index. Nevertheless, we do not hesitate to say that we measure the table. (p.255)

Researchers proposed several methods to measure attitudes; each one has advantages as well as shortcomings. These methods can be classified as follows: The direct method, the indirect method, and the content Analysis of societal treatment.

1.5.5.1 The Direct Measurement

Based on questioning respondents directly on their beliefs, feelings, and knowledge of an attitude object; this method relies on the answers of informants to the questionnaires and tools addressed to them by the researcher. Henson, Morris, & Fitz-Gibbon (1987) divided the direct methods into research instruments that require a response by a word of mouth and other research instruments that involve a written response. The former includes interviews and surveys. An interview is a face-to-face meeting between two or more people where the interviewer(s) ask the interviewee(s) some questions. As soon as the interviewee is responding the interviewer should take notes or record the responses. As for the survey, it refers to a well-structured interview that does not necessitate a face-to-face meeting; for example, surveys are usually conducted through telephone or via the internet. For Henson and his colleagues' second division, i.e., instruments that require written responses, they include questionnaires and attitude scale. A researcher employs a questionnaire when seeking to obtain answers to a variety of questions. An attitude scale is a specific type of questionnaire, its major aim is to ensure that the sum of several responses results in a single score representing one overall attitude. Both types of instruments remain the most frequently used methods, simply because a large number of populations can be questioned, less time and efforts are to be spent.

Though its advantages, measuring language attitudes by direct methods have been a subject of criticism among researchers. Its shortcomings can be summarized as follows:

- Preparation of interview schedules and questionnaires: strongly slanted questions oblige the respondents to answer in a particular way; though not convinced, they will try to satisfy the researcher by showing false attitudes.

●The problem of validity: a serious problem that may be posed when informants tend to give responses to questions they believe as the most socially appropriate and acceptable, hiding their attitudes which may be unfavourable for the researcher's point of view about the subject. Oppenheim(1992) clarified this point when he claimed that “the social desirability bias is often of great significance in interviews and questionnaires”(p.139). Another factor that may influence the validity of results is the characteristics of the attitude researcher known as the interviewer's paradox/observer's paradox (McKenzie,2010). Indeed, the researcher's ethnic group, gender, social status, age, may all affect the respondents' answers.

These pitfalls make researchers argue that the direct questioning alone is not sufficient as explained by Labov(1996): "it is better to be used in conjunction with more indirect methods". Accordingly, the criticisms to the direct approaches to attitude measurement gave birth to indirect methods that attempted to fill in the gaps of its former.

1.5.5.2 Indirect approaches

Or projective approach in attitude study which can penetrate deeper than the direct method that investigates the individual's social façade. Projective techniques can be particularly useful in evoking and outlining stereotypes, self-images, and norm percepts (Oppenheim, 1992), such as ideas related to “ the best language or ‘the prestigious’ language”. The most frequently used indirect technique in measuring language attitudes is the matched-guise technique (MGT), usually the names MGT or indirect method are used interchangeably. This approach was firstly developed by Lambert in the 1950s aiming at eliciting attitudes to both speech varieties and the speakers of these varieties.

The principle of this technique requires respondents' listening to a series of single speakers who read the same prepared text. The single speakers read the same text in many different accents. Informants, however, are told that they are listening to a variety of different speakers, when indeed; it is one recorded speaker in different guises i.e., reading in several accents. The respondents are asked to listen to each recording and to evaluate the speaker; the listeners' judges' ratings on the semantic- differential scale⁹ represent their stereotypes to the language or language variety concerned. One of the most important advantages of MGT is the establishment of a cross-disciplinary interface between sociolinguistics and socio-psychological analysis of language attitudes. The study of Lambert Giles, Gardner, & Fillerbaum (1960) represented the first original study using MGT when it investigated the

⁹is a seven-point rating scale used to derive the respondent's attitude towards the given object or event by asking him to select an appropriate position on a scale between two bipolar adjectives (such as “warm” or “cold”, “powerful” or “weak”, etc.) available on (<https://businessjargons.com/semantic-differential-scale.html>)

perceptions of Canadians towards French and English. This study gave birth to several studies worldwide particularly in Wales, Australia, USA, and the Netherlands, opening widely the doors for the development of both the study of language attitudes and the general theory of sociolinguistics.

However, the MGT and its variant techniques¹⁰ have received several critics by researchers. Ihemere (2006) cited many problems associated with this approach. First, There claimed that the respondents' judgements should be based on language differences, but in some cases, their evaluations may be on the reading performance of the recorded speaker. The second problem that the author signalled is the incongruity between language varieties and the topics that may be used in the test, thus it should have the same content and meaning across the different language varieties. These problems and others urged researchers in the indirect approaches to develop a variant of MGT known as the Verbal guise Technique which is different than the former in the fact that different speakers provide the speech recordings. This technique was used in case of necessity, in other words, when it was impossible to use the matched guise method. For example, when a large number of accents were being investigated or when a single speaker is difficult to be found. Another critique provided by Fasold (1984) emphasized the artificiality of the indirect methods describing them as non-authentic because the experiment takes place in a controlled environment like laboratories or classrooms. The ethical problem may also be raised in this regard; informants are not told that the researcher is investigating their attitudes, what may be deceptive for them.

Based on what has been emphasized above, concerning the problems inherited from both the direct methods and the indirect approaches to language attitude measurement, a mixed methodological approach is required. Relying on a single research method may result in wrong and misleading conclusions. Therefore researchers include both techniques to find out more certainty to the findings, as well as a greater range of insights and more contextual specification of the language attitudes investigated (Garett , Coupland, and Williams, 2003).

1.5.5.3 Content analysis of societal treatment

A new approach in the field of human sciences known as content analysis approach. Unlike the direct and indirect methods that are quantitative, the societal treatment or content analysis is a qualitative approach.

¹⁰ Such as Open Guise Technique(OGT) and Verbal Guise Technique(VGT)

This method “generally investigates the ‘treatment’ given to language varieties, and their speakers within a society” (Ammon,2005,p.1251). Research in this category of methods involves observational, participant observation and ethnographic studies, or the content analysis of sources in the public domain such as the linguistic landscape (Ammon,2005). This approach received much criticism from socio -psychologists as lacking rigour, according to McKenzie(2010), the societal treatment “insufficiently rigorous by many mainstream language attitude researchers” (p.55). Whereas, it may be considered as useful in investigating language attitudes when access to respondents is difficult or when there are limitations of time and /or place (McKenzie, 2010). Accordingly, such an approach received little attention in research studies.

As for the present study, the researcher bets on the direct approach to attitudes measurement as it is frequently used to question a large number of populations with less time and effort.

1.5.6 Language Attitudes and Language Planning Research

The question that may be arising in this type of study is: what is the relationship between language attitudes and LPP research. As being already discussed in (section1.8.1), researchers investigate attitudes in association with language as an object. And as a social product influencing society and influenced by societal institutions, sociolinguists attempt to draw a connection between language as a social product and attitudes as an evaluative and exploratory tool; to discover the role of this relationship in all the four language planning types i.e., status planning, corpus planning, acquisition planning, and prestige planning.

Identifying language attitudes is an essential step in all language planning phases. Indeed, it is considered as the first step in any LP process (Kaplan &Baldauf, 1997). The two main phases where language attitudes are important are planning stage, and evaluation stage. As for the planning stage, language planners and policymakers have recourse to conducting surveys to investigate individuals' attitudes towards a language reform or any linguistic issue. The data obtained represents the basis of any language plan. For the evaluation phase, attitudes may be helpful by providing feedback on whether the plan was successful or doomed to failure. In this regard Lewis (1981) stated:

Any policy for language, especially in the system of education, has to take account of the attitudes of those likely to be affected. In the long run, no policy will succeed which does not do one of three things: conform to the expressed attitudes of those involved, persuade those who express negative attitudes about the rightness of the

policy, or seek to remove the causes of disagreement. In any case knowledge about attitudes is fundamental to the formulation of a policy as well as to the success in its implementation. (quoted in Baker, 1992,p. 2)

Indeed, the status, value, and importance of any language or language variety can usually be measured by the individuals' attitudes to that language. One of the most important roles of language attitudes may be recognized at the level of Language -in- education policy, Gardner(1985) asserted that "any policy for language, especially in the system of education, has to take account of the attitudes of those likely to be affected". To illustrate, the ministry of education, or any educational institution in charge of making decisions about language in general or about which language should be taught as a second or foreign language, and at which level, should take into considerations individuals' attitudes towards the project.

Another concern of language –of- education policy is which language should serve as a medium of instruction, at which level. The medium of instruction represents a problematic issue for policymakers and language planners mainly for countries that were already colonized. The language of the colonizer at the expense of the mother tongue represents a big challenge for these developing countries. In Algeria for instance, in the aftermath of independence, the new decolonized government declared the allocation of Arabic to its real status i.e., the mother tongue of the Algerian nation. Nevertheless, French as the language of the colonizer is still enjoying a considerable status in the country, notably in higher education, since scientific streams are still taught in French.

1.6Conclusion

The theoretical background provided numerous matters that are related to the present study. Concerning the first part,the researcher provided an overview of LPP research i.e., the concept, its goals, its processes and types. The second issue covered in the theoretical background was the socio-psychological research on attitude and more specifically language attitudes. We discuss the term attitude, its components, and related terms that contribute to defining it.

The researcher covered also the different approaches to studying and measuring language attitudes. Finally, the chapter concludes with an investigation of the relationship between language attitudes and LPP research. The above-explained theoretical issues were examined to gain a deep understanding of the context of the present study and to get a valid interpretation of the research investigation.

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Chapter Two: Language Planning and Language Policy Issues in Algeria

2.1 Introduction

This chapter examines the existing languages in Algeria and the status of each language in society. It sketches also the historical, political, ethnic, and socio-cultural factors that contributed to the linguistic diversity of Algeria. The main competing languages are First, Arabic an umbrella term that represents three varieties; Classical Arabic (CA), Modern Standard Arabic (MSA), Educated Standard Arabic (ESA) and Algerian Arabic (AA). These varieties of Arabic created a linguistic phenomenon named diglossia that influences negatively Arabic literacy and students' attainment. The second linguistic reality is Berber, the language of the original inhabitants of Algeria. Tamazight loses its status After the Arab conquest of the 7th century and undertook a long path fighting for recognition. It was not until 2002 that the language was recognized as a national language in the same stance with Arabic. French as a characteristic of the Algerian society though not chosen freely becomes an integral part of its identity. Several attempts to eradicate it doomed to failure. English as a foreign language could impose itself as a language of worldwide communication, technology, and science. The chapter examines as well the Algerian language policy vis a vis these languages and to what extent did education contribute to the promotion or marginalization of one language at the expense of the other.

2.2 Historical Development of Languages in Algeria

The linguistic development of Algeria started with the arrival of the first conquerors who were the Phoenicians. As they settled in the country (in 539 BC), the latter imposed their language on the natives, i.e. Berbers who lived in isolated areas as mountains and Sahara. The isolation of Berbers gave more freedom to the newcomers to dominate, yet it had a positive aspect since they could not come into contact with the conquerors a fact that allowed them to preserve their language i.e. Berber or Tamazight. For eight centuries, Berber continued to be spoken in the countryside, whereas in the cities elites and Nomadic kings used Punic as the official language (Benrabah, 2007).

Carthage¹ civilization was destroyed by the Romans during the second century (200 BCE). Many Punic –speaking groups fled to rural zones and took Punic with them. The Romans dominated Algeria for six centuries and Latin replaced Punic as the official language and the language of administration in the old towns and cities of Cartagians and Berbers (Benrabah, 2007).

¹in present-day Tunisia.

In 429CE, The Vandals² took control over North Africa. The latter practised their religious doctrines in the Gothic language but maintained Latin as the language of administration and diplomacy. A century later, i.e. in the 6th century, the Byzantine³ Empire was established in North Africa. Byzantines kept the Roman's social organization and their language. By that, linguistic trace of the Vandal and Byzantine periods is almost non-existent (Morsly, 1988 in Benrabah, 2007).

The 7th and 8th century witnessed the arrival of the most affecting peoples on the whole history of Algeria. Arabs who came from the East expelled the Byzantine and brought with them their religion, i.e. Islam. Berbers gradually converted to Islam and by the 12th century, the majority of Berbers became Moslems. For the Berbers, they learned Arabic that had a written and spoken form in contrast to their language which had only a spoken form at that time. Arabic, as the language of the Koran, spread gradually among Berbers who kept at the same time their linguistic heritage, i.e. the Berber language.

By the 15th century, the Ottoman rule in Algeria began. Through their long occupation (1529- 1830) until the French colonization of Algeria, the Turks linguistic impact was almost absent, Since the Deys⁴ preferred controlling the Mediterranean Piracy rather than the country's internal issues (Abun-Nasr) as cited in (Benrabah, 2007) During these periods Algeria was always characterized by linguistic diversity. Hence, the linguistic historical background reveals that: 'It was marked by multilingualism: it was bilingual (Berber –Punic) during the Phoenician period, trilingual (Latin-Punic-Berber) under the Roman occupation and multilingual since the Ottoman presence' (Benrabah, 2007).

This multilingualism was reinforced by the French colonization on July 5th 1830. French rule in Algeria was characterized by violence and force from the very beginning. The fact that explains the French profound impact on Algerians' culture and linguistic features. French rulers at that period tried every means to eradicate Algerians' identity. They established the supremacy of their language and culture over other cultures and languages under the rallying call "mission civilisatrice"⁵ (civilizing mission).

²Vandal was a Germanic people belonging to the family of East Germans.

³Empire is the term used to describe the Greek-speaking Roman Empire during the Middle Ages referred to as the Eastern Roman Empire.

⁴ For Ottomans, men of high governmental positions are called Deys.

⁵Civilizing mission: a rationale for intervention and colonization imposing to contribute to the spread of civilization in previously colonized countries. This was the underlying principle for France and other colonizing countries in the late 19th and early 20th centuries.

French governors attempted to promote their language at the expense of Arabic. In this sense, a military governor of Algeria (1832-1833) stated that; “The remarkable feat would be to gradually replace Arabic by French...which can only spread among the natives, especially, if the new generation will come in numbers to be educated in our schools” (Turin, 1983, pp. 40-41) as cited in (Taleb Ibrahimi, 1995). From 1830 to 1962, French became the dominant language in Algeria and limited the functions of Arabic to religious practice and the teaching of the Koran. Yet, French became the medium of instruction in schools, the language of administration and diplomatic life.

The Algerian population is made up of two major ethnic groups: the Arabs and the Berbers. The former constitutes 80% cent of the total population identified above, whereas the latter is estimated to form 25% of the population (Ennaji, 2005). The Berbers are geographically spread across the Maghreb from the Mediterranean coast in the north to the River Niger in the south, and from the Atlantic coast in the West to the Egyptian Sinai oasis in the East (Abrous & Cloudot, 1999). The term Berber is derived from the Greek word ‘Barbarus’ that refers to any outsider to the Greeks. The Romans and the Arabs had also adopted this name. For the Arabs, they called them i.e. the Berbers, *barabira* (sing. *barbari*) and their language *barbariya*. The majority of the descendants of the Berbers can be found today in Morocco and Algeria. According to Hugh (2014), *Barbariya* is primarily a linguistic term of classification that indicates people who speak one of the Berber dialects. Their exact number is unknown so far; however, they are estimated at 1/5 of the Algerian population (Chaker, 1984).

The major Berberophone groups are: first, the Kabyle the most significant group of Berbers. They refer to themselves as ‘Imazighen’ (Pl. *Amazigh*) from which ‘Tamazight’ the language is derived. The Kabyle are the inhabitants of the Tell Atlas, the coastal chain from the edge of the Metidja plain south-east of Algiers to the Babor Mountain south-west of Jijel. It includes Tizi Ouzou, Bejaia, Jijel, Boumerdes, BordjBouArreridj, and Setif. The mountainous geographical area that the Kabyles occupy has deeply affected their way of life and developed a high sense of independence.

Second, a Berber group known as the Chaouia represents a small population if compared with the Kabyle. They are located in the rugged Aurès Mountains of Eastern Algeria. Another Berbers in Algeria are known as the Mzabi of the Northern Saharan region. Most of the Mzabis live in the province of Ghardaia and they are Ibadi Muslims who are usually called ‘puritans of the desert’ who practise a puritanical form of Islam.

The least affected Berbers by the outside world are the Tuareg who occupy the south-west of Libya to Mali in the High lands of the Ahaggar and the TassiliN'Ajjer Mountain in the far south of Algeria. The Tuareg are famous as camel and cattle herdsman who protect caravans of west and North Africa.

In addition to the above mentioned Berber groups, there exist others who refer to the name of their region of origin such as Nefusi, Djerba, Rifi, and so on.

2.3 Language Planning and Language Policy in the Algerian Education System

Algeria emphasized education as the most important sector that guarantees socialization and order, which the dominant group in power aims to set up. To get rid of the colonizer's language and educational system, the Algerian authorities launched a language policy that is considered as the most important one in the history of Algeria.

2.3.1 Arabization process of the Algerian school

Immediately after independence, Algerian leaders decided to restore the country's identity through assimilation. The latter aims to make all members of the Algerian community alike, sharing the same behaviours, thoughts, and receiving the same education through a sole language that is MSA.

To grant Standard Arabic an official status as the official language of the Algerians, Arabization was launched on October 1962. The first President of the Democratic and Popular Republic of Algeria Ahmad Ben Bella announced that Arabic would be taught in French elementary schools. Nevertheless, the first transitional period from colonialism to independence witnessed many difficulties, and this policy faced serious obstacles as the discontent of French speakers.

The years 1962-1965 were marked by the uncertainty of implementation, because of the lack of teachers who mastered the Arabic language. Yet, the government decided to introduce Arabic in the curriculum seven hours a week in 1962 and ten hours a week in 1964. The shortage of teachers was compensated by the hiring of one thousand teachers from Egypt and Syria, even if they were not competent in Arabic and did not receive any training in language teaching (Benrabah,2004).

The real step of Arabization began with the military coup of 1965. Boumedien assumed the control of the government and like his predecessor regarded Arabic

reinforcement as a fundamental goal. Therefore, systematic Arabization⁶ as it was considered by Benrabah began.

Ahmad TalebIbrahimi⁷, a Minister of Education from 1965-1970, started introducing Arabization to the school system. His recognition of the necessity of Arabic as one of the essential ways for the restoration of the Algerian personality did not contrast with his recognition of the benefits of the French cultural tradition. He, therefore, explained:

It is not our intention to destroy the acquired colonial knowledge but to reconvert it. It does not occur to us to deny the contribution of the French culture that has taught us the method and the Discourse on methods

(TalebI brahimi, 1973, p.12).

The first period of Arabization was characterized by bilingualism and Arabic was taught in parallel with French. It is not until 1974 that the whole primary educational level had been Arabized with the teaching of French as a (foreign language) subject beginning in the third year (Gorden, 1978) (as cited in Benrabah, 2004). In the same year, most humanities classes at the secondary school were Arabized. However, Arabization at the University level remained an obstacle for the successive policymakers of the successive Algerian governments.

The educational structure has been changed;the government introduced the ‘EcoleFondamentale’or Fundamental School ⁸in September 1976.It consists of six years of elementary schooling and three years of middle school using Arabic as the language of instruction. This reform had been effectively implemented in 1978 and put an end to French – Arabic duality in education (Taleb Ibrahimi, 1995).

After twenty years of the creation of the Fundamental School, both Algerian authorities and a large part of the population have felt the need for new educational reforms, starting from president Boudiaf to Bouteflika to countless scholars and specialists in educational issues the Algerian educational system doomed to failure. A deep understanding of language planning measures vis à vis languages in Algeria requires an investigation of the

⁶Or Arabization at all cost, since this policy did not take into account the existence of Berber that enjoyed and still enjoys a considerable position in Algeria. Besides the French language widespread among Algerians (a first language for some and a second language for others).

⁷ The son of ShaykhBachirIbrahimi who had assumed the leadership of the association of UlamaAfter Ben Badiss'sdeath.This very man was considered intelligent an learned and a magnificent product of Bilingualism.

⁸Fundamental in the sense that it gives knowledge and skills which are an essential condition for attaining a higher standard of living. In fundamental school, the pupil had to study six years at primary level.

history of these languages, their development, the way they penetrate to the Algerian territories, and hence the recent policies the government undertakes towards each language.

2.4 Arabic: Language Planning Measures

Arabic is a Central Semitic and Afro- Asiatic language spoken by peoples of the Middle East and Northern Africa. The origins of this language go back to the revelation of the Holy Book 'Qur' an' to the Prophet Mohammed. As such the significant position of Arabic is referred to the fact that it is the language of the sacred book. In the Algerian context, Arabic spread in all the country's territories through the Arab conquest of the seventh century.

2.4.1 Varieties of Arabic

Different factors led to the birth of several varieties among the Arabic language, usually identified as Classical Arabic(CA), Modern Standard Arabic (MSA), Educated Spoken Arabic (ESA), and Algerian Arabic (AA).

2.4.1.1 Classical Arabic (CA)

The most established variety at the top of the other varieties. CA is used in Qu'ran 'the clear Arabic book'; it is still the language of all religious ceremonies, and the source of Arab classical grammarians⁹ who put the basics of the correct usage. This variety may be considered hence and across 1400 years (in the Islamic calendar) to be a living language used particularly:

- For religious purposes such as reciting Qu'ran and Friday sermons, it is believed thus to be a sacred language.
- The language of a rich classical literature (prose and particularly poetry).

The above-mentioned reasons may be considered as a direct factor that makes the language unchanged to this day.

2.4.1.2 Modern Standard Arabic (MSA)

For the majority of Arabs MSA is Fus-ha i.e. Classical Arabic. Only linguists, notably those language specialists in Arabic linguistic literature who distinguish MSA from CA. MSA is a simplified form of Classical Arabic (Palmer, 2008). It is considered as a lingua franca that all Arabs use when their colloquial language fails to express what they need. It is the formal language used in official correspondence, literature, newspapers, and media. As far as education is concerned, Arabic(MSA) is the official language of the state and is the medium of instruction at all educational levels.

⁹Al Khalil Ahmad Al Farahidi, Abu Al-AswadAduàly, IbnDjinni, and so on.

As far as the linguistic system of MSA, it is considered as the simplified version of CA, in this respect, McLoughlin (1999) claims:

There is a direct line of descent from classical Arabic, the language of Qu'ran to modern Arabic, so that across 1400 years(in the Islamic calendar) the script is recognizably the same, the grammar has changed remarkably little(by comparison with, for example, German and English) and then the vocabulary has shown an astonishing integrity and consistency.(p. 175)

As has been previously stated, CA knew a kind of modification to meet the Arabs everyday needs. At the level of phonology, morphology, and syntax no change has occurred. CA and MSA are similar sharing the same phonological system and the same grammatical rules. However, at the level of vocabulary CA witnessed a kind of modernization as a corpus planning activity that aims at meeting the speakers' contemporary communication needs. In addition, MSA includes ample instances of loan words as: /biblioghrafya/, /joghrafya/, and/biolojya/ (bibliography, geography, and biology). The problem with these borrowings is that they are not adapted to the morphosyntactic system of the host language i.e. Arabic.¹⁰

As for the status of MSA in Algeria, it enjoys high prestige. It is used by Algerians in all formal settings, though it is not inherited or acquired naturally from birth. What reinforces the claim that it is a cherished variety and a sacred language for all Muslims.

2.4.1.3 Educated Spoken Arabic (ESA)

Educated Spoken Arabic also known as 'Middle Arabic' is neither Fus-ha(standard) nor àmmiya (vernacular), rather it is a form that sums up some features of the former with some features of the latter. What is specific for ESA is that it is used by educated speakers and is "employed for semiformal discussions and on other social occasions when the colloquial is deemed too informal, and the literary, too stilted" (Ryding, 1991, p.212). It is worth mentioning in this respect, that ESA is an emerging language that is intelligible to all Arab educated speakers throughout the Arabic speaking countries.

¹⁰ Arabic throughout this work means MSA.

The Arabic language trainers and teachers in the West were deeply attracted by ESA as an alternative to MSA in teaching Arabic as a foreign language. The question that may be raised in this sense is whether ESA can be considered as a variety of Arabic in itself since it has only a spoken form; taking into account that the speakers have usually recourse to the vernacular whenever they feel unable to express themselves conveniently in MSA.

2.4.1.4 Algerian Arabic

This language (or variety of language) is typically Algerian (Algerian in terms of the mixture of more than a language). It is the colloquial language known as ‘darija’ (dialect) a simplified version of Modern Standard Arabic (MSA). Moreover, Algerian Arabic is considered as L1 of the Algerians since it is spoken by 80%-85% of the population (Benrabah, 2014). Algerians adopt this language as their L1 because of its simple structure at various levels mainly the phonological and syntactic levels. A definition of Algerian Arabic was given by the ex-ministerial delegate to the Algerian universities Rachedi in an Algerian weekly newspaper “*L’Hebdomadaire*”:

What is, in fact, Algerian Arabic? It is an Arabic that is stripped of its absolute declensions, its useless dual case ending, its heavy constructions, its frozen expressions, its syntax from another age, its antediluvian terminology. It is a spoken, lively Arabic, which bears the mark of the creative genius of Berber, of rural and urban Algeria, which integrates foreign terms harmoniously...(quoted in Abid, 2006, pp. 27-28)

As such, the low variety (AA) consists of some regional dialects throughout the country. The Algerian dialects, as well as other Maghrebi dialects, are mutually intelligible in the Maghreb territory. However, Arabs from the Middle East are unable to comprehend these dialects, notably AA. The latter comprises an abundant number of foreign lexical items, especially from French. Thus identifying AA as a true variety is sceptical, since it is a mixture of Arabic influenced by Spanish, French, and Turkish borrowings; in addition to significant local variations in pronunciation and grammar.

The linguists' claims that the Algerian linguistic situation is complex can be asserted. The co-existence of Arabic (including its various varieties) with Tamazight as another indigenous variety has contributed to the complexity of this situation.

2.4.2 The Diglossic Situation of Arabic

In Arabic speaking countries, the linguistic situation is very much like the 15th and 16th situation for France, where all newspapers and books were written in Latin, and persists in the churches used only Latin. However, people at home or among friends used French. In schools, the official language of the classroom is Latin, but during the breaks between classes, students used French among themselves.

For the Arabic language, there appear to be two varieties of the language, the Classical standard, referred to as Fus-ha and the Colloquial language usually called 'ammiyya' or in North Africa 'darija' and in Western publications 'dialect' or 'vernacular' (Versteegh, 1997). These two varieties divide the domains of speaking and writing among themselves:

- The standard language is used for written speech and formal spoken speech recognized only in schools...
- The colloquial language is the people's mother tongue.

According to Ferguson (1959) the two varieties are genetically related the first variety is the so-called 'high variety' (H), and the second is the 'low variety' (L). Both are linguistically related but significantly different from one another. The author relates the occurrence of the diglossic situation to a set of conditions according to function, prestige, literary heritage, acquisition, standardization, stability, grammar, lexicon, and phonology. Among which the functional distribution is the most important feature for diglossia. Ferguson's conceptualization of diglossia is known as classical diglossia; in fact, his definition has been criticized and discussed extensively by other scholars, and even by Ferguson himself. When he acknowledged that he provided an idealistic picture of diglossia (Bassiouny, 2004).

Consequently, Ferguson's explanation of diglossia cannot cover all the diglossic speech communities. And questions such as: how far apart or close together should the H and L be for a language situation to be called 'diglossia'? is there only one H? When Ferguson opted for one high variety which is classical Arabic and one low variety which is colloquial Arabic, Arab linguists studies, notably Badawi's study provided a classification of Arabic distinguishing a continuum of gradations from 'high' (very literary or formal) to 'low' (very colloquial), with several levels of variation in between.

Badawi (1973) proposed five different varieties of Arabic: "Fus-ha al-turaθ 'heritage classical', Fus-ha al-Asr 'contemporary classical', Ammiyyatalmuθaqqafin 'colloquial of the cultured', Ammiyyatal-mutanawwiri:n 'colloquial of the basically educated', and Ammiyyat

al-A :mmiyyin ‘colloquial of the illiterates’ (p. 89). Again this classification is based on the output of the Egyptian media. Accordingly, no generalization to other Arab countries linguistic situation can be made. For example and as far as Algeria is concerned, this division cannot be taken into consideration notably by the existing of two other languages such as French and Berber. In countries as Algeria, Tunisia, and Morocco where people are fluent in other languages, the term ‘diglossia’ is too narrow for the type of situation which exists. Indeed, Ferguson’ original discussion known as ‘classic’ or narrow diglossia received considerable changes to overcome the above mentioned problematic situation.

Consequently, Fishman (1967) proposed a modified definition of diglossia to include ‘extended diglossia’ referring to situations where two (or more) genetically unrelated or historically distant language varieties represent the H and the L varieties. The author distinguished also between the concepts of diglossia and bilingualism proposing four situations in which the two concepts may occur:

- 1-Both diglossia and bilingualism.
- 2-Diglossia without bilingualism
- 3-Bilingualism without diglossia
- 4-Neither bilingualism nor diglossia

2.4.2.1 Diglossia in Algeria

As far as the Algerian linguistic situation is concerned, Algeria represents a perfect example of the phenomenon of diglossia.e.the existence of two different varieties of one language that are in complementary functional distribution (Ferguson, 1959). Indeed, MSA differs from AA in different aspects such as phonology, morphology, syntax, and vocabulary. In addition to Ferguson’s classical outlook of diglossia, the co-existence of French and Berber together with MSA and AA involve a more extended distribution of H and L where two genetically unrelated languages are used for specific domains applying to Fishman's 'extended diglossia'. As such, the possible distribution of H and L can be summarized as follows:

●MSA versus AA: (Ferguson 1959, classical diglossia/intralingualdiglossia)

A kind of classic diglossia that refers to the use of each variety in a special domain i.e.when MSA is appropriate, AA is inappropriate.Consequently, MSA is the official language of the country, the more prestigious, and the language of cultural and religious heritage. Whereas AA is the spoken variety in informal situations, it is the language of intimate conversations and daily interaction.

This static binary model presented in terms of high and low varieties co-existing in complementary distribution does not reflect the linguistic situation in Algeria. Countless examples may be cited in this context, a teacher in the classroom may switch either from H to L or from L to H to make his lesson comprehensible. Similarly does an animator of a programme on television or Imam in the mosque. Such kind of switching has one simple reason: to convey the message to a large audience including less educated listeners and even illiterate people. Accordingly, switching for H to L or L to H occurs in a free variation either informal or informal situations. The above-mentioned claim can be applied only on spoken language, the written form of the Arabic language is still valid and still respecting Ferguson's binary model. Since all literary works including newspapers, academic research, and poetry are written in the H variety.

● **French versus AA:** (Fishman 1967, extended diglossia/ interlingual diglossia)

The second relationship is the one that resulted in bilingualism in Algerian society. It represents the so-called extended diglossia. The Algerians' everyday speech is full of heavy borrowings from French, as a language of daily communication for 132 years during French occupation of Algeria; this language could penetrate to deeper spheres in the Algerians' everyday speech. Daily conversations cannot be uttered without at least one or two French words. Algerian Arabic is loaded with French words and it seems to be natural to hear an Algerian saying “kirakiçava”? “Are you feeling all right?” or “hdartunefêted'anniversaire ta3 monneveu" "I attended my nephew's birthday party". Indeed, French is implanted in the society, and a great number of French borrowings, both adapted and non adapted, can be attested in everyday speech, particularly in urban areas where French got hold more firmly than in rural ones (Bouhadiba, 1998).

MSA versus Berber or French versus Berber: (Fishman 1967 extended diglossia/interlingual diglossia)

As for Berber, Djennane (2014) asserted “‘extended triglossia’ as another kind of diglossia that characterize Berber regions” (p. 54). In such areas, MSA and French are used in official domains such as administration, education having the H functions, whereas, Tamazight (such as Kabylia, Tachalhit, Mzabi, and Chaoui) which are genetically unrelated to Arabic or French- have the L functions used in informal situations. AA is also used in Berberophone regions ‘either for in –group local communication between the Berbers or for out-group communication with Arabs’ (Djennane, 2014).

2.4.2.2 *The Effects of diglossia on education*

There is a growing awareness among education specialists of the Arabic language that the low levels of educational achievement and literacy rates in most Arab countries are related to the complexities of MSA as a language of instruction. The difficulties are mostly related to the diglossic situation of the language. The most important feature of diglossia that contributes to complicating the situation is "the rigid and complementary functional separation of two linguistic codes: the written and the spoken" (Sayegh-Hadad, 2012). On the one hand, colloquial dialects are the medium of everyday communication acquired natively by Arabs in all the 22 Arab countries. They are consequently considered as L1 acquired without any efforts. On the other hand, Literary Arabic or MSA the written and formal form is acquired through formal schooling and is not the language of daily communication.

In some Arab countries such as North African ones, the problem of diglossia is aggravated by bilingualism. Because of colonization, French and English having different structures from that of literary Arabic exacerbated the discrepancy between the two varieties of Arabic. Apart from this problem, the acquisition is another unique feature that characterizes Arabic diglossia. While all Arab children acquire the local spoken vernacular naturally, learning MSA is a result of formal instruction. Thus MSA is no body's mother tongue; it is never spoken at home (Saiegh-Hadad, 2012). The above-mentioned features imply a series of challenges to the acquisition of literacy in Arabic.

Algeria is an example of a complex diglossic situation, MSA or SA is the mother tongue of no Algerian. Children's first contact with the standard language is in the classroom at age 6 years old, before this age, they discover that the words they use in their daily communication have no place in the classroom. Instances of this situation may be summarized in the following table:

Table 2.2 *Instances of diglossia in the Algerian children's speech*

AA	MSA	English
/khudmi/	/sikki:n/	Knife
/kabsa/	/zulba/	Box
/mughrof/	/milzaka/	Spoon

Other loan words from different languages such as French and Spanish became the characteristic of the Algerian daily speech. Both the literate and illiterate speakers use various terms from different varieties in their daily life discussions.

Here are some examples of loan words used in Algerian society:

Table 2.3 *Examples of loan words used by the Algerians*

AA	The origin of the loan word	MSA	English
/tabla/	Une table(French)	طاولة/tawila/	Table
/kuzina/	Une cuisine(French)	مطبخ/matbaK/	Kitchen
/safija/	Un sachet (French)	كيس/ki:s/	Bag or sachet
/gi:pa:/	Unejupe(French)	تنورة/tanora/	Skirt
/kamju:na/	Un camion(French)	شاحنة/ʃa :Hina/	Truck

This linguistic reality has led to an ever-weakening in the Algerian educational system and a dramatic decrease in literacy rates. Instead of reading to learn, Algerian children, as well as all the Arab world children, are learning to read (Maamouri,1998). Researchers such as (Eviatar&Al-batal, 2000) describe the learning process of MSA (supposed to be a mother tongue) to that of learning a foreign language. In Algeria, French succeeded during the years of colonization and even after to penetrate itself to every domain of the people's daily lives. Algerian children have no acquaintance with MSA until they join schools. Though having some exposure through TV programmes and literacy events, efforts to making the child closed to MSA are still insufficient and ineffective. The Arab League Educational, Cultural and Scientific Organization recorded 70% of Arab people who are illiterate. This astonishing number doesn't mean that the high rates of illiteracy are solely due to diglossia. UNESCO reports other factors that led to this scaring number of illiterates in the Arab world among them:

1-Colonialism: Colonizers' policies notably French colonization in Algeria had one ultimate goal, that of making people illiterate. During 132 years, the different French governments tried every means to destruct traditional Arab schools known at that time with 'zawaya' and 'madrassa' where classical Arabic and Quran were taught. They have also prevented Algerians to enrol in French schools or even abroad. Consequently, after independence, the Arab countries spent much time and enormous budgets to fight this colonial hangover.

2-Poverty and low standards of living: a factor that contributed to increasing illiteracy among the Arab world. An ordinary citizen who works to eat will not think about reading or about being illiterate.

3-political unrest: the unstable political conditions in the majority of the Arab countries have also led to a decrease in literacy rates. Instances of this are the long struggle of Palestinian people for freedom, the war Iraq, the Arab spring that resulted in anarchy and weakening of the educational levels in countries such as Syria, Lybia, Yemen and so on.

2.4.2.3 Language Planning Measures vis-à-vis Arabic Diglossic Situation

Researchers in educational issues and language policymakers have already been engaged in finding solutions to the diglossic situation of Arabic, which is considered as the direct reason for illiteracy in the Arab world. The efforts of scholars and researchers can be summarized in two major positions:

1-A group of researchers, represented in western scholars and Arab researchers who received western education, who has called for promoting dialects to the status of standard language since it is the L1 of the Arab people.

1-Those who believe in the Arabic language ability and richness to cope with modern life requirements, arguing that serious status and corpus planning efforts would modernize the language and generalize its use in all the domains, notably the education sector.

The former claim has raised an ongoing debate among researchers and educational specialists. They call for the vernacularization of the language of instruction, arguing that knowledge can be better transmitted by the mother tongue which is AA in the Algerian case. This claim has been stressed by UNESCO as early as the 1950s:

On educational grounds, we recommend that the use of the mother tongue be extended to as late-stage in education as possible. In particular, pupils should begin their schooling through the medium of the mother tongue because they understand it best and because to begin their school life in the mother tongue will make the break between the home and the school as small as possible.

(UNESCO, 1953, pp. 47-8)

These claims consider the use of the mother tongue as the initial medium of instruction a factor facilitating learning and reducing the failure rates. Proponents of the use of vernacular as a medium of instruction believe that SA “creates a fake model of oral proficiency by presenting the students with an artificial variety that is not used by the native speakers for daily-life communication” (Al-Batal, 1995, p. 123). And they go further when they consider the H variety as a foreign language. Promoting colloquial language to a language of instruction in schools has received much critique. Researchers asserted that such a radical change requires huge budgets, new pedagogical materials, and new language programmes corresponding to the theoretical principles. Thus the context in which such a fundamental

change may occur is complicated and the interaction of multiple factors make the reform rather tricky. First and foremost the change should begin with the public, and policymakers should first investigate whether society is ready to accept such a structural reform. Indeed, it's no easy task to go through a whole language standardization process. According to Haugen's model (1972) standardization involves four stages :

- a- Selection: which dialect to be promoted taking into account the existence of more than one dialect in the Arab world. In this context, (Versteegh, 1997) distinguishes between five groups of regional dialects in the Arab world: 1- dialect of Arabian Peninsula, spoken in Saudi Arabia and the Gulf area. 2- Mesopotamian dialects, spoken in Iraq. 3- Levantine dialects spoken in Lebanon, Syria, Jordan, Palestine. 4- Egyptian dialects, spoken in Egypt. 5- Maghreb dialects, spoken in North Africa. Arabic dialects are sometimes mutually intelligible, yet in some countries such as Morocco, Tunisia, and Algeria the problem of intelligibility is strongly posed. This because of the existence of French and Berber as competing languages. So the issue of selection makes dialect standardization but a utopia.
- b- Codification: how the colloquial language can be codified if it has no written form? which norms and rules of grammar should be selected? and which govern the variety selected have to be formulated and set down definitively in grammars, dictionaries, spellers, manuals of style, texts, etc.
- c- Acceptance: as already mentioned, the community's acceptance of standardization is of paramount importance. This should be done by institutions, ministries, the media, schools, etc.
- d- Elaboration: to the variety selected to represent the desired norms, the colloquial language should be able to discharge a whole range of functions; including abstract, and intellectual functions.

The factors already cited reflect the complicated task of Colloquial Arabic standardization. They reflect also the deep roots of SA in the Arabic societies, and how difficult is the shift from SA to a vernacular as a medium of instruction; in this respect, Versteegh stated that "It remains difficult in the Arab world to arouse interest in the dialects as a serious object of study. Many speakers of Arabic still feel that dialect is a variety of language without grammar... and even in universities, there is a certain reluctance to accept dialect studies as a dissertation subject". Thus the rising interest in vernacular development has no significant interest in the Arab world, what reflect their attachment to the Arabic language and their deep beliefs on it as a sacred language of the sacred book the Holy Quran.

Nevertheless, and though the persistence of SA and its status, proponents for vernacular promotion and standardization have succeeded to generalize its use in many official domains such as media, where TV programmes like movies, TV shows are presented in the colloquial language.

As for Algeria, the use of the dialect in the educational system has a heated ideological debate, though having less importance as in Egypt and the Levant; calls for the use of dialect in teaching during the early ages of primary school was always present (Benrabah, 1999, p. 118). The most daring proposal that received intense reactions was that of (Noria Ben Ghabrit) the current Minister of Education, when the inspector-general of education affairs unveiled this decision at the ministry during a press conference to present the recommendations of a pedagogical forum held under the direct supervision of Prime minister Abdelmalek Sellal and designed to examine Algeria's weak educational system.

Ben Ghabrit's declaration (on August 2nd, 2015) received heated reactions and waves of anger among the Algerian society to the extent that some have called for President Bouteflika to intervene to remove the minister from office. And SA advocates believe that the use of dialect in education is a plot against the official language, the national unity, and against the Algerian Arabo-Islamic identity. As a defensive, the minister has justified the decision to be based on 'purely pedagogical motives'. She emphasized that the use of the local dialect in schools is not intended to rob Arabic of its position; instead, it is an attempt to bring knowledge closer to new students in preparation to teach them standard Arabic at later stages (Boudhane, 2015). Ben Ghabrit also added that her declaration was misinterpreted, and the use of colloquial Arabic was no more than a recommendation.

Proponents of the second view; i.e. Arab scholars and linguists, who believe in SA capability to cope with modern life innovations in the age of globalization, strove for promoting Arabic Fusha and generalize its use among the different classes of the Arab society. To achieve this goal, serious and multiple efforts were spent by researchers. According to conducted experiences, scholars believe that exposing the child to literary Arabic may solve the problem of literacy in the Arab world. They argue that if the child is grown in an environment where exposed to SA s/he will be acquainted with. The fact that some parents who are aware with the sociolinguistic situation in the Arab world in general and especially in Algeria decide to speak SA with their children at early ages to prepare them to formal schooling at the age of six. Some of them find the mosque as the appropriate space where SA is taught naturally. By reciting the Quran and learning the basic Arabic alphabets, children will be exposed to the language and will find no difficulty in schools.

More arguments were given by psycholinguists emphasizing that languages can be successfully acquired at early ages. They stressed the child's ability to acquire two or more languages simultaneously. Dennane's experience (1988-1992) based on the principle of "the younger the better" sustained these arguments. The researcher applied the experience first on his children when he used only SA with them while the mother spoke colloquial Arabic. The results were astonishing, Dennane's children succeeded to acquire SA and the colloquial variety at the same time. Besides they were able to distinguish which variety should be used and in which situation.

The author's experience received a high popular approval (at least in the Middle East), and famous educational institutions started to be interested in his achievements. Instances of that are two kindergartens: one in Kuwait, and another in Damascus. Dennane trained teachers to speak simple and fluent Arabic with children; the result was a success in developing a remarkable competence in SA among the children of the above-cited kindergartens. Consequently, the researcher's findings stressed the necessity of exposing young children of less than 6 years old to SA to allow natural acquisition of the language rather than formal learning where the child may feel guided and limited by space and time. Dennane's experience was evaluated by many researchers who attempted to build a relationship between early exposure to SA and pupils achievement in formal schools. The American researcher Jenkins found in her Magister thesis (2001) that children who were exposed to SA in preschool obtained better scores in reading and other subjects if compared with their counterparts who spoke dialect Arabic as L1 in kindergarten.

Top-down decisions can also strengthen the status of Arabic and spread its use among society. Educational authorities should enhance the importance of Arabic by introducing it as a language of instruction of all the school subjects¹¹ and not just literary subjects (Ayari, 1996). According to Al Khouri (1991), an experiment was implemented in the American University of Beirut where two groups of students were taught a scientific subject in English, and the second group was taught the same subject in Arabic. The results reveal that the group that was taught in Arabic outperformed the group that was taught in English (Al Khouri, 1991). The same experiment was conducted on the same groups of students, but this time to measure their reading comprehension ability. Upon evaluation of the students, the group that read in Arabic outperformed the other group in terms of reading comprehension.

¹¹ In Algeria scientific subjects at the university level are taught in French. And English is the medium of instruction in the majority of the Middle East countries.

According to the results obtained, Al-Khoury suggested that students' high academic achievements are related to the language of instruction and that they are likely to improve if they are taught in Arabic the mother tongue instead of a second or a foreign language such as French or English.

Top-down activities may also include corpus planning activities upon SA since problems encountered by both Arab people and learners of Arabic can be summarized in the complexity of this language at the level of grammar, lexicography, orthography, and vocabulary. In this sense, Zughoul (1980) observes that "the state of lexicography is one of the aspects of Arabic linguistics in most need of improving" (p. 195). Specialists and researchers in the Arabic language stressed the urgent change in the inner structure of the language at different levels. Such a change represents the modernization of the language to cope with the ever-developing world. Developed countries modernize their languages according to the new concepts produced in the world of innovation and technological discoveries. Indeed, there is a need for new words that have no equivalent in the Arabic language. Arab children and adults suffer from the non-availability of some concepts related to the simplest needs of their daily life activities. For example, there are no Arabic equivalents for tools or auto parts used in a mechanic's shop. In this respect, Maamouri (1998) points out that "lexical instrumentalization is an important need which is not yet taken care of by the efforts of all the existing Arabic language academies and terminology-focused institutions" (p. 67).

Another problem that may be posed is that even if a term is coined or borrowed, it may gain no popular acceptance in all the Arab countries. Indeed, there exists no coordination between the Arabic language academies to unify the use of one term all over the twenty-two Arab countries.

Vocabulary modernisation is also a very important process in lexication. The renovation of Fusha should be the major aim of Arabic language academies through either borrowing from foreign languages, coinage, semantic extension of an existing word, or translation of the foreign word (Versteegh, 1997). First, borrowing from other languages to Arabic becomes the most used process for modernization. Though some Arab linguists efforts for the complete avoidance and elimination of all foreign loans from the language, a huge number of borrowed words are today a part of Arabs language. Nevertheless, in the modern period, the academies adopted a restrictive policy allowing loans only in scientific terminology. In fact loan words that existed in the nineteenth century were replaced by Arabic terms e.g., the word 'magliss' instead of 'barlaman' borrowed from French; whereas purely scientific terms retain their foreign names.

The semantic extension of an existing word by giving it a modern meaning was not successful (Versteegh, 1997). For one reason, that these words are misused and unfamiliar to ordinary speakers. An example of a successful word that was extended to modern usage is the word 'train' 'qitar' originally meaning 'caravan'.

As for coinage, Arabic lexicon builders have recourse to Latin and Greek suffixes and prefixes to expand the scientific lexicon. With the negations 'là' and 'ghayr' equivalents to Greek terms with the prefix, a- was coined; an instance of this is the word 'là-nihaya' meaning 'infinite'.

Translation is also an important process in vocabulary modernization. Though its importance, the Arab World suffers a scarcity in the translation of materials from other languages "it is a pity to realize that the Arab World has translated less than ten thousand books during the last fifty years, while one country as Greece has translated ten times the amount of books translated in the Arab World during the same period" (Seddik, 2010). Translation methods such as the Calque¹² are widely used to translate words from foreign languages, notably French and English to Arabic. An example is the Arabic term /hàtifnakal/ or /zawal/ is a calque of the English term 'mobile'. Translation may be considered as the best method to purify the language from the heavy amount of foreign words that penetrate to the Arabic language. As an alternative to borrowing, the Arabic language academies encourage individuals and translation institutions to multiply their efforts in translating works from and via Arabic. They insist on the necessity of finding equivalents to any new word in Arabic that has a rich repertoire in all the domains even the scientific.

Other significant corpus planning recommendations were also set out by Maamouri (1998) emphasizing the need for lexical instrumentalization, that can only be achieved through adopting a dictionary for modern Arabic usage. The dictionary "could be based on existing Arabic databases which include words, phrases, sentences, and more information on the old and new uses of all Arabic lexical entries" (p. 68). The same author proposed 'an Arabic thematic visual dictionary' which is of paramount importance in meeting children's needs who suffer from the lack of present-day Arabic words for numerous fields of knowledge. Both types of dictionaries are illustrated terminological tools which use real-life images as an aid to word recognition. Accordingly, children might be provided by a practical tool that facilitates their task to check the meaning of any new concept without any complexity.

¹²Calque: is a word for word translation, it is the meaning that is borrowed rather than the lexical item itself e.g., the Arabic 'wijhatnadar', the English 'point of view', the French 'point de vue'.

To sum up, allocating SA to high statuses in the Arab World is no easy task. Indeed, consistent investments are required from language planning agencies in all the Arab countries. They should act as urgent as possible to modernize the language and increase its users, taking into account its status as a very ancient language that could persist for ages.

2.5 Tamazight

2.5.1 Tamazight Fight for Recognition

The Berber question in Algeria dated back early years of colonization. The French developed an Algerian colonial anthropology that elevated the Berber culture of Kabylia and the Aurès to be superior to the Arab culture. These representations of Berbers and Arabs served as a method of 'divide and rule' in the colonial context. After independence, this has led to a rising perception that Kabylia was favoured and that Berbers should have their independent country.

After independence, the first Algerian President Ahmad Ben Bella (1963-1965), one of the National Liberation Front (FLN) leaders, declared threefold that they were Arabs ('Nous sommes Arabes...'). Ben Bella's declaration has been understood as a form of alienating the Berberists from the new decolonized republic of Algeria; what led to a civil war set off by the Socialist Forces Front (FFS) represented by Mohandou el Hadj and Houcine Ait Ahmad two of the Kabylia's military leaders.

The Kabyle rebels surrendered in 1964 with the aid of General Houari Boumediene who became the president of Algeria in 1965 after a military coup. Most of the decisive issues upon culture and language were taken during his presidency. Berbers consider that Boumediene's presidency was authoritarian, and people were afraid of speaking Tamazight publically.

As a consequence, the Berber movement was obliged to take the struggle abroad. The diaspora in France played an important role and l'académie berbère was founded in Paris in 1967; it was an eye-opener for Berbers (El aissati, 1993). After the death of President Boumediene, the Berber question was revived and took serious venues. In April 1980, Mohann Maamri a Berber poet and scholar were forbidden to host a seminar on Berber poetry. The government's refusal and the fact that this activist was arrested in front of his audience at the University of Tizi Ouzou led to a students' uprising first, that involve people from the whole Kabylia later on. This uprising became known as the Berber Spring.

The collapse of the single-party system and the introduction of political pluralism resulted by the bloody events of October 1988, changed the states position towards the Berber question and it was not until the 1990's that the Algerian government started taking significant decisions vis à vis Berbers, their identity, and language. Liamine Zeroual President of Algeria from 1994-1999 permitted the creation of the 'High Commission of Amazighity' 'Commissariat à l'Amazighité' (HCA) as a result of a whole year of school boycott in Kabylia from September 1994 to April 1995. The school-bag strike ended when the government accepted to introduce Tamazight in the school and the media.

The one-party collapse resulted in the rise of Islamism as a popular movement that represented a threat to the Berber question through Islamizing the country and generalizing Arabization policy. The emergence of FIS political party (Islamic Front of salvation) into political life in Algeria had historical consequences on the Algerian people. The authority cancelled the elections that favoured the FIS over the ruling party FLN. The cancellation of the elections' results has drawn the country into internal armed conflict that lasted for more than ten years.

In 1999, Bouteflika was elected President. His presidency was marked by important decisions through launching a political project for national amnesty known as 'La Concorde Nationale' 'National Reconciliation'. Thanks to Bouteflika's project the bloody conflict stopped and the country starts to live instability. The government's speech vis à vis Tamazight was characterized by softness during Bouteflika's presidency. In April 2001, the Berbers manifested in Tizi Ouzou and reached the capital Algiers in a few days. They manifested to institutionalize their language as a national language. The Berbers demands were immediately responded for one simple but serious reason is that the country was not ready to enter a new bloody era that may result in catastrophic consequences.

Though his declarations that Tamazight will never be an official language except by organizing a national referendum, he found himself obliged to change his decision relying on a parliamentary vote to pass the bill of amendment. Indeed, Bouteflika signed a constitutional amendment concerning article 3 and Tamazight is declared a national language while Arabic is the sole official language in Algeria. Such recognition permitted the introduction of the language to the public TV succeeded later on by the launch of a Berber speaking public channel (TV Tamazight Algérie 4). Other achievements have been made when Tamazight was introduced in public schools all over the Algerian territory.

Berbers' demands did not stop at promoting their language to a national language. In 2011, and after a Moroccan governmental new decision to put Berber and Arabic in the same

stance in the constitution as two equally official languages, a decision officialising Tamazight was made. The year 2016 marked a milestone for the millions of Algerian speakers of Amazigh. The Berber language was given the official status equal to Arabic in the country's new constitution. Though considered as a historical achievement, Berbers complained that such a decision stays theoretical since Tamazight is not mandatory in public schools, nor it is used in national government. In reality, there are no national Berber language newspapers, and few television channels are programming in Tamazight. This reality is believed to be a consequence of the lack of a unified written form for Tamazight, which proves that it needs a lot of work to be done mainly at the level of corpus planning.

2.5.2 Tamazight Standardization

Language standardization is still to be achieved and is considered as an ongoing process for many languages that have no literacy tradition. Tamazight is an instance of these languages that have only recently developed a recognized writing system¹³. After gaining the status of a language, policymakers and notably Tamazight linguists find themselves obliged to cope with the new situation i.e. to provide the appropriate conditions and means for its promotion and development. Unfortunately, after the announcement of Tamazight as a national language was not effectively followed by socio-political conditions that may help the language develop (Benali-Mohamed, n.d).

The first major problem is which Tamazight is meant to be standardized? Which Tamazight is meant to be national in the Algerian constitution? Taking into account that Tamazight is a group of interrelated language varieties that have never been standardized. In standardizing a language variety, Hudson (1996) suggested four parameters to be taken into consideration:

- **Selection:** the variety to be standardized should be carefully selected without neglecting any factor that constitutes the national identity. This variety is one of the majority and the one that the users consider as the most prestigious. In the case of Algeria, no governmental investigation has been undertaken to decide which of Tamazight varieties is prestigious. And decisions towards Tamazight have been always taken under the pressure of the Berbers of Kabylie who have been supported by the French government dating back to the early years of colonization.

¹³ At least in countries such as Morocco which adapted Tifinagh as Tamazight's official writing system, Mali (Latin), Niger (Latin). It is only in Algeria that the problem of the script remains unsolved.

●**Acceptance:** The chosen variety should be socially accepted by the huge majority of the concerned users i.e. Tamazight community.

●**Elaboration of functions:** The introduction of the standardized variety into institutional and educational fields besides media.

●**Codification:** The most important process that precedes the above-mentioned process i.e. elaboration of functions. The variety to be standardized needs to be codified to set rules and norms that serve to the development of the language. Codification process involves three sub-processes such as grammatication, lexication, and graphisation.

A/Grammatication and Lexication: Elaboration of a grammar that provides the correct use of the language was among the most important concerns of Tamazight linguists. The first influential books in this respect is that of Mouloud Mammeri¹⁴ (1976) *Tajerrumt n Tamazight* or *Tamazight Grammar* written in Tamazight and translated in 1987 to French under the title ‘*Précis de Grammaire Berbère*’. In addition to grammatication, lexication is another important issue in the process of standardization. Tamazight lexicographers have recourse to the three approaches of lexication: borrowing, coinage, and semantic expansion. Berber activists have usually opted for coinage and semantic expansion rather than borrowing notably from Arabic. Therefore, Tamazight linguists started to coin new words to modernize the language on the one hand, and to purify it from Arabic on the other hand. Mouloud Mammeri in this respect is the leader of such an approach. In his two famous books; ‘*Tajerrumt n Tamazight*’ (1976) and ‘*Amawel*’ (Berber-French/French-Berber dictionary 1980). Mammeri’s *Amawel* contains no Arabic words; they have been effectively replaced by new coined Tamazight words. He has also used Tamasheq (Targui) as a basis for semantic expansion. Mouloud Mammeri’s contributions to the development of Tamazight remains the most significant in the history of this language and his works are still considered as a reference to recent works.

B/Graphisation: Tamazight is originally a language with an oral tradition. Amazigh communities within the family and in social and professional life communicate orally. With the promotion of Berber varieties to a language, Tamazight activists have been working to develop a writing script of the language to transmit the Berbers’ collective memory to future generations.

¹⁴Mouloud Mammeri (1917-1989): a Berber writer, poet, anthropologist, and linguist. He was born in Tawirt Mimun, [Ait Yenni](#), in Tizi Ouzou. Mouloud Mammeri had furiously defended the Berbers rights; their language and identity. He caused the historical riots in what would be called the Berber Spring in Kabylie in 1980.

In Algeria, hot debates are still raised on which writing system to be adopted: the Arabic script, the Latin script, or Tifinagh. The majority of researchers in Tamazight favour the Latin alphabet. The use of Latin for Berbers had its roots in French colonization to Algeria. Berber texts written in Latin appeared in print in the 19th century. After independence, it has been largely favoured especially in Kabylie (TiziOuzou, Bouira, Bjaia). Berber researchers and linguists consider their privilege of the Latin alphabet as being logical; because of the amount of work done by French scholars during the colonial era on the Berber dialects. This colonial tradition was blindly imitated and supported by Tamazight writers and researchers such as Mouloud Mammeri and Salem Chaker to name a few. Furthermore, all the publications of the High Commission of Amazigh (HCA) the official representative of Amazigh culture and language use Latin characters.

Nevertheless, the Arabic script has been furiously rejected and resisted mainly in Kabylie. Whereas, in Aurès towns such as Khanshla, Djelfa, and Chaouia the Arabic characters are used. Those who favour the Latin script consider the use of Arabic as a waste of time arguing that the former i.e. Latin has more than 100 years in use (Chaker, 2002). They have also pointed out that the choice of the script doesn't affect the Berbers' identity giving the example of Turkish which is written in the Latin alphabet, but that hasn't changed the Muslim identity of Turkey. Pros of the Arabic writing system judge the Berbers arguments as being weak and irrational. Since the Latin script doesn't reflect Amazigh identity which has been intertwined with the Arabo-Muslim identity. They added also that the will of change to the Arabic script was absent when Tamazight linguists started the standardization of their language, what proves that hidden causes have been behind the preference of the Latin script rather than Arabic characters.

A third writing system considered as the most ancient and representative of the Berbers culture, Tifinagh A Libyan – Berber kind of writing that dated back to antiquity. Tifinagh is adopted as an official writing system in Morocco, it has been codified by the IRCAM (Institut Royal de la culture amazighe) since 2003, and it is used today in teaching-learning Amazigh in all the Moroccan nation (Boukous, 2004). Unlike Morocco, Algerian Berbers consider Tifinagh as too difficult to be used in writing Tamazight; though reflecting the local Amazigh identity and culture.

The major problem which remains unsolved in Algeria is which writing system to be adopted officially. The problem of the script is a real handicap for the promotion of Tamazight language in Algeria, and the solution is believed to be in the reach of policymakers.

A top-down decision that determines a writing system of Tamazight is the only way to solve this ever complicating situation. Furthermore, the passage of Tamazight from a group of dialects to a language necessitates hard work from both the state and all the Algerians. As an important component of the Algerian identity, Tamazight should have its real place in the minds of Algerians as a factor of unity and not fragmentation as many people try to allege. Benali-Mohamed in his article entitled “Tamazight in the Algerian Language Policy: from a ‘Dimension’ to a ‘Language’”; presented in the 1st Annual International Conference on Cultures and Languages in Contact, Faculty of Letters & Human Sciences Conferences and seminars N° 18; suggested some measures to promote Tamazight language in Algeria :

- _ The creation of a state institution devoted to the standardization of Tamazight.
- _ A decision as to which variety is to become the standard one.
- _ Otherwise, decide whether the Algerian language policy aims at having regional languages.
- _ Associate the researchers’ efforts to the decisions that are to be taken in this respect.
- _ Encourage the implementation of Tamazight in Arabic speaking areas through educational programs (Benali-Mohamed, n.d, p. 180)

2.5.3 Tamazight at school

After the Berber Spring in 1980, Tamazight question entered the period of achievements. Introducing the language in public spheres has been always a strong demand for Berber activists. Education is seen as vital to the implementation of a national Tamazight project. The history of Tamazight inclusion in the Algerian educational system dates back to 1990; when the University of TiziOuzou opened a department of the Amazigh language and culture with 10 students. One year later i.e. in 1991 the University of Bejaia opened another department of the language. In 2010, Tamazight departments were inaugurated in Bouira and Batna.

Another significant event in the history of Tamazight was the establishment of the Haut Commissariat à L'Amazighité(HCA) in 1995. This important body imposes itself as responsible for Amazigh language and identity. Berber ongoing manifestations and school boycott, that lasted for two months (from April to June 1995), has resulted in the recognition of Tamazight as a national language in 2002. This recognition means that the language can be taught nationwide as an optional subject. One year later, a National Pedagogic and Linguistic Centre for Teaching Tamazight (CNPLET) was established, the centre is in charge of developing pedagogical and linguistic materials and methodologies for the teaching of Tamazight.

Though promoted to the status of a national language, Tamazight didn't receive a vast public approval and its teaching has been limited to Kabylie area. Of the original 16 Wilaya¹⁵ that started initially to teach Tamazight, six have no longer students today, and TiziOuzou is the only Wilaya that carry a large percentage of the yearly total (See AppendixC). Statistics in the table show the number of students by Wilaya from 1995 to-2005. As illustrated in the table, in Oran Tamazight is no longer taught, in Algiers, it is reduced to a few groups of students, in Batna, it is not taught at all while it is a Berberphone society (Dourari, 2011).

Specialists refer to this remarkable regression in the teaching/learning of Tamazight to several interrelated problems. One obstacle is that the Tamazight language is taught as an optional subject in the Algerian schools. In Arabophone areas and even in Berberophone regions, parents prefer to put interest in mandatory subjects such as Arabic, French, and English besides sciences rather than wasting time in learning a language that is not included in final exams notably, baccalaureate exam. Furthermore, students' interest in the language is weak, since the majority considers Tamazight as a dialect and have pejorative attitudes towards it (Bektache, 2013).

Today, as an attempt to promote Tamazight and spread its use countrywide, and as a way to satisfy the ongoing pressure of Berber activists, the government initiated in early January 2016 the Berber language as one of the country's official idioms in the revised constitution (Article.3b). Optimists of the future of Tamazight consider the decision as a very important step, while other observers have doubts about the implementation of such a project since language policy in Algeria is politically driven; arguing that the fact that French is still dominant in much of the government today, decades after Arabic became official, gives some idea of how slow the implementation can be expected to be.

2.6 French

The French language in Algeria has a unique history. Its uniqueness is due to the long years of colonization that overpasses ten decades. This language witnessed different developments depending on the changing governments and ideologies in Algeria. The ten decades of French colonization had ruined the Algerians' original characteristics as being Berbers, Arabs and Muslims. The first decades of colonial rule were marked by a dramatic

¹⁵In the Algerian context, *wilaya* refers to an administrative division or province within Algeria that is governed by a local administrative authority. Each *wilaya* is headed by a *Wali*, a Governor who is chosen by the Algerian president. The word *wilaya* is derived from an Arabic word with the same meaning.

decline in literacy. The French regime tried every means to destroy the Algerian identity as well as language. In this sense, in his parliamentary report of 1847, Alexis de Tocqueville declared:

Everywhere we have put our hands on these revenues we have ruined charitable institutions, dropped the schools, and dispersed the seminaries around us, lights have been extinguished, and the recruitment of men of religion and men of law has ceased. In other words, we have rendered Muslim society much more miserable disorganized, ignorant, and barbaric than it was before us.

(Alexis de Tocqueville, 1962, p. 223)

At the very beginning of their arrival, French colonizers imposed colonialist policies of assimilation of the indigenous populations. This assimilation could create an interpenetration of the colonized within the colonizers' culture and mode of life. Thus, French governors enacted several laws to establish coexistence between French settlers and Algerians, though this coexistence is based on the ignorance of the Algerian proper identity and culture. Slowly, French colonial administration introduced new policies affecting many features of Muslim daily life in Algeria. Changes in the educational system were among the many reforms instituted during this period. Before the French conquest, the Algerian educational system was purely religious. It was constituted of Islamic institutions of learning such as the 'Kuttab' or elementary schools, the 'maddarsa' or secondary schools, and the 'zawaya' or schools of higher education (Kashani- Sabet, 1996).

The French, however, changed the existing educational institutions to accommodate the needs of a large number of European settlers or colons. Thus, educating indigenous Algerians was not the main concern of the French government. It was until 1895 that a school was founded for the offspring of the French colonial bureaucracy. In this regard, a French pamphlet published by the National Metropolitan Committee of the Centenary of Algeria indicated that in 1832 "instruction was very widespread and that the French only utilized these schools by modernizing the instruction and by completing them by introducing new notions, [such as] Arithmetic, History, Geography, and the French language" (Kashani- Sabet, 1996, p. 266).

The pamphlet stated that upon their arrival the French were concerned with "teaching the French who had come to Africa the language of the indigenous peoples and to teach the indigenous peoples the French language" (Kashani- Sabet, 1996, p. 266). But in reality, the latter seems to be more important than the former. French attempted to promulgate their

language with whatever the means. For them, only French had to be taught and as it was argued by Gently de Bussy, a civil intendant in Algeria from 1832 to 1935:

It is more pressing to put the indigenous peoples in possession of our language than for us to study there. Arabic would only be useful for relations with the Algerians, French not only begins their rapport with us, but it puts them in contact with our books, with our professors, that is with science itself. Beyond Arabic there is nothing but a Language, beyond French, there is all the human knowledge, all that the progress of the intellect has accumulated for many years.

(Kashani- Sabet, 1996, pp. 270-275)

This declaration reveals French colonialist chauvinism regarding France cultural superiority, compared to the Algerians' cultural and linguistic inferiority.

As a reaction to French educational reforms, Algerians' resistance was very harsh. They refused the French new form of education at whatever level under whatever guise; according to Yvonne Turin¹⁶ "the first steps in the intellectual history of colonization in North Africa [nothing more than] treading in one place indefinitely for fifty years" (Turin in Heggogy, 1973, p. 183). For her, the so-called French "mission civilisatrice" Civilizing mission, failed to change Algerians Muslims' beliefs about what they have, for a long time considered as the educational system of the enemy.

However, this resistance came to end by World War I, up to 1914 the French attempt was inadequate. In 1907, there were only 33.000 young Muslims, mostly boys, in official schools. Not until 1917, was any attempt made to make primary education compulsory for boys, and then "the law applied only to children living within three kilometres of a regularly established 'native' (i.e. for Algerians only, not for Europeans) public school" (Heggogy, 1973, pp.185-186). Compulsory education could not be enforced on Algerians, simply because the French government tended to save more money on military issues rather than intellectual ones.

Meantime, other regions did not know this kind of education as well as the Aurès¹⁷ as long as the French ruled in Algeria. Thus urban children had better opportunities to attend schools. Moreover, schools for the sons of notables were created.

¹⁶ An eminent Professor of History in Lyon II University of France.

¹⁷ A Berber region in the East of Algeria, it is called so according to Aurès Mountains.

These schools were decreed by Napoleon III. The first official native public education came in 1892. That law dealt with special education, which was with a program inferior to that of France and European settlers in Algeria (Heggoy, 1973).

By 1938, there were 104,000 Muslims in public schools. Then, in 1944, French authorities adopted a reform program which aimed at the enrolment of one million Muslim pupils in primary schools by 1964. This goal was not achieved and French laws remained dead letters in Algeria since French objectives in Algeria were the exploitation of its people and natural resources. Right after World War I, Algerians became aware of real colonialist intentions; and were no more against French schools.

This awareness was born when many Algerians immigrated to France to participate in the war against Germany. Most of them were killed and the remaining others stayed there to work. The contact of those Algerians with French workers was fruitful since they learnt about modern life and liberal ideas. The French language helped them also to get considerable positions. And once they arrived in their country, they realized the necessity of a French education to their children. By 1920, 60,000 (out of 400,000) joined schools (Heggoy, 1973).

At that time Arabic was absent by the law of 1938 where it was considered as a foreign language. This period witnessed the birth of Algerian nationalism that defended the Algerian Arabo-Islamic identity. In 1943; under the leadership of Abd al- Hamid Ibn Badiss, a committed Berber theologian, the religious nationalists formed the Association of the Algerian 'Ulama' adopting the following slogan as their motto 'Islam is my religion, Algeria my country, Arabic my language.'. The leader of this Reformist Movement played a vital role in making Algerians aware of the importance of learning the Arabic language and the principles of Quran (Mérad 1967).

By 1936, the Ulama denounced the French policy of assimilation when Ben Badiss, the leader of the movement, claimed:

The nation of Algeria has its history ...its religion and linguistic unity, its culture, and its traditions good or bad like any nation of the earth, and next, we state that this Algerian nation is not France cannot be France and does not wish to be France. (Tabrizi, 1979) as quoted in (Manaà, 2000, pp. 55-56)

During the period of resistance, the French language dominated in Algeria because the issue of language was not the only concern for the nationalists and political parties. Priority was given to political and military issues. Even so, French was a principal vehicle of

communication between the various parties. In this regard, Houcine Aït Ahmed, as one of the 'neufhistoriques'¹⁸ stated in his memoirs that, "it cannot be concealed that...the French language has been the principal, if not exclusive vehicle, on a certain level of abstraction, of communication, oral or written, in the hearts of the leading organs of our districts and the party" (Aït Ahmed, 1983, pp. 94-95)

Since 1962, the date of Algeria's independence, the French language instruction has known different changes. From a language of instruction during colonization and in the aftermaths of independence to a foreign language taught in different levels according to different ideologies that change with the change of the powerful ideology. Effectively, independent Algeria has boosted the use of French in cultural, economic and social domains than it was in the aftermath of independence. It can be argued thus that French could not flourish without the support of the Algerian language policymakers. On March 16th 2015 and in his opening discourse of the Week of the Francophonie in Algeria, the French ambassador, Bernard Emié, announced that the number of Algerians who master French and use it in their daily communication is more than 11 million (Algérie-focus, 2015).

It can be concluded thus that any attempt to eradicate French from the Algerian scene of life is keen to failure. As a deeply rooted language and omnipresent in the streets, administrations, hospitals and many other places, it is no doubt an uneasy task to suppress it (Mostari, 2004). And even Arabization policy that was launched after independence did not serve as a panacea to French widespread in Algeria due to immediate and non-conscious implementation that have complicated the Algerian linguistic situation. Consequently, weak and non-competent learners were the product of the Algerian educational system that favoured Fundamental schooling with all the teaching done in Arabic.

The issue of languages in Algeria has been always a taboo. It was not until the 2000's that the Algerians could overcome this taboo. Monolingualism in Arabic or Arabic –French bilingualism were issues of both the Algerian government and society. Arabo-Islamists who supported the policy of Arabization opposed to Francophones who represented a considerable number of population in addition to the elite, the latter that represents decision-makers who were probably the most affecting population on languages educational policies. In May 2000, President Bouteflika appointed a national commission in charge of the reform of the Algerian educational system. After a year of study, the CNRSE (as it is known with its initials in

¹⁸NeufHistoriques or the Nine Historic are those who planned for the Algerian Revolution. They are Arbi Ben Mhidi, Mohamad Boudiaf, Mostafa Ben Boulaid, Didouch Mourad, Krim Belkacem, Rabah Bitat, Houcine Ait Ahmad, Mohamed Khider, Ahmad Ben Bella.

French) made several recommendations. In September 2003 the government started the first steps of implementation (Benrabah, 2007).

As far as French is concerned, the commission recommended that it should be introduced as the first mandatory foreign language in Grade 2 (for 6-7 years old) of the primary cycle instead of starting it in Grade 4 (four 8-9-year-olds) as it was the case since the late 1970s. These recommendations were effectively implemented in 2004-2005. A year after French instruction was delayed to Grade 3 because of many difficulties faced by both teachers and pupils. In scientific subjects such as mathematics, physics, and chemistry, the Arabic symbols 'أ, ب, ج' are no more used as they have been replaced by the French letters 'A, B, C', and the variables 'س' and 'ع' have been replaced by 'X' and 'Y'. For the University level, the teaching of scientific fields is in French as many attempts to Arabize University failed at its very beginning.

2.7 English in the Algerian Educational System

The status and the teaching of English in the Algerian educational system knew several changes, according to social, political, and economic changes and challenges during different periods. English as a subject has had different statuses in the period before and after independence. During French colonization, English was taught as a first foreign language, sharing this status with Arabic or more exactly Algerian Arabic, and introduced in the first grade of the Intermediate Cycle. When pupils reach university they would have spent eight years studying English.

During the first years of Independence, English was still taught as a first foreign language, but no longer in the first but the third year of the Intermediate Cycle. At the end of the Secondary Cycle, pupils would have studied English for five years (two years in the Intermediate Cycle and three years in the second cycle), until the New Reform in 2004. But the huge difference is that English is no longer regarded as the first foreign language but the second. This has been the case except for the period where English was introduced in the Primary Cycle, replacing French. With the New Reform, nothing is being said on the place of English as a first foreign language, French, regains its original position, as the privileged first foreign language. Nowadays, English is taught from Grade One in the Intermediate Cycle. By the time they reach the final grade of the Secondary Cycle, pupils will have studied English for seven years, similarly to the pre and post-Independence pupils (see **Appendix D**) for more details).

1.7.1 The Status of English until the 1990's

Since independence, French had the lion's share in the Algerian national curriculum. It was privileged as the sole foreign language to be taught at all the levels for-above all-historical reasons. At the meantime, other languages such as English, Italian, German, Spanish, and Russian had also their shares-though insignificant-in the Algerian schools. From 1962 to 1985, French was the obligatory language to be learnt since the primary levels, whereas, English together with other foreign languages had been granted the status of a second language. In 1985, English was selected as the compulsory foreign language and was introduced in the second year of middle schools (8th year in the foundation school). But Spanish, German and other foreign languages remained optional as a third language. The objective of this reform was purely instrumental. According to the declaration of the National Ministry of Education: "The ultimate aim of the teaching of English is to help the pupil to acquire a new language and not to accumulate knowledge of another culture which has no real use in the contexts of our needs today" (I.P.N, p. 10). This reform started to limit the wide extension of French in Algeria. Giving English a stronger position, the Algerian pupil would be able to discover a new foreign language with a new culture and new notions far away from French dominance.

1.7.2 Status of English after the 1990's

A few years later, and after an unsuccessful attempt to advance the teaching of English to the first year in middle schools, English became a foreign language in elementary schools (FLES) in Algeria. The introduction of this competing language to French represents a purely socio-political problem that renewed the old conflicts between two main groups: supporters of Arabization policy who attempt to eradicate French whatever the means, and those who favoured French language dominance as being deeply rooted in Algerians minds and souls. On the one hand, the first group was for the teaching of English as being the language of the globe. They argued that the Algerian pupils as well as pupils of other countries, who were conscious of the emergence of English, should learn the language the most demanded. They saw English as the language of the future whereas French belonged to the past.

Yet, the second group was extremely against this reform. They were in favour of keeping teaching French in elementary schools. They argued that a child who had the habit of using French in his daily life would be able to learn it easily at school. They went further when they identified Classical Arabic as a foreign language instead of French. For them, a language which is extremely different from the L1 of the child (Algerian Arabic) could complicate his/her learning process. Moreover, the learning of English at the age of 9/10 is

not reasonable because that implies adequate materials and efforts that were absent in the Algerian schools. Since this language had nowhere to be used, but classrooms.

Both groups' arguments seem to be reasonable but the real problem was the plan itself, and the ill-considerations of some conditions. The latter if truly considered could lead to better educational consequences.

It is worth mentioning another group that was in the middle of the two groups mentioned above. That group was against the change itself, it represents the traditionalists who considered any change as a threat for them and their children's future. They thought that this reform might create disorganization into the educational system and left many victims whose future would be ambiguous. Nevertheless, this reform witnessed an interruption after a few years of its application. For a reason or another, its withdrawal was silent. Without explanation or evaluation of the project, the Ministry of Education declared French as the only foreign language to be taught in all the Algerian elementary schools. As time passed, the observer recognizes that there was something wrong between the planning of the reform and its implementation.

1.7.3 English instruction and the new reform

In 1996, Algerian authorities decided to make new reforms in the content of the 1976 ordinance. A Higher Council for Education was appointed, charged with the reorganization and reorientation of the Algerian educational system. The National Commission in charge of the reform (CNRSE) was assigned to work on the revision of the programs. This Commission, often referred to as Benzaghoul Reform, under the name of the person at its head, made some considerable amendments. These reforms concern the entire curriculum from elementary to secondary level. This change occurred after increasing negative reports made by scholars and specialists in the field of education. They all criticized the deterioration of the Algerian educational system.

The Ministry of Education stated that such modifications were unavoidable and necessary because of the deep political, social, economic, and cultural changes that modified the philosophy of the Algerian society creating much discomfort. To be functional, the educational system had to adapt new objectives to prepare the coming generations and enable them to take part in this new globalizing world.

The Algerian renovated the school, the first landmark in learning the Culture of democracy and the best guarantor of social cohesion and national unity ensures the formation of a citizen with incontestable marks, faithful to their principles and values but also capable of understanding the world around them.

(Extract from the speech of President Bouteflika when launching the CNRSE-May 2001,)

For the teaching of languages, the Commission undertook considerable changes too. French started to be taught from the second grade in elementary school from 2003. One year later, i.e. 2004, its teaching was delayed to the third grade. For the teaching of English, it knew an advance of one year, i.e. from the 7th grade in intermediate school.

Other foreign languages as German, Spanish, and Italian do not enjoy the same status French and English do in Algeria. They are taught in secondary school, pupils can choose one of these minority languages in their second year. At the university level, departments offer License (equivalent of Bachelor in the Anglophone educational systems) Degrees for beginners in these languages.

2.8 The Structure of the Current Algerian Educational System

The structure of the current Algerian education system is a copy cut of that of the French one. It is divided into three levels: nine years of basic education (Enseignement fondamental), three years of secondary education (l'Enseignement Secondaire), and higher education in universities (L'Enseignement Supérieur) (Ministry of National Education, Law of orientation). The Ministry of Education is the sole responsibility of pedagogical and organizational issues at basic and secondary levels. It is in charge of developing programs, determining syllabuses besides recruiting and training teachers (Ministry of National Education, the mission of the direction of education), whereas, the Ministry of Higher Education is charged with managing all public institutions at the level of universities.

2.8.1 Basic/Fundamental education

Comprises nine years, it is mandatory for all the Algerians aged between 6 and 15 and divided into three main cycles. Three years for each level: cycle de base (basic cycle: grade 1-grade 3), cycle d'éveil (elementary cycle: grade 3- grade 5), and cycle d'orientation (orientation cycle: grade 6-grade 9) (Ministry of Education, Law of orientation). The first two cycles are taught in primary school whereas, the third cycle (orientation cycle) is taught in middle school. Subjects studied in the primary cycle are mathematics, MSA, Physics, Islamic education, music, natural sciences and sports.

As for the medium of instruction, MSA is the only MI at the basic level of the Algerian educational system; except the use of Latin characters for the teaching of scientific subjects such as mathematics, physics, and chemistry. Latin characters were introduced at this level to prepare students who opt for scientific speciality, as scientific streams in higher education are taught in French. Policymakers found it illogic to teach them in Arabic in basic education while confronted with a new MI at university.

In middle school, the third cycle of orientation, pupils study for four years. Then, they pass an examination to get a diploma named BEM (Brevet d'Enseignement Moyen) or MCS (Middle School Certificate). Students after that are oriented towards secondary school while those who fail in BEM should be directed towards vocational training¹⁹.

2.8.2 Secondary education

Begins generally at age 15/16. In these three years, students are oriented to either general secondary institutions (lycée d'enseignement général) or technical secondary institutions (lycée d'enseignement technique). To get the choice students take a common curriculum during their first year and by the second year, they are given the choice either for literary or scientific streams. At the end of the third year in secondary education, students pass the baccalaureate exam to continue their education at University.

2.8.3 Higher education

Higher education in Algeria is combined of universities, colleges, national institutions for high education and higher technical schools. The language of instruction in higher education is MSA; humanities, arts, and literature are all taught in Arabic; however, scientific streams are taught in French. The history of the Algerian university knew two major systems: the classical system where students studied to get the licence for 4 years, Magister for 2 years and Doctorate for 4 years. The above-mentioned system is no longer applied in the Algerian universities. Starting from 2004, a new reform was introduced imitating a recently implemented framework in France. This new system called LMD (Licence, Master, and Doctorat) enables students to have successive degrees for a total of 9 years leading to a doctoral degree (Ministry of Higher Education, LMD System). After 13 years of its implementation, the LMD system is still raising hot debates since neither teachers nor students could cope with its new methodologies. The present study examines the language of

¹⁹In Algeria, 38% of young students leave school after their compulsory lower-secondary education. As a solution to this situation, the government passed a law in 2008 organizing vocational education and training where this category is oriented to get the appropriate education and training according to the Algerian market demands.

instruction at this level i.e. university level and the problems that 1st-year students of scientific streams encounter in learning sciences in French.

2.9 Conclusion

The symbolic status of Arabic, though the official language of Algeria and its marginalization explains the complicated situation of languages in this country. At the same time, French officially recognized as a foreign language is considered as a working language used in official fields such as administration and documentation. It enjoys a high status in governmental institutions, though the public raising demands of the generalization of English as a world language of communication and technology innovations. Furthermore, the use of French as a MI in some fields in higher Education is another dilemma that is believed to be the direct cause of student's low achievements in scientific streams, especially in their first year.

The following chapter investigates the above claims and examines the students' attitudes towards a possible shift in the language of instruction at the level of Algerian universities.

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Chapter Three: Research Methodology

3.1 Introduction

This chapter outlines the methodology used to gather data for the present study. The research design will be explained; a discussion and information about the methods used for the research will be provided. It will discuss also the different instruments used for data collection notably, classroom observation, questionnaires, and interviews. Triangulation will be used to maximize the credibility of results.

Classroom observation as a qualitative research tool helps to strengthen the triangulation of the research instruments. The fact that allows us to collect data from various resources: two questionnaires to teachers and students, in addition to two interviews administered to both of them. The rationale behind using these tools will be explained. Last of all, the researcher considers the data analysis procedures. Qualitative and quantitative approaches will be used in order to analyze the data gathered. Finally, validity and reliability of the study will be examined, and ethical issues will be considered.

3.2 The Research Design

Research design represents the strategy chosen by the researcher in order to enhance the validity of the data gathered in a logical way. It includes the collection, measurement, and analysis of this data. The current study is based on the case study method. Though different definitions were given to what a case study is, researchers could not have an agreement on one specific definition. It was Johanson (2003) who attempted to find a common denominator, when she asserted that a case study should have a case which is the object of the study. Johanson added that “the case should be a complex functioning unit that can be investigated in its natural context with a multitude of methods” (p.3). Furthermore; it should be contemporary. Accordingly, a case study is a deep investigation of a given situation. It attempts to narrow a broad field to one specific topic that can be easily researched. This is in fact what the researcher adopts in this study: a case study based on mixed methods that can provide insightful information to the studied phenomenon. Accordingly, the design of the research in hand is based on a combination of both qualitative and quantitative approaches.

Campbell and Fisk (1959) developed a mixed methods design that use triangulation techniques. According to Tashakkori and Teddie(1998), “In their pioneer work Campbell and Fisk used more than one quantitative method to measure a psychological trait”(p.13). Mixing the two methods in social sciences and psychology had a long history.

The debate upon the use of either positivist paradigm that underlies what are called quantitative methods, or constructivist paradigm that underlies qualitative methods didn't come to an end till the 1990 's when a compability between the two paradigms was adopted. Consequently, the mixed methodology or pragmatism paradigm was born (Tashakkori and Teddie, 1998). This study, as well as other similar studies carried on in the field of social sciences; adopt the mixed methodology through triangulation techniques using observation, questionnaire, and interview as tools for obtaining adequate information.

The study uses also the taxonomy development model of exploratory and explanatory sequential mixed methods identified by Creswell (1995). The model allows the researcher to conduct an inductive and deductive investigation in the same project. The sequential designs use analysis of one form of data to inform and support the collection of the second form of data. The current study begins by an exploratory sequential design .i.e. qualitative design followed by quantitative; then explanatory sequential design i.e. quantitative followed by qualitative. The design for this study can be summarized in the following figure:

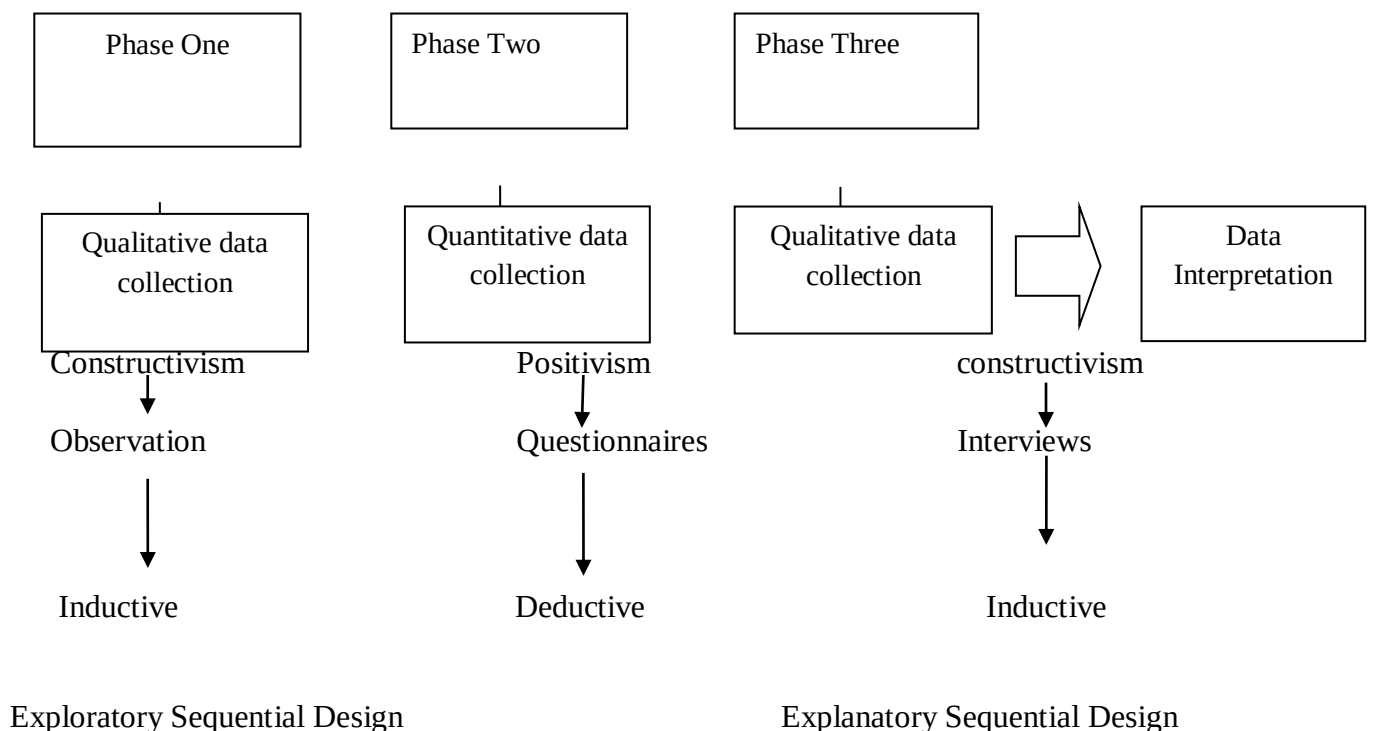


Figure3.1 Graphical representation of mixed method research process (Adapted from Creswell and Clark, 2007)

The use of exploratory then explanatory sequential design may be pragmatically justified. First, exploratory research provides well grounded picture of the situation since the

vision at the beginning was still opaque and variables were unknown. The exploratory design is used also to refine research tools and even research questions for more systematic investigation. On the other hand, explanatory sequential design and according to Creswell and Clark (2011) consists of first collecting quantitative data to help explain or elaborate on the quantitative results.

To conclude with, mixed methods research proves to be the best method to obtain valid and reliable results. The blessings of this method were clarified by Creswell (2003) arguing that the combination of quantitative and qualitative measures means also that a phenomenon can be investigated from different perspectives and as a result reciprocal supplemental data, substantial findings, better validated results and subsequent conclusions are delivered.

3.3 The Research Site

The site of this study was the University of Saida. Dr.Moulay Tahar University of Saida created by Executive Decree 09/10 of 4 January 2009 was originally a teaching training college (ENS). Today, the University consists of 6 faculties: Faculty of Sciences, faculty of Technology, faculty of Economics, Commercial Sciences, and Management, Faculty of Social and Human Sciences, faculty of Law and political Sciences, and Faculty of Language, Literature, and Arts. The MI, our concern, in each faculty is detailed in the table below :

*Table 3.1*The language of Instruction in Dr.Tahar Moulay University of Saida.

Faculty	Medium of Instruction
-Social and Human Sciences - Law and political Sciences -Economics, Commercial Sciences, and Management	Arabic(MSA)
-Language, Literature, and Arts	Arabic, French, English

The faculties where French is the MI are the research site of the study. The choice is put on the faculty of sciences that consists of four departments : Department of Physics, Department of Chemistry, Department of Mathematics, and Department of biology. Besides the Faculty of Technology composed of six departments: Department of Informatics, Department of Electronics, Department of Electrotechnics, Department of Civil Engineering and Hydraulics, and Department of Process Engineering . All the departments adopt the LMD system (see section 2.8.3). Before being oriented towards one of the above mentioned departments, students study a first year in common core. The subjects of this research are 1st year students of common core of the two domains SM (Sciences de la matière) in the faculty of sciences and ST (Sciences et Technologie) in the faculty of Technology named respectively Sciences of the Subject and Science and Technology.

3.4 Population

A research population is generally defined as a large collection of individuals or objects that is the main focus of a scientific research. However, because of the large size of population, researchers cannot test every individual, because it is too time and effort consuming. The population of the current study consists of all the students of the Faculty of Sciences and that of Technology whose language of instruction is French. Nevertheless, due to the large number of students in different departments and different specialities, the researcher relies on sampling techniques. A sample may be defined as a subset of the entire population. The concept of the sample arises from the inability of researchers to test all the individuals in a given population. The major objective of sampling is to derive conclusions that can be generalized to the entire population .The population and the sample of this study will be portrayed in the next section.

3.4.1 Students

First year students are holders of the baccalaureate Certificate. For both Algerian and Foreign students the certificate is a pre-requisite for joining university. The age of students is different, however the minimum age is seventeen (17). To be accepted in the faculty of sciences, students must have the baccalaureate in one of the following specialities: Mathematics or Techno-mathematics, and Experimental Sciences. Students of Dr.Moulay Tahar University are from the Wilaya of Saida and some neighbouring Wilayas of the western south of Algeria such as El Bayadh. Foreign students from other countries as : Niger, Nigeria, Congo, Benin, Palestine, and recently from Syria enrol in the faculty of sciences and the faculty of Technology. The foreigners were not concerned in the study except Palestinians

and Syrians whose language in pre-university education was Arabic similar to Algerian students.

3.4.2 Teachers

Unlike students who meet the standard of population homogeneity, teachers represent a remarkable diversity in terms of: the pre-university language of education, age, grade, years of experience, etc. The most important variable that makes a difference in the study is the language of pre-university education that affects the teachers' assumptions and attitudes towards the language of instruction in scientific streams. The community of teachers can be divided into two categories:

1-Those who studied in Arabic : referred to as 'Arabisant' or Arabists (those who were educated in Arabic), they are recently recruited as teachers in the university, and they represent the new generation in the faculty of sciences. This category of teachers has studied in the arabized Algerian school where Arabic is the sole MI and French is a compulsory subject taught since primary school. These teachers become bilinguals as they teach sciences in French at the level of university. Their attitudes are of paramount importance for the researcher, as they represent the majority, and mirror the future of the faculty.

2- Those who receive bilingual education or the 'francisant'(teachers who were educated in French): they received a bilingual education both in Arabic and French. When Arabic was the MI in literary subjects, French was reserved for scientific subjects. It should be signalled that the last promotion of bilinguals in Algeria was in 1989

As for the sampling techniques, the researcher relies on the probability sampling technique as frequently used in recent researches. Researchers opt for this technique due to a number of advantages:

- Every element in the population has an equal opportunity for selection as a subject.
- It increases the sample's representativeness of the population to guarantee the generalization on the entire population.

As far as the sample size is concerned, the general rule admits that the size of the sample should be as large as possible to increase the representativeness of the sample. This rule can be applied on questionnaires that were distributed to a large number of students, but cannot be applied to the observation and the interviews which were conducted with a small size sample.

3.4.3 Research tools sampling

As previously mentioned, sampling is the act, process, or technique of selecting suitable sample that represent a whole population in order to determine its parameters and characteristics. The researcher in this study relies on probability random sample that consists of many types. Each tool in this research has been carried on using one of these types.

3.4.3.1 Observation

Observation is a research tool used generally to obtain qualitative results. Sampling for this tool requires a purposeful sampling defined by (Patton, 2002) as ‘a technique widely used in qualitative research for the identification and selection of information rich cases for the most effective use of limited resources’. This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest (Creswell and Clark, 2011). This means that the researcher has a purpose behind the selection of the sample to be observed. However, the researcher in this study relies on simple random sampling, since there is no reason to choose one domain of study in the faculty rather than the other. Taking into account that in the two domains SM and ST students have the same MI i.e. French, and their language of instruction in pre-university education was Arabic.

The choice was put on 1st year students of SM (Sciences de la Matière or Sciences of the Subject) from the Faculty of Sciences and students of ST¹ (Sciences et Technologie or Science and Technology) from the Faculty of Technology, the number of students is more than 600. Not all of them were observed since the observation process was carried out during seminars where student's attendance was compulsory, and the total of observed students in each session was between 50 and 70.

3.4.3.2 Questionnaire

The different sub groups of 1st year students in the faculty of sciences, and the diversity of the community of teachers entail the use of stratified random sampling. The members of each group: On the one hand, first year students SM and ST (with two sections) have similar attributes and characteristics notably in terms of pre-university MI. On the other hand, the division among teachers to arabisants and francisants translates the use of this type of sampling.

¹ Throughout the present work the abbreviations SM will be used for Sciences de la Matière or Sciences of the Subject, and ST will be used for Sciences et Technologie or Sciences and Technology.

As for the students' questionnaire, 200 students were concerned as shown in the table below :

Table 3.2 Students' Questionnaire Sample

Domain	Entire Population	Sample
SM	211	60
ST	410	140
Total	621	200

In terms of accuracy of results, 200 respondents are believed to provide more accurate results, the fact that may diminish error resulting from superfluous sources within each informant who may differ in terms of the degree of motivation, temper, etc, and increase true measure.

As far as precision is concerned, the sample size calculator will be used to analyze the data. Before calculating the sample size, the researcher needs to predetermine two fundamental concepts: first, the confidence interval named also the margin of error. It is believed through experiment that no sample is totally perfect; researchers need to decide how much error to allow. Second, confidence level that tells the researcher how sure s/he can be. It is expressed as a percentage and represents how often the true percentage of the population who would pick an answer lies within the confidence interval the researcher is willing to accept. As for the present study, the confidence interval (margin of error) is 5 however the confidence level is 95%. Accordingly, considering the confidence level and confidence interval all together means that the researcher is 95% sure that the true population is between 5- and 5+. If the researcher ask a question and 70% picks an answer s/he can be 95% sure that if the question is addressed to the entire population between 65% (70-5) and 75% (70+5) would have selected that answer. Another programme that was extremely helpful is the SPSS software (17.0). This programme has really saved the researcher's time and effort and helps tabulate the results.

Concerning teachers, the questionnaire was addressed to 50 teachers from the faculties of Sciences and Technology. Unfortunately, the return rate of the teachers' questionnaire was small if compared with that of students (only 30 teachers responded to the questionnaire). The sample consists of teachers from different grades (assistant teachers, professors, vocational teachers, etc.), and different specialities (Chemistry, physics, Mathematics, Informatics, etc.).

3.4.3.3 Interview

The interview was based on simple random sampling since the aspect of homogeneity between students is available notably in terms of pre-university education and speciality. The sample consists of 8 students (5 females and 3 males) randomly selected from 1st year common core SM and ST. As for teachers among 6 randomly selected there were 4 young arabisants and 2 experienced francisants. All of them have responded to the questionnaire, the fact that represents a good opportunity for them to provide more logical arguments for their previous answers.

3.5. Data Collection Tools

Data collection is a pivotal step in conducting a research. It is the systematic approach to gather and measure information from a variety of resources. Researchers in the field of social sciences consider the selection of the suitable data collection tools as the most influential factor for the validity of the research. In collecting case study data, triangulation aims at investigating and observing the phenomenon from different viewpoints assuming that in social science research “we build on the principle that we learn more by observing from multiple perspectives than by looking from only a single perspective”(Neuman, 2014). Consequently, the researcher’s confidence may increase by having an accurate picture that grows from the multiple measures used. The multiplicity of instruments guarantees that if there is a weakness in one method, the strength of the other complimentary data collection method will balance this weakness.

As previously mentioned, the use of triangulation may be traced back to Campbell and Fiskel (1959). It is a process of verification that increases validity by joining multiple viewpoints and methods. In social sciences, it refers to the combination of two or more theories in one study of a single phenomenon and can be employed in both quantitative (validation) and qualitative (inquiry) studies. In the present study, three research tools are used combining qualitative and quantitative approaches: classroom observation and interviews to obtain qualitative findings and a questionnaire for quantitative validation of these results. As for the role of the researcher, it changes according to the approach. In the questionnaire, the researcher is non-existent as participants act independently. However, she is considered as an instrument (Denzin and Lincoln, 2003) in qualitative tools, mainly the interview.

As far as the aims of this study are concerned i.e. investigating first year students’ attitudes towards the language of instruction in higher education, the direct method in attitude measurement was exploited since implementing indirect methods is impossible in this

context. As discussed previously in the literature review (see section 1.5.5), researchers conduct attitude investigations using several techniques each of which has benefits and shortcomings at the same time. The matched guise technique or MGT for short as the most frequently used indirect method was blamed for the judgements of the reading performance of the recorder speaker rather than on language differences, besides the incongruity between language varieties and the topics (Ihemere, 2006).

Another technique that evolves recently is content analysis of societal treatment. This technique, and though its newness, gained much criticism since it may only “be usefully employed as a preliminary study for rigorous sociolinguistic analysis which involve the utilisation of direct or indirect methods of data collection” (Garrett, Coupland and Williams 2003,p.16).

The following section provides a deep explanation of each instrument used in the current study.

3.5.1 Observation

Observation is a systematic method of data collection that relies on a researcher’s ability to gather data through senses. One distinctive feature of observation is that it offers the researcher the opportunity to gather ‘live’ data from naturally occurring social situations. This type of instruments is generally used in qualitative studies and yet in quantitative studies.

Researchers categorize two types of observations: participant/overt observation and non-participant/covert observation. As for the former, Schensul Schensul and Le Compte (1999) define it as ‘the process of learning through exposure to or involvement in the day to day or routine activities of participants in the researcher setting’ (91). This means that the role of the researcher in participant observation becomes a part of the team or the community to be observed. As far as the second type is concerned i.e. non-participant or covert naturalistic observation, the researcher is not involved in the process, s/he either insert himself within the informants or observe from a distance. Observers are physically present but attempt to be unobtrusive. Opting for this type of observation requires a fixed period of time and is often preceded by a structured format. It means that the researcher has to prepare what to be observed exactly and to determine the objectives of the observation. The only critique offered to the non-participant observation is that the subjects are not informed before what raises questions of ethical considerations in the research.

In the current study, the researcher relied on non/participant observation. The respondents are not influenced by the observer to give them opportunity to react naturally. Their behaviour thus will not be affected by the researcher’s presence. Nevertheless it is

important to note that the two types of observation are not necessary discreet and often overlap (O’Leary, 2004). Consequently, the researcher in the present study inserted herself simultaneously within the respondents mainly those who didn’t interact to know about their perceptions and attitudes towards the learning context.

Morrison (1993) suggests that observations enable the researchers to gather information on:

- The physical setting (e.g. the physical environment and its organization).
- The human setting (e.g. the organization of people, the characteristics and makeup of the groups or individuals being observed, for instance gender and class).
- The interactional setting (e.g. the interactions that are taking place, formal, informal, planned, unplanned, verbal, non-verbal, etc.)
- The programme setting (e.g. the resources and their organization, pedagogic styles, curricula and their organization) (p.80).

Additionally, Bailey (1994) added to Morrison’s objectives the recording of non-verbal behaviour, behaviour in natural or contrived settings and longitudinal analysis. As far as this study is concerned, the following grid of observation is prepared:

Table3.3 Grid of Observation

Teacher :	Lesson :	Date :
Number of students :	Time begins :	Time end :
Objectives of observation	Observed 1 2 3 4 5	Comments
1 -The teacher explains the lesson and students are involved in the learning process.		
2 -Students ask questions for more clarification and explanation.		
3 -Some students give comments and motivate the other students to speak.		
4 -Students’ questions and answers are well-formulated.		
5 -Students’ questions are ambiguous.		
6 -Students mix Arabic with French when interacting in the classroom.		
7 -Students hesitate and take a long time before intervening.		
8 -The learning process is teacher centred and students are passive.		

The researchers' aims can be summarized in the following points:

- Students' role in the classroom, notably their participation and interaction.
- Students' verbal and non-verbal behaviour.
- The teachers' reaction to students' linguistic behaviour and even the characteristics of those teachers' linguistic behaviour. To reach these goals the researcher opted for the following process of non-participant observation:

1-who to observe: 1st year students of SM and ST University of Saida.

2-When and how long: the observation was conducted from the beginning of November till the end of April 2017; it was conducted two sessions per week except weekends and holidays. The lectures were attended in the morning, this is the choice of the researcher to avoid students' absences and tiredness and other factors that may affect negatively the validity of the findings.

3-Where: All of the observation sessions were conducted in the amphi theatre where a large number of students may be present. Another advantage of conducting the observation in such a large place is that the researcher may feel at ease in the sense that she disturbs neither the lecturer nor the students.

4- The researcher's position: The researcher played two roles, sometimes an emic role (an insider), and sometimes an etic role (an outsider). An insider in the sense of attending the lectures from the beginning to the end, and an outsider in terms of not intervening in the teachers' lectures.

5-Ethical considerations: Though having permission to conduct the observation from the Heads of the Departments, students didn't know that they are observed. Ethical issues in non-participant observation as discussed above still raising problems of ethics among researchers.

6-Data recording: observations should be recorded in a timely manner; if using schedules, they should be filled in while observations occur. The recording may be held on data sheets or in journal and it may include photographs and video/audio recordings. The use of video/audio recordings provides a raw data that can be preserved for review and use at a later date. Whereas, in note taking and journaling the content is purely descriptive and formal account of the space, events, actors, and their acts will be registered. In the study at hand, the researcher relies on note taking. Students' non-verbal behaviour was immediately recorded in note sheets, furthermore an observation template was used to guide the researcher on what to observe. Recording is important hence in the sense that memory is selective and that the

researcher cannot recall all the information provided for long periods of observation (in the current study five months two sessions per week).

3.5.2 Questionnaire

Invented Galton²(1870), a questionnaire is a research instrument that consists of a set of questions (items) addressed to respondents in order to capture their responses in a standardized manner, it has been identified thus as:

A useful instrument for collecting survey information providing Structured, often numerical data, being able to be administered without the presence of the researcher and often being comparatively straightforward to analyze.

(Wilson and Mc Lean, 1994, in.Cohen et.al, 2005,p.245)

Researchers categorize two types of questionnaire; structured and unstructured. The former refers to the types of questions that ask respondents to select an answer from a given set of choices. Structured or closed questions are useful in that they can generate frequencies of responses that can be treated and analyzed statistically (Cohen, Manion, and Morrison, 2005). They also enable the researcher to draw comparisons among the groups in the sample (Oppenheim, 1992). However, unstructured or open-ended questions ask the respondents to provide a response in their own words. Though considered as a valuable tool when the researcher seeks to go deeply in a particular topic exploring all its aspects, they are generally left unanswered.

In the present study, the most frequently used questions mainly those addressed to students are close-ended. Just few questions at the end of the questionnaire are open ended as they “take more time, thought, patience to be answered than closed questions”(Sudwan and Bradburn, 1983,p.145), taking into account that not all the informants offer the same time and concentration to answer the questionnaire.

In the present research, two questionnaires are postulated to: first year students SM Faculty of Science and ST faculty of Technology, and another for teachers in the same faculty. In both questionnaires, respondents are introduced by an introductory statement guiding the informants and explaining them the rationale of the study. Furthermore, both of them are anonymous. Anonymity is important in the sense that it makes respondents confident about their answers. It guarantees also that they can provide true answers and that they show

² English Victorian statistician, and sociologist (1822-1911). In about 1870, he conducted a survey by asking well known scientists to fill out a questionnaire on which he based his English Men of Science.

their implicit attitudes, the case of the study at hand, rather than socially-desirable attitudes that sought to satisfy the researcher.

As for the response scale, multiple choice or polytomous scale has been frequently adopted, yet dichotomous scale is offered in some items (three or four). Items that sought to investigate language attitudes measurement are usually measured on Likert Scale³ or semantic differential technique of Osgood. The latter is a variation of rating scale which operates by putting an adjective at one end of a scale and its opposite at the other. The respondents then indicate on the scale by circling or putting a mark on the position which represents what they feel. The researcher in this study measures most of attitudinal items on Likert scale.

3.5.2.1 Students' questionnaire

In an attempt to answer the two research questions:

- i) Does the change of the language of instruction at university level represent a handicap for students' good achievements in sciences?
- ii) What are the attitudes of 1st year students' of the Faculty of science and the Faculty of Technology, Dr.Moulay Tahar University of Saida towards Arabization of sciences at university level?

The researcher postulates a questionnaire of three sections to 1st year students of SM and ST. In the mid of April 2017, the questionnaire is handed to teachers of both specialties. The timing of the questionnaire is done on purpose; students by the mid of the year become acquainted with the new context of study and accordingly with the shift in the language of instruction i.e. from Arabic in secondary school to French at university. As for the site of the questionnaire, students receive the lectures in the amphi theatre the suitable place where large number of students can be present. The two teachers from the two specialities lend help to the researcher when they accepted to distribute the questionnaire to their students. The teachers' assistance is valuable in the sense that students were cooperative because of their teachers' instructions to fill in the questionnaire and consequently a high response rate is obtained. Another advantage of conducting the questionnaire in the classroom is that students hand it immediately at the end of the session.

The language of the questionnaire is Arabic. Such a choice can be justified by the fact that students are proficient in the language, notably Algerians and some students from Syria and Palestine . As for the form, the questionnaire is divided into three sections. Section one offers general information about the respondents, notably gender, original Wilaya (This

³ The Likert Scale: named according to its deviser Rensis Likert, 1932. In this scale a range of responses are provided to one given question or statement.

variable was added to the questionnaire after the pilot study when the researcher noticed the influence of place of education on students' beliefs and attitudes. Informants' abilities in French as MI are also questioned in this section, they are asked to provide a self-evaluation of their linguistic abilities in speaking, listening, writing and reading. The researcher gives students the opportunity to evaluate their command in the language in a form of four-point scale ranging from low to good in order not to restrict their answers. If only two choices are given i.e. Low or good, students could not select the answer that best reflect their abilities. Furthermore, students abilities are not questioned only from students, teachers are also asked to assess their students' linguistic capacities since they are in daily contact with them by interacting with them, correcting their exam sheets, and so on. Nevertheless, assessing the respondents' linguistic abilities has been always problematic since a silent student in the classroom doesn't reflect his /her inability in French, but may be referred to shyness or unwillingness to interact verbally.

3.5.2.1.1 Section one

The present section of the questionnaire is meant to answer the first research question of the present study: Is the change of the language of instruction at university level a handicap for students' good achievements in sciences? The section was divided into two sub- sections, the first attempted to question students' difficulties.

Item (3) is a close-ended question that requires a dichotomous response to yes or no question. It requires students to answer whether they face any difficulties in the learning process, then within the same item they were given four suggested difficulties to range them from the least difficult to the most difficult. The fifth suggested was left for students to add other difficulties that the researcher might forget.

Item (4) is intended to test the respondents' awareness of these difficulties; they are required to pick the strategy(s) that their teachers use to overcome these difficulties. The fifth item was very decisive in the sense that it attempted to know the impact of French as MI on students' learning process and even their learning career.

Item (5) attempts to assess students abilities in the degree of content understanding, comprehension of French, reading materials, verbal interaction in the classroom, and written performance. Students were required to range their abilities on a four-point scale from definitely false, partly false, partly true, and definitely true.

As far as section three is concerned, the researcher provided 20 items that contribute all together to answer the second research question i.e. students attitudes towards arabizing the scientific streams. The section is divided into three sub sections having three major objectives: (i) students' perceptions of Arabic as a medium of instruction instead of French. (ii) Students' attitudes towards arabizing the scientific streams. (iii) Their attitudes towards knowledge of French rather than other worldwide languages, notably English.

The first sub section includes three items (7) (8) and (9). Items (7) and (8) required students to provide the time they spend in reading and writing scientific documentation in French in comparison with Arabic ranging this time on a scale of three-points from more time, less time, and the same time. By these two questions, the researcher attempt to measure implicitly students' perceptions of Arabic as MI.

Item (9) is composed of six suggestions provided by the researcher whereas the 7th proposition is left for students proposals. Students in this item evaluate the researcher's proposals whether they are true, false, or there is no difference of using French or Arabic as media of instruction.

3.5.2.1.2Section two

The second sub section that attempt to find out students' attitudes towards arabizing the scientific domain, is made up of 9 propositions while the 10th is left for students' suggestions. The respondents are required to pick a response among the available suggestions on a five –point scale, ranging from strongly disagree to strongly agree.

Item (10) aims at measuring indirectly students' attitudes towards Arabization.

Items (11) and (12) have the same objectives but reworded differently. This repetition is done on purpose in order to verify the consistency of answers. The students hence may touch the interrelation and the logical flow between the questions.

Items (13) and (14) are the most important questions in the second sub question. It aims at gauging students attitudes towards arabizing sciences at university level.

Items (15) and (16) attempt to measure students' attitudes towards Arabization when requirements such as: teachers' training, documentation and terminological translation into Arabic are all available.

Items (17) and (18) test respondents' awareness about the policy of Arabization. They aim to find out to what extent students are ready to support the policy and if it may be practically implemented if top down decisions are to be taken. Responses items 17 and 18 may reflect the respondents' real attitudes expressed in the previous items. Consequently, if negative attitudes are expressed in items 17 and 18, and respondents have already shown positive attitudes in the

previous items the question of social desirability may be raised resulting from showing just explicit positive attitudes rather than their true implicit attitudes.

3.5.2.1.3 Section three

The objective of this section is the measurement of the students' attitudes towards French as MI, French as a language to be learned at other levels, and the importance of French in comparison with other languages, notably English.

Items (20) and (21) measure the respondents' attitudes towards French as MI, and to what extent the arabization of the Algerian educational system led to a weakening in education standards.

Item 22 to 25 gauge the students' perceptions of having a good command in French and its importance in gaining a high social status and high proficiency in sciences.

Items 26 and 27 attempt to measure implicit attitudes comparing the knowledge of French with the knowledge of other foreign languages mainly English and whether the good command of French guarantees the access to the world of information and business.

3.5.2.2 The teachers' questionnaire

A questionnaire of 20 items was distributed to teachers from different departments of the Faculty of Sciences and the Faculty of Technology at the beginning of January 2017, a period of exam when the majority of teachers should be present. The questionnaire is handed to them by the head of each department in the same faculty. It is attached with a cover letter explaining teachers the objectives of the study and how their valuable contribution may affect language policy making in higher education.

The language of the teachers' questionnaire is French. The two categories of teachers, those who received bilingual education, and those who had Arabic based education have a good command of French. However the former's knowledge of Arabic is doubtful. Consequently, the choice is put on French in order to guarantee that all the informants may answer easily. The first part of the questionnaire represents an introduction about the teachers' grades and more importantly their language of pre-university education (francisants or arabisants). The questionnaire is made up of two sections.

3.5.2.2.1 Section one

With three items, it attempts to answer the first research question. It provides an assessment of students' linguistic abilities in French. The first question requires the teachers to answer a yes or no question whether they find any problems of comprehensibility when their students use French. Within the same question they are given choices to determine the level where they find difficulties (to recall, the questionnaire is addressed not only to 1st year

teachers , but also to those who teach other levels. This question has another objective that of checking if the fact that French is MI is a burden just for 1st year students since it represents a sudden shift or it is the problem of all the other advanced levels. Question two goes around evaluating students' level on four-point Likert scale. It aims at verifying students' self-evaluation of linguistic abilities in section one of the students' questionnaire. Consequently, if the same results are obtained from both respondents i.e. students and teachers, higher validity is expected.

The third question attempts to measure teachers' beliefs about the shift in the medium of instruction from Arabic only education to French only education. It inquires whether the shift represents a real burden that weakens students' learning achievements. At the end of this question, teachers were given a space to justify their answers either positively or negatively.

3.5.2.2 .2 Section two

Section two of the teachers' questionnaire meant to answer the third research question by measuring their attitudes towards the Arabization of sciences in higher education. The section is constructed of four subsections.

- As for subsection one, it is made up of three items gauging teachers' beliefs and perceptions about Arabic as MI.

In item (4) teachers have to pick one answer (or more) from a list of choices (from a to f), whereas the last choice (f) was left for them in order to add other benefits or pitfalls of Arabic as MI.

Item (5) attempts also to measure the teachers' assumptions about the use of Arabic in teaching the scientific subjects, by choosing one of the provided options such as: totally agree, agree, neutral, totally disagree, and disagree.

Item (6) may be considered as a repetition of the previous item i.e. item (5). The aim of such a repetition is getting reliable results.

- Subsection two has as an objective the measurement of Arabic linguistic abilities of teachers and whether the high commend of this language prompt them to support teaching sciences via Arabic. The subsection is made up of five items from 7 to 11.

Item (7) is of paramount importance since it poses a sensitive question worded as follow: "I can easily change the language of instruction from French to Arabic". This question may measure directly the teachers' attitudes towards the possibility of changing the language of instruction.

Item (8) attempts to question teachers' attitudes towards the shift in MI if appropriate requirements such as solving the problem of technical terminology are available.

Items (9) and (10) check the readiness of teachers to implement Arabization policy if a top down decree is imposed at the level of faculties of sciences in higher education.

Item (11) attempts to test teachers' practical support to the policy of Arabization by enriching the scientific domain by articles and manuals written in the Arabic language.

- The third subsection examines teachers' attitudes towards Arabic MOI in comparison with French. Items from 12 to 15 represent the questions of this section.

Item (12) compares the appropriateness of French as MI rather than Arabic.

Item (13) attempts to measure teachers' characterization of Arabic as a language of poetry and literature compared with French as a working technical language.

Item (14) has the same objective of item (8), it is of paramount importance in gauging again and directly the teachers' readiness to teach in Arabic if they were linguistically equipped.

Item (15) checks whether the excessive availability of documentation in French is the only rationale for preference of such a language as MI.

- The last subsection consists of four items (from 16 to 20). All of them aim at measuring teachers' attitudes towards the French language as a language to be learned and not as MI in scientific streams.

Items (16) and (17) tackle the issue of the status and importance of French at international scale. Items (18) (19) and (20) address the value of French in the scientific domain compared with other languages, especially English and its new worldwide status mainly in scientific documentation.

3.5.3 Interviews

An interview is a tool of data collection that involves researchers asking respondents questions. It enables participants i.e. interviewers or interviewees to discuss their knowledge and interpretation of the world and to express how they consider situations from their own point of view. This research tool proved to be beneficial in generating information on students' actions, motives, beliefs, and experiences (Seale, 1998).

3.5.3.1 Types of Interviews

As for the typology of interviews, researchers can ask different types of questions that generate different types of interviews such as: structured interviews, semi structured interviews, and unstructured interviews. Structured interviews use pre-established questions asked in a pre determined order, using a standard mode of delivery. Lincoln and Guba (1985) suggest that the structured interview is useful when the researcher is aware of what she doesn't know and therefore is in a position to frame questions that will supply the knowledge required.

As its name suggests, semi-structured interview is neither fully fixed, nor fully free. Interviewers start with some defined questioning plan. The topics and issues to be covered are specified in advance, whereas the interviewer decides sequence and working of questions in the course of the interview. One advantage of semi-structured interview is the logical gaps in data can be anticipated and closed, and the interview remains conversational and situational.

As for the third type i.e. unstructured interview named also closed qualitative interview, the interviewer attempts to draw out information, attitudes, beliefs around particular themes, ideas, and issues without the aid of pre-determined questions.

As far as the present research is concerned, the interview was used as the last data collection tool after classroom observation and questionnaires. Interviewing teachers and students has as an objective the validation of the results obtained from the above-mentioned research instruments. In fact, some items of the questionnaire are repeated in the interview. A semi-structured interview was used to, the big lines of the conversation were pre-determined and then questions flow during the interview. It is also worth mentioning that the researcher has opted for face-to-face interview which still remains the most popular data collection method, unlike mobile surveys. The advantages of face-to-face interview can be summarized as follows:

- 1) Accurate screening: where the interviewer is unable to provide false information such as age and gender during the conversation.
- 2) Capture verbal and non-verbal behaviour: here the researcher can observe the interviewees' behaviour and hence capture their emotions and non-verbal cues that can direct the interviewer (Jackle, Roberts, and Lynn, 2006).
- 3) Keep focus: the interviewer is the one who has control over the interview; he can explain difficult issues and guide the respondents to focus on the subject.

As with any other data collection method, face-to-face interviews can also provide some disadvantages that can be summarized in the problem of bias. While conducting the interview, its characteristics may prompt the interviewer to express various cues resulting in biased responses from the respondents. The interviewer can also affect the subjects to show social desirability as they try to satisfy him/her if the interviewer expresses negative reactions. To avoid bias, the researcher in the present study attempted to express neither negative nor positive reactions. She tended thus to be neutral in order to guarantee the objectivity of the results. It is also of significance to mention that measuring language attitudes using the direct method is not an easy task. Nevertheless, one can assume that social desirability was absent in the current research, since in face-to-face interview the

interviewer could realize the respondents' convenience with what they were saying. Their facial expressions and non-verbal behaviours didn't reflect any kind of uncertainty or hesitation. Similarly, teachers' responses were free from any kind of social desirability; fact that reinforced the arguments prioritizing face-to-face interviewing vis à vis telephone survey. In this respect, Jackle et al (2006) asserted that "gains of trust built up in the face-to-face interview outweigh nay shortcomings due to the lack of anonymity".

Ethical issues in interviewing are also of paramount importance, since interviews produce information about the human condition. Informed consent is extensively examined in the interview conducted with teachers as well as students. Furthermore, and as informants are not anonymous, since the interview is carried on face-to-face, confidentiality could be guaranteed in the study at hand. It should be stressed that individual data will not be revealed under any conditions.

As for the interview recording, the researcher has opted for note taking technique. In order not to forget important information, the interviewer took notes immediately since relying only on memory can be deceptive.

As has been already mentioned in, both interviews were based on simple random sampling. The students were interviewed generally in the corridor of the faculty and sometimes in the classrooms where they study. For teachers, the site where the interviews took place differs from one teacher to another depending on each one choice; sometimes in the office of the head of the department, others in classrooms where they taught, etc. The researcher with both respondents opted for semi- structured interview that benefit from both the direct aspect of structured interview and the flexibility of the unstructured interviews. The researcher prepared an outline to guide the big lines of the interview whereas; questions were constructed simultaneously as the interview has being undertaken. Pre determined outline is of paramount importance for the researcher in order not to miss one of the essential topics that may answer the research questions.

3.5.3.2 The Students' interviews

The interviewer uses Algerian Arabic (AA) while conducting the interview; the language that is believed to be mastered by the majority of respondents and that assure that they would answer spontaneously. The amount of time spent with each respondent varies between 15 and 30 minutes per student, depending on this/her knowledge of the subject, and his/her motivation to answer the questions. Three main topics were predetermined guiding the conversation believed to represent answers of the three research questions. The table below summarizes the research questions and the predefined topics of the interview:

Table 3.4 Students' interview Topics

Research Questions	Interview Topics
1-Does French as MI represents a handicap for students' achievements in sciences?	1-The Evaluation of the current learning situation and The effects of French as MI on quality of education.
2-what are the students' attitudes towards the implementation of Arabic in science education?	2-The attitudes of students towards Arabizing sciences.
3-What are students' attitudes towards French as MI in science education?	3-Attitudes towards French MI. -Attitudes towards the knowledge of French.

As far as topic one is concerned, the respondents were asked to evaluate the learning context. The question that may be raised is as follow:

✓ Do you think that French is a handicap for students' good achievements in your speciality? Students may answer to the question on the basis of their experience i.e. whether they find linguistic problems that impede their good attainments in the speciality they chose. This type of question is of paramount importance since it describes the real perceptions of students who were enthusiast to tell what happen inside the classroom.

✓ They were also asked if the content they study is difficult or it is only due to the language barrier that they find difficulties in comprehending these subjects. Relying on classroom observation results and questionnaire answers, the researcher provided some questions to be chosen by the interviewers; for example:

✓ why do most of you keep silent in the classroom?

✓ To what extent do you understand your teachers' explanation in French?

✓ The topic investigates also the students' perceptions of the shift in the MOI and how that may influence their learning.

✓ Does this affect all students equally?

✓ If no, how do they behave in order to overcome the linguistic barrier?

✓ Another question that may be raised in this context: What are your strategies to cope with this situation?

As for topic two, the interviewer attempted to gauge students' attitudes towards a possible Arabization of sciences. Questions that can be asked are as follow:

✓ Do you think that Arabic may be the language of instruction in sciences rather than French?

✓ which language do you prefer to be the language of instruction in sciences? Why?

✓ If the interviewees show negative attitudes towards French as MI, the researcher asks about the reasons of such a negative attitudes?

✓ Is it the poor command in the language or there exist other reasons? Then students' attitudes were indirectly measured through asking the following question:

✓ have you ever thought of changing your speciality because of the language of instruction?

The third topic is a flow up of the second topic; it was about the students' attitudes towards French as a MI and about the knowledge of French.

✓ Is it beneficial for your professional career to master French?

✓ To what extent does this language help in obtaining good job positions?

✓ Is there any other language that has more benefits for you as future cadres in the Algerian society? At the end of the interview the researcher asks the respondents to propose some solutions and suggestions to solve problems to the current linguistic situation in the faculty of sciences.

3.5.3.3 The Teachers' interviews

The teachers of the Faculty of Sciences and the Faculty of Technology are the researcher's colleagues in Dr. Tahar Moulay University of Saida. This was a sufficient reason that facilitates the interviewer's task. In fact, the interview was carried out in a friendly atmosphere. Furthermore, because of their awareness of the linguistic situation and of the subject in whole the teachers didn't show any kind of social desirability. They were however objective and responded spontaneously and enthusiastically to all the questions. Their enthusiasm made the interview last sometimes to more than 45 minutes, the period of the conversation varied between 30 to 45 minutes. The language of the conversation was a code mixing between French and AA. As far as the pre defined topics of the teachers' interview, three main topics can be summarized in so forth:

The first topic was about the teachers' awareness about students' linguistic incompetency in French. The questions that may be raised are:

- 1- Can teachers and specialists in pedagogical issues consider today's students' command of French as very poor?
- 2- What do you personally think?
- 3- What are the reasons of such weakness?

The main objective from this topic is to investigate whether teachers are conscious about the linguistic barrier that generated from the use of French as MI. The interviewer asked the

teachers to cite any strategies that they opt for to bypass the linguistic incompetency of their students (for example, translation into Arabic, drawing on the board, dictating, etc.)

The second topic of the interview attempts to measure the teachers' attitudes towards Arabic as a language of instruction instead of French. A question that may be asked: Do you think that Arabic as MI can solve the problem of language barrier in scientific domains. Then the interviewer checks the respondents' implicit attitudes through investigating their readiness to implement Arabization if an adequate formation of teachers, and sufficient documentation and material are available. The question that may be addressed in this context is: if all requirements are available to arabize sciences in higher education, are you ready to teach in Arabic?

As far as topic three is concerned, twofold objectives were pre defined:

- 1- Teachers were given the opportunity to provide some suggestions about the linguistic dilemma in the scientific domain. These suggestions may serve as solutions to enhance students' competency in French or propositions to policy makers' at higher education levels.
- 2- The second objective of this topic is concerned with the teachers' personal experience since they had received French-based education in their speciality (this may include both categories of teachers i.e. (francisants and arabisants). Questions that may be asked are as follow:
 - As teachers and researchers, is the knowledge of French beneficial for your researches?
 - When you have training abroad, which language do you use? Do you find it workable?
 - Does the low-control of English impede your participation in international conferences? What difficulties do you encounter when conducting a research?

3.6 Data Analysis Procedures

Data analysis is the mechanism that the researchers use to evaluate and interpret the data obtained. It is the systematic analysis and logical reasoning to find out the answers to the research questions. Consequently, the aim of data analysis is to gather and interpret useful information for the research. After obtaining the data through different research tools, it is analyzed either quantitatively or qualitatively. It is worth mentioning that sociolinguistic research projects are "neither exclusively quantitative nor exclusively qualitative, they are most often both"(Johnstone, 2000 , p.36).

The author emphasized the importance of both approaches in sociolinguistic research when she affirmed that:

This means that analyzing sociolinguistic data often involves some counting, explicit or implicit, in order to answer questions about how often things happen, in addition to the descriptions that help answer qualitative questions about how and why things happen (2000, p. 37).

For the aim of investigating the impact of French as MI on 1st year students of scientific streams attainment and the teachers and students attitudes towards a possible arabization of sciences in higher education, we have recourse to both methods for data analysis. The use of quantitative and qualitative approaches for analysis is believed to provide more reliable research findings.

3.6.1 Quantitative analysis

In a quantitative study, the researcher uses techniques that produce data in a form of numbers. To put it differently, the main purpose of quantitative approach in analysis is to quantify and assess data from the perspective of numbers and statistics. Such an approach is called more objective as it excludes any coincidences or events that may happen at random. Quantitative researches use specific data instruments such as questionnaires, surveys, and tests to gather information from a large sample.

In the present study, the quantitative analysis relies on quantitative data which can reveal the impact of French as a medium of instruction on students' achievements, an addition to the teachers' and the students' attitudes towards arabizing sciences. The data obtained is represented in tables and graphs in order to allow comparison between the respondents' answers. The same approach is used thus to analyze the students' and teachers' questionnaires as well as classroom observation results.

3.6.2 Qualitative Analysis

Qualitative analysis aims at bringing deep understanding to a given issue in research. Unlike quantitative method, the qualitative method is subjective in nature since it is related to the interpretation of the research population's speeches, sounds, and gestures. Therefore, it is considered as a hard approach, very challenging, and more time consuming.

Qualitative research methods are inductive in the sense that respondents can provide explanations, new insights, and even answers to the researcher. The only pitfall of such an approach is that its findings cannot be generalized to wider population as well as quantitative analysis can do.

In the present study, the qualitative analysis relies on the researchers' observation of students, in addition to the interpretation of the interviews administered with both teachers and students. In fact, by means of the research instruments to obtain qualitative results, the researcher could describe, explore, and discover interesting facts in relation to the present research. In this sense, Denzin and Lincoln(2005) asserted:

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, aterial practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them (p.3).

To sum up, our research design uses a mixed- method approach that combine both quantitative and qualitative approaches to analyze the respondents' answers gathered from the questionnaires addressed to both teachers and students, in addition to the responses obtained from the teachers and students interviews , as well as the analysis of the results of classroom observation aiming at eliciting the respondents attitudes towards Arabic a medium of instruction in scientific streams at university level.

3.7 The Pilot Study

After preparing any questionnaire, the researcher needs to test or pilot it on a small group before a wide circulation on the target sample. In this regard, Oppenheim (1992:47) argue that "If you don't have the resources to pilot-test your questionnaire, don't do the study.", he added also that "Every aspect of the survey has to be tried out before hand to make sure it works as intended". In fact, the pilot-test can highlight things that were ambiguous, it can also give the researcher an opportunity to add, omit, or reword questions that could not be understood.

The two questionnaires have been initially piloted on 20 students of 1st year SM and ST and 4 teachers teaching in the faculty of sciences. The questionnaires have been piloted to determine the accessibility of the questions before distributing them to the whole sample.

Eventually, some questions have been reformulated, others were added, and few of them have been definitively omitted.

Welman and Kruger (1999) listed the three following values of a pilot study:

- It is needed to detect possible flaws in measurement procedures (including instructions, time limits, etc.) and in the operationalisation of independent variables.
- A pilot study is also valuable to identify unclear or ambiguous items in a questionnaire.
- The non-verbal behaviour of participants in the pilot study may give important information about any embarrassment or discomfort experienced concerning the content of items in the questionnaire. The latter could be valuable to a smaller context in the current research, because this study is not using a purely quantitative method, but a combined qualitative- quantitative method (p.146).

Most of the advantages points listed above are relevant to the pilot study of the present research. In September 2015, the researcher undertook a pilot study that enabled her to make some modifications on some aspects of the research process:

- 1) Drafting an observation template: The researcher tried out initially to observe students without any pre- structured objectives, the fact that make her loose information and focus at the same time. Finally, a template observation was prepared in order to organize the researcher's ideas and determine the research main objectives.
- 2) Fixing the type of questions: Opting for closed-ended questions all along the two questionnaires proved to be insufficient for obtaining qualitative data from the informants. After piloting the researcher designed some open –ended questions mainly at the end of each questionnaire to measure the different variables qualitatively.
- 3) Identifying the research process: The pilot study enabled the research to gain insightful information in relation to:
 - A) The Sample: After piloting the questionnaire on students of advanced levels studying sciences in French, the researcher decided to limit the sample on 1st year students studying SM Faculty of Sciences and ST Faculty of Technology. The rationale behind such a decision is that 11 students out of the 20 tested show no problems in studying science in French.
 - B) Adding variables: A variable such as the original Wilaya of students' pre education was added after the pilot study. It was believed that determining the original place where students came from can provide helpful information to the research, since the researcher observed a remarkable difference among the responses of students from Saida and others from different Wilayas, mainly El Bayadh. Apart from this variable no other modification has

occurred at the level of the students' questionnaire. As for the teachers' questionnaire, no changes occurred since no comments have been made.

The teachers and students who participated in the pilot study were not considered in the main study (to recall the students' sample was changed from students of advanced levels to 1st year students SM and ST). However pre-testing the tools of data collection such as the questionnaires, interviews, and classroom observation template proved to meet the research objectives.

3.8 Reliability and Validity of the Research

Reliability can be summarized on the notion that there is some sense of uniformity or standardization in what is being measured, and that the methods adopted need to be consistent in capturing what is being explored. Reliability is hence "the extent to which a measure, procedure, or instrument provide the same results or repeated trials" (O'Leary, 2004). Therefore for a research to be reliable, it must demonstrate that if it is carried out on a similar group of informants in similar circumstances, then similar results could be found. Trust is another common denominator in defining reliability. Longman definition of reliability states that the latter signifies that someone or something that is reliable can be *trusted* or depend on. (emphasis added).

Another concept that has always been intertwined with reliability is validity of the results. These two notions have always been seen as dichotomous. Validity can be comprehended as the assumption that what being studied can be measured or captured and seeks to confirm the truth and accuracy of this measured data, as well as the truth and accuracy of any findings and conclusions drawn from the data. To put it differently, validity is objective and never subjective; it is rationally oriented rather than emotionally dictated. Researchers identified several kinds of validity among which internal and external validity are the most common in the field of research methodology. Internal validity seeks to demonstrate that the explanation of a particular issue of data that the research can be sustained by the data itself. However, external validity "refers to the degree to which the results can be generalized to the wider population, cases or situations" (Cohen, Glasman, Rosenbaum-Cohen, Ferrara, and Fine, 2005,p.109).

In the present research, maximizing internal and external validity besides reliability which is a prerequisite for validity, were of paramount consideration. The two factors i.e. validity and reliability were seriously verified through the whole research relying on the below mentioned aspects.

1-Triangulation: In an attempt to meet the standards of reliability and validity that are basically intertwined, the researcher opted for triangulation that mixes both qualitative methods with quantitative ones. Each research question was verified and measured by different instruments i.e. classroom observation, interviews, and questionnaire.

2-The big size of the sample was also relied on to guarantee external validity; 200 students and 30 teachers.

3-The pilot study: Cohen et al (2005) asserts that “[a] pilot has several functions, principally to increase the reliability, validity, and practicability [...]”(p.260). The researcher tended accordingly to conduct a pilot study to test how well the instruments will answer to the research questions. It is worth mentioning that the data collection measures should match the research objectives, if validity is extensively verified.

3.9 Ethical Responsibilities

Research ethics refers to a complex set of values, standards, and institutional schemes that help constitute and regulate scientific activity. In social sciences, researchers are unconditionally responsible for the integrity of the research process. Producing knowledge requires a responsibility for integrity in order to produce it. Accordingly, they have a responsibility not only to their profession in the search for knowledge and truth, but more importantly for the subjects they depend on for their work (Cavan, 1977:810). Therefore, the responsibility for the dignity, respect, and welfare of respondents, both mentally and physically, is central to research ethics. Informed consent, protection from harm, and privacy are three common prerequisites for any research project. In the current study, human participants were addressed the fact that made the researcher committed to the respect of the ethical standards put by scholars in social sciences.

3.9.1 Informed consent

The concept of informed consent emphasizes informing respondents of the nature of the research. If they have a deep understanding of their requested involvement in a research, participants can give informed consent. According to O’Leary (2004), informed consent implies that participants are: competent, autonomous, and voluntarily involved.

Competency means that they have the intellectual capacity and psychological maturity that enable them to understand the objectives of the research i.e. they understand the purpose of the research. Autonomy refers to the ability of respondents to make self- directed choices, it means that others (as parents and friends) cannot participate for them. Voluntariness means that participants are contributing in the research willingly without any pressure (p.53). In the

context of the present study, consent was obtained from both the administration and participants either in the questionnaire or the interview.

-Administration

Consent for the conduction of the research on 1st year students common core SM and ST was obtained from the heads of the departments, Faculty of Sciences and Faculty of Technology, University of Saida. The heads of both departments gave us permission to conduct classroom observation and distribute the questionnaire. Furthermore, some of the interviews with teachers have been conducted in their offices.

-Participants

As far as participants are concerned, informed consent was firmly considered from both the teachers and students. Applying O'Leary's (2004) prerequisites for informed consent, all of the participants were competent, autonomous, well informed, and voluntarily participating in the research. Regarding competency, all the respondents had the intellectual capacities and psychological maturity that enable them to understand the purpose of the research. In other words, they were well informed about the objectives of their participation, its process, and consequences. As for voluntariness, no pressure was exerted on the participants to make them contribute to the research. Yet they were informed that they have the right to discontinue their involvement whenever they feel bored or not interested

Unlike classroom observation where the consent was taken indirectly from the administration (what is known in ethic standards as substitute consent), participants in the questionnaire and interviews gave their acceptance to participate in the research directly (what is known as direct consent). The difference between substitute consent and direct consent is that the former is given under specific conditions, notably when the respondents are incapable or immature as the case with children (Cohen et al, 2005).

3.9.2 Anonymity and confidentiality of the data

Making data anonymous means removing the contributors' names, participants in the present study are completely unknown notably, in the questionnaire. They are unidentifiable, even for the researcher. As for face to face interviews opted for in, anonymity cannot be discussed and accordingly confidentiality is maintained. Confidential research refers to research studies in which the researcher knows the identity of the participants and has strategies to not disclose participants' identities or opinions. All the data provided in the interviews was locked up. The informants were promised that the information they offer could not be revealed under any condition except if they give permission.

3.9.3 Protection from harm

The concept of harm in social science studies refers to emotional or psychological harm, rather than physical one. Asking participants to answer sensitive or private questions, questions that cause anxiety, can all be harmful for them. The objectives of the current research represent no harm for the respondents, as it investigates linguistic problems in higher education.

3.10 Questionnaires Return Rate

The return rate of students' questionnaire was 100%. In other words, the 200 students who were surveyed handed back their questionnaires. The reason for this high rate is due to the conditions under which the questionnaire was carried out. The valuable help of teachers who distribute the questionnaire in the Amphi theatre, besides the responsibility they took to collect it from their students created a sense of compulsion among the students.

As far as teachers are concerned, the return rate was not as high as that of students. Out of 60 questionnaires distributed through the different departments, only 30 teachers handed back the questionnaire. Fortunately, 15 of them were arabisants and the other 15 were francisants; the fact that helps to build a fair comparison between the answers of the two categories.

3.11 Limitations of the Study

This study was limited to some extent, as it aimed to study attitude which is a mental state. The researcher faced several difficulties while investigating and making predictions. The outcomes of the present study are limited by three research tools that were used, namely a questionnaire, non- participant classroom observation, and a face –to- face semi- structured interviews; taking into account the limitation of each instrument. Details of the shortcomings of each instrument were provided respectively in sections (3.5.1, 3.5.2, 3.5.3). The direct approach to attitude measurement adopted in the current research could be joined with other approaches such as the matched guise technique (MGT) or societal treatment, since joining more than one approach could ascertain the subjects' attitudes. Though limitations the researcher succeeded to overcome the shortcomings of the direct method as respondents and due to the nature of the topic, didn't show any kind of social desirability. The anonymity of the questionnaire was one among the strategies the researcher used to bypass respondents' explicit attitudes. Furthermore, during face-to-face interviews, the researcher didn't observe any facial expressions that reflect the informants' intention to show socially acceptable or explicit attitudes.

Another important limitation of the present research was the sample. The latter was 1st year students common core SM and ST in the Faculty of Sciences and the Faculty of Technology , respectively. Students of other Departments such as the Department of Informatics, the Department of Physics, the Department of Chemistry, could also be surveyed. As for the level, students of advanced levels could be the sample of the study since investigating other levels may prove whether the poor command of French and attitudes towards Arabization of sciences would change with time i.e. whenever students get advance in the level, their competency could ameliorate and thus their negative attitudes towards French as MI could change.

As far as external validity is concerned, generalizing the results of the sample on the entire population is impossible. Findings obtained from the sample at hand may concern only the context where the study took place. This assumption may refer to the fact that linguistic issue or the poor command of French is the characteristic of students of the southern regions and suburbs of the country. The Ministry of Education reported effectively that Wilayas such as Djelfa, Elbayadh⁴, Naama, Bechar, etc register each year low rates in foreign languages. Consequently the results of the current research could not be generalized to other universities of the northern region of the country as they don't suffer from this kind of poor command of French especially, or any other foreign language.

3.12 Conclusion

This chapter represents a description of the methodological aspects used to investigate the current research problematic. First the site of the study was identified; it is the faculty of sciences, University of Saida, Algeria. This site was chosen as sciences are taught in French i.e. the Medium of instruction in the faculty of sciences is French. As for the sample of the study, 1st year students common core studying SM and ST were surveyed in order to know about their perceptions of the learning situation and the sudden shift from only Arabic to only French as medium of instruction. The other respondents of the research are teachers in the same faculty. As agents of LPP decision making, their attitudes towards French MI, and more importantly towards the policy of arabization and arabizing sciences in higher education were investigated. To meet the objectives of the study, the researcher opted for triangulation of both qualitative and quantitative methods. The data instruments used were a questionnaire to obtain quantitative results, in parallel with classroom observation and semi- structured interviews to obtain qualitative findings. The rationale behind the use of this myriad of tools

⁴ Though the sample of the study consists of students from El bayadh , the number of students is not considerable, and thus their attitudes could not affect the whole findings.

is to cross-check the research variables. At the end of the chapter, research ethics were seriously considered as prerequisites of a good research. The next chapter will provide the analysis of the data collected from the sample population based on qualitative and quantitative approaches.

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Chapter Four: Data Analysis and Results' Interpretation**4.1 Introduction**

The aim of the present chapter is twofold. First, it provides an analysis of the data collected from the research tools used in the study. Second, it offers some insights into the participants' attitudes and perceptions regarding the effects of French as a medium of instruction and a possible Arabization policy of scientific subjects at the university level. As far as methodology is concerned, data were measured and analyzed quantitatively and qualitatively within the mixed-method approach. The concurrent method was used by analyzing the findings of each tool separately, then comparing them to find whether they converged or diverged, which helps to obtain more reliable research findings.

4.2 Learning Achievement through French as Medium of Instruction

This section attempts to provide an answer to the first research question that investigates to what extent does French as a medium of instruction handicaps students' good achievements in the field of sciences. The results obtained from the three research tools i.e. the questionnaires addressed to both students and teachers, the interviews conducted with the same respondents, and classroom observation will all be analyzed and discussed. The results will be jointly interpreted since the first research question has been investigated through the three above mentioned research tools.

4.2.1 Data analysis

Data analysis and interpretation in this part will not be separately displayed since the three instruments were used together to answer the first research question.

4.2.1.1 Students competence in French

In the first section of the questionnaire administered to students, the researcher attempts to measure the respondents' competence in French as their medium of instruction. The results are shown in Table 4.1:

Table 4.1 Students' competence in French (Self Evaluation)

	Quite good	Good	Quite low	Low
Understanding	40,5%	17,5%	19,5%	11%
Speaking	18,5%	8,5%	35%	19,5%
Writing	21,5%	27%	30,5%	15%
Reading	28,5%	39%	13,5%	8%

The results demonstrated in table 4.1 reflect the students' incompetence in French. The majority of them expressed their inability to speak the language; (35%) of the respondents evaluate their level as quite low, whereas no more than (8, 5%) said that their level is good in verbal production. Similar to verbal competence, the writing inability scored the same rates; (30,5%) said that their writing is low, (15%) quite low as opposed to (21%) who labelled their writing ability as good in the French language. It can be concluded that the productive skills i.e. the verbal skill and the writing skill in French are approximately poor for both ST and SM students. The findings for the receptive skills: understanding and reading are quite different than those of the productive skills. The scores can be summarized as follow: understanding(19,5%) quite low, and (40,5%) quite good; reading(13,5%) quite low, and (28,5%) quite good; while the option good displayed higher rates in understanding and reading (17,5%,39 % respectively) compared to (8,5%,27%) for productive skills. The tabulated results are shown in the following figure.

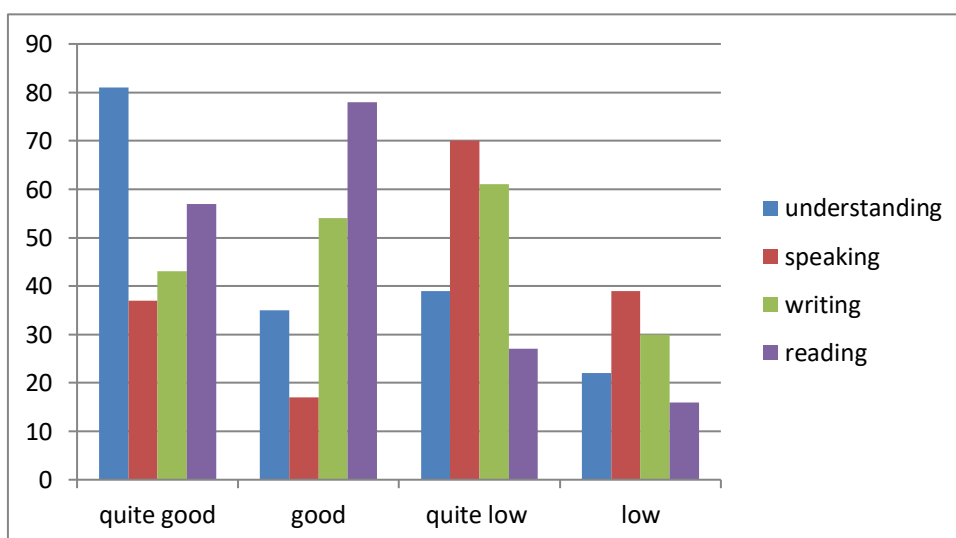


Figure.4.1 Students' competence in French (Self Evaluation)

To sum up, the results show the students poor command in productive skills, especially in verbal ability. Students find speaking in French a hard task since the majority of them didn't receive any additional courses in the language, nor they have had an effective environment that help them to practise and ameliorate their verbal or writing capacities in French. Also, students complain about the incompetence of their previous teachers of French from primary level to secondary school. They said that they could not develop their abilities through nine years of learning it as a subject.

As far as the teachers' responses are concerned, the results were not different than that of students. The teachers' evaluation confirms the students' self-evaluation. Teachers are more closed to their students; they can provide the truthful evaluation since they are in direct contact through the daily interaction in the classroom. The thirty teachers to whom the questionnaire was addressed agree that their students have low proficiency in French. Table 4.2 reflect their answers:

Table.4.2 *Teachers evaluation of the students' ability in French*

	Good	Quite Good	Low	Quite low
The students' ability in French is	0	26%	53,33%	3%

As demonstrated in the table above (53, 33%) believe that the students' command is low, unlike (26%) who responded that they have quite a good level in French. The teachers' responses in the interviews did converge with their answers in the questionnaire. The majority of them expressed their disappointment from the students' low command of the language, the fact that led to a weakening in the quality of teaching. They added also that students whose a good level may be counted and that they represent an exception.

4.2.1.2 Learning difficulties

The researcher attempts to uncover the real reasons behind students' low achievement in scientific streams, by asking first the following opening question: do students of scientific streams encounter difficulties in learning? The answer is graphically presented as follow:

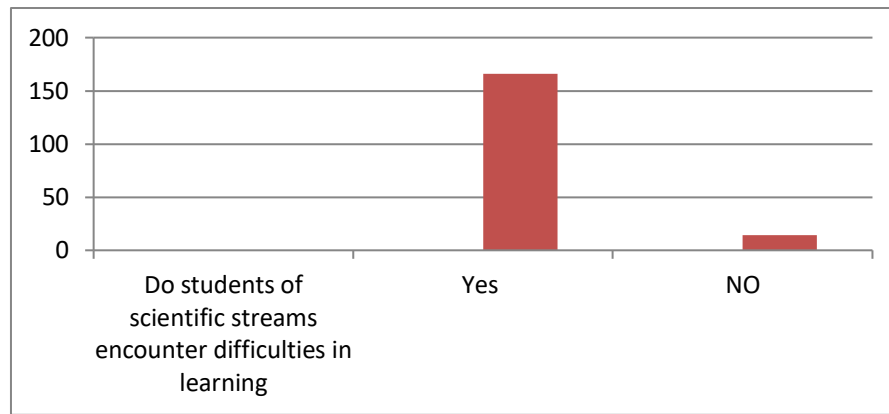


Figure.4.2 Students of scientific streams difficulties in learning

The majority of students (83%) respond that they have difficulty in learning, as opposed to 7% i.e. 14 students out of 200 who expressed the easiness of the learning process in their speciality. In this section, and more importantly, the researcher intends to know about the reasons for such difficulty in learning scientific streams. She provided a rank order of five learning difficulties that students may face. The results in the following table show that the linguistic issue is the major problem that handicap students' good achievement in scientific fields:

Table.4.3 Students' ranking of learning difficulties

	MAP	MOP	NP
1-The teaching methods.	12,5%	20%	4%
2-A high number of students	7,5%	21%	18%
3-The language of instruction.	70%	52,5%	7%
4-Teachers' level.	4%	22%	17%
5-The content of subjects.	8%	26%	14%

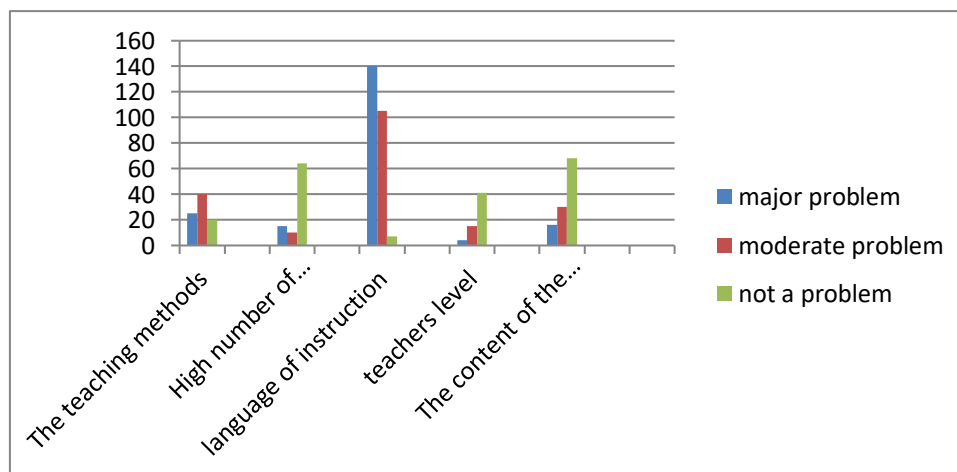


Figure. 4.3 Students' ranking of learning difficulties

As shown in figure 4.3 the major difficulty in learning is due to the language of instruction with a percentage of 70% (or 140 students out of 200). Followed by teaching methods (12,5), The content of the subjects with (8%), then a high number of students per group(7,5%), while only 4 students (2%) consider the teachers' level as an obstacle to their learning. Based on the margin of error of 5 and a confident level of 95, one can argue that if the question was addressed to a whole population between 65 % (70-5) and 75 % (70+5) would answer that the language of instruction i.e. French is the utmost difficulty that students face in their learning.

It is worth mentioning that even if the language of instruction is not considered as a major problem, it is regarded as a moderate problem with 52,5% followed by 20% for the teaching methods. It may be argued thus that for the overwhelming majority French as a MI is considered as a big concern that hinders 1st-year students SM and ST in the Dr Tahar Moulay University of Saida to achieve good scores. The results in Figure 4.2 indicate that the content of subjects is not the main difficulty as it is supposed to be. In contrast, the students interviewed said that the content is the same as what they had had in secondary school, there was nothing new except the medium of instruction through which these subjects are delivered. Students who were excellent in Mathematics and Physics feel disappointment, become lost and some of them intend to abandon learning the speciality.

To confirm the students' perception about learning difficulties, the researcher asked the teachers about the extent to which French is an obstacle to students good achievements; the answer is displayed in the following figure:

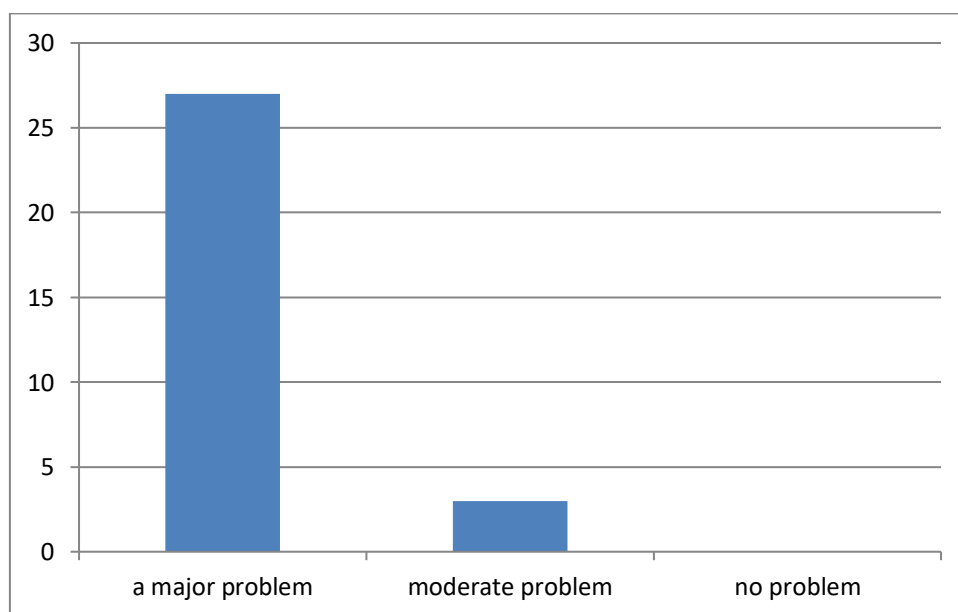


Figure.4.4 Teachers' perception of French as MI

Out of 30 teachers to whom the interview was addressed 27 i.e. (90%) believe that French is a major problem for the students of scientific streams. In opposed to 3 teachers who consider the problem of language as a moderate one.

As for the level, the teachers perceive that all undergraduate students suffer from the language of instruction as illustrated in the table below:

Table.4.4 *Levels of teachers' perception of French MI*

French is a major problem for					
1st Year		1st and 2nd Year		All undergraduate students	
4	13,33%	6	20%	20	66,66%

As yielded in the table, the majority of the teachers (66.66%) consider that the linguistic issue concern all the undergraduate students whereas only 4 teachers limit it to the first-year level.

The results obtained from the teachers' questionnaire were reinforced by the answers to the interview. The eight interviewed teachers expressed their dissatisfaction of their students' poor command of French that affects the efficient learning of the scientific content. They also asserted that the weakness doesn't only concern 1st and 2nd-year students, but all the undergraduate students and even Master and Doctorate students. Some of the teachers notably (the francisants) claimed that the problem of language is not restricted to students; some young teachers though competent in the subject content suffer from the poor command of French. This situation led to a dramatic handicap of the teaching-learning process

Both questionnaires and interviews of both teachers and students increase the validity of the findings due to the high degree of conformity of the results. The respondents asserted the heavy burden of French as MI, through their dissatisfaction of the current situation. In the next section, we measure the extent to which this situation affects the successful learning of the content by analysing the different research instruments.

4.2.1.3 The impact of French MI on learning sciences

In this subsection, the researcher attempts to test the research hypothesis that there is a relation between the medium of instruction (French) and the quality of learning scientific subjects. Through the three research instruments namely classroom observation, interviews, and questionnaires; we will examine the students' abilities in the four learning skills: students'

classroom interaction, content understanding (comprehension), reading comprehension, and writing performance.

4.2.1.3.1 Classroom participation: how may French MI affect students' interaction?

Learners need to talk to learn. They need to talk to develop concepts and increase critical thinking through conversations with their mates and teachers. Classroom observation conducted by the researcher reveals the teacher /learner relationship and the extent to which students interact in the classroom. As mentioned in chapter three, classroom observations aimed at sketching the students' role in the classroom notably their participation. It aimed also at observing the student's verbal behaviour notably the use of language (grammar, vocabulary), and their non-verbal behaviour namely their motivation to learn. During six months (from the beginning of November to the end of April 2017) the researcher recorded considerable remarks by attending lectures with SM and ST students. A general summary of remarks is presented in the following table, while the result of each observation session is provided in chapter three.

Table.4.5 *Summary of remarks of classroom observation*

Item	From minimum to maximum				
	1	2	3	4	5
1-The teacher explains the lesson and students are involved in the learning process.		×			
2-Students ask questions for more clarification and explanation.		×			
3-Some students give comments and motivate the other students to speak.	×				
4-Students' questions and answers are well -formulated.			×		
5-Students'questions are ambiguous.			×		
6-Students mix Arabic with French when interacting in the classroom.					×
7-Students hesitate and take a long time before intervening.				×	
8-The learning process is teacher-centred and students are passive.					×

The table above represents the learning atmosphere in the classroom. In some sessions, the teacher did everything and the learning process is teacher-centred. Students are passive since they receive the knowledge transmitted systematically. Most of the time, they kept silent, they rarely intervene, and if so they took a long time switching French with Arabic. When the teacher asks those questions to verify their understanding of the same three to four students respond using ungrammatical structures in brief answers, and short interventions.

What should be also pointed out is that except the use of some technical words in French, the observer thought that she was in a class where the medium of instruction is Arabic. Students preferred silence; they avoid speaking because they lack the simplest linguistic tools that might enable them to construct a correct sentence. Even if they have plenty of questions, they prefer to whisper to their mates in Arabic rather than asking the teacher in the attendance of the whole class. This claim can be reinforced by the following figure representing students' answers about a question related to their verbal intervention in the classroom.

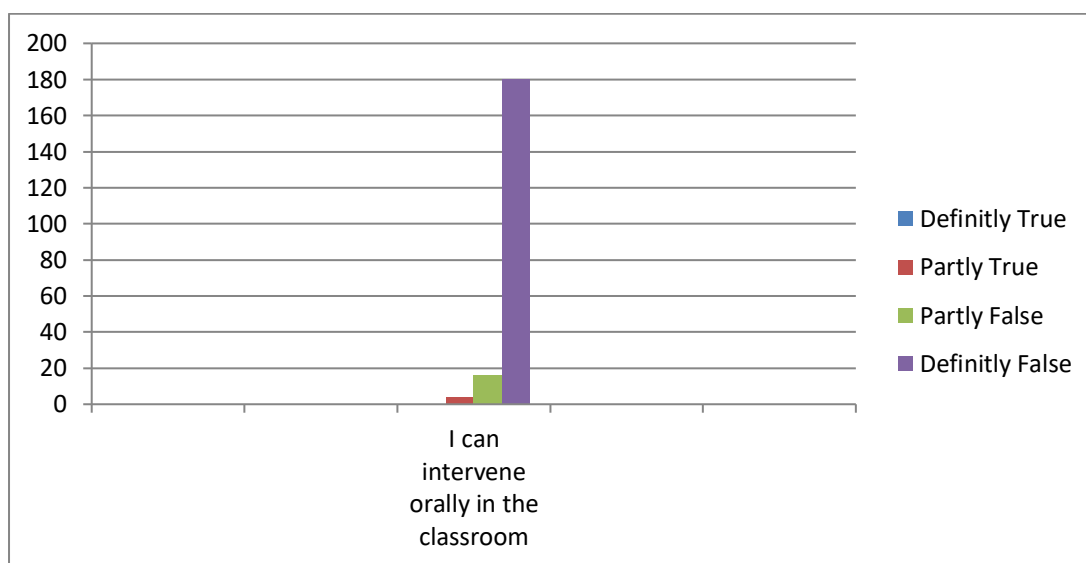


Figure.4.5 Students' verbal interaction and discussion in the classroom

In the figure above, 90% of students claim their inability to intervene orally in the classroom. The students' poor command in French MI can be considered as the direct reason for the current situation; taking into account that they are supposed to learn how to construct reason, engage in, and criticize arguments based on evidence-primarily through talking and sharing activities and ideas with others¹. The low proficiency in French transforms the learning process to teacher-centred process where teachers retain control over the discussion.

The results of classroom observation can be confirmed by teachers' interviews. The six interviewed teachers assert the fact that their students are passive recipients of knowledge. This assertion can be generalized on the whole population of the study at hand since some of the interviewed teachers teach other levels such as 3rd year, Master and doctorate. The reasons

¹ Literacy for science: exploring the intersection of the next generation science standards and common core for ELA Standards: a Workshop Summary, Chapter 3: The language of Science Text and Talk: available on http://www.nap.edu/read/18803/chapter_3. Retrieved on July 11th 2018

behind such passive behaviour in the classroom can be summarized in the following answers provided by the interviewed students. The main question addressed in this respect is: how do you evaluate your abilities in French?

Student I: "I don't know how to build up a correct sentence, French is very difficult for me, and for all my friends, I believe. Sometimes I have questions to my teachers but I feel afraid to make mistakes"

Student II: "With teachers who allow us to speak in Arabic, I feel at ease. I ask questions in Arabic and the teacher explains using French and dialectal Arabic to make things easier. On the other hand, other teachers do not permit us to utter a single word in Arabic, so I prefer not to speak at all"

Student III: "I don't like to be made fun of because of my low command in French".

Student V: "It is a personal conviction; I just prefer not to participate in the classroom. I understand the subject content and all that the teacher says, but I don't want to speak....that's all".

According to the interview results, and though the different causes mentioned by students, low linguistic competence is the major cause of the lack of participation in the classroom. The other reasons are believed to be generated from the major reason leading to psychological problems that can be summarized as follow:

- **Inhibition:** which is related to learners themselves because of shyness and fear of making mistakes, learners avoid criticism from the student's peers and their teachers as well. The learner thinks that whenever making a mistake s/he would be judged as ignorant.
- **Communication Apprehension:** Petress (2001) refers to this as "clinical fear of communicating with or in the presence of others"(p.3). Some students may feel nervous when speaking loudly in the presence of a large group. Other problems like low self-esteem and self-confidence may prevent students from interacting with others. Shyness, quietness, anxiety, low self-confidence are all signs of communication apprehension that may because of the lack of interaction in the classroom, but cannot be generalized to the whole population of the current study since only a few numbers of students may suffer from these psychological problems.

4.2.1.3.2 Comprehension of the content of the lecture

The respondents of the three research tools agree on the fact that French as MI affects negatively content comprehension. While observing, the researcher could easily notice the loss of students and their indifference in the classroom. Except for the few numbers of students who were following the teachers' explanation and who were taking notes, the

overwhelming majority was uninterested in the lesson. Some students were whispering to each other and speaking about things unrelated to the subject content, while others were sitting at the back of the class playing with their mobiles. Consequently, one can assume that no more than 10% of students show positive feedback from the learning process.

The interviews with students have reinforced classroom observation results. Seven students out of eight interviewed expressed their disappointment from the learning atmosphere. They claimed that they feel lost and that they could not understand what teachers say, mainly the teachers who don't allow the use of Arabic in the classroom. In this respect, one of the students had this to say: "From the very beginning of the lesson, we need to translate every word. Sometimes we don't understand even the title, so how do you imagine the rest of the lesson". The same student added: "It's tiring and time-consuming, usually we go home to translate what we did in class and we try to understand the content alone". Another student went further when she claimed: "I really prefer not to attend the lectures, I find myself obliged to be present in sessions where presence is obligatory. Being absent or present is alike". Miscomprehension is the students' argument that justifies the low number of students in seminars (where presence is optional). The number decreases from 150 for ST and 55 for SM in November (2016) to 40 for ST and 20 for SM in (April 2017). Only one of the interviewed students show a positive attitude towards the learning process, she claims that her good command of French enables her to understand the content subjects. This student may represent the exception rather than the norm.

As far as the teachers' interview is concerned, the results were not different from those obtained from students. They frankly confess the failure of the learning process. One of the teachers pointed out that: "When I first step to the class, I encounter students who show no interest in the lesson; I guess that they attend just for presence in order not to be excluded from the module". Another teacher added: "It is not only the language barrier that hinders students' understanding. Our students are uninterested in learning for different reasons. Also, if they have the will to learn they can overcome the language obstacle. Our students don't read at all, and by the end of the year they skip classes and don't attend the lectures."

The interviews with teachers reveal the serious situation of learning sciences for 1st-year students SM and ST that can be generalized to the whole population of students' scientific streams at the Dr Tahar Moulay University of Saida since the interviewed teachers teach students from different levels in the University and not only 1st-year level. This situation reflects the high percentage of students' failure in scientific specialities.

The questionnaire results expose a high degree of conformity with the other two research tools. Table 4.6 represents the extent to which students miss understanding of subject contents in the class.

Table.4.6 Percentages of Content Understanding

	True	Partly True	Definitely False	Partly false
I can understand the content of the lecture and the teacher's explanation	8%	14%	54%	24%

The following figure may better illustrate the tabulated percentages:

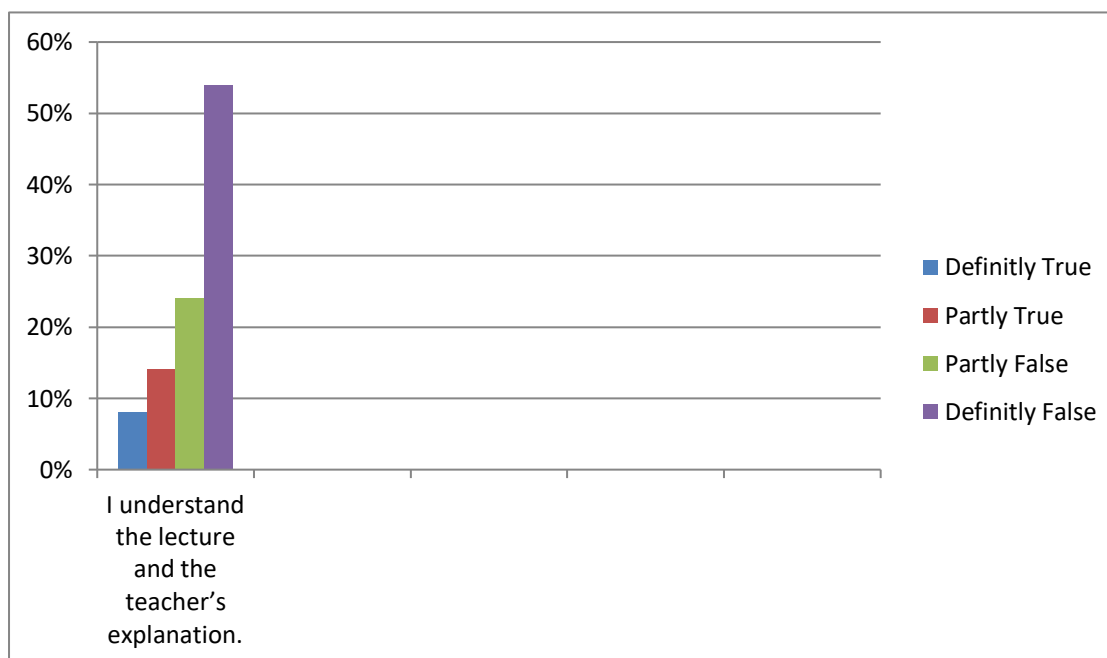


Figure.4.6 Percentages of content understanding

Another point that may be worth mentioning is that learners respond positively in modules that require lower cognitive abilities in French i.e. subjects such as physics, chemistry and, Mathematics requires an algorithmic language in a form of numbers and symbols. In contrast to other subjects, students find themselves obliged to concentrate on the language of the subject rather than the subject itself.²

² Though an important claim, it cannot be generalized since it was the opinion of two interviewed students, while the rest said that the miss of understanding includes all the subjects.

4.2.1.3.3 *Comprehension of the extra -reading material*

In developed countries such as Great Britain and the US, universities spend a great deal of time in selecting enough reading materials for students. Teachers and experts prepare an extra-reading material that may help students to take with them after the class is complete. They believe that class time is not sufficient for a deep understanding of the content and that teachers cannot provide a full understanding of the lessons. In this respect, Glyne and Muth (1994) pointed out that "by reading a well written scientific text, and by endeavouring to write it, students familiarize themselves with the conceptual relations that form the basis of real scientific expertise and understanding" (p.1060). Consequently, extra reading is one of the most important assignments that make learning sciences successful.

In the case of the Algerian universities, reading is almost absent. The reasons that impose such a reality are multiple. The language of instruction is believed to be among the major reasons according to the students of scientific streams notably 1st-year students SM and ST at the University of Tahar Moulay of Saida. According to the interview results, students proclaimed that reading in French is a hard task. They also added that while reading they find themselves obliged to translate word by word. Sometimes they need to translate the entire handout, article, or a long chapter of a book to achieve linguistic rather than content understanding. In this sense, one of the students frankly declared "when I try to read a handout or a book in my speciality I always open online translation programme to understand the words, it is very tiring and time-consuming. I cannot do it for a whole book. Usually, I feel bored and I abandon reading". Another student claimed that he doesn't read at all since he can't understand the scientific vocabulary of the reading material. Students in the interviews make it clear that translation into Arabic is the only efficient strategy that enables them to unlock the linguistic ambiguity of the texts.

The results of the questionnaire were not different than those of the interview. The table below shows the hard task of reading in French due to the long-time students spend in reading and the small amount of comprehension of the reading material.

Table 4.7 *Time allotted for reading extra material in French*

	More time	The same time	Less time
Reading Arabic scientific documentation (If compared with French) require	80%	22,5%	12,5%

Similarly, the following figure represents the long-time students need to read scientific documents in French.

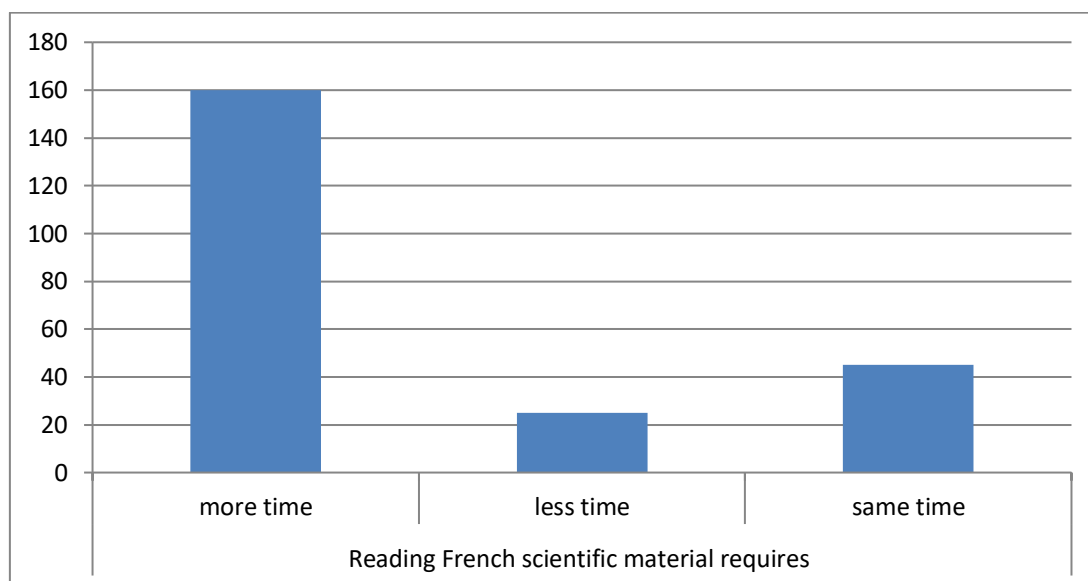


Figure.4.7 Time Allotted for reading extra material in French

An important issue that should be raised here is that science has a complex vocabulary that is difficult for even native speakers to learn. The specific terms of each speciality make the comprehension obscure. Hence, the difficulty of reading the French material should not be confused with the students' ability to think scientifically. Except for the textbooks written by Algerian teachers who usually take into consideration the students limited abilities in French, books of high scientific quality remain ambiguous and rarely consulted. In this sense (Harmer, 2001) pointed out: "when no consideration of the foreign reader is taken into account, the accuracy of reading materials renders severe obscurity to learners who are confronted with non-simplified content, which turns reading authentic material an extremely demotivating task". Consequently, if students find science textbooks and other print-based materials meaningless, their learning will be passive, isolated, easily forgotten, inapplicable, and boring (Alexander and Kulikowich, 1994).

4.2.1.3.4 The impact of French as a medium of instruction on students' writing performance

Writing as a productive skill can play a powerful role in learning sciences. Students who are competent in writing skills are on the right way to achieve scientific success. Glyn and Muth (1994) asserted that "when students write about their observations, manipulations and findings, they examine what they have done in greater detail, they organize their thought better and they sharpen their interpretations and arguments".

In the case of the present study, respondents show difficulty in writing in French. The percentages in the following table represent their poor abilities to write either in daily assignments or in exams:

Table 4.8 Percentages of students' writing performance

	Definitively true	Partly true	Definitively false	Partly false
I can easily answer questions in exams as I can write a text or an exposé in my speciality	5%	10%	70%	15%

As figured out bellow, students of the scientific streams expressed their inability to write a short answer or a summary in their speciality. Some of them went further when they confess that they cannot even write a correct sentence without any mistakes. The questionnaire and the interview results were alike in this respect. All the interviewed students expressed how French affects negatively their writing performance notably in the exams. One of the students raises the problem of some content subjects that require a good command in the language. Unlike subjects such as physics, mathematics, and chemistry that involve arithmetic language, subjects like Informatics needs a high deal of revision and memorization. The fact that complicate the students learning the process. Whereas another student finds content subjects easier to be prepared "memorization is better than problem-solving tasks, physics and maths are very difficult".

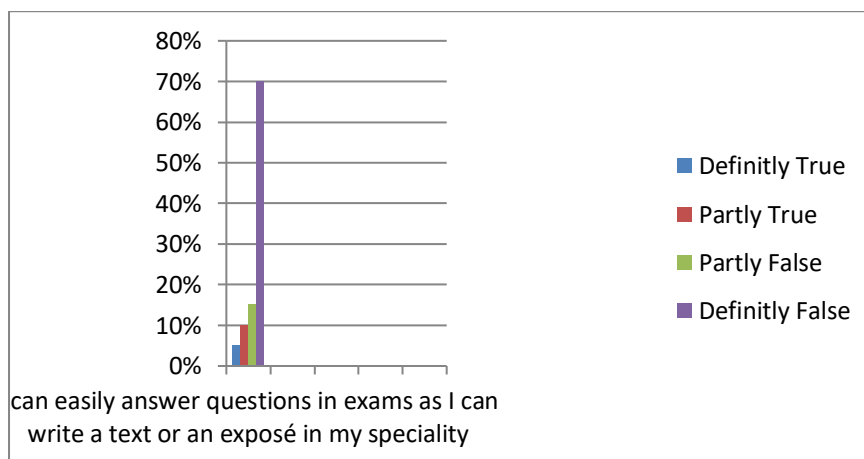


Figure.4.8 Students' writing performance

Though both students' and teachers' opinions, mere observation of students' sheets (See Appendix J) prove the difficulties that they face while answering the exam questions. Their answers are full of all types of mistakes (grammar, spelling, and syntax), in addition to incomplete and meaningless sentences. The point that should be stressed on, is that students are provided with the handouts of the lessons from which they take information to answer the exam questions. The big number of mistakes can be referred to the fact that students forget quickly what they have memorized since they learn for the aim of passing the exams and not for the aim of developing cognitive abilities in science. Such a strategy is called Rote Learning: a superficial strategy of learning that requires memorization of the material, and replication of what they have learned by heart. The problem with this strategy is that students cannot retain what they have already memorized and even if they do they cannot reproduce it correctly.

Another remark in the exam sheets is the use of Arabic in the exams. One of the interviewed students claimed humorously: “when I don’t find the appropriate word in French, I usually use Arabic to clarify my answer”. This may usually happen when open-ended answers are required, the reason that justifies students' preference to multiple-choice questions (MCQ) that provide multiple choices and require short answers. As a logic consequence to the difficulties students encounter in their learning, the following table represents the first-semester exam results:

Table 4.9 *Results of the first semester/ academic year 2016-2017*³

Speciality	Number of registered students	Number of abandoned students	The proper number of students	Admitted
ST	620	290	410	175
SM	281	70	211	60

As clearly indicated in the table, the success rate of both students of ST and SM is low. For the former, only 13% of the proper number of students is admitted. While only 48% of the proper number of students in SM were admitted. This reality reflects the students' pedagogical failure in the scientific streams. Based on what has been seen, one can believe that French as MI is the major reason (but not the sole reason) of such failure.

³ Results provided by the administration.

To sum up, students show their low abilities in the four learning skills: interaction, comprehension of the content, reading the extra material, and writing performance. As for interaction, students do not show any kind of effective oral response to their teachers' instructions. The teacher does the whole lecture and dominates the conversation. Comprehension of the content remains out of the reach of students since they find scientific terms ambiguous and teachers' explanation obscure notably those teachers who use exclusively French. Extra reading is perceived as a time and effort consuming task. Students spend a long time in translating articles and books, the fact that makes the reading activity boring and the learning process rote. The current learning climate has deeply and negatively affected the students' writing performance in either daily classroom assignments or final exams. Consequently, the above-obtained findings confirm the first research hypothesis that the radical change of the medium of instruction is the reason of students' poor achievements in the scientific fields since they had the habit to learn in Arabic from their early ages, i.e. from primary level till secondary school.

The results obtained from the teachers' interviews and questionnaires indicate that the teachers are conscious of their students' limited linguistic abilities. As a solution to this situation, the majority of them have recourse to the use of Arabic as a remedy to students' weakness in French. While observing and in some sessions, one may think that the language of instruction is Arabic rather than French. Nevertheless, other teachers were not tolerant; they didn't accept the use of Arabic on the part of students. This group of teachers justifies their intolerance with the students' indifference to learn. They added that the learners show their unwillingness to learn and they spend no effort since they have one session per week where they are supposed to develop and practice their French⁴.

4.2.2 Data interpretation

The results obtained through the three research tools demonstrate that the learning process of 1st-year students of ST and SM is inefficient. The overwhelming majority of students suffer from the linguistic barrier in grasping and comprehending the language of the content and likely the content itself; according to Henderson and Wellington (1998): "For many pupils, the greatest barrier to learning science is the language barrier" (35). Casual interpretation of such a finding may refer first to the fact that scientific terms (whether technical or non-technical) are unique in nature and seldom encountered in social contexts.

⁴ French is introduced as a compulsory subject of study. However, the objectives of teaching the subject are not well determined since students express their dissatisfaction from both the program and the teachers.

This is believed to be the major reason for limited language proficiency learners who need basic proficiency skills to develop high academic proficiency levels.

The findings obtained can be explained in the light of Cummins'⁵ language learning theory. The author distinguished between two levels of language proficiency referring to the use of language for two different purposes and in two different contexts. Basic Interpersonal Communication Skills labelled as BICS is used in a social environment and deal with the here and now of everyday life. In contrast to Cognitive Academic Language proficiency known as (CALP) which is the basis for students' ability to cope with the academic demands in various subjects of study. In the present work, findings demonstrate that students lack the minimum basic skills notably the productive skills (speaking and writing) that may enable them to develop their academic proficiency (i.e. CALP). The learners have expressed their poor command in the French language. They make it clear that they cannot speak or write the language appropriately. The same fact was confirmed by 30 interviewed teachers when they confessed their students' weakness in the language.

Some specialists refer to this weakness to the inability of the Algerian school to produce competent bilinguals in Arabic and French languages. Ten years of studying French at different levels are insufficient to produce proficient learners in the language. Learners who can by the end of their secondary school explain facts, analyze data, synthesize and criticize information through this foreign language. What is astonishing in this respect is that pupils show their weakness not only in the French language as a foreign language but even in Arabic which is supposed their mother tongue L1. However, one cannot blame the victims since both students and teachers are applying a top-down policy that must be blindly implemented. In contrast to developed countries, in a country as reforms, vis à vis language are not taken with coordination and collaboration with effective agents of planning such as teachers. The decision is taken at a high level in the form of top-down measure that must be implemented and followed as it is. The blame hence can be attributed to language –in-education policymakers who don't take into account students' low command in French as a foreign language. The results of such policies are unbalanced and coordinate bilinguals who have different associations for words and phrases in the two languages. In our context, students think in Arabic L1 and express themselves in French.

⁵ Jim Cummins a well known second language educator who has done much work on language development and literacy development of learners of English as an additional language. His main contribution of the TESL community is the theory of basic Interpersonal Communication Skills(BICS) and Cognitive Academic Language Proficiency CALP

From another point of view, language learning theorists signalled that possessing the basic proficiency in a language (grammar, vocabulary, and so on.) doesn't negatively influence the fact of being literate in sciences. The majority of students involved in the present study are believed to be literate in sciences since they have a remarkable knowledge in their speciality as early as their secondary education. Thus the knowledge of scientific discourse which may be difficult for even native speakers doesn't require the knowledge of the basics of the target language. Accordingly, the American Association for the Advancement of Science (AAAS) report of 1989, *Science for all Americans* described the literate person in science as one who "understands key concepts and principles of science and uses scientific knowledge and scientific ways of thinking for individual and social purposes" (4). Not all people are familiar with words such as nuclei, zygote, gametes, and protozoan (in the field of biology). These specific terms cannot be easily understood even by the natives of the language (Cohen, Glasman, Rosenbaum-Cohen, Ferrara and Fine, 1979). Studies reported that subjects such as mathematics and physics have usually generated obstacles to all learners. The obscure nature of these subjects was aggravated when they are taught through a foreign medium of instruction. Accordingly, scholars as (Short and Spanos, 1989) reported that "Learners need sufficient language skills and understanding of vocabulary and texts to perform the demanding academic tasks in non-native language"(51).

One the basis of what has been discussed, one can apply Cummins' findings of the two levels of proficiency on the present study results. Students who didn't improve their abilities in basic interpersonal communicating proficiency level through which they can understand the content, intervene orally, read the extra material, and respond to questions by writing, they cannot succeed to improve their CALP that requires a high level of proficiency to learn content subjects. Johnstone and Selepeng (2001) in Djennane (2016), demonstrate that learners "struggling to learn science lose at least 20% of their capacity to reason and understand in the process" (19). One hence can imagine the hard task for students and the amount of time they lose to comprehend the content when the medium is a foreign language.

Language learning educators demonstrate that time is an influencing factor in second language acquisition (Krashen et.al, 1979, Cummins, 1984, 1991). They argued that language learners need 2-3 years of immersion in the language to be learned to develop their Basic Interpersonal Communication Skills (BICS). However, they need 5-7 years for a child to be working on a level with native speakers as for CALP (i.e to develop cognitive academic proficiency level). This means that 1st-year students will achieve their academic proficiency by the end of the Master level (after 5 years of learning). Nevertheless, the poor command in

French doesn't concern only first-year students. According to teachers, even students of undergraduate level suffer from the deep weakness in such language.

4.3 Students' Attitudes towards Arabizing Sciences

In this part, the researcher aims to provide an appropriate answer to the second research question that attempts to answer the second research question that has as an objective to measure the students' perceptions and attitudes towards arabizing sciences and towards French as the current medium of instruction in higher education. The results obtained through both the questionnaire and the interview are analyzed separately then interpreted jointly.

4.3.1 Analyzing the students' questionnaire results

Three subsections represent the layout of section two. The first one aims to measure how students perceive Arabic⁶ as MI in comparison to French. The second subsection attempts to gauge the learners' attitudes towards the implementation of Arabic in teaching scientific subjects at the university level. As for the third subsection, students' attitudes towards French are to be examined.

4.3.1.1 Comparing Arabic with French as a medium of instruction

The present subsection is made up of eight items by which the researcher aims to compare the use of Arabic and French in teaching sciences. Results for items 7 and 8 are presented in table 4.10 while results for item 9 (that includes 6 items from **a** to **e** four of them positively worded and two others negatively worded) are presented in the following table:

Table.4.10 Time required in reading and writing in Arabic in comparison to French

Items	More time		Same time		Less time		Missing number	
7/Reading Arabic scientific documentation(If compared with French) require	15	7,5%	2	1%	173	86,5%	10	5%
8/ Writing in Arabic (if compared with writing in French) requires	8	4%	/	/	183	91,5%	9	4,5%

⁶ Throughout the present work, the use of the word Arabic refers to the Standard form of the language.

The results of both tables (4.10 and 4.11) indicate that students are in favour of Arabic. Items (7) and (8) demonstrate the shorter time students spend in reading and writing in Arabic if compared with that allotted to perform the same tasks in French. As for table 4.11, item (9) confirms the previous results i.e. the results of items (7) and (8).

Table.4.11 *Results of item 9 of the students' questionnaire*

Item(9): the use of Arabic as MI:	True		False		No difference		Missing number	
a-Makes students' participation and interaction more effective in the classroom.	192	96%	0	0%	8	4%	0	0%
b-Motivates students to learn.	188	94%	0	0%	6	3%	6	3%
c-Makes students' understanding and perception of information quicker, easier, and deeper.	175	87,5%	5	2,5%	10	5%	10	5%
d-Creates harmony between students thinking and oral reaction.	185	92,5%	3	1,5%	9	4,5%	3	1,5%
e- Will handicap the scientific development and result in the isolation of students from the scientific discoveries achieved worldwide.	6	3%	170	85%	13	6,5%	11	5,5%
f- Will affect negatively students' scientific level.	130	65%	50	25%	4	2%	16	8%

The majority of students opted for 'True' as a positive reaction to the use of Arabic for instruction. A high number of students answer 'True' to the items from 'a' to 'd'. The learners show their preference for the use of Arabic as a medium of instruction. As far as item 'e' is concerned, the majority of the respondents responded negatively while 13 students find no difference between the use of Arabic or French. The latter is believed to be the minority who have a good level in French. As for item 'F', the students approved positive responses, in reverse 50 students from the opponents of the use of Arabic respond that this language will not affect negatively students' scientific level. To sum up, the results of section two of the questionnaire reinforce and confirm the previous results obtained in section one of the same questionnaire in addition to the interviews with both students and the teachers. This means that the medium of instruction is the direct reason for learning inefficiency in the Faculty of Science and Technology at the university level.

4.3.1.2 Attitudes towards the implementation of Arabization

Nine items make up the second subsection of the questionnaire. Students are required to express their beliefs and attitudes towards the implementation of Arabic in teaching sciences. A five-point Likert Scale was provided ranging from Strongly Agree (SA), Agree A, Neutral (N), Disagree (D), and Strongly Disagree (SD). The results are presented in Table 4.9. According to the data provided in the table below students have positive attitudes towards the use of Arabic as MI, 65% strongly agree and (30%) agree that Arabic may replace French in teaching sciences. In reverse, only 1% strongly disagrees to be taught in Arabic. In all the items of the present subsection from 10 to 18 students didn't express high rates of disagreement, and if so they were inconsiderable. Items 10 to 12 registered the highest approval frequencies. Only 4 students (2%) show their neutrality towards the discussed issue.

Table.4.12 Students' attitudes towards the implementation of Arabization.

Items	SA		A		N		D		SD	
10-Arabic may be a language of instruction in scientific fields.	120	60%	60	30%	/	/	8	4%	2	1%
11-Learning in the mother tongue has many advantages than learning in a foreign language.	160	80%	25	12.5%	4	2%	8	4%	3	1.5%
12-If sciences are taught in Arabic students may assimilate better.	184	92%	12	6%	/	/	3	1.5%	1	0.5%
13-If the problem of scientific and technical terminology is solved, Arabization of sciences is preferable.	102	51%	80	40%	15	7.5%	10	5%	5	2.5%
14-If I had the choice, I would change the field of study into a field taught in Arabic.	90	45%	60	30%	15	7.5%	25	12.5%	10	5%
15-If I had the choice, I would continue in my field but Arabic.	172	86%	16	8%	2	1%	6	3%	4	2%
16-If teachers are trained on teaching sciences in Arabic, arabizing scientific streams will be easier.	160	80%	26	13%	1	0.5%	9	4.5%	4	2%
17-Decision-makers must take serious measures vis-à-vis the the policy of Arabization of higher education.	125	62.5%	35	17.5%	18	9%	16	8%	6	3%
18-Arabization is a national policy that must be reinforced by All the Algerians.	118	59%	50	25%	20	10%	7	3.5%	5	2.5%

Item **13** is very important in unveiling students' real attitudes towards arabizing sciences. 102 students, I .e.51% strongly agree and 80 others i.e.40% agree on learning in Arabic if they have had the choice. Students' attitudes were gauged implicitly through this item. The focus should be put on the importance of choice for learners. Faculties' administrations should give students multiple choices rather than imposing one language of instruction without taking into regard their different abilities, needs, and preferences. Item **14** has approximately the same aim as item **13**. The majority of students expressed again their preference to continue in their speciality if the language of instruction is Arabic.

As far as items **15** and **16** are concerned, results exposed a high deal of conformity with previous items. Only a marginal number of students expressed their disagreement towards the Arabization of sciences. The overwhelming majority 86% in item **15** and 80% in item **16** believe that implementing Arabic as MI is possible if documentation is available and if teachers are well-formed in the language.

Students' responses in items **17** and **18** reflect their consciousness of the complicated linguistic situation in Higher education notably in the science stream. They effectively show their readiness to support a serious policy of Arabization if top-down decisions are imposed at such level. 125 students, i.e.62,5% find it necessary to impose the policy of Arabization in all scientific subjects. Students' positive attitudes were consistent throughout the eight items i.e. from item **10** to item **18**. Consequently, no remarkable differences were scored.

4.3.1.3 The Students' attitudes towards French

The last section in the students' questionnaire aims to measure the students' attitudes towards French as MI and as a language of knowledge. The present subsection is made up of **10** items. In the three first items (**19** to **21**) learners express a negative attitude towards French as MI. These students are believed to be the same who show positive attitudes towards the use of Arabic as MI in subsection one of the questionnaire. The results of the three above mentioned items were approximately equal; only 10 to 12 students have positive attitudes towards French. The latter represent the exception rather than the norm. Learners who agreed with the first items of subsection one (items **10**, **11**, **12**), those who show a positive approval to Arabize sciences are the same who express negative attitudes towards the use of French as MI.

Nevertheless, results in items **22/23** are different than the previous items (**19**, **20**, **21**). When it comes to the most important language in scientific research and job markets, the majority of students agree on the usefulness of French rather than Arabic as figured out in

table 4. 10. Items 24 and 25 explore the students' attitudes towards the knowledge of the language rather than learning in the language. In this respect, students display positive attitudes and complete readiness to learn the language as a means that enable them to promote to higher positions in society. Still, a few numbers of students express negative attitudes towards knowledge of French. Results of the second subsection are figured out in the following table:

Table 4.13. *Students attitudes towards French*

Items	SA		A		N		D		SD	
19-French is the appropriate medium of instruction in scientific streams.	10	5%	16	8%	6	3%	60	30%	108	54%
20-Arabization has caused a lowering in educational standards.	12	6%	9	4.5%	/	/	84	42%	95	47.5%
21-French provides me access to knowledge and information in a wide variety of disciplines, notably in the scientific fields.	10	5%	69	34.5%	/	/	108	54%	13	6.5%
22-It is the language that will allow me to gain a high position in the international business market when looking for employment.	138	69%	34	17%	2	1%	26	13%	/	/
23-Algerians who speak French have high prestige	102	51%	56	28%	4	2%	20	10%	18	9%
24-I will join intensive French-learning programs to ameliorate my level in this language.	195	97.5%	5	2.5%	/	/	/	/	/	/
25-The use of French in education links Algeria to the modern world.	18	9%	9	4.5%	2	1%	26	13%	145	72.5%
26-High proficiency in French enables me to join international scientific documentations and even international market.	57	28.5%	18	9%	/	/	50	25%	75	37.5%
27-The mastery of other foreign languages notably English is more important for the Algerian student than the mastery of French in the world today.	169	84.5%	29	14.5%	1	0.5%	1	0.5%	0	0

The last two items **26** and **27** aim to display students' attitudes towards the knowledge of French in comparison with other languages of worldwide, notably English. They all consequently (except 1 or 2 students) agree on the fact that French is not useful for international communication and that its importance is limited in francophone countries.

The open-ended question at the end of the questionnaire is a space provided for students to add personal comments on the subject in general. Only a few numbers of students responded to the question. Most of them (11 students) emphasize on the contradiction between the educational regulations and the linguistic reality. They wonder how a country like Algeria still teaching sciences in French at the university level while language policymakers all over the world are opting for English as the language of scientific documentation and publication. Some of them added that they should have allowed choosing the language of instruction that best suits their abilities and their linguistic competencies.

4.3.2 Analyzing the students' interview results

As mentioned in chapter three, the interview is the third research tool used to collect qualitative data. The researcher chose randomly eight (8) 1st-year students studying SM and ST from the faculties of Sciences and Technology from the University of Saida. As far as the participants' gender ⁷ is concerned, three males and 5 females were interviewed. As for linguistic competence, only two out of eight can be evaluated as competent bilinguals. They responded using Arabic and French and they showed a good command of French. However, the six other students used Algerian Arabic during the interview and French loads from time to time.

After re-reading the notes taken, the main lines are written down as they appear (Laforest, 2009). The following step is reading the scripts to avoid ambiguities: "The process of analyzing text (or images) in qualitative research begins when you code the data. Coding is the process of segmenting the labelling text to form descriptions and broad themes in the data" (Cresswell, 2012, p.243). After attentive reading, the scripts are put into topics according to the research objectives. The second part of the interview deals with two main topics:

- Students' Attitudes towards Arabizing sciences.
- Their attitudes towards French as MI and towards the knowledge of French.

⁷ Though the difference of gender is of no significance on the findings since all students received the same pre-university education where Arabic was their medium of instruction.

The purpose of the introductory question is to determine students' attitudes towards the use of Arabic in teaching sciences. Responses of the majority of interviewed students are positive. They enthusiastically welcome the suggestion; one of the students goes further when he asks whether this measure would be practically implemented⁸. In this context, another student proclaims her total preference to Arabic when she reports: "It would be better if we study in Arabic. We are lost, and the content is ambiguous". When another added: "It's unfair to change the medium of instruction suddenly. We were used to studying in Arabic, we like this language and we understand clearly through this language". Accordingly, the interviewees share the same positive attitudes towards the use of Arabic in science education. When the researcher asks them about the reasons behind such attitudes, they respond that their academic cognitive competency was developed in Arabic and that the maximum understanding of the content may be achieved through such language. They add also that much time and effort can be saved if Arabic is MI they would not be obliged to spend a long time in translating the scientific documentation.

The remaining two students who are believed to have a good level in French, but it clear that learning in Arabic cannot be efficient. One of them proclaimed that: "Even if the majority of students suffer from the fact that French is their MI, I cannot imagine studying scientific subjects in Arabic. Other measures can be taken to find solutions to such linguistic problem". This student is the same who expresses positive attitudes towards French as justified by her good control over the language. The second student shows her negative attitudes towards Arabic but with a sense of flexibility, she reports: "I'm not against Arabic, but I think it could not succeed. All books, magazines, and articles are written in French. In our speciality, I don't think that implementing Arabic will be successful". Though confessing that French represents a heavy burden that handicap the students' achievements in sciences, the student shows her firm rejection to an expected change of the medium of instruction i.e. from French to Arabic.

To verify the students' claims of the previous questions, another question is raised revolving around the language students would opt for, if they were given the choice. The responses are not astonishing. The overwhelming majority (6 out of 8) claim that they would have chosen Arabic. The two students who have already rejected the change of the medium of instruction from French to Arabic express their preference to French. The results obtained from such a question expose a high deal of conformity between the research tools used in the

⁸ The interviewer tended to remind the student of the real objective of the study.

study. Results obtained from the question (14) of the students' questionnaire display no significant difference with this question of the students' interview.

In an attempt to unveil students' implicit attitudes, the researcher asks a question which may be considered as pivotal to the research objectives. The question goes around what language they would choose if their linguistic abilities in French were good. The findings this time are different. Four students opt for the choice of Arabic as MI and equally, four others prefer preserving French. Two students out of the six who have positive attitudes towards Arabic as MI, join the two good bilinguals who have already expressed negative attitudes towards Arabic. Through this question, the researcher succeeds to measure the interviewees 'True' attitudes and the reasons that lead them to guide them. Excerpts of students' responses are listed as follow:

“Arabic is a rich language, the fact that it was chosen to be the language of the Quran. Sciences may be taught in Arabic if we as Arabs believe in its ability”.

“The Algerians' privilege of French over Arabic is due to the French colonization. When I hear French spoken here and there, I realize that we are still dependent on France”.

“Though Arabic is my L1, I think that French is better for education at the university level. It's a modern language that opens widely the doors for the Algerian student to succeed in professional life”.

“Frankly speaking, if I am competent in French, I will prefer it as MI, simply because such language imposes itself in daily use”

The change of attitudes of the two above mentioned students translates that they were not convinced of their real attitudes. The degree of competence in French strongly affects the nature of those students' beliefs. The majority of students share the same perceptions about their L1:

-It is a sacred language, but it doesn't meet daily needs.

-It may be the language of instruction i, nevertheless Arabic doesn't contribute to international and scientific invention.

-Scientific documentation is available abundantly in French.

-Contemporary research is not conducted in Arabic (though French is not the language of science.)

-Arabic monolingual speakers will be deprived of international discoveries and isolated from the modern world of sciences.

The last point follows-up many questions regarding the importance of foreign languages learning. Seven of the students interviewed display positive attitudes towards the

knowledge of French as well as other foreign languages, notably English that was repeatedly mentioned by the respondents. The sole student who rejected learning French had this to say: "Learning French nowadays is not a necessity. In contrast knowledge of English becomes a must. As a language that enjoys international acceptance, I find it more important than French that is used locally in Francophone countries as well as Arabic used solely in the Arab world".

The positive attitudes that students hold towards knowledge of French in reverse to the negative attitudes towards such language as a medium of instruction, may be discussed in terms of their learning needs and future expectations. The entire interviewed students find learning French advantageous. Seven stressed its importance to continue further studies abroad. Six others believe that French opens them the doors to the world. While only four students believe that knowledge of French is important in the sense that sciences are taught in French and learning it is a prerequisite. As far as the status of the language on the international scale only two students confess its importance if compared with languages of wider recognition, notably English.

4.3.3 Data discussion and interpretation

Determining the students' attitudes towards Arabic and French require a determination of the nature of attitudes, either general or specific. According to Fishbein and Ajzen(1974), there are levels of specificity in language attitudes(cf. section 1.7.4.1). the levels of specificity distinguish attitudes towards Arabic or French as languages or general attitudes, attitudes towards learning these languages, and attitudes towards learning in these languages i.e. Arabic and French as media of instruction (specific attitudes). Thus, the researcher attempts to discuss the results on the light of each level of specificity of either language. Therefore, the students' questionnaire and interviews results concern two levels: Arabic and French as media of instruction, and the status of both languages at the international scale.

As far as the first level of specificity is concerned (Arabic and French as media of instruction), students show positive attitudes towards Arabic as a language of teaching sciences, whereas the majority express their dissatisfaction of the use of French as MI in their speciality. Learners are very enthusiastic about the possible implementation of Arabic as MI. They are for a top-down measure that may impose the use of Arabic in teaching sciences at the university level. When they are asked to compare teaching sciences in French or Arabic, they strongly support Arabic stressing that the latter may solve their cognitive problems which are referred to the use of French in instruction. Item (15) of the questionnaire reinforces students' approval to Arabic and their strong disapproval to French. The majority proclaims that if they are allowed to choose their MI, they will choose to carry on their university

studies in Arabic. This reveals that the learners are not freely motivated to learn in French and that the imposition of such language represents a barrier for their success. The current situation is believed to be a logical consequence of the ill-consideration of learners' needs and preferences while planning for languages in education. Students in Algeria, and though directly affected by the decisions taken vis à vis languages, have never been asked about their attitudes or preferences of the language that might best suit their educational needs. They are usually forced to choose a given language (French in the present case) since no other options are provided.

A casual interpretation of the current attitudes towards Arabic and French as media of instruction may be done based on Katz functional theory (1960) that relates attitudes formation to one's psychological needs (cf. section 1.7.4.2.b). In this regard, one can assume that opting for Arabic as a preferable MI is logical. Students were used to studying in Arabic for ten years in their pre-university education. Their cognitive abilities were built and developed through such language. They don't need to spend extra effort to understand the subject contents. To sum, learners are more comfortable and feel at ease while studying in Arabic.

As for the questionnaire results, students' psychological needs reflect their positive or negative attitudes towards French as MI. The majority of learners (but not all) who have a low command in French express their extreme negative attitudes towards the use of such a language as MI. In parallel, most (but not all) students who are linguistically competent in French have positive attitudes towards it. As a result, students' positive attitudes towards one language as MI are coupled with their negative attitudes towards the other.

The relativity of the students' answers to the questionnaire is checked through a decisive close-ended question addressed to the interview respondents. Students are asked to determine which language they would choose if they had an equally good command of Arabic and French. Two students change their attitudes from the pros of Arabic to the pros of French. This reflects again the important role of cognitive needs in attitude formation. The results of such question are equal, four students opt for French as suitable MI, yet four others emphasize on their choice for Arabic as MI (it's worth mentioning that one of them is competent in both Arabic and French). This group of students advocates to Arabic may not be referred to their competence or incompetence in French but may refer to other reasons such as the fact that Arabic is the language of the soul and that it represents religious symbols, notably their Islamic belonging. Furthermore, Arabic for them is the sole language that guarantees national unity in expense to French which is considered as the language of the enemy, that of former

French colonizers. Hence, for some students, ideological reasons are believed to be behind their language positive or negative attitudes.

Results obtained from both the questionnaire and interviews reveal the extent to which students' proficiency in French determines their attitudes. The latter is related to the degree of control over this language for the majority of students (yet not all of them). As a result, language attitudes, in this case, are caused by the effect associated with the MI i.e. the effect of language attitude is weaker than the effect of the MI. The weakness of the language attitude effect, in addition to other factors (discussed in section 1.5.4.3) make students attitudes subject to change. It may be argued that students' attitudes are momentary rather than lasting (Adegbija, 1994). In the present study, some students are to change their attitudes from negative to positive, mainly if their level in French is improved through intensive courses in the language or when they advance in their studies through the exclusive use of French. In this sense, theorists such as Dennane (2010) argue that repeated exposure to the language may foster a favourable attitude towards it. Accordingly, the long exposure to French may result in attitudinal change. Nevertheless, this claim cannot be taken for granted, since for a considerable number of students, their attachment to Arabic is not negotiable since Arabic is the language of their sacred holy book Quran and the sole one that guarantees national unity of Algerians.

As far as the status of French at an international scale is concerned, the questionnaire items and the interview questions attempted to investigate the students' attitudes towards knowledge of French. The results obtained revealed the respondents' wishes to have a good command over the language. The reasons for their positive answers could be captured through the long interviews that were conducted with the eight respondents. The students' answers may be divided into two categories: academic reasons and non-academic reasons.

4.3.3.1 Academic reasons

As for academic reasons, students show a high motivation to learn French, 97.5% of students strongly agree to item 24 of the questionnaire which attempted to investigate whether students are ready to join intensive French learning program to ameliorate their level in the language(see table 4.10). This fact doesn't mean that students have positive attitudes towards French, it may be interpreted hence as an obligation to know this language which is not freely chosen as MI. Therefore, students positive responses to item 24 don't mean that they like learning French "one might believe that a language is important for his career, yet he may loathe the language" as reported by Edwards (1994, p. 98). One can conclude that students strive to increase competence in the language of instruction. For them, it is a necessity even if

their attitudes towards this language might be negative. It should be stressed in this regard that the inability in French is the reason for students' negative attitudes towards French as MI, and is also the direct reason for their positive attitudes towards knowledge of this language.

4.3.3.2 Non –Academic reasons

As far as non-academic reasons are concerned, students expressed positive attitudes towards knowledge of French. For them, it is beneficial in the sense that it provides good job opportunities either in Algeria or abroad. All the respondents consider French as the opened door to international communication and job market. The students' positive attitudes may be referred also to the gains and rewards learners may receive. In the present study, learners who have good command over French will not face problems of comprehension of the subjects taught in French that result automatically in successful scores. This may be explained again on the light of the functional theory that engendered the utilitarian function of languages. The utilitarian function spells out that attitudes may be changeable when there is some reward, in this respect Baker(1992) reports: “using and maintaining a language or acquiring a positive attitude to that language may depend on gaining reward and avoiding punishment”(99).

A leading theorist in second language learning put it differently when he distinguishes between two types of attitudes, either attitude of instrumentality, or those of integrativeness. The former refers to a person who is integratively motivated to learn a language without expecting any rewards. This individual is learning the language because of a genuine interest in communicating with members of the other community (Gardner, 1985). In short, the learner considers learning itself as a reward. Unfortunately, this is not the type of attitudes we may find in the sample of the present study. In reverse, the students have instrumental attitudes that reflect utilitarian, pragmatic motifs (Gardner, 1985). This type is characterized by "the desire to gain social recognition or economic advantages thorough knowledge of the foreign language" (Gardner and Lambert, 1972,p.14). On another hand, Dorneye (1990, 2003) did not consider instrumentality as negative when she suggested that in foreign language learning, instrumental orientations are more important since learners don't have long exposure to learning the language integratively, and since the learner is not associated to the native community. Therefore, what can be assumed for the sample population is that the students' positive attitudes towards the knowledge of French are of instrumentality type.

Linguistically competent students in French enjoy special prestige among their mates; this may be interpreted based on the value-expressive function. Students may have positive attitudes towards learning a language because of the prestige they enjoy when they have a good level in the language (French in the present case). A considerable number of students

(102 out of 200) strongly agree with item 23 of the questionnaire, they believe that “*Algerians who speak French well have high prestige in the society*”. This reinforces (Cochran, McCallum, and Bell, 2010) claim that the value given to the behaviour stands for the attitude held towards the behaviour.

Both positive and negative attitudes towards French and Arabic are academically based. Nevertheless, in addition to academic reasons and at the level of social needs French is more advantageous than Arabic. Knowing French means high job position, prestige in society, and many international benefits. As for Arabic, it has only scholastic benefits since it's used solely for academic interests in limited institutions. The point that should be signalled here is that the respondents mention English more than one time when they consider it as the most important language on the international scale.

4.4 Teachers' Attitudes towards the Arabization of Sciences

The present part of the study attempts to provide an answer to the third research question. Teachers' attitudes towards Arabization of sciences will be investigated through the questionnaire administered to 30 teachers who had received Arabic or French-based pre-university education. The teachers thus were categorized into Arabisants and Francisants. The research question will be answered also through the analysis of 6 teachers' answers to the interviews conducted. The same methodology used in part one will be adopted in part three i.e. the questionnaire and interviews with teachers will be separately analyzed and jointly discussed and interpreted.

4.4.1 Analyzing the teachers' questionnaire results

The questionnaire results will be analysed in terms of four subsections according to the teachers' pre-university education i.e. arabisant or francisant.

4.4.1.1 Teachers' perceptions of Arabic as a medium of instruction

The same items that were given to students were again addressed to teachers. The aim was to see whether both teachers and students have common perceptions of Arabic as MI. Teachers thus were asked to give their perceptions on a three-point scale: 'yes', 'no', or 'not necessarily'. Six items (a, b, c, d, e, and f) were listed under a general statement written this way: ‘the use of Arabic (instead of French) as Medium of instruction may....’, providing some advantageous that concern the use of Arabic as a language of instruction of sciences. The results are displayed in the following table:

Table 4.14 *Teachers' perceptions of the usefulness of Arabic as a medium of instruction*

Item	Type of Education	Yes		No		Not necessarily	Missing Number
a/ make students' comprehension and perception of information quicker, easier, and more profound.	Arabisant	13	43,33%	2	6,66%	/	0
	Francisant	8	26,66%	7	23,33%	/	0
b/ motivate students to learn	Arabisant	12	40%	3	10%	/	0
	Francisant	9	30%	5	16,66%	/	1
c/ make students participation and interaction in the classroom more effective.	Arabisant	11	36,66%	4	13,33%	/	0
	Francisant	8	26,66%	6	20%	/	1
d/ create harmony between students' thinking and speaking	Arabisant	12	40%	3	10%	/	0
	Francisant	7	23,33%	8	26,66%	/	0
e/ hinder students' scientific development and isolate the Algerian student from the world	Arabisant	3	10%	12	40%	/	0
	Francisant	8	26,66%	6	20%	/	1
f/ Arabization may negatively affect students' scientific level	Arabisant	13	43,33%	2	6,66%	/	0
	Francisant	11	36,66%	3	10%	/	1

Table 4.11 displayed above demonstrates that the majority of the arabisant teachers stressed the usefulness of Arabic as MI. Items (a, b, c, and d) represent high scores of positive agreement. As far as the francisant teachers are concerned, perceptions are almost equal. The results of the table show that respondents of this category are split down the middle concerning the advantages of Arabic in making the content easily comprehended. To sum up, the majority of teachers (arabisant or francisant) were in favour of Arabic as MI; since the pros of Arabic outnumbered those who definitely disagree with its usefulness in teaching sciences. However, high agreement of both categories was upon the aspect of the inability of the Arabic language alone to make Algerian students scientifically developed; taking into account that scientific documentation and research publication are composed in foreign languages. **4.4.1.2 Attitudes towards the implementation of Arabization policy**

In this subsection, the researcher aims to gauge the teachers' attitudes in terms of the acceptance of Arabic as MI (theoretically speaking), and their practical readiness to support the policy of Arabization. Since one may accept a language policy without conviction, but said to be convinced when he/she contributes to develop or change it.

•Teachers' acceptance and ability to teach in Arabic

The present subsection includes 5 items which are positively worded. These items aim at testing the teachers' ability to teach in Arabic. Therefore, the first three items (5, 6, and 7) address the theoretical possibility of using Arabic to teach sciences; whereas the two last items (8 and 9) are meant to represent conditions provided to make the teaching of sciences in Arabic feasible. As will be shown in table 4.12, a high number of teachers believe in the ability of Arabic to be a language of instruction; yet a considerable number don't express positive agreement. Accordingly, item (6) which is a rewording of item (5) demonstrates that the arabisants teachers were equally divided between agree and disagree, while the majority of francisants agree on the discussed issue. To put it differently, only 53.33% of the arabisants agree in comparison with 60% of francisants. As for item (7), a slight difference is noticed, 80% of Arabisants agree on Arabic MI in theory in comparison with 60% for francisants.

Table 4.12 below illustrate better the above-analysed results:

Table 4.15 *Teachers' readiness to teach in Arabic*

Item(7)	TE	SA	A	N	D	SD
a/ Learning in the mother tongue (Arabic) may make learning sciences more efficient.	Arabisant Francisant	6 40% 5 33,33%	6 40% 5 33,33%	/ /	2 1	13,32% 4 26,66%
b/Sciences may be taught in Arabic	Arabisant Francisant	4 26,66% 3 20%	4 26,66% 6 40%	/ /	3 3	20% 20% 4 26,66% 3 20%
c/I can easily change the language of instruction from Arabic to French.	Arabisant Francisant	6 40% 4 26,66%	6 40% 2 13,32%	/ /	/ 2	13,32% 3 20% 7 46,66%
d/If the problem of scientific terminology is solved, I can teach in Arabic.	Arabisant Francisant	5 33,32% 7 46,66%	5 33,32% 3 20%	/ /	3 1	20% 6,66% 2 13,32% 4 26,66%

Item (8) aims at testing the teachers' ability to teach in Arabic. For item (8) the results demonstrate that of the 15 arabisant teachers (10 or 66,66%) express their readiness to instruct in Arabic, while (5 or 33,33%) others disagree (though the problem of terminology might be solved). On the other hand, though having received a French-based education, 9 of the francisant i.e.60% of the teachers assert their ability to use Arabic in their lectures, whereas only 6 (40%) claim their refusal to lecture in this language.

•Teachers' readiness to support the policy of Arabization

Teachers' readiness to contribute practically to the implementation of Arabization policy is addressed in this subsection. As discussed above, the conviction of the practicality of Arabization is different than theoretically accepting it. The former reflects the real attitudes of teachers towards the implementation of Arabic in sciences teaching. The present subsection is made up of 4 items (**9 to12**), three positively worded and one negatively worded. The results of these items are displayed in the following table:

Table 4.16 Teachers readiness to support Arabization policy

Items	TE	SA		A		N		D		SD	
9/ In case a political decree imposing the exclusive teaching of sciences in Arabic is implemented; I can manage and train myself to teach sciences in Arabic.	Arabisant	2	13,32%	2	13,32%	/	/	4	26,66%	7	46,66%
	Francisant	3	20%	3	20%	/	/	2	13,32%	7	46,66%
10/ There must be a political decree that requires the Algerian universities to use Standard Arabic as a medium of instruction in all fields, including sciences.	Arabisant	2	13,32%	2	13,32%	/	/	5	33,33%	6	40%
	Francisant	3	20%	1	6,66%	3	20%	1	6,66%	7	46,66%
11/ Teachers' have to contribute to reinforcing the Arabization policy by enriching the scientific domain by articles and manual documentation written in Arabic.	Arabisant	7	46,66%	5	33,33%	/	/	1	6,66%	2	13,32%
	Francisant	7	46,66%	2	13,32%	1	6,66%	2	13,32%	3	20%
12/ Arabization of scientific fields doesn't mean the marginalisation of French. It should be taught as an independent module since documentation in French is abundant in Algerian universities.	Arabisant	4	26,66%	5	33,33%	/		4	26,66%	2	13,32%
	Francisant	4	26,66%	6	40%	1	6,66	2	13,32%	2	13,32%

Items (9 and 10) of this subsection represent the teachers' refusal to a top-down decision that may impose Arabic as MI. Eleven (11 i.e.73,33%) of the 15 arabisant teachers oppose a political imposition at this level, in comparison with (9) francisants i.e.60% who express their disapproval. Results for this item contrast with students' results for item (17) when 160 or 80% students (out of 200) express their total support to the imposition of Arabic as a language of instruction in sciences. Responses to item (9) demonstrate that only four arabisant teachers i.e.26,66% show their ability to teach in Arabic compared with 6 (40%) francisants who agree on this aspect.

Item (11) tries to investigate teachers' implicit attitudes towards Arabization policy. It goes around their readiness to support such a policy in practice. The present item i.e. item (11) can be best compared to item (8) (see table 4.12). The results of the two items represent the respondents' true attitudes (their readiness to support practically rather than being theoretically enthusiastic about the issue). The Francis wants to show a strong persistence to their attitudes, 5 of them (33,33%) (the same number) display disagreement in both items 8 and 11. In contrast, only 3(20%) arabisants teachers express their inability to teach in Arabic though political pressure. Arabisant teachers' lack of enthusiasm towards Arabization may be related to multiple reasons other than their ability to teach in Arabic, their opposition to Arabization reflects hidden motifs that will be further discussed and interpreted.

As far as the item (12) is concerned, results obtained from both categories are almost alike. Both arabisant and francisant teachers agree for maintaining the status of French as a compulsory subject that enables students to cope successfully with the scientific documentation which is abundantly available in French.

4.4.1.3 Attitudes towards French

The fourth subsection of the teachers' questionnaire is made up of 8 items. Items from 13 to 16 go around the teachers' preferences to either French or Arabic as MI; whereas items from 17 to 20 concern the respondents' consciousness about languages of wider communication. Results obtained from the present subsection are illustrated in table 4.14:

Table 4.17 Teachers attitudes towards French

Items	TE	SA		A		N		SD		D	
13/French is the most appropriate language for teaching sciences.	Arabisant Francisant	7 6	46,66% 40%	7 5	46,66% 33,32%	/ /	/ /	1 1	6,66% 6,66%	/ 3	/ 20%
14/Arabic is not rich enough with technological and technical terminology, it is more appropriate for religious discourse, poetry, and literature.	Arabisant Francisant	1 1	6,66% 6,66%	4 3	26,66% 20%	/ /		9 7	60%% 46,66%	1 4	6,66% 26,66%
15/ Even if I have a linguistic competency to teach in Arabic, I oppose doing it.	Arabisant Francisant	2 3	13,32% 20%	3 2	20% 13,32%	1 1	6,66% 3,33%	4 6	26,66% 40%	5 2	33,32% 13,32%
16/Scientific documentation is more available in French rather than in Arabic.	Arabisant Francisant	14 12	93,32% 80%	/ 3	/ 20%	/ /	/ /	/ /	/ /	1 /	6,66% /
17/Mastery of French open widely the doors for scientific world	Arabisant Francisant	4 4	26,66% 26,66%	/ /	/ /	/ 1	/ 6,66%	7 7	46,66% 46,66%	4 3	26,66% 20%
18/French alone is not sufficient to develop my scientific knowledge and my research.	Arabisant Francisant	4 4	26,66% 26,66%	/ /	/ /	/ 1	/ 6,66%	7 7	46,66% 46,66%	4 3	26,66% 20%
19/ The sole mastery of French don't prevent me to participate in international conferences.	Arabisant Francisant	/ 3	/ 20%	2 /	13,32% /	/ /	/ /	11 9	73,32% 60%	2 3	13,32% 20%
20/Mastery of other foreign languages such as English is a necessity at university level.	Arabisant Francisant	12 13	80% 86,66%	1 1	6,66% 6,66%	/ /	/ /	/ /	/ /	2 1	13,32% 6,66%

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Item (13) attempts to measure attitudes to the suitable language of instruction for the respondents. (25) teachers i.e 83,33% consider French as the most appropriate language for teaching sciences; arabisants form the majority with 14 teachers(93,33%), whereas, 4 of the francisants(26,66%) expressed disagreement to such a claim with a comparison with one arabisant teacher.

Item (14) negatively worded, goes around measuring the teachers' attitudes towards Arabic in being able to be used in scientific fields "Arabic is more appropriate for religious discourse, poetry and literature". The majority of the teachers either arabisant or francisant show a strong disagreement to this claim (21 i.e.70% out of 30). Their disagreement cannot be explained as positive attitudes towards Arabic as MI since a considerable number of teachers express positive responses to such item, where the arabisants form the majority (5 vs.4)

Item (15) is a direct question that attempts to measure true attitudes towards both languages. It was worded this way: 'Even if I have a linguistic competency to teach in Arabic, I oppose to do it'. The results show that the majority of respondents are against this claim (francisant and arabisant teachers were equally divided 9 or 60% for each). In parallel, 5 of the arabisant (33,33%) teachers versus 4 of their counterpart(26 66%) agree to the same item. These results may confirm what has been already obtained in items (8 and 11).

The above-analysed items show mixed attitudes towards the two languages with a clear privilege to French. As for the last four items (17 to 20), which do not concern the issue of Arabic or French as media of instruction or in terms of preference to one language upon another, findings are remarkably different.

Item (17) is about the status of French in scientific research at the international scale. Are the respondents aware of the new statuses of languages of wider communication notably, English? Results to such item reveal that 21 teachers (70%) i.e. almost the majority disagree with this item, while 9 others (60%) (The number of arabisants equal to that of francisants) acknowledge the role of French in scientific world.

Items (18 and 19) demonstrate that the respondents oppose the knowledge of French only, furthermore; a general agreement has been made upon the necessity of learning English as the first language of technology and sciences worldwide. Item (20) of this subsection reinforces the results of the two previous items.

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4.4.2 Analyzing the teachers' interview results

As has been already mentioned, the semi-structured interview is conducted with six teachers, three arabisants (TT1, TT2, TT3), and three senior francisants (TT4, TT5, TT6). As far as the second part of the interview is concerned, teachers' beliefs and their behaviour towards the present linguistic issue are to be measured. It aims accordingly to approach the cognitive (beliefs) and the affective components of the attitude to investigate the respondents' behaviour.

The first question in this part attempts to measure the teachers' attitudes towards Arabic MI instead of French. Answers to this question are divided between the pros and cons of Arabizing sciences. It has been noticed that all the interviewees are hesitant in their answers and that they don't provide definite responses. They each time comment on the answer they provide, for example, two arabisants show disagreement to Arabic MI. Though they do not say it honestly, their facial expressions show the signs of disapproval. Two other francisants express a strong refusal to the idea, one of them TT4 had this to say: "I can't imagine myself or any teacher in my speciality teaches in Arabic. It can't be feasible, I'm against this idea". While TT5 reported: "No, no, and no this issue cannot be discussed at all, it is impossible". The remaining teachers i.e. TT6 and TT3 express their total agreement to Arabizing sciences. What should be pointed out in this respect is that the majority of teachers don't oppose the idea in essence, but they usually relate it to several requirements such as top-down willingness to such a change (Arabic instead of French MI), the teachers' readiness to implement such measure, and the availability of references and documentation in Arabic.

A follow up of the previous question is the fourth question that aims at measuring the interviewers' true attitudes towards Arabization if the necessary above-mentioned conditions are available. The teachers' responses are varied, the two teachers who have already agreed to the idea declare that they usually switch to Arabic when they teach first-year students. They have added also that they have read plenty of scientific documentation in Arabic, whereas the two francisants TT4 and TT5 express their disinterest in Arabic and that their whole study career was done in French. Consequently, they are not interested in Arabic documentation, in this respect, TT5 reports: "From the beginning of my study career, I was used to read in French. Translated material into Arabic may be mistaken, so I don't rely on Arabic documentation". The question that may be raised here is whether the material is originally written in French or translated from another language. Another arabisant teacher who shows hesitation to Arabic MI considers this language as very complicated. She reports: "It takes a long time to find the meaning of a term in Arabic. You may find several equivalents of the

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same word". This claim can be explained by the lack of homogeneity between two major schools in the Arab World: the Francophone School supported by the countries of the Maghreb and the Anglo Saxon School supported by the Gulf countries in addition to Egypt (who promote English as the chief language). This division among the Arab world has aggravated the situation of Arabic and complicated the teachers' task in implementing Arabization, notably in scientific and technical institutions.

Both pros and cons of Arabization policy confess that the idea may be feasible referring to the successful experiences in the Arab world or even in Algeria. TT3 argues: "I know teachers in the south of Algeria, in Bechar and Adrar Universities exactly; they said that they switch to French gradually as their students advance in their studies". TT2 goes further when he reports the experience of Oran Department of Biology, where students were given the choice among two sections; one providing French-based instruction and the other section providing Arabic based instruction. Accordingly, it is the teachers' willingness that determines their acceptance to lecture in Arabic. Neither the shortage of references in Arabic nor top-down decisions can represent a barrier to the implementation of such a project.

The researcher asks another question that may reinforce the previous claims, it is worded this way: what are the consequences of the Arabization of technical and scientific subjects at the university level?

TT4 has overtly expressed that Arabization can be only disadvantageous, in his words: "Arabization doesn't succeed even in human sciences, how comes that it succeed in scientific domains, moreover, all the three educational levels in Algeria are suffering from Arabization policy, the level is weakening and pupils' linguistic abilities are in continuous decrease". Another arabisant teacher persists to French as the most appropriate MI, though confessing that teaching in Arabic may render comprehension easier, quicker, and more profound. The teachers emphasize meanwhile the necessity of learning foreign languages since Knowledge of Arabic only cannot open them the doors to the scientific world. They add that Arabic is not recognized as the language of scientific documentation. On their part, the teachers assert that the knowledge of other languages has enabled them to carry on their further studies and conduct up to date researches. They add also that the mastery of French doesn't isolate them from the even developing scientific world.

By the end of the interview, the teachers are asked to provide some solutions to the current situation. Each interviewee proposes some remedial suggestions that can be summarized as follow:

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- Providing bilingual pre-university education.
- Providing multiple options that enable students to choose the most appropriate language according to their abilities.
- Students should be engaged in an efficient language immersion programme to be well prepared for the sudden switch of the medium of instruction.

It is worth mentioning at last that all the teachers emphasize the importance of the knowledge of English in the scientific fields. As researchers they find themselves obliged to learn English to join the unprecedented scientific development. One of the interviewees reports: "It is hard for us as teachers who master French to publish in highly accredited journals that publish English composed papers, we spend a long time in translating from French to English". Another teacher raises the point that "when we, I mean Algerian researchers, participate in international conferences or undergo a training programme abroad; we are faced with the problem of language. We usually speak French which is not the language of international communication". Another teacher goes further when he suggests that it is high time to implement English as early as the primary level in the Algerian school.

4.4.3 Discussion and interpretation of results

The results obtained from the teachers' questionnaire and interview reveal a kind of conformity between the two research tools. Thus, the discussion and interpretation of these results jointly have been done deliberately. Both arabisant and francisant teachers express the same attitudes towards the Arabization of sciences. No significant difference in attitudes has been noticed, that means that the kind of pre-university education i.e. either in French or in Arabic doesn't determine the attitude. Consequently, the hypothesis that relates the failure of Arabization of sciences to French-based education of teachers is disconfirmed. It has been demonstrated that agreement is stronger, more persistent on the part of francisants compared to arabisants who were hesitant, and undecided in many items.

Based on the data achieved through the questionnaire and the interview, a considerable number of teachers express their disagreement to Arabize sciences. Their disapproval has been explicitly and implicitly displayed. True attitudes are measured through the anonymous nature of the questionnaire, in addition to the semi-structured interview that is conducted face to face to avoid social desirability. It should be interestingly signalled that though convinced of the advantages of teaching sciences in Arabic in developing the learners' cognitive abilities, the teachers' attitudes towards the idea are negative.

As far as their perceptions to Arabic as MI are concerned, 30 teachers (out of 30) i.e. 100% believe that Arabic make students' comprehension and perception of information

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quicker, easier, and more profound. While the results obtained from item (6) contradict with those obtained in the above-discussed teachers' perceptions. In item 6 only 56.6 % of the respondents agree that sciences may be taught in Arabic, while a significant percentage (43%) express a strong refusal to the idea. The contradiction between the teachers' perceptions and their attitudes towards Arabic MI may be referred to many factors that will be discussed thoroughly. First, their ignorance of the richness of the Arabic language as a language of instruction of technical and scientific domains, Syria and Iraq are two examples of successful experiences that prove the ability of Arabic in teaching sciences. The teachers' negative attitudes may be related to the fact that they don't read and that they don't spend any efforts, they simply imitate and apply what their precedents have already brought.

Another factor that is believed to be a direct reason for the teachers' rejection of Arabization is the status of this language at the international level. Algerian teachers, notably in the scientific domain are not provided with multiple options, they have the choice between either French or Arabic. Their choice to French cannot be explained as a reference to this language. If another language such as English (as a language that enjoys a high status worldwide) comes into mention, the majority of teachers will opt for it. The privilege of a language in cost of another may be referred to the utility of that language. The teachers' privilege of French over Arabic, as well as their privilege of English over Arabic and French, can be explained based on the functional theory, notably the utilitarian /instrumental function. The teachers' attitudes, just like their students' attitudes develop according to how the attitude object (languages in this case) meets their needs. Though their conviction that Arabic as MI can be beneficial for the learners' scientific development, they display strong disapproval to it, since for them as teachers and academicians it doesn't bring any advantage. However, French for those teachers is the language that makes their study career successful due to the availability of resources in this language, in addition to the opportunities it furnishes (training programmes abroad, international conferences). Meanwhile, those teachers may hold positive attitudes towards English as the language of international communication and scientific documentation and research. It is obvious thus that the teachers form positive attitudes towards the language that best meets their psychological (cognitive) needs.

The third reason that may affect the teachers' attitudes towards Arabic and French as media of instruction is their exposure to French. Positive attitudes towards French may refer to what is called the 'familiarity principle' in social psychology a phenomenon by which individuals develop a preference for a given language merely because they are familiar with it. In a report published in 1965, Zajonc argues that "Attitudes are enhanced by mere exposure

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or mere contact with the stimulus object" (2). It is obvious thus that the sample population either francisants or arabisants, who have been for a long time in exposure to French, develop positive attitudes towards it.

Both categories of teachers (francisants and arabisants) display mixed attitudes towards the two languages. Positive or negative attitudes towards one given language change according to multiple factors, for instance, the teachers who have displayed positive attitudes towards Arabization prove that these attitudes are not 'true' ones. If one considers the responses to the item (13) of the questionnaire (see table 4.14), crucial facts may be asserted. The majority of teachers (93.33% of arabisant teachers and 73.33% of francisants) express overtly that French is the most appropriate language for the instruction of sciences, this may be interpreted as negative attitudes towards Arabization. Accordingly, the respondents display a kind of contradictory attitudes towards the language of instruction. Since most of them have already expressed their approval to Arabic as MI that may develop students' cognitive abilities. Item (13) may also reveal that of the 30 respondents only 1(6,66%) arabisant and 4(26,66%) francisants display 'true' attitudes towards the use of Arabic as a medium of instruction. The contradiction in attitudes may be noticed in item (15) when 9(60%) of the 15 arabisant teachers disagree to teach in Arabic though they are competent, compared with 8(53,33%) from the francisants who show disapproval. While the number of teachers, who claim their inability to teach in Arabic if imposed by a top-down decision, increased in items 9 and 10 (See table4.13). The respondents' rejection to teach in Arabic may be related to their unwillingness either to accept the idea or to contribute to making a change in the MI. The teachers' disagreement may be referred also to the status of French in the Algerian society since this language is usually associated with well-educated persons.

What is surprising and encouraging at the same time is that 5(33,33%) of the 15 francisant teachers announce their ability to teach in Arabic, taking into account that these teachers have received French-based education throughout their study career. This fact may again prove that the teachers' rejection to teach in Arabic is not related to their inability but rather to their unwillingness. Another argument that may reinforce this claim is the fact that Doctorate and Master students who graduate from the Algerian universities (where French-based education is provided) are recruited in secondary schools as well as in the Departments of Economics where they teach Maths and Physics in Arabic. To sum, the teachers may teach in Arabic if they are not given another option. If there is another language in mention, they automatically will tend to choose the language that enjoys a higher status in the scientific domains.

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In addition to the teachers' acceptance and readiness to teach in Arabic, the availability of references is another prerequisite that makes the implementation of the language-in-education policy successful. The majority of teachers associates their disapproval to Arabic to the scarcity of Arabic documentation. Nevertheless, the question that may be raised is whether there exists a shortage of Arabic references, or this is only an excuse that the teachers use to hide their disagreement to teach in Arabic. Effectively, the reverse may be proved; in the 90' of this millennium, the faculties of Biology in Sidi Bel Abbes, as well as Oran universities, succeeded to provide Arabic-based education. The learners hence were allowed to choose the language that best meets their needs and abilities. In addition to other successful experiences in the Arab World, for example; Syria succeeded to Arabize its whole educational system at all levels of study in all the specialities (including medicine). Hence, most Arabic references and publications are done by authors and teachers from this country.

Consequently, the teachers' claim that the shortage of references is the sole reason for this disapproval of Arabic is unsound. The problem with these references is that they are usually translated from other languages what make them of low quality, taking into account that even French references are not originally written in French. They are usually translated from English which is considered as the language of the teachers' further researches. Therefore, the respondents' arguments cannot be believed to be the rationale. Their rejection to use Arabic as MI may refer to their unwillingness to be active agents who contribute to making language policies. In contrast, teachers have the habit to apply what others have already achieved without any efforts⁹.

The absence of a regulation that imposes teaching sciences in French makes the use of this language optional in the classroom. All along with the sessions of observation, the researcher noticed the abusive use of Arabic by the teachers, notably the arabisants. In reverse to some francisants who persist to the use of French though their students' poor command of this language. Based on this claim, the policy of Arabization may be generalized to all the Algerian universities nationwide if the teachers play an effective role in creating and adopting explicit and de facto language policies. Likewise, they may be considered as active participants rather than solely policy subjects in the policy process.

This issue may raise many questions, one question pertains to how those teachers and educators, who are the most affected by language policies, can adopt and inform to the

⁹ Such behaviour of the Algerian teachers at this level may be associated to many socio-political and economic difficulties that face the Algerian citizens in general and teachers in particular in their daily lives. These problems make them but passive recipients who struggle for basic social needs.

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adoption of such policies. Consequently, the victim cannot be blamed in this aspect since little is known about how to open spaces for their voices in political arenas when policies are usually politically dictated, in this respect (Manken and Garcia, 2016) argues that: "Teachers and school administrators [...] usually receive no preparation or guidance on how to negotiate and manage top-down educational policies in ways that support the education of their students". They add similarly that:

language teachers are often those within school buildings who hold the most expertise about language learning, and their input is needed to shape policy implementation in ways that support bilingual students, However, they are often excluded from important decision making, particularly in schools where leadership is not collaborative and where school leaders themselves do not have this knowledge base. (Manken and Garcia, 2016)

Thus the consciousness and the collaboration of both teachers and school leaders are prerequisites for shaping a successful language in education policies.

Nevertheless, one cannot deny the importance of regulation for a successful implementation of policies; Johnson (2013) asserts that "sometimes, the lack of a legal decision can have an impact on language policy". It led to anarchy in implementing policy. In the present study, teaching the same programme in two languages may affect negatively the learners' abilities. It may deprive them for participating in international scientific manifestations.

4.5 Conclusion

This chapter summarized the results of attitudes of both students and teachers in the Faculty of sciences and Technology towards the policy of Arabization. The aim was, to sum up, the respondents' true attitudes about different factors provided in the questionnaire and the interview. The exploration of the students' abilities and difficulties in learning was for the aim of measuring their attitudes towards a possible change in the medium of instruction. Likewise, the teachers' perceptions, beliefs and attitudes (overt and covert) were investigated to provide a full explanation of the low achievements of 1st-year students of scientific fields.

Both teachers and students attitudes are believed to be important in making language policy and its implementation successful. Taking into regard that "the knowledge about attitudes is fundamental to the formulation of a policy as well as to success in its implementation" (Lewis, 1981, p. 262). The next chapter will present some recommendations and suggestions that may help to solve the linguistic problems in the Algerian Higher education notably scientific education.

Chapter IV: Summary of Findings, Recommendations and Implications**IV.1 Introduction**

The present chapter aims at summing up the major findings of the study. It puts forward some implications and recommendations for a successful implementation of language policy in Algeria, notably the Arabization of sciences at higher education. The recommendations are derived from the analysis and comparison of the data collected through the different research tools.

This chapter reveals the results of the study and illustrate the implications. It also attempts to draw out conclusions and aims at providing applicable suggestions and recommendations on how to solve the linguistic issue of scientific education at the university level. The main findings of different research instruments are summarized after being compared, and conclusions were drawn according to each research question and hypothesis. The output of the data analysis correlates with the literature review. In fact, the choice of the medium of instruction must be done on the basis of the learners' language attitudes and abilities in the language.

Finally, the chapter ends with suggesting general implications for language planning and language ideology in order to inspire future researchers to promote the status of Arabic (the mother tongue of the Algerians) to be the medium of instruction of all the educational fields, including scientific streams.

IV.2 Summary of the Main Findings

As demonstrated previously in chapter three (3.8), the findings obtained cannot be generalized since the research has not considered all conditions required in making Arabic as a MI. For instance, the availability of scientific reading material, in addition to well qualified teachers in Arabic was not taken into consideration all along the study. However, the research focused on the attitudes of students and teachers towards a possible implementation of Arabic as a medium of instruction in sciences. This was done on the basis of social- psychological theory, taking into regard that attitudes of the community on which language policy occur are a prerequisite for the success of any language reform.

As far as students' attitudes are concerned, the results obtained from both the questionnaire and the interviews reveal a preference of Arabic. The majority of students showed positive attitudes towards Arabic as MI. Their attitudes can be explained on the basis of their psychological needs. They are more competent in Arabic; it is their 1st language the one that students feel more comfortable with. However, negative attitudes were exposed

towards the same language (Arabic) when it comes to status of languages in Algeria and social mobility. Some students argued that their incompetence in French is the direct reason for their privilege to Arabic as MI. They asserted that if they have had a good command of French, they would have preferred it since it has a high prestige in the Algerian society, and that of social mobility.

Nevertheless still exist other group of students who persisted to their claims (though competent in both languages), arguing that Arabic is the language of the soul, that of national identity and religious belonging. A third point that should be figured out is the positive attitudes students hold towards English confirming the functional theory that attributes attitudes' formation to the learners' cognitive needs. It is needless to stress in this respect the importance of such language in developing countries and on the international scale in general. For it is evident that almost all human and hard sciences are taught in English today.

As for teachers, they were divided between pros and cons on the issue of Arabizing sciences, with a majority exposing negative attitudes towards implementing Arabic in teaching scientific streams. Some respondents expressed overt rejection to Arabic as MI, whereas others displayed a contradiction in their claims. They first expressed, theoretically, positive attitudes towards the issue, and then negative attitudes towards the same idea. When it comes to a possible practical contribution to promote the policy of Arabization and making its implementation successful covert attitudes were expressed. Still another group of teachers (though their number was inconsiderable) persisted to their opinions, when they said that they are ready to support the policy if the conditions that guarantee its success are provided. This can be effectively proved when this group of teachers tended to use Arabic in the classroom (for 1st year students) in order to help the neo students to be habituated with the new medium of instruction.

As there is no mismatch between the teachers' negative attitudes towards Arabizing sciences and the students' positive attitudes towards the same idea, the question that may be raised is: how to meet the students' academic needs and the teachers wants and practise in the classroom? This reality has really engendered a complex situation that resulted in the low attainment of the students of sciences in the Algerian university in general, and especially in Tahar Moulay University of Saida. This reality explains the students' emphasis on the intervention of a law that impose the Arabization of sciences at this level. They asserted that such intervention may solve the problem of hesitation and uncertainty on the part of all the agents of implementation of such language policy.

On another hand, the fact that the latter measure was strongly rejected by teachers had complicated the situation. On the basis of the questionnaire and interviews' results, the teachers refuse any type of top-down decision that may make the Arabization of sciences compulsory. A decision of such a type may result in negative consequences since the teachers (basic agents around whom language education policy builds) do not show willingness nor enthusiasm to support this language policy. It is worth to state that it was decreed in Article 36 amending and completing the Law n° 91-05 of January 16, 1991 of the constitution to carry on with generalizing Arabizing higher education within a period not exceeding July 5th 1998 (see Appendix B). It can be noticed thus that there is a lack of authority in the execution of language policies at all levels, since those who don't apply the law and still teaching sciences in French didn't receive any kind of penalty.

Casual interpretation of this situation may be referred to the easiness of the state in following and carrying out the process of implementation in addition to the carelessness of the public, in addition to the absence of sincerity from responsible authorities and more importantly the agents of implementation (basically teachers who are not conscious of the importance of the mother tongue in developing nations) for supporting the government's policy. Again one believes that a serious and exact law that imposes the generalization of the use of Arabic (including scientific streams) is the key for the success of such a policy, as asserted by El Couri (2009):

La réforme de l'enseignement s'impose d'elle-même avec une distribution et Une définition des langues dans la société et dans l'école. Le Maghreb a besoin d'une loi linguistique très claire qui délimite le status et les taches de chaque langue (p.3). [The educational reform is needed to be imposed with a distribution and definition of the status of languages in society and school. The Maghreb needs a clear linguistic regulation that defines the status and tasks of each language] Translation mine

As argued by El Couri it can be deduced that the attitudes of students are marginal in implementing language policies. The two influencing agents in this respect are the state authorities and the school leaders that include basically the teachers. Accordingly and since students are given no other options but studying in French, the next section provide some practical recommendations to solve the pertinent problems attributed to the fact that French is the medium of instruction in scientific streams.

IV.3 Hypotheses Verification

The classroom observation carried out, in addition to the questionnaires and the interviews administered to the students and the teachers of Science and Technology of the University of Saida were intended to: investigate whether the change of the language of instruction represents a handicap for the students' attainment in scientific streams, identify the students' attitudes towards Arabic as a medium of instruction, and to measure the teachers' perceptions to Arabize sciences, and eventually to search about pedagogical and political decisions that may be undertaken as a solution to the current linguistic situation in Algeria. To reach the above-mentioned objectives, the researcher has tried to verify the hypotheses.

For the first hypothesis which states that the sudden change in the medium of instruction is the sole reason for students' poor achievements in scientific subjects, the results unveiled the concrete situation of the Algerian university. The results obtained revealed that the students of science and technology in the university of Saida(though some of them have had a good command in the scientific content) suffer from the problem of comprehensibility of these subjects due to the medium of instruction. Indeed, some experienced educationalists have emphasized the role of the language of instruction in educational access, quality and equity (Ouane and Glanz, 2011). Thus raising awareness on the part of government officials i.e. decision makers, and professionals in education is a must today. We can deduce thus that our first hypothesis is confirmed.

With regard to our second hypothesis which stipulates that the students' attitudes towards arabizing the scientific subjects are positive, logical results were obtained; since the majority of students expressed positive attitudes towards the language they understand and use frequently in learning. Without neglecting the small group of students who showed negative attitudes towards Arabic as MI, taking into account that they have a good command of French (the current language of instruction). It can be argued thus, that the majority of students who showed positive attitudes towards the Arabization of scientific streams are poor in French and that if they are proficient they might have negative attitudes towards Arabic as MI. Here we can say that our second hypothesis has been partly proved.

Concerning the third hypothesis which designates that the teachers have negative attitudes towards Arabizing the scientific subjects due to their French –based education , in addition to the scarcity of documentation and books in French. The results obtained showed that even the teachers who received Arabic-based education are against Arabic as MI in university. This may be refereed to their unwillingness to change and their refusal to any new

reform. Following these findings, it can be deduced again that our third hypothesis has been partly approved.

IV.4 Recommendations and Suggestions

In this section the researcher attempts to offer some suggestions and recommendations that may solve the pedagogical problem related to the medium of instruction, as listed below.

IV.4.1 Towards a bilingual education at pre-university level

It was clear from the respondents' answers to the questionnaire and the interviews that the majority strongly appreciated a French- Arabic bilingualism. They strongly asserted the importance of French as a major prerequisite for social mobility. Thus the target participants seemed prompted to mention a sea-set of advantages of bilingualism that may be summarized as follow: communication with the outside world, better job opportunities, good status in society. It is worth mentioning that the respondents managed to mention different advantages related to Arabic-English bilingualism. In this regard, these participants seem to be aware of the importance of English as a language of wider communication (LWC). Consequently, adopting French-Arabic bilingualism may solve 1st year students' cognitive problems when faced with French as MI for the first time at university level.

Since sciences are taught in French at university, it would be better to teach them in French at secondary level returning to the 1970' system. This doesn't mean that Arabic will be marginalized; all other subjects must be taught in Arabic, excluding scientific and technical subjects. Nevertheless, adopting bilingual education may deconstruct what have been built for four decades i.e., the achievements of Arabization policy. Another issue that should be studied in this respect relates to the consequences of this policy. In this sense, foreign languages -in- education policy should be revised. After ten years of study of French as FL, students reach the university with poor command in such language. Accordingly, a scrutinized study of the educational context at all levels should occur, taking into account the socio-economic environment when planning for foreign languages teaching.

IV.4.2 Providing two linguistic sections

On the basis of the students' demands for providing several linguistic options, the Ministry of higher Education should provide two sections of study; one based on Arabic as medium of instruction and another based on French. This measure will enable the students to choose the most appropriate language that best meets their cognitive needs and abilities. Effectively, this measure was applied by the end of the 1990's in a number of universities nationwide (instances of that Sidi Bel Abbess and Oran Universities). Unfortunately, and as

well as many linguistic projects¹ in Algeria, this scheme was doomed to failure. The reasons of such failure as said to be multiple. On the one hand, there is no preparation phase for any linguistic reform undertaken in the education sector. On the other hand, there is no continuity in the programmes and the reform is retrieved as persons who implement it retrieve from their positions.

IV.4.3 Generalizing the use of Arabic in the first year of study

The majority of teachers in the site of the present study use Arabic as MI with 1st year students (except some francisants who strongly persist to the use of French). They believe that a gradual shift from Arabic in the first semester could be beneficial and helpful for students' comprehension of the content subjects. In fact using Arabic with first year students is the rule in the site under investigation, in addition to a considerable number of universities, notably in the southern part of Algeria where students' poor command of French is highly remarkable. Hence, gradual transition to the new language can be assured and the students (mainly those who have poor command of the language of instruction) don't feel alienated or separated from the rest of students.

IV.4.4 Preparing the neo students to the new medium of instruction (French)

The Ministry of Higher Education should provide French sessions to prepare the neo students in order to habituate them to the new learning environment. Intensive French courses that focus on developing the students skills in French and for specific purposes i.e. French for learning sciences should be available. Though its teaching as a subject for first year students, the latter still suffer from the poor command in such language. It is not taught appropriately from different aspects; first the teachers selected to teach French as a subject in university are those who have a master degree in French (Master degree is equivalent to the License degree BA in the previous system). Each teacher (generally part time teachers) tends to design his/her own syllabus since no unified or official syllabus is provided by the administration. And on the basis of what they think appropriate for first year students, they design a programme. They usually teach basic rules of the language (grammar and vocabulary), ignoring that their students need a French for specific purposes. As a result the syllabus doesn't meet the learners of scientific stream needs.

¹ The project of the initiation of English in primary schools by the 90's witnessed a sudden interruption after few years of its implementation. Without any explanation or evaluation of the project, the Ministry of education declared that French is the only FL to be taught in all the Algerian elementary schools. It is worth to mention that thousands of pupils who chose English as their FL1 at that period are still suffering linguistically. They neither master French that enjoy a special status in the Algerian society, nor they have a good command of English since they were not adequately followed as learners of English FL1.

As a solution to this situation, the administrations of scientific departments should set up specific criteria and conditions serious measures to select competent teachers who are specialized in teaching French for specific purposes. In addition, French must have an equal coefficient to those of main content subjects such as physics and maths; what may motivate the learners to show more interest in it as for them French is considered as a secondary subject.

IV.4.5 Considering the neo students linguistic abilities in French before orientation

The students' average in French should be taken into consideration while orienting students to scientific education at university level. The general average of the baccalaureate exam proved to be insufficient. Students may pay more attention to foreign languages learning notably French if they know that it will be used as MI in scientific streams. On another hand high ratio of failure may be avoided at this level, since it is usually referred to the use of French as MI. Being aware of such a measure, students will pay more attention to the language in their pre-university education. They might spend more efforts in comprehending the language and mastering the skills that enable them to communicate fluently via this language.

IV.4.6 Enriching the libraries with French-Arabic documentation

Teachers and material developers in general must provide students with bilingual or trilingual glossaries and dictionaries in the subjects they study. Such documents may help students, notably those incompetent in French to overcome the linguistic barrier in comprehending the lessons. This may happen by coordinating the efforts with teachers and linguists of the Arab World, mainly in countries such as Syria and Iraq who have already succeeded in Arabizing the scientific fields.

Indeed, the availability of documentation in both French and Arabic may facilitate the students' tasks of comprehension, since translation is one among the most effective strategies that assure understanding and eventually promote L1 use and status.

IV.4.7 Code switching

It is not endorsed or pedagogically underpinned to use code-switching as a linguistic resource in education (Blackledge and Creese, 2010). On the basis of this argument, teachers who refute the use of any other language but French in the classroom need to revise their decision. Students cannot use only French while Arabic is their L1, in this sense, (Garcia and Wei, 2014) argue that "the students use of their entire linguistic repertoire [...] is important for all bilingual students, particularly for the development of critical thinking skills and in-depth comprehension".

In fact the teachers' use of the first language may be considered as a code for encouragement (Gumperz, 1982b), mainly if one considers that in sciences the focus is on content rather than on language learning. Students who are allowed to code-switch in the classroom are more able to effectively transmit their knowledge to their teachers and classmates. Indeed, code-switching is an effective pedagogical strategy that helps to ease linguistic insecurity among learners.

IV.4.8 Alternating French MI with English MI

On the basis of what was gathered through the research tools mainly the interviews, the data reveal that the teachers and students awareness of the importance of English in the scientific world today. They have all focused on the urgent need of English-based education. In fact, some of the teachers (not all) have really engaged in learning English either in private schools or at university with one purpose to master the language of wider communication, the one that they need when they travel to perform training abroad. Nevertheless, such initiative is out of the reach since the same measure that was implemented in the 90's at elementary level was doomed to failure because of countless reasons among which the unwillingness to change is considered as the most prevalent reason .

IV.5 Implications For Language –in-Education Planning (LIEP)

All language planning activities take place in a particular sociolinguistic setting, and the nature of the plan cannot be understood but in this setting. Hence, introducing a change at this level of language requires a deep understanding of the social attitudes and perceptions of all the agents. As for the present study, no coordination is made between policy makers and university teachers about the linguistic issue at this level. On the one hand, the education officers should ensure that the LIEP is properly implemented, since the law that generalize the Arabization of all educational levels did not exclude scientific subjects at university. It is high time thus to revise the LIEP to ensure that the use of Arabic increase in all the fields (including scientific streams). The Ministry of Higher Education should play a leading role in this regard, since no change can occur without the state provision and without a clear regulation that determines the function and status of each language.

It should be stressed in this context, that the policy of Arabization in Algeria can be considered as a 'virtual reality' that was constructed and enforced in terms of positive ideologies that have always served the power elite in Algeria. The weakening educational system is the direct result of such unsound language policy that marginalizes the community

(linguists, educationalists, and teachers) from taking part in the design of these linguistic plans. To this effect, a commission with clear and precise terms of reference should be set up and be asked to undertake assignments vis à vis language plans. In this sense, it can be ensured that the language policy is not imposed on the people since they have ownership in designing the language plan.

On another hand, teachers should increase their awareness of the linguistic issue and should be conscious about the importance of mother tongues in increasing students' cognitive abilities in sciences and therefore to instil, among their students, a sense of pride in their LI. In the present study, the teachers' covert negative attitudes towards a possible Arabization of scientific education probably refer to their unwillingness to change. Studies in this field revealed that teachers as implementers of language policies are the most important players in this respect. Researchers have also demonstrated that implementers did not do as they were told nor did they always act to maximize policy objectives (Cohen and Ball, 1990; Mc Laughlin, 1987). Furthermore, teachers have often been diagnosed as 'resistant to change' or just simply lazy when they ignored or subverted curricular innovations (Mc Laughlin, 1987; Smit ,2005).

The government and educational officers may contribute in decreasing the teachers' resistance to change by providing efficient training programmes; researchers such as Spillane, Reiser and Reimer (2002) explained that “ this is because implementers often lack the capacity, the knowledge, skills, personnel and other resources necessary to work in ways that are consistent with policy”(14). Accordingly, teachers need to be actively involved in teacher training and professional development programs such as expert seminars, academic conferences, and research undertakings with experts from the Arab world notably those who succeeded in Arabizing sciences.

IV.5.I Theoretical scheme for Language –in- education policy requirements

In order to introduce a linguistic reform, educationalists and policy makers should answer to a set of questions that determine whether this or that project could be successfully implemented. Language –in – education planning and according to (Kaplan and Baldauf 1997) has six primary requirements.

IV.5.I.1 Target population identification

First it must determine who in the school population will receive language education in which language(s). There is a need here to identify a target population of students/ pupils who will receive language education. Educationalists should ask questions such as:

➤ Which children?

- Where they are physically located in the country?
- Are they in urban countries or in great towns?
- Are they ready to adopt this reform?
- How many will they be?
- Over what duration?
- How would these children who participate be selected?
- Who will make the selection?
- On what this selection will be based on attitude , on aptitude, or on motivation?
- For how many years could this language curricular last?
- Or will new languages be introduced periodically to respond to popular demand as that demand changes in response to real – world political and economic situations.
- How do parents feel about language education?
- Will they be for or against their Children learning to a given language?

The questions posed are related to the identification of a target population, all of them would be answered in order to ensure the applicability of the project.

IV.5.I.2Teacher supply

Teacher supply is an issue of paramount importance before implementing a language reform in general and foreign language projects particularly. Questions that could be asked are from what sector of the total pool of potential teachers will language teachers be drawn?

- What sort of education will they be provided to prepare them to teach?
- How is that training different from the training of any other teacher?
- How long will it take?
- Who will be the teacher trainers?
- What could the teacher know?

These issues are not only pre-service training issues but also ones of in-service training, taking in consideration that languages change rapidly. Thus, arrangements could be made to provide viable in-service education at sufficiently frequent intervals so that language facility is not lost.

IV.5.I.3 Syllabus

Once the student pool and the teacher pool have been identified, it is necessary to be concerned about the syllabus. The syllabus question implicates the issue of on-set and duration of training. It answers to questions such as:

- When should language education begin, at what grade- level?

- If the individual wishes to undertake a second educational language, when should that probably begin?
- What is the probable duration of that education?
- Is the time normally allocated to language study sufficient?
- Should all students be required to achieve the same proficiency?
- Is there any possibility of variable entry and exit?

IV.5.I.4 Methods and materials

One cannot discuss the question of syllabus without dealing with the issue of methods and materials:

- What methodology (is/ will be used to teach language?)
- How and when will teachers be trained in the recommended methodology?
- Who to compensate the differences between teachers during the training? (Taking in account that teachers do not belong to the same generation).
- Who will prepare the materials?
- How long will it take to do so?
- What density of materials per pupil is necessary to maintain a viable program?

IV.5.I.5 Resources identification

A fifth major area of concern in language –in- education planning that would be identified is the definition of available resources to support a language education programme.

- Where these resources come from?
- What will it cost per pupil per year to provide the necessary classrooms, teachers, and materials (including supplementary materials) to operate a viable programme?

It will be necessary to put in place some sort of cost benefit analysis to determine the answers to this set of questions.

IV.5.I.6 Evaluation

Evaluation is an important issue that affect directly all the other areas. Questions to be addressed here are:

- What level of proficiency is a student expected to achieve at the end of each study?
- How will it be determined whether the student has in fact achieved that level of proficiency?
- Who will prepare the assessment instrument?
- How long will it take to prepare such instrument to be administered? How often?
- What will be done with the results obtained?

- Will the assessment results become criteria for the evaluation of teachers? At the same time, it is necessary to evaluate the whole system.
- How effective is the methodology?
- How useful are the materials?
- Therefore, is the educational program effective?
- Is it meeting the societal needs and objectives designed at policy making level?

Consequently, planning projects in general and especially in educational issues is ongoing process that would not only follow a clear and continuous policy, but respond to the inevitable changes that could be flexible because the potential problems are unlimited. In addition, discussing and evaluating what is going wrong prove to be useful not only for the success of this project, but any future ones. Unfortunately, this has never been the case of projects and innovations within the Algerian educational system where the strategies of evaluation and reorientation seem to be absent. Thus, the educational institution must assume its responsibility in the planning, implementation and evaluation of their programmes and reforms:

Plan of any kind usually looks grand on paper, and a readable, apparently feasible, clear plan can help to wrinkle funds from the tightest of purses and co-operation from the strictest of sources, but the proof of the plan lies in the implementation (Hayes, 1983, 25)

The social and cultural settings where any reform is to be implemented must be well-considered. Unfortunately, decision-makers in Algeria who are supposed to create and develop such educational reforms seem not to be aware of the remote areas (villages and small towns) and their special characteristics and conditions, and of the population for whom their projects are made. In other words, they expect equal successful learning from a student who live in a rural spot some hundred kilometers far from the town and a student from the town, ignoring the two different social realities, the different social expectations, the different forms of knowledge, education, and mainly the different local constraints. In addition, one cannot expect from a student to learn a foreign language efficiently with shortcomings that already exist in the system, like the total absence of libraries or any extra reading or listening materials in the foreign language.

IV.6. General Implications for Language Planning and language –in- education Policy

Though the present study investigates the effects of choosing the medium of instruction on students' achievements, it has a strong link with language planning. For it is very much acknowledged the importance of many factors such as language choice , language competence and language attitudes into questions of language planning as well as language policy.

Furthermore, the study deeply probed into current attitudes towards a possible Arabization of scientific streams as well as the respondents' perceptions and beliefs about the linguistic issue in Algeria, notably in Algerian higher education. It should be stated that both the interview and the questionnaire results' could insightfully shed light on the failure or the success of the policy of Arabization as highlighted by Hamoud (1983)

In the study of language planning, a reasonable understanding of the socio-cultural environment and other forces influencing the planning is an asset to, indeed necessary for, the investigator. The commonly observed presence of so many, so diverse forces that orchestrate or hamper the process makes almost necessary a holistic multidisciplinary approach to the study of language planning(p.225)

Language planning hence would be unconceivable without reference to a social context, for it is in a social setting that the role, the functions, and the status of a particular language can be determined. According to Ferguson (2004), the success or failure of language policies are achieved through careful observation of the broad sociolinguistic context in which decisions are made. This include the speech community's linguistic habits and practices, the cultural belief, the sociopolitical conditions of languages use and the interests of the different groups that are engaged in language planning, after determining the sociolinguistic settings where the language change will occur. After a careful review of the report and the resulting recommendations, those policy decisions, if generally accepted, will create a need for implementation plan.

At this stage of implementation comes the process of language –in- education planning and policy measures. As illustrated in the figure below language in education planning really cannot be under taken until the process reaches the policy decision stage.

Unfortunately, decision makers ignore most of the times the stages that come before language –in- education planning ,i.e. the policy implementation stage, the fact that leads usually to the plan's failure. The figure displays the different stages that would be followed,

and that the implementation phase is not the first one, but it is preceded by many other measures such as survey, and survey report.

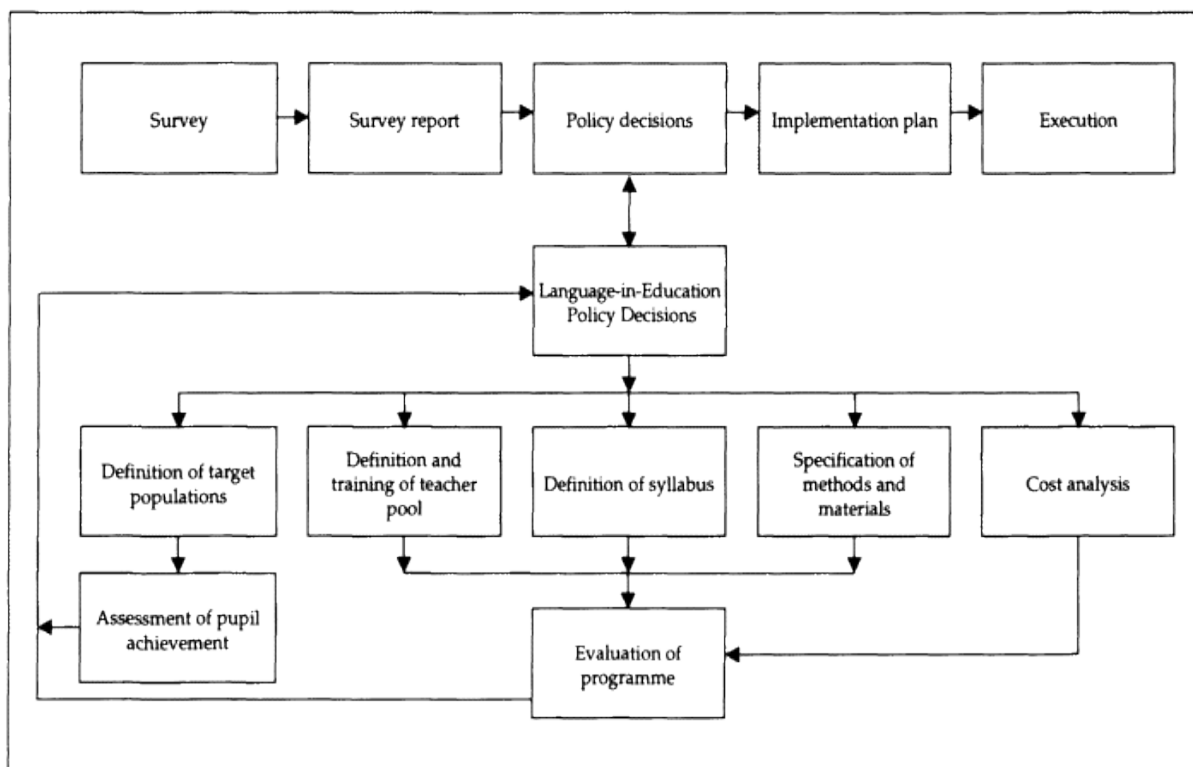


Figure 5.1 Language-in-education planning (adapted from Kaplan and Baldauf, 1997, p. 114)

Furthermore, the findings of the present study revealed significant cultural, political, and linguistic aspects that shape the respondents' attitudes and perceptions about languages in Algeria and more importantly about the policy of Arabization in scientific education. The change in the respondents' attitudes either from positive to negative or from negative to positive explain the impact of the above mentioned factors.

It is worth mentioning in this context that language policy in Algeria is oriented by linguistic, semi- linguistic and extra- linguistic variables (Dekhir, 2011). The latter seems to be the most influencing in the present case; to put it differently, political and economic factors have the lion share in shaping the linguistic profile of Algeria. Within the same vein Bentahila (1983) had this to say:

Arabization is thus not simply a matter of excluding one language in favor of another, as well as replacing a language, it is necessary to replace all that language stands for in people's minds, and all that it gives access to. Changes in habits of language use go hand in hand with changes of attitudes, and while the use of a language rather than another in some domains may be determined by legislation, society's attitudes to the languages can be manipulated only by more subtle means(104).

In reverse, it is towards the best utilization of language that language planning should be directed. According to Gupta and Jernnudd(1971): "the logic of language planning is dictated by the recognition of language as a social resource, the importance of this resource is due to the communicational and identify values attached by the community to one or more languages"(p.196). Thus, it is the governments' and more importantly the community's responsibility to promote Arabic and spread its use in all the public and educational domains.

IV.7. General Implications for Language Planning and Politics in Algeria

Even though it has seldom been publically recognized, an important relationship does exist between language planning and power. According to researchers, language planning should not be viewed as a neutral process, but as ideologically and politically burdened activity which attempts to construct a particular discourse on language and society. According to Blomaert (1996(a)):

Language planning carries implicit assumptions about what a good society is best for the people, about the way in which language and communication fit into that picture and about how LP can also contribute to social and political progress (p.215)

From this perspective, LP can be considered as a political discourse of the government policy as observed by Tollefson (1991):

How possible is it [...] to characterize the LP decisions in any state or institution without appeal to the historical and political identity of that system, and moreover to the identities of the forces struggling within it? There is no sense in which LP can be undertaken, or its effects evaluated, within some social vacuum. We need [...] an understanding of these as a prerequisite for explanation (p.Vii)

Thus in the ex- French Arab countries such as Tunisia, Morocco, and notably Algeria, people are torn between French and Arabic where the domination of the linguistic discourse is at the hands of the ruling elite who manifest contradictory aspirations to that of the ordinary people. They favor the language which they are fluent in. In effect, the students in this study welcomed a top-down decision that imposes the Arabization of sciences. By such, all the agents of LP will be obliged to implement the plan.

IV.8 Implications for Promoting Mother Tongue-Based Education

Language is considered as the key to communication and understanding in the classroom. Many developing countries such as Algeria are either individually or socially multilingual, yet these countries still allowing a single foreign language to dominate the education sector, notably the education of sciences in university. According to Skutnabb-Kangas, the instruction of learners through a medium of instruction through a language that they don't speak is called 'submersion'. The latter makes the learning and teaching processes extremely difficult.

Scholars such as (Vink, 1995; Maurunen, 2010) have opposed teaching sciences via a foreign language, emphasizing that it leads to:

- reduced ability to understand concepts.
- Low –level of knowledge about the subject studied.
- Excessive consumption of time.
- Feelings of alienation and separation.
- The least amount of participation in the classroom due to low-level of proficiency in the foreign language.

Based on the reasons stated above, Language policy makers together with educational professionals should work on promoting the status and the use of the mother tongue through political decisions, in addition to raising people's awareness about the importance of the mother tongue in developing nations. Indeed, learning in the mother tongue has clear pedagogical advantages for the students who will feel comfortable and reassured by their ability to understand and then analyse information in their L1.

IV.9 Conclusion

This chapter summarized the findings of the present research. It presents also a verification of the research's three hypotheses. It provided additionally some recommendations and suggestions as solutions to the current linguistic situation at higher education. The aim of this chapter was to present practical measures to decrease the ratio of failure of 1st year students who chose to carry on scientific education. General implications for language –in –education policy and its requirements, language planning, and language planning and politics were all briefly summarized in this chapter. The chapter portrays also some implications to promote mother tongue status and use in Algeria as a pre-requisite for the development of the country in all the fields. These implications served as indirect results that were deduced implicitly from the current research study.

General Conclusion

Probably, the most important connotation of the present study is that the linguistic situation in Algeria is genuinely complex and paradoxal. On one hand, Arabic has a high esteem as a sacred language of religion, national unity, and Arabism. On the other hand, this language proves to be unfunctional as it affords a too limited space for its users to have successful productive career or job opportunities. Diglossia as a linguistic phenomenon has aggravated the situation; Arab children and especially Algerian acquire primarily their direct. Then, at school, they find themselves obliged to deal with a new variety of language, which is the H variety. At university, and after a long contact with Arabic, the students who choose to carry on scientific education are faced with a sudden switch in the medium of instruction. Such a switch in the MI and in addition to the current linguistic profile of languages in Algeria have attracted the attention of researchers from many disciplines such as psychology, sociology, linguistics, politics, and education.

As researchers in the field of sociolinguistics, we need to see some clear answers to the question of whether Arabization of sciences is possible in Algeria. As such, the ultimate objective of the handy study is to investigate the students' and teachers' of Dr.Moulay Tahar University of Saida attitudes and perceptions about the possibility of Arabizing sciences in higher education; on the basis of socio- psychological orientations.

It is worth mentioning in this respect that the results of the present study raised a number of inconsistencies and contradictions. On one side, the respondents proposed the generalization of Arabization to include scientific streams that may be interpreted as positive attitudes towards the policy. However, on the other side, they (mainly teachers) complained about the inconveniences of teaching sciences in Arabic. Those inconsistencies may be referred to the researcher's neglect of all the conditions required in language to be a medium of instruction. Taking into account that in language-in- education planning, not only is the language alone exposed to planning, but a set of variables are also often subject to planning. In put, learner, learning, the availability of quality scientific reading materials and qualified teachers are all at the center of acquisition planning and in a language to be promoted to a MI in particular. Thus, to say that An Arabization of scientific streams is possible, the interplay of all the aforementioned variables in addition to socio- psychological ones, like attitudes and language competence, should be scrutinized.

Chapter one in this dissertation was divided into two main parts. The first part provided a theoretical understanding of the literature of language planning and language

policy in order to enable the reader to understand the concepts of this discipline, whereas the second part was about attitudes (notably language attitudes) as psychological states that determine languages statuses and uses in society. Chapter two in the present study portrayed the sociolinguistic situation in Algeria and the current language policies. A diachronic as well as synchronic description of the existing languages in Algeria was thoroughly held. As for Arabic, two important points were discussed. First, the impact of dialect as a low variety on standard Arabic (the high variety; diglossia is considered as a real threat to MSA as it results in negative impacts on the quality of education. Proponents of dialect as the mother tongue of Arab children (including Algerians) have called for its use in schools. Though successful in some Arab countries, this old call didn't succeed to vernacularize education in the Algerian school.

In fact the attempts of promoting the vernacular to be a MI proved to be in vein. The process of standardization may take a long time since the homogenization of hundreds of regional Arab dialects is a hard task. In addition to linguistic difficulties, the sacred status of SA as a language of religion and national unity may complicate the situation. Accordingly, policy makers, school leaders and parents as well are asked to find alternative solutions to make SA the L1 of the Algerian children. Successful experiences can be imitated in this vain in order to ensure maximum familiarization if not natural acquisition of this variety.

By the same token and along the same lines of thought, an important issue was arises from the current study which was language right. Tamazight as a minority language has been declared official language of Algeria after modern standard Arabic, in accordance with a constitutional amendment effected in February 2016. Though its officialization, Tamazight faced different challenges at all levels of planning as instance the level of corpus planning. Tamazight different writing forms represent a barrier for its officialization.

As a solution to this problem, and on July 5th 2018, the Algerian government has approved a draft law that paves the way for the creation of an Amazigh Language Academy(ALA) dedicated to the teaching and promotion of research on Tamazight and its standardization. In fact , the new draft law defines the missions, composition and organization of the ALA envisaged by Article 4 of the constitution, amended in 2016 according to the Council of Ministers. The academy works on creating a standard form of the language. The latter that may guarantee mutual understanding among all Amazigh communities and facilitates its use as an official language at all the levels and through the adoption of one unique script.

According to EL Kirat El Allame, international adviser, and consultant in the field of higher education, University of Mohammed V, Morocco: ‘the Academy of Tamazight Language will help to change attitudes towards the Amazigh language, culture, identity, and contribute to their visibility at national and international level, particularly if the language is introduced to schools’(Sawahel, 2018). This may attract the attention of either Tamazight community or people outside its native borders to learning such language. Consequently, working on the corpus of such language may change its status and prestige planning.

Though considered as a foreign language, French succeeded to maintain its status as the most important language in the Algerian society. In fact, French is omnipresent either in official governmental institutions or in ordinary people daily communication. Recalling that though attempts to Arabize education at all levels, French still serving as MI of scientific streams in higher education.

Chapters three and four were devoted to the methodology used in the current study. The site of this research was the Faculties of Sciences and Technology at Saida University. As for data collection techniques, the researcher relied on the mixed method approach using classroom observation; semi structured interviews and closed ended questionnaires as tools of investigation. The direct approach to attitudes measurement was preferred in expense to other approaches. Validity and reliability of the research findings were cross- checked through the different research tools as well as the two different categories of respondents (teachers and students). The qualitative and quantitative analysis of the obtained data revealed insightful findings. Between policy makers and implementers (basically teachers) a gap seems to exist. National policies didn’t exert a clear determination of languages statuses in higher education , concomitantly with this, the teachers are not conscious with the increasing necessity of the use of mother tongues in education at all levels; especially in promoting the quality of education.

It should be stressed in this regard that industrial and scientific revolution that overwhelmed developed countries such as USA, Japan, France, to list but few was born from their mother tongues and that they were a source of their success. In fact, these countries realized that knowledge of sciences should be acquired first through their mother tongues. Therefore, teachers have decisive roles that should not be estimated. Their contribution in supporting Arabization can be very influencing on policy makers decisions about languages. Without their support and sincere involvement in the innovation, any implementation of any language plan will stay at superficial level.

Succinctly, the orthodoxy of Arabization policy notably the Arabization of sciences at higher education needs to be revised and restudied. Pragmatic ladders should be taken into consideration rather than traditional and ideological preferences.

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Glossary

Acquisition Planning: A type of language planning that was proposed by the American linguist Cooper in 1989. It refers to promoting a language variety and ensuring its spread through education. Once status and corpus planning decisions take place, acquisition planning represents how a variety will be taught and

Bilingualism: The speaker's ability to speak two or more languages. This term is usually used to describe persons who can speak many languages

Borrowing: Transferring lexical items from one language to another.

Code Switching: A sociolinguistic phenomenon that characterizes the speakers who switch from one code to another in the course of a single conversation. It is often used to refer to bilinguals or multilinguals.

Codification: One of the most important processes of standardization. when a variety is fixed, rules and norms should be set serving to the development of language. This process involves three sub steps: grammatication, lexication, and graphisation.

Corpus Planning: Refers to attempts to change the structures and the forms of language itself. This language planning activity is usually undertaken by national and governmental language planning agencies.

Dialect: The language variety of a particular geographical area or social group. It includes the pronunciation, lexis, and grammar of a given speech community in the same geographical setting.

Diglossia: A sociolinguistic phenomenon that refer to two distinct forms that exist in one language with clear functional separation in a socially stable situation. The two distinctive forms are categorized as a 'high variety' and 'low variety'

Endangered Languages: Languages that are in danger of being extinct. The direct reason for a language or a language variety to be endangered is the fact that young generations don't learn them anymore.

Foreign Language: Refers to a language that is not widely spoken and used by the people of a community, a society, or a nation.

Grammatication: According to Kaplan and Baldauf, grammqatication is one of the fundamental stages in language standardization. It refers to the extraction and formulation of rules that describe how a language is structured.

Graphisation: Graphization involves elaboration of the graphological medium of a language to satisfy the needs of a language which is under development.

High Variety: Is the prestige variety (generally a standard variety), it is typically reserved for official functions in more formal speech situations in the public sphere (e.g. in government, in written education, for religious service, or by the media)

Identity: Identity is the qualities, beliefs, personality, looks and/or expressions that make a person (self-identity) or group (particular social category or social group).

Indigenous Language: is a language that is native to a region and spoken by indigenous people. This language is from a linguistically distinct community that originated in the area. Indigenous languages are not necessarily national languages and national languages are not necessarily indigenous to the country.

International Language: Sometimes called universal language, a language intended to be used by people of different linguistic backgrounds to facilitate communication among them and to reduce the misunderstandings and antagonisms caused by language differences.

Language Attitude: Language attitudes are evaluative reactions to different language varieties. They reflect two sequential cognitive processes: social categorization and stereotyping.

Language Community: A language community is a group of people who use similar norms and terms for communication. Although some minor variations may exist within a community, they are usually not major. Whenever there are a large number of differences in communication style, it is likely that the people who are communicating are from different language communities.

Language Ecology: Is the study of interactions between a language and its environment. A language ecology approach analyzes power dynamics and issues of equity and human rights as fundamental elements in the social use of languages

Ideology: The term is especially used to describe systems of ideas and ideals which form the basis of economic or political theories and resultant policies. It is used in two different ways, first to refer to the beliefs that individuals or groups have about the world, and second from a Marxist perspective, to refer to the system of commonsense assumptions that people have about the world which hide authority and hierarchy and treat it as natural.

Language Inequality: Refers to the inability to manipulate a particular variety of a language within a particular context, either through lack of exposure or through some form of disadvantage.

Language Maintenance: A situation whereby a language is retained and used by speakers alongside, or instead of a more dominant language.

Language Planning: Refers to conscious efforts that aim at changing the linguistic behaviour of a speech community.

Language Policy: Usually used as a synonym to the term language planning. However, language policy is what a government does officially through legislation or court decisions to determine how languages should be used.

Language Purity: Is the prescriptive practice of defining or recognizing one variety of a language as being purer or of intrinsically higher quality than other varieties. Linguistic purism was institutionalized through language academies, and their decisions often have the force of law.

Language Reform: Is a type of language planning by massive change to a language. The usual tools of language reform are simplification and purification. Simplification makes the language easier to use by regularizing vocabulary, grammar, or spelling.

Language Shift: Also known as language transfer or language replacement or language assimilation, is the process whereby a community of speakers of a language shifts to speaking a completely different language, usually over an extended period of time

Language Spread: According to Cooper, “an increase, over time, in the proportion of a communication network that adopts a given language or language variety for a given communicative function”. It is generally taken for granted that language, as a concomitant of culture, can spread.

Lexicalization: is the process of adding words, setting phrases or words patterns to the lexicon of a given language.

Lexicography: Refers to the activities of writing, editing, and compiling dictionaries. Trap(2009) says that the subject field of lexicography is dictionaries and lexicographic works in general.

Linguistic Rights: Are the right of individuals to choose the language of communication at both private and public levels. Linguistic rights include the right to one’s own language in legal, administrative and judicial acts, language education, and in media in a freely chosen language and well understood by those understood.

Literacy: In its simple sense, literacy is the ability to read and write in at least one language. Nevertheless, specialists today give several definitions to the term. For example, Alberta Education defines literacy as the ability, confidence and willingness to engage with language to acquire, construct and communicate meaning in all aspects of daily living.

Low Variety: Is a variety of language that is exclusively used in informal speech situations in private sphere. It is made of the vernacular varieties used at home or informal everyday conversations.

Macro Language Planning: Refers to top down national government language policies.

Medium of Instruction: Is the language used in teaching. Sometimes it is not the official language of the country.

Meso Language Planning: Refers to local government operations on linguistic issues. These operations include public services such as public libraries and educational organizations such as the ministry of education.

Micro Language Planning: The micro bottom-up level of planning that includes private initiatives such as individual supplementary schools and local groups.

Minority Language: A language spoken by a small number of speakers. It is considered as their mother tongue. Those speakers' national language is different than their first language. Some minority languages have strong vitality like Tamazight in Algeria , yet others are endangered languages such as Gaelic in Scotland.

Monolingualism: Is the ability of a speaker or a group of speakers to speak one only language in contrast to bilingualism or multilingualism.

Mother Tongue: Referred to as first language, L1, primary language, home language. It is the language used by individuals from birth.

Multilingualism: The ability of a speaker or group of speakers to speak three or more languages. Though some sociolinguists use it interchangeably with the term bilingualism, it is argued that multilingualism should be used as an overarching term that refers to societies rather than individual speakers.

National Language: A language officially designated the language of a nation or country, usually for cultural or ethnic reasons. Such a language may or may not be the official language of the country in question (that is, used in its government and administration).

Nationalism: Is an ideology and movement characterized by the promotion of the interests of a particular nation, especially with the aim of gaining and maintaining the nation's sovereignty over the whole territory.

Official Language: An institutionally approved language for communication within the national borders.

Social Psychology: Is a discipline that uses scientific methods to understand and explain how the thoughts, feelings, and behaviour of individuals are influenced by the actual, imagined, or implied presence of other human beings.

Sociolinguistics: The study of the sociological aspects of language. It concerns itself with the part language plays in maintaining the social roles in a given community.

Standard Language: The variety of a language which has been officially allocated to prestige status used in official documents, media, education, and all public and formal spheres.

Standardization: The process of making a language variety as the approved and sanctioned form. It is often imposed by institutions or through an education system of a given country.

Variety: A systematic pattern of language use, such as a language, a dialect, an accent, a sociolect, and so on.

Vernacular: Traditionally regarded as a mother tongue of speakers. The term vernacular has been used to refer to non-standard varieties often perceived to be in contrast with the, standard variety.

Variety

Appendix A : Geographic Map of Algeria



Adapted from : <http://www.embassyconsulates.com>

Appendix B : Regulations and laws concerning different languages of Algeria

1-Linguistic regulations in the Algerian constitutions from 1963 to 2018

A/Constitution of 1963:

Art.5: Arabic is the national and official language of the state.

Art.76: Effective arabization should be completed as soon as possible on the territory of the Republic. However, notwithstanding the provisions of this act, French can be used **temporarily** alongside with Arabic.

B/Constitution of 1976:

Art.3: Arabic is the national and official language. The state works to generalize the use of the national language to official plan.

C/Constitution of 1989

Art. 3: Arabic is the national and official language.

D/Constitution of 1996

Art. 3 (1996)

Arabic is the national and official language.

Art. 3 bis (adopted April 10, 2002)

Tamazight is also a national language.

The State works on its promotion and development, with all its linguistic varieties spoken throughout the national territory.

Art. 178 (adopted November 15, 2008)

Any constitutional revision can not infringe on:

3. Islam, as the religion of the state;
4. Arabic, as national and official language;

E/Constitution of 2016

Art. 3

Arabic is the national and official language.

Tamazight is **equally** a national and official language.

2- Some Texts Imposing Arabic in the Public Domain

•Decree No. 74-70 of 3 April 1974: Arabisation of commercial advertising

Art. 1: Commercial advertising produced and broadcast on the national territory has to be expressed **in Arabic**.

The use of **a foreign language** for the same ends is optional. In this case, the

advertisement must be designed as a complementary reproduction translated or transposed.

●Decree No. 81-36 of March 14, 1981 on the Arabization of the linguistic landscape

Art. 1: Signs, panels and, in general, any inscription painted, engraved or luminous indicating an institution, a company, an organization or any other body mentioning the activity that it carries, are in the **national language** ...

●Law No. 86-10 of August 19, 1986 establishing the Algerian Academy of the Arabic Language

Art.1: This law concerns the creation of the Algerian Academy of the Arabic language and the definition of its missions and the general rules of its organization, operation and financing.

●Law No. 05-91 of Jumada Ethania 30, 1411, corresponding to January 16, 1991, concerning the generalization of the use of the Arabic language

Art.4: Public administrations, institutions, companies and associations, whatever their nature is, are required to use solely the Arabic language in all their activities, such as communication, administration, financial, technical and artistic management.

Art.5: All official documents, reports and minutes of public administrations, institutions, companies and associations are written in Arabic language. The use of any **foreign language** in the deliberations and discussions of official meetings **is forbidden**.

Art.15: Teaching, education and training in all sectors, in all levels and in all specialties are delivered in Arabic, taking account of foreign languages teaching methodologies.

Art. 29: Any official document in a language other than Arabic is null and void. The person/institution who draft or sign the document takes full responsibility of the effects that may result.

●Legislative Decree 92-02 of July 4, 1992 on the implementation of Law No. 91-OS of January 16, 1991

Art.1: The maximum period set by Article 36 of Law 91-05 of January 16, 1991 on the generalization of the use of the Arabic language **is extended until meeting the**

required conditions.

● **Ordinance No. 96-30 of Sha'ban 10, 1417 corresponding to December 21, 1996 amending and supplementing Law No. 91-05 of Jumada Ethania 30, 1411 corresponding to January 16, 1991**

Article 7 :

Art. 36 amending and completing the Law n° 91-05 of January 16, 1991 :

"Art. 36 "The provisions of this Ordinance shall apply since its issuance. The operation of the generalization of the use of Arabic will be fully completed within a period not exceeding July 5, 1998. Nevertheless, the total and definitive teaching in Arabic in all institutions of higher education and higher institutions will be provided within a period not exceeding July 5, 2000, subject to the provisions of Article 23 above. "

3-Some Laws vis à vis Tamazight

● **Presidential Decree No. 95-147 of Dhu Al Hijjah 27, 1415 corresponding to May 27, 1995 establishing the *Haut Commissariat à l 'Amazighité* (HCA)**

Art.1 : A structure called *Haut Commissariat à l 'Amazighité* (High Commission for Amazighity) is created to rehabilitate Amazighity and to promote the Tamazight language...

● **Executive Decree No. 03-470 of Shawwal 8, 1424 corresponding to December 2, 2003.**

Art. 1: This Decree concerns the establishment, organization and functioning of an educational and linguistic national centre for teaching Tamazight.

● **Ordinance No. 03-09 of Jumada Ethania 14, 1424 corresponding to August 13, 2003 amending and supplementing Ordinance No. 76-35 of April 16, 1976 concerning the organization of education and training.**

Art.4 :

"Art. 8 bis - [...] The State works on promoting and developing the teaching of Tamazight in all its linguistic varieties spoken throughout the country, mobilizing organizational and educational resources that are required to meet the demand of this teaching countrywide.

Appendix C:Number of Tamazight students by province (*wilaya*) and year.

	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01	2001–02	2002–03	2003–04	2004–05
Alger	349	479	436	465	339	479	50	30	278	54
Batna	805	632	293	49	78	73	0	0	0	0
Bejaïa	7941	9663	15953	13695	13473	22479	14056	22769	29773	25433
Biskra	654	255	191	127	108	140	103	174	223	249
Bouïra	9000	9654	11873	11664	11474	13517	12734	14680	17384	19027
Boumerdes	1078	785	1152	533	698	1394	1109	3217	1978	2125
El Bayed	9	13	0	0	0	0	0	0	0	0
Ghardaïa	584	158	124	64	0	0	0	0	76	67
Illizi	80	138	0	119	120	0	0	0	0	0
Khenchela	483	715	244	490	562	265	499	329	244	429
Oran	127	220	55	75	55	25	0	0	0	0
Oum el Bouaqui	1462	1335	4785	1375	2262	2382	2367	2476	2427	2432
Setif	584	626	971	1526	2616	690	1217	332	390	904
Tamanrasset	114	370	505	942	465	440	440	237	226	321
Tipaza	980	576	189	76	79	0	0	0	0	0
Tizi Ouzou	13440	32315	27127	24530	23629	30457	22460	35102	39085	43006
Total	37690	57934	63898	55730	55958	72359	55035	79346	92084	94047

(Adapted from HCA statistics, in Mouhleb, 2005)

Appendix D:Status of English in the Algerian Curriculum

	-1962-	1962-1975	1975-1993	1993-2004	1993-2003	2003-
English FL1	Intermediate cycle(4years) +secondary cycle(3 years)				Primary cycle (3years+Intermediate(3years)+Secondary cycle(3 years))	
English FL2		Intermediate cycle (2 years)+secondary cycle (3 years)	Intermediate cycle(2years) + secondary cycle(3 years)	Intermediate cycle (2 years) + secondary cycle (3 years)		Intermediate cycle(4 years)+secondary cycle(3 years)
Total	7 years	5 years	5 years	5 years	9 years	7 years

(Adapted from Lakhal – Benmati. K, 2006)

Appendix E :Students' Questionnaire (Original Version)

الرجاء وضع علامة x في الخانة المناسبة

الجزء الأول: معلومات شخصية

الجنس:

ذكر

☐
☐

علوم

أنثى

☐
☐

تكنولوجيا

التخصص:

هل اخترت تخصص دراستك: شخصيا ☐فرض عليك من طرف الإدارة ☐ أخرى ☐

حدد ()

1/ أنت طالب في السنة الأولى، لغة التدريس عندكم هي اللغة الفرنسية. هل كنت تعلم بذلك قبل تسجيلك ؟

نعم ☐
☐ ☐

2/ كيف هي قدراتك اللغوية في الفرنسية:

ضعيف نوعا ما	ضعيف	جيد	جيد نوعا ما	
				الفهم
				التحدث
				الكتابة
				القرأة

الجزء الثاني : صعوبات التعلم

3/ هل في رأيك يواجه طلبة التخصصات العلمية مشاكل في التعلم؟

نعم ☐
☐ ☐

- إلى ما ترجع هذه المشاكل: (حدد درجة الصعوبة)

أقل صعوبة	متوسط الصعوبة	أكثر صعوبة	
			مناهج التدريس
			ارتفاع عدد الطلبة في الأقسام العلمية
			لغة التدريس
			مستوى الأساتذة
			عدد المقاييس
			أخرى (أذكر صعوبات أخرى)
			
			
			

4/ ماهي ☐ استراتيجيات التي يتخذها الأساتذة من أجل حل هذه المشاكل:- الترجمة إلى العربية ☐- إعادة الصياغة (الشرح) ☐- التبسيط ☐- التكرار لعدة مرات ☐- كتابة المفردات الجديدة على السبورة ☐

- اقتراحات أخرى:

					من أجل تسهيل عملية تعريب العلوم.
					17- يجب على أصحاب القرار في الدولة اتخاذ إجراءات صارمة ملزمة بتعريب التعليم الجامعي بما في ذلك التخصصات العلمية
					18- التعريب سياسة وطنية يجب دعمها من طرف كل الجزائريين

ملاحظة: إملأ الجدول ب: ☐ أوافق تماما، ☐ أوافق، ☐ محايد، ☐ أوافق إطلاقا.

مواقف الطلبة تجاه الفرنسية كلغة تدريس

☐ أوافق إطلاقا	☐ أوافق	محايد	أوافق	موافق تماما	
					19- أعتبر اللغة الفرنسية اللغة الأكثر ملائمة لتدريس العلوم
					20- لقد أدت سياسة التعريب إلى انخفاض في مستوى التعليم في الجزائر.
					21- تتيح لي اللغة الفرنسية الولوج إلى عالم المعرفة والمعلومات في تخصصات شتى خاصة العلمية منها
					22- في ميدان العمل والتوظيف، تعتبر الفرنسية اللغة الوحيدة التي تمكنني من اعتلاء مناصب عليا
					23- الجزائريون الذي يتقنون اللغة الفرنسية يتمتعون بمكانة مرموقة في المجتمع.
					24- أفضل أن ألتحق بمراكز توفر تعليمًا إضافيًا مكثفًا في الفرنسية من أجل تحسين المستوى في هذه اللغة
					25- استعمال اللغة الفرنسية في التعليم يربط الجزائر بالعالم المتحضر
					26- الكفاءة العالية في اللغة الفرنسية تربط الطالب بما يجد من بحوث علمية في العالم بأسره كما تربطه بسوق العمل
					27- إتقان لغات أجنبية خاصة ☐ إنجليزية يعتبر أهم عند الطالب الجزائري من إتقان اللغة الفرنسية لأن ☐ إنجليزية لغة عالمية
					28- أخرى (اقتراحات من أجل لغة التدريس في الشعب العلمية)
					
					
					

أضف أي تعليقات فيما يخص الموضوع (اختياري):

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Students' Questionnaire(Translated version)

Section I :Personal Data :

Gender : male ☐

female ☐

Department :Engineering and Technology ☐

Biology ☐

Informatique ☐

Choice of the field of study :

Personnel ☐ imposed by administration ☐ Others(precise) ☐

1-You are 1st year student,your language of instruction is French.Did you know before ?

Yes ☐

No ☐

2-Your Communicative competence in French is :

	Quite Good	Good	Low	Quite Low
Understanding				
Speaking				
Writing				
Reading				

Section II :

Learning Difficulties

3-Do you think that students of scientific streams encounter problems in learning .

Yes ☐

No ☐

-May these problems refer to :

A major problem(MAP), A moderate problem(MOP), or not a problem(NP).

	MAP	MOP	NP
1-The teaching methods.			
2-High number of students			
3-The language of instruction.			
4-Teachers' level.			
5-The number of subjects.			
6-others(cite other difficulties)			
-			
-			
-			

4-What do your teachers do to overcome these problems ? they

-translate into Arabic

☐

- reformulate(explain) ☐
- simplify ☐
- repeat for many times ☐
- write the new words on the table ☐
- others :(precise) :

5-Have you ever thought to change the field of study because French is the language of instruction ?

Yes ☐

No ☐

Learning Abilities in French

6-(DT=definitely true, PT= partly true,PF=partly faulse, DF=definitly faulse)

	DT	PT	PF	DF
a-I understand the lecture and the teacher's explanation.				
b-I understand but i can not express myself in French.				
c-I can intervene orally.				
d- I read the references of my speciality.				
e-I can write a text or an exposé .				

7-Reading Arabic scientific documentation(If compared with French) require :

More time ☐

Same time ☐

Less time ☐

8-Reading French scientific material requires :

More time ☐

Same time ☐

Less time ☐

Section III :Students Attitudes towards the Arabization of the Scientific Streams

9-Using Arabic ,instead of French,as a medium of instruction in scientific streams :

	True	False	No difference
a-Makes students' participation and interaction more effective in the classroom.			
b-Motivates students to learn.			
c-Makes students' understanding and perception of information quicker,easier, and deeper.			
d-Creates harmony between students thinking and oral reaction.			
e- Will handicap the scientific development and result in the isolation of students from the scientific discoveries achievedworldwide.			
f- Will affect negatively students' scientific level.			

g-Others :(suggest)			
---------------------	--	--	--

Strongly agree=SA, Agree=A, Neutral=N, Disagree=D, Strongly disagree=SD)

	SA	A	N	D	SD
10-Arabic may be a language of instruction in scientific fields. 11-Learning in the mother tongue has many advantages than learning in a foreign language. 12-If sciences are taught in Arabic students may assimilate better. 13-If the problem of scientific and technical terminology is solved, arabization of sciences is preferable. 14-If i had the choice , I would change the field of study into a field taught in Arabic. 15-If I had the choice, I would continue in my field but in Arabic. 16-If teachers are trained on teaching sciences in Arabic, arabizing scientific streams will be easier. 17-Decision makers must take serious measures vis-à-vis the policy of Arabization of higher education. 18-Arabization is a national policy that must be reinforced by All the Algerians.					

Attitudes Towards French as medium of instruction

	SA	A	N	D	SD
19-French is the appropriate medium of instruction in scientific streams.					
20-French provides me access to knowledge and information in wide variety of disciplines, notably in the scientific fields.					
21-It is the language that will allow me to gain a high position in international business market when looking for employment.					
22-Algerians who speak French have a high prestige.					
23-Arabization has caused a lowering in educational standards.					
24-The use of French in education links Algeria to the modern world.					
25-I will join intensive French-learning programs in order to ameliorate my level in this language.					
26-High proficiency in French enable me to join international scientific documentations and even international market.					
27-The mastery of other foreign languages notably English is more important for the Algerian student than the mastery of French in the world today.					
28-Others (suggestions for the language of instruction in scientific streams) :					

Questionnaire aux étudiants(Translated Version)

Section I : Renseignements personnels :

Genre : masculin ☐ féminin ☐
 Département : Génie civile ☐ Biologie ☐ Mathématique ☐
 Informatique ☐

Votre choix du filière d'étude était :

Personnel ☐ imposé par l'administration ☐ Autres ☐
 (précisez).....

1-Vous êtes en 1^{ere} année, votre langue d'instruction est le français ; saviez vous avant l'inscription ?

Oui ☐ Non ☐

2-Votre compétence communicative dans la langue française est:

	Assez bien	Bien	Faible	Assez faible
Compréhension				
Oral				
Ecrit				
Lecture				

Section II :

Les Difficultés d'apprentissage

3-Pensez vous que les étudiants des sciences ont des problèmes d'apprentissage ?

Oui ☐ Non ☐

-Ces problèmes sont dues à :(classez selon le degré du problème : problème majeur **PM**, problème modéré **PMD**, pas de problème **PP**)

	PM	PMD	PP
1- les méthodes d'enseignement			
2-L'effectif des étudiants			
3-La langue d'instruction			
4-Le niveau des enseignants			
5-Le nombre de modules			
6-Autres :			

4-Que font vos enseignants pour résoudre ces problèmes .Ils :

a-traduisent en arabe.

b-reformulent(expliquent).

c-simplifient.

d-répètent plusieurs fois

e-ecrivent tous les mots nouveaux au tableau

f-autres :.....

.....

.....

Aptitudes d'apprentissage

5-(AV=absolument vrai, PT= partly vrai,PF=partly faux, AF=Absolument faux)

	DT	PT	PF	DF
a- je comprends l'explication de l'enseignant.				
b- je comprends mais je ne peux pas m'exprimer.				
c- je peux m'exprimer oralement.				
d- je lis la documentation de ma spécialité.				
e- je peux rédiger un texte -un exposé				

6-Lire la documentation scientifique en Arabe (si comparé avec le français) prend :

Beaucoup de temps ☐ le même temps ☐ moins de temps ☐

7-Lire le matériel scientifique en français demande :

Beaucoup de temps ☐ le même temps ☐ moins de temps ☐

Section III : Les attitudes des étudiants vis-à-vis l'arabisation des sciences

7-Utilisation de l'arabe comme medium d'instruction à la place du français dans les filières scientifiques va:(vous pouvez cocher plusieurs choix)

	Vrai	Faux	Pas de différence
a-rendre la participation et l'interaction des étudiants plus efficace dans les classes.			
b-motiver les étudiants pour apprendre.			
c-rendre la compréhension et la perception de l'information plus rapide, plus facile, et plus profondes.			
d-Créer une harmonie entre la pensée des étudiants et leurs réaction orales.			
e- freiner le développement scientifique et isoler étudiants du monde			

moderne.			
f- influencer négativement le niveau scientifique des étudiants.			
g-autres (proposez) :			

Remarque : Cochez la réponse appropriée (TA= Tout à fait d'accord, D'accord=A, N= Ni en désaccord ni en d'accord, PTA= Pas du tout d'accord, PA=Pas d'accord)

	TA	A	N	PTA	PA
8-L'Arabe peut être la langue d'instruction dans les filières scientifiques					
9-Apprendre en langue maternelle à beaucoup d'avantages qu'apprendre en langue étrangère.					
10-Si les sciences sont enseignés en Arabe, les étudiants pourraient assimiler mieux.					
11-Si le problème de terminologie est soulevé, l'arabisation des sciences sera préférable.					
12-Si j'avais le choix, je changerais la filière de mes études à une filière enseignée en Arabe.					
13-Si j'avais le choix, je continuerais dans mon filière mais en Arabe.					
14-Si les enseignants sont formés à enseigner les matières scientifiques en arabe, l'arabisation des sciences serait facile.					
15-Le pouvoir politique doit prendre des décisions sérieuses vis-à-vis la politique d'arabisation, surtout au niveau de l'université algérienne.					
16-Arabisation comme politique nationale doit être renforcée					
par tout les Algériens. 17-Proposer d'autres mesures pour renforcer le statut de l'arabe :					

-Les attitudes des étudiants vis-à-vis le français comme medium d'instruction :

Remarque : Cochez la réponse appropriée (TA=Tout à fait d'accord, D'accord=A, N= Ni en désaccord ni en d'accord, PTA= Pas du tout d'accord, PA=Pas d'accord)

	TA	A	N	PTA	PD
18- Le français est la langue la plus appropriée pour l'enseignement des sciences					
19-Le français me permette d'accéder au monde de connaissances et de l'information dans tous les disciplines, et surtout les filières scientifiques.					
20-Le français est la langue qui va me permettre une position supérieur dans le business international quand je cherche un emploi.					
21-Les Algériens qui parlent le français ont un prestige supérieur.					
22-L'arabisation a diminué les standards de l'éducation en Algérie.					
23-l'utilisation du français dans l'éducation lie l'Algérie au monde modern.					
24-Je vais suivre un programme intensif pour apprendre et améliorer mon niveau dans la langue française.					
25-La bonne maitrise de la langue française me permet de joindre la documentation scientifique internationale et même le marché international.					
26-La maitrise d'autres langues étrangères notamment l'anglais est plus important pour l'étudiant Algérien que la maitrise du français dans le monde d'aujourd'hui.					
27-Proposez d'autres solutions pour l'enseignement des sciences :					
.....					
.....					
.....					

Espace libre :Est-ce que vous avez des commentaires à ajouter concernant les sections précédents.....

Appendix F :Teachers' Questionnaire (Original version)

Cher professeur,

Vous êtes priés de répondre aux questions suivantes. Le fait que l'enseignant a un rôle majeur dans le processus d'enseignement/apprentissage rend nécessaire de tenir compte de ses attitudes dans la construction des politiques linguistiques avant toute étape de mise en œuvre.

Renseignements Personnels

Grade :.....

Langue d'éducation pré-universitaire :

Arabisant ☐ Francisant ☐ Autre ☐

Section I : Les Compétences langagières des étudiants :

1-Est-ce que vous trouvez des problèmes de langue chez vos étudiants ?

Oui ☐ Non ☐

-Si oui , à quel niveau éprouvez-vous surtout des problèmes d'usage du français :

1^{ère} année ☐ 1^{ère} année+2^{ème} année ☐ Tous les étudiants du 1^{er} cycle ☐

2-Le niveau de français chez vos étudiants est :

Bon ☐ plutôt bon ☐ faible ☐ plutôt faible ☐

3-L'habitude d'étudier en **arabe** au niveau pré- universitaire constitue :

Un problème majeur ☐ un problème modéré ☐ pas de problème ☐

-Justifiez votre réponse.....
.....
.....
.....
.....

Section II: Les attitudes des enseignants vis-à-vis l'arabisation des sciences

4-L'utilisation de l'arabe comme medium d'instruction des sciences au niveau universitaire peut (vous pouvez choisir plusieurs réponses) :

- a- rendre la compréhension et la perception des informations plus rapide, plus facile, et plus profonde. ☐
- b- motiver les étudiants à apprendre. ☐
- c- rendre la participation et l'interaction des étudiants plus effective en classe. ☐
- d- gérer une harmonie entre la pensée des étudiants et leur réaction verbale. ☐
- e- freiner le développement scientifique et isoler les étudiants algériens du monde moderne. ☐
- f- influencer négativement le niveau scientifique des étudiants. ☐
- g- Autres(proposez).....

.....
.....

Remarque : Cochez la réponse appropriée

Les attitudes des enseignants	Tout à fait d'accord	D'accord	Neutre	Pas du tout d'accord	Pas d'accord
5-La langue maternelle (l'Arabe) comme langue d'enseignement peut être plus efficace dans l'apprentissage des sciences.					
6-Les sciences peuvent être enseignées en arabe.					
7-Je peux facilement changer la langue d'enseignement du français vers l'arabe.					
8-Si le problème de terminologie est soulevé, je peux enseigner en arabe.					
9-Si le pouvoir politique est pour une arabisation réelle je pourrai faire une formation en langue arabe et j'en pourrai enseigner.					
10-Il doit y avoir un décret politique qui exige l'arabe standard comme medium d'instruction dans toutes les universités algériennes, même les sciences.					
11-Les enseignants doivent participer à renforcer la politique d'arabisation en enrichissant le domaine de la recherche scientifique par des articles et des manuels écrits en arabe.					

Section III : Les attitudes des enseignants vis-à-vis le français moyen d'instruction des sciences :

Remarque : Cochez la réponse appropriée

Les attitudes des enseignants	Tout à fait d'accord	D'accord	Neutre	Pas du tout d'accord	Pas d'accord
12-Le français est la langue la plus appropriée pour l'enseignement des sciences					
13-L'arabe n'est pas riche par la terminologie scientifique et technique, elle est plus appropriée pour la religion, la poésie et la littérature.					
14-Même si j'ai les compétences pour enseigner en arabe, je ne le ferai plus .					
15-La documentation est disponible en français plutôt qu'en arabe.					
16-l'arabisation des filières scientifiques ne veut pas dire la marginalisation du français .Elle doit être enseignée comme module indépendant car il y'a tant de documentation en français.					
17-La maîtrise de français m'ouvre largement les portes du monde scientifique.					
18-La seule maîtrise de français n'est pas suffisante pour développer mes connaissances et mes recherches					
19-La seule maîtrise du français ne m'empêche pas à participer dans les conférences scientifiques internationales					
20-La maîtrise d'une autre langue telle que l'anglais est nécessaire au niveau universitaire.					

Espace libre :Est-ce que vous avez des commentaires à ajouter concernant les sections précédents

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Merci Infiniment

Teachers' Questionnaire (Translated version)

Dear teachers,

You are kindly asked to answer to the following questions. The fact that teachers may play a major role in the teaching /learning process makes it necessary to consider their attitudes into account while making any language policy measure.

Personal Information

Grade :.....

Pre-university language of education :

Arabisant ☐ Francisant ☐ Other ☐

Section I : Les Compétences langagières des étudiants :

1-Do you find any problems in language with your students ?

Yes ☐ No ☐

-If yes , at which level do you find problems in the usage of French :

1st year ☐ 1styear+2nd year ☐ All undergraduate students ☐

2-The level of your students in French is :

Good ☐ Quite good ☐ Low ☐ Quite low ☐

3-The habit of studying in Arabic at pre-university level represents :

A major problem ☐ Moderate problem ☐ No problem ☐

-Justify your answer:.....

.....

Section II: The Teachers attitudes towards the Arabization of sciences

4-The use of Arabic as a medium of instruction in sciences at university level may (you can choose more than one answer) :

- a- make the comprehension andperception of information quicher , easier, and more
profonde. ☐
- b- motivate students to learn. ☐
- c- make students' participation and interaction more effective in classroom. ☐
- d- create a harmony between students thinking and their verbale reaction. ☐
- e- hinder scientific development isolate Algerian students from the modern world. ☐
- f- Negatively influence the students' scientific level ☐

g- others(suggest).....

Remarque : Tick the appropriate answer(strongly agree,agree, neutral ; strongly disagree, disagree)

Teachers' attitudes	SA	A	Neutral	SDA	DA
5-The mother tongue(arabic) may be effective in learning sciences.					
6-Sciences may be taught in Arabic.					
7-I can easily change my language of teaching from Frenche to Arabic.					
8-If the problem of terminology is solved , i can lecture in Arabic.					
9-If political power isfor a real arabization i can perform a training in Arabic and i can teach in this language.					
10-There must have be a political decree that impose standard Arabic as a medium of instruction in all the Algerian universities, including sciences.					
11-Teachers have to contribute in reinforcing Arabization policy by enriching the scientific field with articles and textbooks written in Arabic.					

Section III : Teachers' attitudes towards French a medium of instruction in sciences:

Remarque : tick the appropriate answer(strongly agree,agree, neutral ; strongly disagree, disagree)

Teachers' attitudes	SA	A	Neutral	SDA	DA
12-French is the most appropriate language for teaching sciences.					
13-Arabic is not rich of scientific and technical terminology, it is more appropriate for religion, poetry and litterature.					
14-Even if i am competent in Arabic, i will not teach in it.					

15-Scientific documentation is available more abundantly in French rather than Arabic.					
16-Arabization of scientific fields doesn't mean the marginalization of French. It should be taught as independent module , because scientific documentation is abundant in this language.					
17-The fact that I master French open widely the scientific world for me.					
18-Mastery of French only is not sufficient to develop my knowledge and researches.					
19-Mastery of French only doesn't prevent me from participating in international scientific conferences.					
20-Mastery of another language as well as English is necessary at university level.					

Other comments concerning the subject :

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Thank you very much.

Appendix G :Samples of teachers' answers to the questionnaire.

Teachers' Questionnaire (Original version)

Cher professeur,

Vous êtes priés de répondre aux questions suivantes. Le fait que l'enseignant a un rôle majeur dans le processus d'enseignement/apprentissage rend nécessaire de tenir compte de ses attitudes dans la construction des politiques linguistiques avant toute étape de mise en œuvre.

Renseignements Personnels

Grade : Maître Assistant "A"

Langue d'éducation pré-universitaire :

Arabisant ☒

Francisant ☐

Autre ☐

Section I : Les Compétences langagières des étudiants :

1-Est-ce que vous trouvez des problèmes de langue chez vos étudiants ?

Oui ☒

Non ☐

-Si oui , à quel niveau éprouvez-vous surtout des problèmes d'usage du français :

1^{ère} année ☐

1^{ère} année+2^{ème} année ☐

Tous les étudiants du 1^{er} cycle ☒

2-Le niveau de français chez vos étudiants est :

Bon ☐

plutôt bon ☐

faible ☒

plutôt faible ☐

3-L'habitude d'étudier en **arabe** au niveau pré- universitaire constitue :

Un problème majeur ☐

un problème modéré ☒

pas de problème ☐

-Justifiez votre réponse : Je pense que la transition de

l'arabe vers le français peut se faire
facilement que la plus part des enseignants
universitaires sont issus du même système
éducatif et que la communication existe.

Section II: Les attitudes des enseignants vis-à-vis l'arabisation des sciences

4-L'utilisation de l'arabe comme medium d'instruction des sciences au niveau universitaire peut (vous pouvez choisir plusieurs réponses) :

- a- rendre la compréhension et la perception des informations plus rapide, plus facile, et plus profonde. ☒
- b- motiver les étudiants à apprendre. ☒
- c- rendre la participation et l'interaction des étudiants plus effective en classe. ☒
- d- gérer une harmonie entre la pensée des étudiants et leur réaction verbale. ☒
- e- freiner le développement scientifique et isoler les étudiants algériens du monde moderne. ☐
- f- influencer négativement le niveau scientifique des étudiants. ☐
- g- Autres(proposez)..... *toutefois, il y a lieu de ne pas négliger la langue française ou même l'anglais*

Remarque : Cochez la réponse appropriée

Les attitudes des enseignants	Tout à fait d'accord	D'accord	Neutre	Pas du tout d'accord	Pas d'accord
5-La langue maternelle (l'Arabe) comme langue d'enseignement peut être plus efficace dans l'apprentissage des sciences.		☒			
6-Les sciences peuvent être enseignées en arabe.		☒			
7-Je peux facilement changer la langue d'enseignement du français vers l'arabe.					☒
8-Si le problème de terminologie est soulevé, je peux enseigner en arabe.		☒			
9-Si le pouvoir politique est pour une arabisation réelle je pourrai faire une formation en langue arabe et j'en pourrai enseigner.		☒			
10-Il doit y avoir un décret politique qui exige l'arabe standard comme medium d'instruction dans toutes les universités algériennes, même les sciences.			☒		
11-Les enseignants doivent participer à renforcer la					

politique d'arabisation en enrichissant le domaine de la recherche scientifique par des articles et des manuels écrits en arabe.		X			
12-l'arabisation des filières scientifiques ne veut pas dire la marginalisation du français .Elle doit être enseignée comme module indépendant car il y'a tant de documentation en français.	X				
13-autres mesures pour renforcer le statu de l'arabe : Realiser des dictionnaires pour le domaine technique pour faciliter la transition					

Section III : Les attitudes des enseignants vis-à-vis le français moyen d'instruction des sciences :

Remarque : Cochez la réponse appropriée

Les attitudes des enseignants	Tout à fait d'accord	D'accord	Neutre	Pas du tout d'accord	Pas d'accord
14-Le français est la langue la plus appropriée pour l'enseignement des sciences.					X
15-L'arabe n'est pas riche par la terminologie scientifique et technique, elle est plus appropriée pour la religion, la poésie et la littérature.	X				
16-Même si j'ai les compétences pour enseigner en arabe, je ne le ferai plus .					X
17-La documentation est disponible en français plutôt qu'en arabe.	X				
18-La maitrise de français m'ouvre largement les portes du monde scientifique.		X			
19-La seule maitrise de français n'est pas					

suffisante pour développer mes connaissances et mes recherches	X				
20-La seule maîtrise du français ne m'empêche pas à participer dans les conférences scientifiques internationales	X				
21-La maîtrise d'une autre langue telle que l'anglais est nécessaire au niveau universitaire.	X				
22-proposez d'autres solutions pour l'enseignement des sciences :					

Espace libre : Est-ce que vous avez des commentaires à ajouter concernant les sections précédents :

Je pense qu'un étudiant universitaire
comme l'enseignant universitaire doivent
maîtriser au minimum 03 langues pour
avoir accès à l'univers des sciences.
Par ailleurs, l'apprentissage à ces
différentes langues doit se faire durant
tout le cycle de formation, notamment
dans les domaines techniques.

Merci Infiniment

Teachers' Questionnaire (Original version)

Cher professeur,

Vous êtes priés de répondre aux questions suivantes. Le fait que l'enseignant a un rôle majeur dans le processus d'enseignement/apprentissage rend nécessaire de tenir compte de ses attitudes dans la construction des politiques linguistiques avant toute étape de mise en œuvre.

Renseignements Personnels

Grade : Maitre Assistant A

Langue d'éducation pré-universitaire :

Arabisant ☒

Francisant ☐

Autre ☐

Section I : Les Compétences langagières des étudiants :

1-Est-ce que vous trouvez des problèmes de langue chez vos étudiants ?

Oui ☒

Non ☐

-Si oui , à quel niveau éprouvez-vous surtout des problèmes d'usage du français :

1^{ère} année ☐

1^{ère} année+2^{ème} année ☒

Tous les étudiants du 1^{er} cycle ☐

2-Le niveau de français chez vos étudiants est :

Bon ☐

plutôt bon ☒

faible ☐

plutôt faible ☐

3-L'habitude d'étudier en **arabe** au niveau pré- universitaire constitue :

Un problème majeur ☐

un problème modéré ☒

pas de problème ☐

-Justifiez votre réponse : Des Etudiants en un grand
problème de langue français cela est
due a la formation au niveau
secondaire

Section II: Les attitudes des enseignants vis-à-vis l'arabisation des sciences

4-L'utilisation de l'arabe comme medium d'instruction des sciences au niveau universitaire peut (vous pouvez choisir plusieurs réponses) :

- a- rendre la compréhension et la perception des informations plus rapide, plus facile, et plus profonde. ☒
- b- motiver les étudiants à apprendre. ☐
- c- rendre la participation et l'interaction des étudiants plus effective en classe. ☒
- d- gérer une harmonie entre la pensée des étudiants et leur réaction verbale. ☐
- e- freiner le développement scientifique et isoler les étudiants algériens du monde moderne. ☐
- f- influencer négativement le niveau scientifique des étudiants. ☐
- g- Autres(proposez).....
-
-

Remarque : Cochez la réponse appropriée

Les attitudes des enseignants	Tout à fait d'accord	D'accord	Neutre	Pas du tout d'accord	Pas d'accord
5-La langue maternelle (l'Arabe) comme langue d'enseignement peut être plus efficace dans l'apprentissage des sciences.			☒		
6-Les sciences peuvent être enseignées en arabe.				☒	
7-Je peux facilement changer la langue d'enseignement du français vers l'arabe.			☒		
8-Si le problème de terminologie est soulevé, je peux enseigner en arabe.	☒				
9-Si le pouvoir politique est pour une arabisation réelle je pourrai faire une formation en langue arabe et j'en pourrai enseigner.	☒				
10-Il doit y avoir un décret politique qui exige l'arabe standard comme médium d'instruction dans toutes les universités algériennes, même les sciences.			☒		
11-Les enseignants doivent participer à renforcer la				☒	

politique d'arabisation en enrichissant le domaine de la recherche scientifique par des articles et des manuels écrits en arabe.					
12-L'arabisation des filières scientifiques ne veut pas dire la marginalisation du français .Elle doit être enseignée comme module indépendant car il y'a tant de documentation en français.	X				
13-autres mesures pour renforcer le statu de l'arabe :					

Section III : Les attitudes des enseignants vis-à-vis le français moyen d'instruction des sciences :

Remarque : Cochez la réponse appropriée

Les attitudes des enseignants	Tout à fait d'accord	D'accord	Neutre	Pas du tout d'accord	Pas d'accord
14-Le français est la langue la plus appropriée pour l'enseignement des sciences.					X
15-L'arabe n'est pas riche par la terminologie scientifique et technique, elle est plus appropriée pour la religion, la poésie et la littérature.				X	
16-Même si j'ai les compétences pour enseigner en arabe, je ne le ferai plus .				X	
17-La documentation est disponible en français plutôt qu'en arabe.	X				
18-La maîtrise de français m'ouvre largement les portes du monde scientifique.		X			
19-La seule maîtrise de français n'est pas					

Appendix H :Samples of Students'answersto the questionnaire

Students' questionnaire (original version)

الرجاء وضع علامة x في الخانة المناسبة

الجزء الأول: معلومات شخصية

الجنس: ☒ أنثى ☐ ذكر
☐ علوم ☐ تكنولوجيا

التخصص: ☒ علوم ☐ تكنولوجيا ☐ إدارة

هل اخترت تخصص دراستك: ☒ شخصيا ☐ فرض عليك من طرف الإدارة ☐ أخرى

حدد ()

1/ أنت طالب في السنة الأولى، لغة التدريس عندكم هي اللغة الفرنسية. هل كنت تعلم بذلك قبل تسجيلك ؟

نعم ☒ لا ☐

2/ كيف هي قدراتك اللغوية في الفرنسية:

ضعيف نوعا ما	ضعيف	جيد	جيد نوعا ما	
			☒	الفهم
☒				التحدث
☒				الكتابة
			☒	القراءة

الجزء الثاني : صعوبات التعلم

3/ هل في رأيك يواجه طلبة التخصصات العلمية مشاكل في التعلم؟

نعم ☒ لا ☐

- إلى ما ترجع هذه المشاكل: (حدد درجة الصعوبة)

أقل صعوبة	متوسط الصعوبة	أكثر صعوبة	
	☒		مناهج التدريس
	☒		ارتفاع عدد الطلبة في الأقسام العلمية
		☒	لغة التدريس
		☒	مستوى الأساتذة
	☒		عدد المقاييس
			أخرى (أذكر صعوبات أخرى):

4/ ماهي الاستراتيجيات التي يتخذها الأساتذة من أجل حل هذه المشاكل:

- ☐ - الترجمة إلى العربية
- ☒ - إعادة الصياغة (الشرح)
- ☐ - التبسيط
- ☐ - التكرار لعدة مرات
- ☐ - كتابة المفردات الجديدة على السبورة

- اقتراحات أخرى:

5/ هل فكرت يوما في تغيير الشعبة التي تدرس فيها بسبب اللغة الفرنسية كلغة تدريس؟

- ☐ لا ☒ نعم

6/ القدرات اللغوية في اللغة الفرنسية:

ص:ك: صحيح كلياً ص:ج: صحيح جزئياً خ:ك: خطأ كلياً خ:ج: خطأ جزئياً

ص ك	ص ج	خ ك	خ ج
		✓	
✓			
	✓	✓	
			✓
	✓		
		✓	

- 17/ قراءة كتب علمية باللغة العربية يتطلب: ☐ وقتاً أكثر ☒ وقتاً أقل ☐ الوقت نفسه

- 8/ قراءة كتب علمية باللغة الفرنسية يتطلب:
- وقتا أكثر ☒ وقئا أقل ☐ الوقت نفسه ☐

الجزء الثالث: مواقف الطلبة تجاه تعريب التخصصات العلمية .

9/ استعمال اللغة العربية كلغة تدريس بدلا عن اللغة الفرنسية في التخصصات العلمية:

صحيح	خطا	لا فرق
✓		يُجعل مشاركة الطلبة وتفاعلهم في القسم فعلا أكثر
✓		يحفز الطلبة للتعلم أكثر
✓		يُجعل استيعاب الطلبة للمعلومات وفهمهم لها أسرع، أسهل وأكثر عمقا
✓		يخلق انسجاما بين تفكير الطلبة وممارستهم اللغوية الشخصية
✓		يسبّوذي حتما إلى شلل في التطور العلمي ما ينتج عنه عزلة الطالب الجزائري عن الاكتشافات العلمية على المستوى العالمي
✓		يستوذي حتما إلى تأثير سلبي على المستوى العلمي للطلاب
	✓	اقترحات أخرى:
		
		
		

ملاحظة: إملأ الجدول ب: أوافق تماما، أوافق، محايد، لا أوافق، لا أوافق إطلاقا.

موافق تماما	أوافق	محايد	لا أوافق	لا أوافق إطلاقا	مواقف الطلبة من تعريب العلوم
				✓	10- يمكن للعربية أن تكون لغة تدريس في التخصصات العلمية
				✓	11- التعليم باللغة الأم (العربية) له إيجابيات عدة مقارنة بالتعليم باللغات الأجنبية
	✓				12- تدريس العلوم للطلبة باللغة العربية يسهل عملية استيعاب المعلومات
	✓				13- ترجمة المصطلحات العلمية والتقنية إلى اللغة العربية من شأنه حل مشكل تعريب العلوم
				✓	14- لو توفر لدي الخيار لفضلت تغيير التخصص إلى تخصص آخر حيث تكون لغة التدريس فيه باللغة العربية
	✓				15- لو كان لدي الخيار سأفضل مواصلة الدراسة في تخصصي ولكن باللغة العربية
				✓	16- أفضل أن يتم تكوين أساتذة التخصصات العلمية باللغة العربية من أجل تسهيل عملية تعريب العلوم
				✓	17- يجب على أصحاب القرار في الدولة اتخاذ إجراءات صارمة ملزمة بتعريب التعليم الجامعي بما في ذلك التخصصات العلمية
				✓	18- التعريب سياسة وطنية يجب دعمها من طرف كل الجزائريين
					19- أخرى: (اقترح إجراءات أخرى من أجل ترقية اللغة العربية)
					
					
					

ملاحظة: إملأ الجدول ب: أوافق تماما، أوافق، محايد، لا أوافق، لا أوافق إطلاقا.

مواقف الطلبة تجاه الفرنسية كلغة تدريس

موافق تماما	أوافق	محايد	لا أوافق	لا أوافق إطلاقا	
				✓	20- أعتبر اللغة الفرنسية اللغة الأكثر ملائمة لتدريس العلوم
				✓	21- نتيج لي اللغة الفرنسية الولوج إلى عالم المعرفة والمعلومات في تخصصات شتى خاصة العلمية منها
				✓	22- في ميدان العمل والتوظيف، تعتبر الفرنسية اللغة الوحيدة التي تمكنني من اعتلاء مناصب عليا
	✓				23- الجزائريون الذي يقنون اللغة الفرنسية يتمتعون بمكانة مرموقة في المجتمع.
				✓	24- لقد أدت سياسة التعريب إلى انخفاض في مستوى التعليم في الجزائر.

Students' questionnaire (original version)

ولاية البسكرة

الرجاء وضع علامة x في الخانة المناسبة

الجزء الأول: معلومات شخصية

الجنس: ☒ ذكر ☐ أنثىعلوم ☐ تكنولوجيا ☒التخصص:
.....هل اخترت تخصص دراستك: شخصا ☒ فرض عليك من طرف الإدارة ☐ أخرى ☐

حدد ()

1/ أنت طالب في السنة الأولى، لغة التدريس عندكم هي اللغة الفرنسية. هل كنت تعلم بذلك قبل تسجيلك ؟

نعم ☒ لا ☐

2/ كيف هي قدراتك اللغوية في الفرنسية:

ضعيف نوعا ما	ضعيف	جيد	جيد نوعا ما	
			X	الفهم
X				التحدث
			X	الكتابة
		X		القراءة

الجزء الثاني : صعوبات التعلم

3/ هل في رأيك يواجه طلبة التخصصات العلمية مشاكل في التعلم؟

نعم ☒ لا ☐

- إلى ما ترجع هذه المشاكل: (حدد درجة الصعوبة)

أكثر صعوبة	متوسط الصعوبة	أقل صعوبة	
	X		مناهج التدريس
		X	ارتفاع عدد الطلبة في الأقسام العلمية
X			لغة التدريس
	X		مستوى الأساتذة
	X		عدد المقاييس
			أخرى (أذكر صعوبات أخرى)
			

4/ ماهى الاستراتيجيات التي يتخذها الأساتذة من أجل حل هذه المشاكل:

- ☒ - الترجمة إلى العربية
☐ - إعادة الصياغة (الشرح)
☒ - التبسيط
☐ - التكرار لعدة مرات
☐ - كتابة المفردات الجديدة على السبورة

- اقتراحات أخرى: الامتحان عامي، المحتوى صديق، فهم الطالب للمنهج

5/ هل فكرت يوما في تغيير الشعبة التي تدرس فيها بسبب اللغة الفرنسية كلغة تدريس؟

- ☒ لا ☐ نعم

6/ القدرات اللغوية في اللغة الفرنسية:

ص ك: صحيح كلياً ص ج: صحيح جزئياً خ ك: خطأ كلياً خ ج: خطأ جزئياً

ص ك	ص ج	خ ك	خ ج
X			أفهم الدرس وكل الذي يلقيه الأستاذ إضافة إلى الشرح
	X		أفهم ولكن لا أستطيع التعبير باللغة الفرنسية
		X	أستطيع أن أتدخل شفها باللغة الفرنسية
X			أستطيع قراءة الكتب العلمية المكتوبة بالفرنسية في تخصصي
X			يمكنني كتابة بحث أو فقرة باللغة العربية

- 17/ قراءة كتب علمية باللغة العربية يتطلب: ☐ وقتاً أكثر ☐ وقتاً أقل ☒ الوقت نفسه
- 18/ قراءة كتب علمية باللغة الفرنسية يتطلب: ☒ وقتاً أكثر ☐ وقتاً أقل ☐ الوقت نفسه

الجزء الثالث: مواقف الطلبة تجاه تعريب التخصصات العلمية

9/ استعمال اللغة العربية كلغة تدريس بدلا عن اللغة الفرنسية في التخصصات العلمية:

[illegible]

Appendix I : Samples of Classroom Observation Results

Teacher :	Lesson :	Date :
Number of students :	Time begins :	Time end :
Objectives of observation	Observed	Comments
1- The teacher explains the lesson and students are involved in the learning process.		
2- Students ask questions for more clarification and explanation.		
3- Some students give comments and motivate the other students to speak.		
4- Students' questions and answers are well-formulated.		
5- Students' questions are ambiguous.		
6- Students mix Arabic with French when interacting in the classroom.		
7- Students hesitate and take a long time before intervening.		
8- The learning process is teacher centred and students are passive.		

Classroom Observation

Teacher : <i>Ms. A. B.</i>	Lesson :	Date : <i>10/04/2017</i>
Number of students : <i>50</i>	Time begins : <i>11:00</i>	Time end : <i>12:30</i>
Objectives of observation	Observed	Comments
	<i>1 2 3 4 5</i>	
1-The teacher explains the lesson and students are involved in the learning process.	<i>✓</i>	<i>She explains the lesson in Algerian Arabic.</i>
2-Students ask questions for more clarification and explanation.	<i>✓</i>	
3-Some students give comments and motivate the other students to speak.	<i>✓</i>	
4-Students' questions and answers are well-formulated.	<i>✓</i>	
5-Students' questions are ambiguous.	<i>✓</i>	
6-Students mix Arabic with French when interacting in the classroom.	<i>✓</i>	
7-Students hesitate and take a long time before intervening.	<i>✓</i>	
8-The learning process is teacher centered and students are passive.	<i>✓</i>	<i>the students are passive.</i>

Classroom Observation

Teacher	Lesson :	Date :
Number of students : 70	Time begins : 9:30	Time end : 11:00
Objectives of observation	Observed	Comments
	1 2 3 4 5	
1-The teacher explains the lesson and students are involved in the learning process.	✓ ✓ ✓	the teacher explains the lesson student listen -
2-Students ask questions for more clarification and explanation.	✓	
3-Some students give comments and motivate the other students to speak.	✓ ✓	some of Arabic with French they are mixed.
4-Students' questions and answers are well-formulated.		
5-Students' questions are ambiguous.	✓ ✓ ✓	they ask in Arabic.
6-Students mix Arabic with French when interacting in the classroom.	✓ ✓ ✓ ✓ ✓	
7-Students hesitate and take a long time before intervening.	✓ ✓ ✓	they are afraid of asking questions they don't master the language
8-The learning process is teacher centered and students are passive.	✓	

Classroom Observation

Teacher :	Lesson : La loi Beer-Lambert	Date : 28/02/2017			
Number of students : 50	Time begins : 10	Time end : 10:45			
Objectives of observation	Observed	Comments			
	1 2 3 4 5				
1-The teacher explains the lesson and students are involved in the learning process.	X X	X X	X X	X X	the teacher uses Arabic from time to time to highlight
2-Students ask questions for more clarification and explanation.	X X	X X	X X	X X	usually in Arabic
3-Some students give comments and motivate the other students to speak.	X	X			
4-Students' questions and answers are well-formulated.	X	X			(in French)
5-Students' questions are ambiguous.	X				
6-Students mix Arabic with French when interacting in the classroom.	X	X	X	X	X
7-Students hesitate and take a long time before intervening.	X	X			they don't use French they use Arabic to ask questions
8-The learning process is teacher centered and students are passive.				X	X

Classroom Observation

Teacher :	Lesson :	Date : 21/04/2019
Number of students : 55	Time begins : 11 - 00	Time end : 12 : 30
Objectives of observation	Observed	Comments
	1 2 3 4 5	
1-The teacher explains the lesson and students are involved in the learning process.	☒	
2-Students ask questions for more clarification and explanation.	☒	
3-Some students give comments and motivate the other students to speak.	☒	
4-Students' questions and answers are well-formulated.	☒	
5-Students' questions are ambiguous.	☒	
6-Students mix Arabic with French when interacting in the classroom.	☒	
7-Students hesitate and take a long time before intervening.	☒	
8-The learning process is teacher centered and students are passive.	☒	

Classroom Observation

Teacher :	Lesson : les corps simples et les corps composés.	Date : 10/04 2017
Number of students : 40	Time begins : 11:00	Time end : 12:30
Objectives of observation	Observed	Comments
1-The teacher explains the lesson and students are involved in the learning process.	✓	the teacher does every thing
2-Students ask questions for more clarification and explanation.		they don't ask they listen to the teacher's ap
3-Some students give comments and motivate the other students to speak.	✓ ✓	Sometimes they translate the terms given by the teacher in Arabic
4-Students' questions and answers are well-formulated.		
5-Students' questions are ambiguous.	✓	students intervene together.
6-Students mix Arabic with French when interacting in the classroom. They use only arabic	✓ ✓	
7-Students hesitate and take a long time before intervening.	✓ ✓ ✓ ✓	
8-The learning process is teacher centered and students are passive.	✓ ✓ ✓	

Appendix J: Examples of Students' Exam Sheets

1/80

الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي و البحث العلمي
جامعة الدكتور - الطاهر مولاي - سعيدة

اللقب و الاسم
 تاريخ و مكان الميلاد
 الإمتحان
 رقم المرشح
 مادة

604 - S.M

لا يكتب المترشح
في هذا المربع

رقم

17/20

لا يكتب المترشح
في هذا المربع

رقم

مادة

exercice 01 :

1- Les definition :

informatique :

est la science liee a l'ordinateur

l'ordinateur :

est un ensemble de circuit electrique
 permettant de manipuler des donnees
 sous forme binaire 0-1, sous forme de bit
 en mode morte :

appelle morte car il n'est pas possible
 de cette memoire elle est inviolable dans
 le systeme, pour fonctionner efficacement le
 systeme

logiciel :

comme si il etait l'ordinateur mais sans
 il ne fait que ce que l'on lui a demande
 de faire un logiciel ou programme est un
 ensemble de code determinant des instructions
 que le processeur sera effectue le traitement
 de texte

قيمة الورقة

على

إمضاء المصحح

2180

①

les parties essentielles dans un ordinateur :

① - Matériel

ex : Mémoire central (RAM, ROM, carte graphique, ...)

+ processeur

② - logiciel

Windows

B.T.O.S

③ - trois exemples des systèmes d'exploitation :

① - Windows XP, 7, 8, ...

② - LINUX

③ - MS DOS

④ - trois exemples des systèmes de numération :

① - système décimal : (0, 1, 2, 3, 4, 5, 6, 7, 8, 9)

② - " binaire : (0, 1)

③ - " octal : (0, 1, 2, 3, 4, 5, 6, 7)

ex :

① - décimal $\Rightarrow 24$ ② - binaire $\Rightarrow (11000)_2$ ③ - octal $\Rightarrow (31)_8$

3/80

* لا يكتب أي شيء هنا *

Exercice 02:

Répondre par Vrai ou faux:

1. L'ordinateur est une machine intelligente $\Rightarrow$ Vrai parce que il programme pour les calculs, etc.

2. La mémoire morte est une mémoire volatile $\Rightarrow$ Vrai elle est un non volatile dans le système

3. Le BIOS est le matériel puis du logiciel $\Rightarrow$ Vrai parce qu'il BIOS est vérifier le matériel utiliser son logiciel

4. Le système d'exploitation permet de lier le matériel et les application utilisateur $\Rightarrow$ Vrai

S.O est un ensemble de programme il permet de faire le lier entre le matériel d'une machine et les application utilisateur

4/80

أسماء وتوقيع الحراس

1

2

Exercice 032

Algorithme : calcul

Var

calculer le volume d'un cube

Debut

ecrir : (calculer le volume d'un cube)

lire : la surface a et b

Donner

 $h = ?$

21

8

Fin

3

2

الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي و البحث العلمي
جامعة الدكتور مولاي الطاهر - سعيدة

A

اللقب و الإسم
تاريخ و مكان الميلاد
الإمتحان
رقم المرشح
القم
الكلية

لا يكتب المترشح
في هذا المربع

04
رقم
20

المادة
Energie

Les énergies renouvelables
On dit les énergies qui ds le
sont de capables
Les énergies on dit renouvelables
qui ds le sont de capables.
Energie renouvelable on appelle aussi
énergie propre et énergie verte
car ils ont peu de déchets d'émission
polluante.

Les énergies fossiles sont polluantes parce
que c'est une énergie non renouvelable
chimiquement appartient à la famille
des hydrocarbures
Les hydrocarbures se sont formés
en condition de la température et
pression et décomposition de la matière
organique.

لا يكتب المترشح
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رقم

قيمة الورقة

على

إمضاء المصححين

p/6

A

A

Il n'a été de pollution :

Énergie nucléaire (pollution de l'air
 1.1. thermique et de l'eau
 1.1. de la biomasse pollution de
 1.1. marine l'usine
 1.1. de
 1.1.

Énergies renouvelables dont même
 par ce que il y a pas les déchets
 chimique Il est très par
 Il n'a pas pollution de l'air est
 des sources capables

1. Les types des énergies :

- 1.1. énergies hydraulique
- 2.1. " géothermique
- 3.1. " de la biomasse
- 4.1. " marine
- 5.1. " solaire
- 6.1. " éolienne

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A

la source d'énergie extrait une
triple hydraulique et ediam est une
use de Soleil et source de la
mière source de électricité

on utilise le Soleil comme source
d'énergie car
il n'y a aucun gaz effet
énergie Soleil est nécessaire pour
la communication de télécom
et une permettant une plusieurs sources
de soleil. Il est appelé
photo-voltaïque effet

des types exploitation de la
énergie géothermie
la pression
la température
la décomposition de la matière

est constitué de la biomasse
équivalent la matière

C

2) Constituants de la biomasse :

on distingue trois 1) biomasse lignocellulosique

2) biomasse à glucide

3) biomasse algues

3) valorisation de la biomasse

1) conversion thermo-chimique

2) conversion biologique - le biogaz
- le compost

3) sous forme d'additifs dans

- les huiles végétales

- le biodiesel

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C

الطاقة المتجددة :

هي الطاقة التي تتجدد باستمرار ولا تنضب
مثل الشمس والرياح

تلوث هوائي

تلوث غازي

الأنواع من الطاقة غير المتجددة

مصادر الطاقة الهيدروليكية

ماء

مصادر الطاقة الشمسية

نستخدم الشمس كمصدر للطاقة

نحوّل الطاقة الشمسية إلى طاقة كهربائية

0.5

الجمهورية الجزائرية الديمقراطية الشعبية
وزارة التعليم العالي و البحث العلمي
جامعة الدكتور مولاي الطاهر - سعيدة -

اللقب و الاسم
تاريخ و مكان الميلاد
الإمتحان
رقم المرشح
القسم
الكلية
م. ف. الطاهر

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B

رقم

المادة Informatique

04
20

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رقم

الordinateur

الordinateur est un ensemble de circuits
permettant de manipuler des
données sous forme binaire sous forme
graphique. Comme il a été dit, l'ordinateur
permet de faire des calculs. Ce qui a
entraîné la demande de faire un logiciel.

قيمة الورقة

على

parties essentielles dans un ordinateur

إمضاء المصححين

Donner deux exemples de système
d'exploitation. Le système d'exploitation
gère les ressources matérielles et
la mémoire.

exercice 023

I)

1) $A8 = (10001010)_2$ ✓

2) $(38)_8 = (011000)_2$ ✓

3) $15 = (001101)_2$ ✓

II)

1) $32 \text{ bits} = 2^{-18} \text{ Mo}$ ✓

2) $2^{12} \text{ Ko} = 2^4 \text{ Mo}$ ✓

3) $8 \text{ Go} = 2^{13} \text{ Mo}$ ✓

III)

1) $32 \text{ bits} + 2 \text{ Bytes} = 2^3 \text{ octets}$ ✓

2) $16 \text{ bits} + 8 \text{ octets} = 2^3 \text{ octets}$ ✓

* لا يكتب أي شيء هنا *

B

$$1^{\text{er}} \text{ MO} + 3 \text{ GB} = 4 \text{ GO} = 2^2 \text{ GO}$$

$$2^{\text{e}} \text{ octets } 2^{11} \text{ MO} = 2^2 \text{ GO}$$

1. Cice 038

ordinateur est une machine intelligente mais
le processeur est une machine simple

mémoire vive est une mémoire volatile
La mémoire vive est une mémoire volatile

BIOS est le matériel pré-logiciel
Le BIOS est le logiciel pré-matériel

système d'exploitation permet de
le matériel et les applications utilisateur
Le système d'exploitation permet de
le matériel d'une machine et les
applications utilisateurs

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G

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Sattapage Informatique

2019-2020

les définition des termes suivants

informatique

une machine qui travaille sur les
données et les machines intelligentes

ordinateur : une machine intelligente
capable de faire et lire des applications
calculer ou faire des programmes

logiciel : une partie de l'ordinateur
on utilise pour travailler sur
l'ordinateur

mémoire morte - est une mémoire
statique

les parties essentielles dans l'ordinateur :
système logiciel

matériel : la mémoire vive, la mémoire
morte, le processeur

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على

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logiciels: les application les programme

3). trois exemples sur le système
d'exploitation
le clavier la carte mère la carte
mémoire

Exercice n° 2

* Vrais

justifier: permet de calculer et
faire des programme

* Vrais

justifier: elle contient tout les
information sur l'ordinateur

* Faux

justifier: et un matériel présente
l'ordinateur (le système)

* Vrais

justifier: il lie les matériels comme
le clavier avec les application pour on
peut utiliser l'ordinateur

* لا يكتب أي شيء هنا *

G

exercice n° 38

logitheme calcul

variable

une cube - entre;

s h - réel;

ébut

rise ('Donner le volume de cube');

re (volume de cube);

← volume de cube;

relig;

← $(s \cdot h) \times 2$.

rise ('Donner la valeur de volume de cube');

fin.

program pascal

program calcul;

var

s, h: réel;

begin

write ('Donner la comparaison des deux nombre');

read (x, y);

write ('la valeur de premier nombre');

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مادة informatique

exercice 01
ordinateur
l'ordinateur est un ensemble des
accusés électrique.
l'informatique est la science liée
à l'ordinateur
qui est un suite des codes
numériques des instructions que le
microprocesseur effectue le traitement le texte
l'ordinateur est une mémoire
électronique.

les parties essentielles dans un ordinateur

exemples des systèmes d'exploitation
gestion de la mémoire
application et gestion de l'interface matériel
et de base de programmation.

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على

إمضاء المصحح

4) trois exemples de système de numération

- Binaire $(0, 1) \rightarrow (1111)_2$

- octal $(0, 1, 2, 3, 4, 5, 6, 7) \rightarrow (53)_8$

- décimal $(0, 1, 2, 3, 4, 5, 6, 7, 8, 9) \rightarrow (127)_{10}$

exercice 02:

- l'ordinateur est une machine intelligente : vrai

- La mémoire morte est une mémoire volatile : faux

- La mémoire morte est une mémoire non volatile : vrai

- Le BIOS est du logiciel : vrai

- Le BIOS est du matériel : faux

* لا يكتب أي شيء هنا *

F

Le BIOS et le logiciel près du matériel.

Le système d'exploitation permet de lier le programme matériel et les applications utilisateurs. faux
Le système d'exploitation permet de lier le programme et les applications utilisateurs.

exercice 03:

un algorithme sera comme suite:
algorithme calculare
- constant $PI = 3,14156$
variable
surface (rayon)² * PI

un programme pascal sera comme suite:
les nombres reels

- Les énergies sont polluantes car :
- + L'air pollue
 - + crée des gaz et déchets toxique
 - + inépuisable à l'échelle d'humains

3° Les énergies renouvelables sont propre parce qu'elles dépendent de l'environnement et ses composantes non pas polluer

4° Les types des énergies non renouvelables :

- ① + Énergie fossile [1 - pétrole
2 - Gaz naturel
3 - Carbone]
- ② + Énergie fission : fission d'une noyau atomique (Uranium)

5° Les centres hydraulique : "La source"

- + La source qui l'obtient à partir "du mouvement de l'eau"
- + La source extrait une centrale éolienne qui dépend du "vent"

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D

En utilisant le soleil comme source
d'énergie : + les panneaux photovoltaïques
+ les centrales solaires thermiques

Les types d'exploitation de la géothermie :

Très basse → Température
basse → Énergie
Moyenne et Haute → Énergie

Profondeur	Température	Profondeur	Utilisation
tr	$T > 150^{\circ}$	1500 m - 3000 m	Électrique
u	$30^{\circ} - 90^{\circ}$	1000 m	Électrique
et basse	$T < 30^{\circ}$	100 m	industrielle

أسماء وتوقع الحراس

D

1

2

8° Les constituants de la biomasse :

1) Lignocellulosique :

- le bois
- le fourrage

2) Glucide :

- les céréales
- les betteraves sucrières
- les cannes à sucre

3) Lipides :

- Huile de palme
- de tournesol
- d'olive

9° Les procédés de valorisation de la biomasse

- Le charbon
- L'électricité