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A COMPARATIVE STUDY OF TEACHING ESP IN THE LMD SYSTEM IN ALGERIAN AND FRENCH UNIVERSITIES: THE CASE OF THE FACULTIES OF SCIENCES IN TLEMCEN AND PARIS- SUD UNIVERSITIES

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DEDICATION

To the closest persons to me who switch on candles of light around me, to:

- My dear parents for their moral help,
- My husband for his permanent presence and continuous support,
- My lovely children,
- My two sisters, their husbands and children,
- My grand mothers,
- My friends.

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Abstract

The LMD system as a higher education reform has brought many reconsiderations to ESP teaching in worldwide universities. The present research aims at evaluating the state-of-the-art of ESP instruction in Algerian universities. To do this, the researcher undertook a comparative study of teaching ESP in the LMD system in Algeria and France and focused on one EST teaching/ learning situation, namely that of Physics third year Licence students in the Faculties of Sciences at the level of the Universities of Tlemcen and Paris-Sud. The choice of France was done on purpose since it was one of the first countries to adopt the LMD reform and succeeded in the implementation if its different principles and tools in its universities. To carry out the present study, the researcher multiplied the research instruments and data sources to collect the necessary data in both settings. Thus, this work includes ESP Master students' and teachers' interview, third year Licence students' questionnaire, observation of ESP classrooms and observation of authentic use of the target language. The results obtained revealed that apart from introducing ESP courses at an early stage in Algerian universities, i.e. at the level of the Licence degree like in the other countries which have implemented such a reform, no other reconsiderations have been brought to the teaching of ESP under the LMD system. As opposed to France, ESP teaching in Algeria is still failing to cope with students' target needs and facing a lot of shortcomings in terms of learning conditions and teacher training, teaching load, materials and aids. Therefore, based on the results obtained and on the French model, the researcher suggested some important measures and practices to be implemented to ESP instruction in Algerian universities, in order to concord with the principles of both the LMD system and ESP approach. These measures aim to reach teaching quality, course effectiveness and cope with students' target needs.

TABLE OF CONTENTS

Chapter Two: The LMD System: Emergence, Structure and Implementation

<u>Chapter Four</u>: Data analysis, Interpretation of Results and Comparisons

LIST OF TABLES

LIST OF FIGURES

LIST OF BAR-GRAPHS AND PIE-CHARTS

Bar- Graphs

Pie- Charts

LIST OF MAPS

LIST OF ABBREVIATIONS

BFUG: Bologna Follow-Up Group

BULATS: Business Language Testing Service

CIS: Commonwealth of Independent Countries

CLES: Certificate for Competences in Languages for Higher Education

COLT: Communicative Orientation of Language Teaching

DS: Diploma Supplement

EAP: English for Academic Purposes

EBE: English for Banking and Economics

ECTS: European Credit Transfer and Accumulation System

EFL: English as a Foreign Language

EFTA: European Free Trade Association

EHEA: European Higher Education Area

ELT: English Language Teaching

ENQA: European Association for Quality Assurance

EOP: English for Occupational Purposes

EQAR European Quality Assurance Register

EQF: European Qualifications Framework

ERA: European Research Area

ESP: English for Specific Purposes

ESS: English for Social Sciences

EST: English for Science and Technology

ESU: European Students Union

EU: European Union

EURASHE: European Association of Institutions in Higher Education

ICT: Information and Communication Technology

IOHE: Inter-American Organization for Higher Education

M1: First year Master

M2: Second Year Master

LMD: Licence-Master-Doctorate

NIA: Needs Identification and Analysis

NQF: National Qualifications Framework

PSA: Present Situation Analysis

TEMPUS: Tran-European Mobility Programme for University Studies

TOEFL: Test of English as a Foreign Language

TOEIC: Test of English for International Communication

TSA: Target Situation Analysis

UNESCO: United Nations Educational, Scientific and Cultural Organization

USA: United States of America

GENERAL INTRODUCTION

The 21st Century is increasingly characterized by the tremendous interdependence between the different parts of the world in different fields. This is occurring under the pressure of globalization: a process of international relationships and interdependence in the various economic, political, scientific, technological, social, as well as cultural activities and movements worldwide.

Such a global interconnectivity has generated an urgent need for an international means of communication which has been attributed to the English language. The latter has, thus, shifted from its previous status of colonial language, in some countries, to the position of vehicle of communication between the different nations under the label of "lingua franca". As a result, English has become the world's prime international language assuring access to scientific exchanges, technological development and business negotiations. In short, it has become a key issue for growth in general. This world-wide recognition of the English language and of its importance, favoured the promotion of English language teaching (ELT) in many parts of the world, and our country is no exception.

Since the early 1960's, ELT has gone through several methods and approaches. However, today's motto seems to be teaching English as a means of communication. Therefore, English teaching is seen as having a wider role to play than merely the familiarization with the civilization and culture of the target language. Rather, it is the utilitarian and practical aspect of English at the international scale, be it economic, scientific, political or even social, which allows such a language to enjoy the place it occupies, and which is most focussed in today's English Language Teaching (ELT) policies. This resulted in the expansion of one particular aspect of ELT namely English for Specific Purposes (ESP). As with any development in human activity, ESP was not a planned movement but rather the result of a number of converging trends specifically: the enormous expansion in scientific, technical and economic activities, the advent of modern linguistics and the attention given to

language functions and, finally, the emphasis on the central importance of the learners and the consideration of their different needs and interests. Consequently, ELT saw the development of English courses for specific groups of learners according to the linguistic demands of their required area of work and/or study. Courses were to be designed in accordance with the different learners' requirements in order to sustain motivation and promote effective learning.

Therefore, ESP has become an important, if not the most important, part of English language teaching, today. Still, it is not considered as any particular language product but as an approach to language teaching in which all decisions about content and method are based on the learners' reasons for learning.

With the recognition of the diversity of learners' needs, aspirations, learning styles, levels of proficiency, expectations and motivation, a need for designing teaching materials adapted to particular learners' needs was generated in many schools, universities and higher institutions worldwide. Such a need was strongly felt in the technological, scientific and economic fields where English is used as a means for access to up-to-date documents and discoveries, international meetings and conferences as well as a key for further studies and future professional careers. As a matter of fact, at the tertiary level, many departments have responded to this increasing demand for specific academic and occupational courses.

However, just as globalisation promoted English as the world's prime international language and favoured its necessity and specific use in various fields, it has also influenced the different educational systems throughout the world and mainly the tertiary one. Such an impact resulted in the birth of a new higher education reform embodied in what is nowadays known as the LMD system. This system, originally initiated by European countries, is a new way of organising higher education aiming at harmonising its different degrees, providing better academic opportunities to the whole university staff, entailing cooperation as well as competition between the different universities nationwide and enhancing their role as important contributors to the building of knowledge- based societies.

Like many young nations willing to extend her commercial and scientific exchanges with various countries in the world, Algeria officially introduced the English language as a second foreign language from the middle school to the university. At university level, English is taught as the main subject in the Departments of Foreign Languages. In the remaining departments, such as those of Economics, Law, Physics, Engineering and Computer Sciences, it is taught as a compulsory module to equip students with the specific register and vocabulary needed in their fields of specialisation, through ESP courses. Moreover, as a country following the flow of globalisation, Algeria also introduced and implemented the LMD system at the level of her higher education institutions. This reform was, firstly, put into practice as a pilot process during the academic year 2004- 2005 before being generalised at the national level of the following years. Through this reform, Algerian authorities seek an opening to global developments, especially those of science and technology. The LMD system, as an international higher education reform has reviewed the place of ESP courses in the different curricula and introduced its teaching at previous stages than before. In Algeria, ESP courses are nowadays provided in different institutions nationwide beginning from the Licence degree, whereas they used to be introduced at the level of post- graduate studies under the formerly applied classical system.

A previous research undertaken by the researcher revealed that ESP teaching was not adequately performed within the classical system and did not cater for students' actual necessities, lacks and wants, both in terms of content and methodology. The needed skills and language knowledge required in the target situations were completely neglected in the syllabus and the teaching was offered by untrained and inexperienced teachers for whom delivering an ESP course was really a struggle (Hemche, 2006). The aim of the present work is to investigate the teaching of ESP in Algeria under the relatively newly applied LMD reform. Such a reform aims primarily at ensuring quality teaching through rendering worldwide universities more responsive to the challenges posed by globalisation. Therefore, the researcher aims to investigate whether ESP instruction has appropriately been reviewed, under this system, at the level of Algerian universities and if it copes with students' target needs and, hence, entails better outcomes than its teaching under the classical system.

France is considered as one of the leading countries regarding the implementation of the LMD system, its architecture and principles are concerned. Therefore, in order to evaluate ESP instruction under the LMD system in Algeria, a comparative study will be undertaken, throughout this work, between Algerian and French universities as far as ESP teaching in the LMD system is concerned. The purpose behind this process is to collect facts about how such a process is undertaken in Algerian and French universities, then, contrast the two situations with the aim of depicting any drawbacks or difficulties and providing therefore some adequate solutions.

For the sake of fulfilling the intended comparative study, focus will be put on an English for Science and Technology (EST) situation, more precisely, that of third year Licence students in the Departments of Physics at the level of the Faculties of Sciences, in the Universities of Tlemcen and Paris. These students have been chosen on purpose since during their third year Licence, Physics students start specialization in the domain of Physics. Therefore, their target needs from the English language are well defined, and the researcher wants to check if these are well responded to through the changes brought by the LMD system to ESP instruction, in both settings.

Accordingly, the main issues of the present study revolve around the following research questions:

1- Which changes has the LMD system brought to ESP instruction in Algeria and France?

2- Do these changes cope with students' academic and professional needs?

3- Is ESP instruction provided within the LMD system in Algerian and French universities similar or different?

4- How can ESP instruction be improved in Algeria to reach international standards?

The above mentioned questions led to put forward the following hypotheses:

1- The LMD system has reviewed the place of ESP instruction and introduced it at the level of the Licence. This initiative brings reconsiderations to ESP instruction especially in terms of teaching load, materials, training, evaluation as well as other facilities, such as language laboratories and multimedia tools. The fact is that the LMD system offers two different directions to students: academic and professional, leading to design tailor-made courses.

2- The changes introduced to ESP teaching within the LMD reform will probably better cater for students' target needs, in both Algerian and French settings. Such a system targets teaching quality, enables students to define and build their academic profiles through personal initiatives, and prepares them for subsequent vocational and professional careers, through a more learner-centred approach to teaching.

3- The LMD aims at harmonizing higher education systems worldwide. Thus, Algeria and France are supposed to have paved the way for the same re-adjustments and changes imposed by this reform and thus providing the same type of instruction in the various domains including the ESP and, hence, EST ones.

4- ESP instruction can reach international standards in Algeria only if it is appropriately and adequately implemented within the institutions concerned. This requires the introduction and application of modern

concepts and procedures that must not only be accompanied by corresponding re-adjustments but infrastructural development as well. This implies the provision of material resources, human resources and up-to-date facilities, in addition to a permanent follow-up and evaluation of the dynamics of ESP instruction, in Algeria, which has to be initiated in order to be constantly at the level of the quality and proficiency expected.

In order to check the validity of the hypotheses put forward, the researcher will make use of five research instruments, in both settings. Two of them will be used to have a clear picture of the requirements of the target situation, namely, Master students' interview and an observation of the target uses of the language. The three remaining research instruments, which are a structured interview with ESP teachers, a questionnaire with ESP students and classroom observation, will be used to highlight the current ESP teaching/learning situations in Algerian and French universities.

The present work consists of five chapters. The first chapter provides a broad overview of English for specific purposes covering its appearance, definitions and classifications. After that, the researcher focuses on one of its most important subdivisions, used by the scientific community, EST. This category of ESP is, then, defined, classified and contrasted to General English. Moreover, its main discourse patterns are displayed as well as the main parameters involved in its teaching and learning.

The second chapter revolves around an introduction to the LMD system as a world higher education reform. The main factors favouring the appearance of such a reform are discussed, especially globalization and the Bologna Process. Accordingly, the different Bologna Ministerial meetings, which established this system's principles, are presented. Besides, the different Bologna transparency tools and their functioning, as well as the LMD related vocabulary are explained. At the end of this chapter, the

researcher focuses on the implementation of the LMD system in Algeria and France and the different incentives and processes lying behind its adoption, in each setting.

The third chapter is divided into two parts. The first one focuses on the situation analysis and provides the EFL and ESP situations in each setting. After that, the ESP situation at the level of the Departments of Physics in the Universities of Tlemcen and Paris-Sud are presented, covering the status of ESP courses in these departments as well as their teaching load. The second part of this chapter deals with the research methodology. It presents the research design, the informants and research tools used to carry out this research.

In the fourth chapter, the data collected, in each setting, through the aforementioned research instruments are analysed. After that, they are discussed then contrasted. The aim behind this process is to evaluate ESP instruction under the LMD system in Algeria, as opposed to the one provided in France, one of the leading countries in terms of the LMD system. This comparison will give the researcher an idea about the type of re-adjustment that should be brought to ESP teaching in Algeria in order to remedy the detected drawbacks.

In the fifth and last chapter, some suggestions and recommendations based on the results obtained from the comparison undertaken are presented. These remedial actions are hoped to overcome the difficulties identified and adjust EST teaching in particular and ESP teaching in general under the LMD system and make them reach international standards in Algeria.

Chapter One

English for Science and Technology

1.1. Introduction

1.2. The Emergence of ESP

1.3. Definitions of ESP

1.4. Classification of ESP

- 1.4.1. English for Academic Purposes (EAP)
- 1.4.2. English for Occupational Purposes (EOP)
- 1.4.3. EAP vs. EOP

1.5. English for Science and Technology

- 1.5.1. Definition of EST
- 1.5.2. The Importance of EST
- 1.5.3. Categorization of EST
- 1.5.4. EST vs. General English
- 1.5.5. EST Discourse Patterns
- 1.5.6. EST Rhetorical Functions
  - 1.5.6.1. Description
  - 1.5.6.2. Definition
  - 1.5.6.3. Classification
  - 1.5.6.4. Instruction
  - 1.5.6.5. Visual- verbal Relationships
- 1.5.7. EST Style and Characteristics

1.6. Teaching EST

- 1.6.1. The Development of ESP Teaching Theories
- 1.6.2. EST and Course design

1.6.2.1. Needs Identification and Analysis (NIA)

(i) Definition and Rationale of NIA

a. Sources

b.Triangulation

c. Multiple Methods

(ii) Models of NIA

i. Target situation Analysis (TSA)

j. Present Situation Analysis (PSA)

k. The Learning- Centered Approach

l. The Learner- Centered Approaches

m. Deficiency-Analysis

n. Strategy Analysis

o. Means Analysis

p. Language Audits

1.6.2.2. Syllabus Design

(i) Definition of a Syllabus

(ii) Variables in Syllabus Design

(iii) The Design Process

a. Setting Objectives

b. Selecting and grading Content

c. The Choice of the Syllabus

(iv) EST Syllabus Design

1.6.2.3. Materials Production

1.6.2.4. Teaching

1.6.2.5. Assessment

1.7. Conclusion

1.1. Introduction

From the 1960's onwards, there has been an increasing need to use English for the expression of knowledge within specific professional and educational fields. A clear sample of this demand is the way in which international communication takes place, no matter whether English is used in the world of science and technology or in foreign trade activities. All these demands and requirements fostered the expansion of one particular aspect of ELT, namely the teaching of academic and professional English more commonly known as English for Specific Purposes or simply ESP.

The present chapter starts by providing some broad generalities about this particular type of English including its appearance, definitions and classification. The widespread need and use of ESP in many fields led to its division into many sub-branches. However, throughout this chapter, emphasis will be put on one of its most important subdivisions, used in all scientific and technical communities, called English for Science and Technology (EST). This variety of English is somehow different from the daily and literary one, this is why its typical characteristics and discourse patterns will be highlighted as well as the main parameters involved in its teaching.

1.2. The Emergence of ESP

The relevance of the English language is continually increasing as more and more people are being required to express themselves in this language, especially within the scientific community. Access to much scientific and technical literature is becoming increasingly difficult for those with no knowledge of English. Moreover, the growth of business and occupational mobility among countries world-wide is resulting in a need for the English language as a common medium of communication. Besides, students enrolled in graduate and post- graduate studies have usually completed one or more courses of English and need to further deepen their knowledge in that language for academic purposes or for particular reasons connected with their research or future jobs.

In contrast with their previous learning experience, those students are well aware of their purpose in learning the English language and feel frustrated with the general English courses provided to them, which are not immediately relevant, while a real-life need exists for them to use the English language outside the language classroom.

In this light, Duff (2001: 606- 607) begins her article stating:

> In order to study or work in mainstream or English dominant contexts requiring high levels of English proficiency, increasing numbers of children and adults must learn ESL, both as a means of learning and doing other things... [in] academic and professional fields...

Hence, English as a foreign language can no longer enjoy the prestige of living in an ivory tower detached from the rest of the academic or professional worlds. It has, on the contrary, the responsibility of initiating the students to these communities.

1.3. Definitions of ESP

Educators and scholars throughout the world are expressing great interest in ESP since this relatively new phenomenon seems to hold promise for a more effective and genuinely useful English language instruction. Therefore, several definitions of ESP have been put forward. Harmer (1983: 1), for instance, defines ESP as***:"…situations where the student has some specific reasons for wanting to learn a language.*** That is to say, in an ESP situation, the learner wants to learn the target language in order to achieve specific ends.

This definition is supported by Mackay and Mountford (1978: 2), who state that ESP

> ***…is generally used to refer to the teaching of English for a clearly utilitarian purpose. This purpose is usually defined with reference to some occupational requirement, e.g. for international telephone operators…or vocational training programmes, e.g. for hotel and***

catering staff…or some academic or professional study, e.g. engineering…

This statement means that in ESP, English is taught to meet a specific purpose. Such a purpose rests upon the learners' occupational (e.g. banking) or academic (e.g. engineering) requirements.

Robinson (1980: 3) provides a rather similar definition of ESP by saying: ***"…an ESP course is purposeful and is aimed at the successful performance of occupational or academic roles".*** In other words, Robinson too associates ESP learning with purposes that can be either occupational or educational.

On the other hand, ESP is seen as a set of vocabulary, grammar, etc, used by speakers in a specific context. This view is held by Mackay and Mountford (1978: 4) who consider ESP as "***…a restricted repertoire of words and expressions selected from the whole language because that restricted repertoire covers every requirement within a well defined context, task or vocation".*** This means that the ESP learner has to acquire the linguistic repertoire and make use of the underlying methodology and activities related to the field he is working or studying in.

Based on a thorough study of the ESP definitions found in the literature, Dudley-Evans and St John (2009:5) set out an extended and overall definition of ESP in terms of absolute and variable characteristics:

A/Absolute Characteristics:

- ESP is designed to meet specific needs of the learners;
- ESP makes use of the underlying methodology and activities of the disciplines it serves;
- ESP is centred on the language (grammar, lexis, register), skills, discourse and genres appropriate of these activities;

B/Variable Characteristics:

- ESP may be related or designed for specific disciplines;
- ESP may use, in specific teaching situations, a different methodology from that of general English;
- ESP is likely to be designed for adult learners, either at tertiary level institution or in a professional work situation. It could , however, be based for learners at secondary school level;
- ESP is generally designed for intermediate or advanced students;
- Most ESP courses assume basic knowledge of the language system, but it can be used with beginners.

Such a division of ESP into absolute and variable characteristics is particularly helpful in clarifying what is and is not ESP. It asserts that ESP is not necessarily related to a specific discipline, nor does it have to be restricted to a specific age or ability group.

Thus, ESP is not an end in itself but mainly a means to achieve such an end. Broadly speaking, it aims to increase the linguistic potentialities of a given group of learners who need English to carry out their occupations or studies. In other words, ESP courses aim to develop in the learners concerned an acceptable command of the receptive and productive skills required to understand information written or delivered in English and to communicate in this language. For this reason, ESP is considered as part of the recent trend within the ELT sphere towards a more communicative basis for teaching and learning within a given context (Escribano, 1999).

1.4. Classification of ESP

Belcher (2006:134) says that ESP now encompasses an “ever -diversifying and expanding range of purposes”. This development of ESP led to its subdivision into many sub-branches. Nevertheless, it has become common to make a distinction between two main orientations of ESP namely English for Academic Purposes (EAP),

which began as the dominant branch, and English for Occupational Purposes (EOP). However, in the last few years, a third subdivision of ESP has come to the fore, very rapidly, called English for Science and Technology (EST). In what follows, each branch will be defined.

1.4.1. English for Academic Purposes (EAP)

EAP aims at helping learners to study, conduct research or teach. In other words, EAP is a study-oriented branch of ESP (Mc Donough, 1984) which shows the learner how to study through the medium of English. In the same vein, Robinson (1980: 7) posits: ***"English for Academic Purposes or study skills, i.e. how to study through the medium of English regardless of the subject matter or of the studies."***

In other words, EAP courses seek to help the students specialise in a particular field of study in an educational institution so as to be able to update knowledge and keep abreast of the latest developments in their specialities. This is supported by Kennedy and Bolitho (1984: 4) who write: ***"EAP is taught generally within educational institutions to students needing English in their studies".***

This branch of English language teaching involves the learning of specific skills such as listening to lectures, note taking, reading in the specialised field, writing reports and research articles, taking part in group discussions, maintaining a point of view, interpreting graphs, diagrams and tables, and so on.

1.4.2. English for Occupational Purposes (EOP)

English may also be required in employment situations; in such a case, its teaching is activity-oriented and this area of ESP is referred to as EOP. In this sense, Kennedy and Bolitho (1984: 4) write: ***"EOP is taught in a situation in which learners need to use English as part of their work or profession."*** Thus, EOP applies more to every day needs of working people. It includes professional purposes in

administration, medicine, law and business. To illustrate this point, we may say that a businessman will need English to specialise in commercial language.

1.4.3. EAP vs. EOP

Robinson (1991: 100) differentiates between EAP and EOP stating: ***"EAP is thus specific purpose language teaching, differentiated from EOP by the type of learner: future or practising student as opposed to employee or worker".*** Thus, each of these ESP branches can be sub-divided according to the disciplines or occupations with which it is concerned, as shown in the figure below:

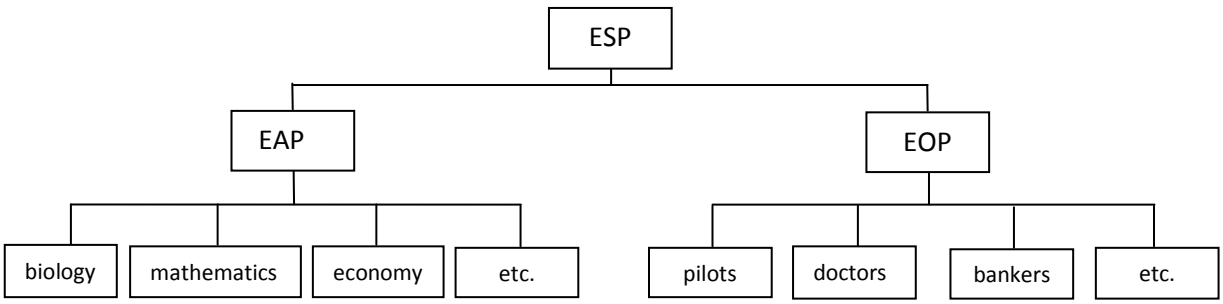


Figure 1.1: The two Major Branches of ESP
(Flowerdew and Peacock, 2001: 12)

Both of EAP and EOP courses include different types of language training that can precede, follow or be simultaneous with the studies or occupation. This is clearly summarized in the following diagram:

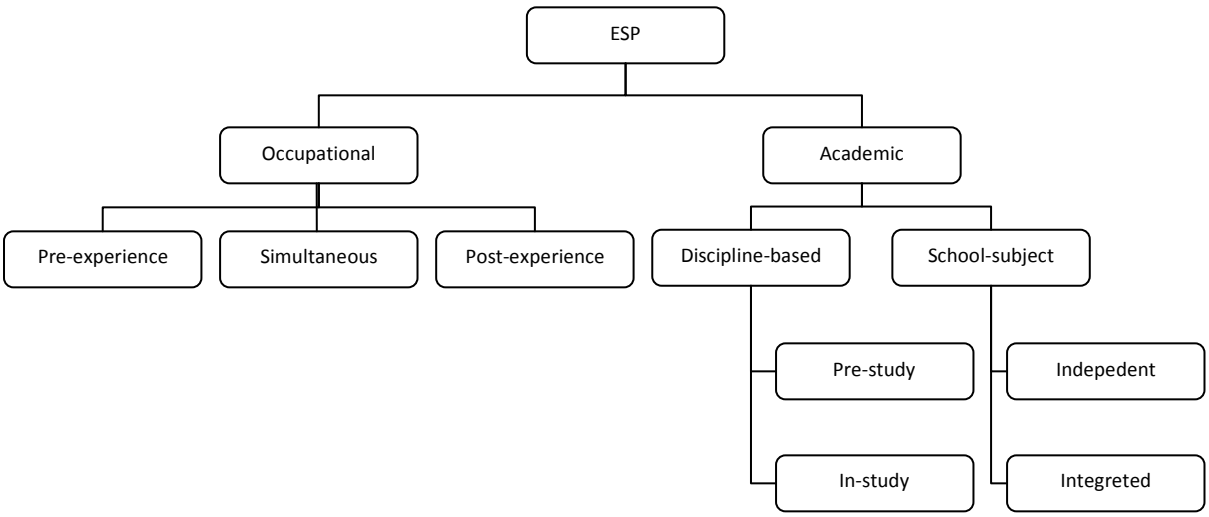


Figure 1.2: Types of ESP Courses

(Kennedy and Bolitho, 1984: 5, adapted from Stevens, 1977)

Within EOP, we distinguish three types of language courses:

- Pre-experience: English courses precede the training.
- Simultaneous: English is learnt during the training.
- Post-experience: English learning follows the training.

Speaking about EAP, the language training is either:

- Discipline-based : here again, the language training can either precede (pre-study) or be simultaneous (in-study) with the specialization, or

- A school-subject, where a distinction is made between independent and integrated language courses. In the former, English is isolated from the other courses whereas in the latter, English is integrated in one or more courses.

To end this classification, it is worth mentioning that each situation implies a kind of “content knowledge” that the ESP practitioner is required to deploy and a

degree of generality or, by contrast, specificity of the ESP course (Robinson, 1980). Furthermore, when we come to look at the skills that students need in any field, it is arguable that they may be very similar to the skills needed by professionals in the same field (Blue, 2001). The table below is an attempt to show some of the similarities that may exist. Study activities and the corresponding professional activities both draw on essentially the same language skills. Thus, students may be expected to attend lectures and seminars, whilst professionals might take part in presentations and meetings. The language skills needed might be very similar though.

Study Activities	Skills Required	Professional Activities
Lectures	-Listening to understand content -Listening for key words and phrases -Making notes -Asking questions	Presentations
Seminars	-Asking and answering questions -Understanding and expressing different points of view -Reporting on work done -Making notes	Meetings
Reading textbooks, articles, etc.	-Understanding the overall content -Distinguishing main points from supporting detail -Skimming, scanning, evaluating -Making notes.	Reading Reports
Writing essays, dissertation	-Construction of reasonably accurate sentences and paragraphs -Good organization of ideas.	Writing reports, letters, etc.

Table 1.1: Study and Professional Activities

(Adapted from Blue, 2001)

1.5. English for Science and Technology (EST)

EST emerged in the 1950's. It was the outcome of the swift development of science and technology after the First World War. Since the 1970's, EST has aroused extensive attention and led to much research among various nations. It is a major variety of English which is somehow different from the daily and literary one, since it has appeared with its own typical characteristics. Nowadays, EST has established itself as a major branch of ESP.

Since the main concern of the present research focuses on ESP learners studying English for Science and Technology, this branch will be tackled in details in order to have a clear picture of the different aspects characterising EST and the various parameters that should be taken into account from the part of teachers and learners. To do such, it would be likely to start with a thorough definition of the concept of EST.

1.5.1. Definition of EST

EST is a cover term used for all research and industrial activity designed to understand and support the effective use of English in scientific and technical fields. In this light, Kennedy and Bolitho (1984: 6) state that EST grew out of the demand of ***"…scientists and technologists who need to learn English for a number of purposes connected with their specialities***". In other words, EST is designed to help undergraduate and graduate students as well as professionals become more comfortable using English as a common language in the fields of science and technology.

For this reason, EST focuses attention on the needs of the learners, needs that may be specified in terms of the "precise area of language required, skills needed, and the range of functions to which language is to be put" (Mackay and Mountford 1978: 4) in the fields of science and technology. Its significance lies, then, in its attempt to achieve students' required level of linguistic and communicative competence in the amount of time available.

EST generally applies to both written language and spoken language about science and technology. It includes scientific books, papers, reports, articles, experimental reports and records, schemes, practical scientific handbooks, scientific films, videos, etc. Dudley- Evans et. al (2009) clarify this point by stating that EST is centred on the language appropriate to the activities of the discipline it serves in terms of grammar, lexis, register, study skills, discourse and genre. In short, EST is simply a subdivision of ESP dealing with scientific content. It covers General Science, Physics, Chemistry, Biology, Mathematics, Environmental Education and various technologies.

The teacher's role is, therefore, to show the learners how the scientific or technological knowledge formerly acquired in their own language, can be performed through or transferred to English. This point is clearly explained by Widdowson (1979: 45) who states that, "a knowledge of EST can derive from what the student knows of science and the functioning of his own language in association with what he has learnt of English usage". In other words, EST students cannot undertake their EST studies without a previous basis in general science.

1.5.2. Importance of EST

Kamarova and Lipgarts (1994) state that

> a student should be able to read literature pertaining to his subject, to discuss it with his colleagues, to give lectures and write his own articles in English ....these studies may indirectly develop one's ability to use English for communicating on any subject but..... this is only a by- product of teaching ESP.

Any scientific knowledge is nowadays transmitted via EST. Scientists and technologists may be confronted to different uses of the target language which can be either academically or professionally oriented but whichever the situation is, EST is highly needed, mainly for:

- **Extracting information**: As a post-graduate, specialist, researcher or subject teacher, one needs to read, understand and extract scientific information, especially the one related to his field and specialisation. To meet this end, one is required to use a variety of references and sources that are available only in English such as scientific books, reports, international articles, magazines, meetings as well as the Internet.

- **Undertaking research**: getting appropriately informed is a pre-requisite to undertake or pursue one's scientific or technological research, be it personal or in collaboration with other scientists. Besides, it is worth mentioning that conducting a research is a sine qua non for obtaining any research degree.

- **Producing dissertations**: junior researchers worldwide are constantly and increasingly urged to write their doctoral dissertations in English because this would facilitate their contact with international colleagues and experts and, hence, further their careers. Murray and Dingwall (1997) advocate that the number of doctoral dissertations written in English more than tripled between 1975 and 1995 at an international scale, and this marked upward has continued its relentless expansion throughout the following years.

- **Reporting research activity**: reporting the research activity is the most important part of the research process. The written research report is considered as the means of communicating knowledge within the scientific community. In this sense, Gulliver (2001) advocates that even the best scientific research is useless until it is communicated to others. Naturally, this is done through the dominating international medium of English. Besides, Crystal (1997: 2) reports that as long as 1981, well over 80% of were written in English in the fields of biology, physics, chemistry, medicine, and other natural sciences.

- **Publishing research activity**: Publication in academic journals is the most prestigious outlet for the products of research. Scientists and technologists are

required to publish their research reports, summaries, scientific articles and comments in national and international journals and magazines or via the Internet. Publishing research for an international audience means writing about it in English. In this light, Swales (2004) posits that before the 1990's and particularly after the two World Wars, many famous European and Japanese journals had already begun a switch away from publishing articles in German, French, Swedish and Japanese to new editorial policies that increasingly required English for the language of publication. Hence, it is a fact of life for most scientists today that writing for publication means writing in English. This is vital for scientific discourse communities in general because if scientists did not communicate, progress in developing new reliable data would be very slow. Besides, publication is an important developmental step as it promotes disciplinary knowledge and establishes personal reputation as well.

- **Taking part in scientific meetings**: researchers need to attend and take part in the numerous scientific meetings organized to present their research, report their findings, exchange opinions and update knowledge. Not using English in such occasions would constitute a handicap and lead indirectly to loss of recognition and exclusion from the international scientific community. Thus, English is not considered as a matter of preference, in these scientific manifestations, but rather as a communicative necessity.

1.5.3. Categorization of EST

Some writers like Kennedy and Bolitho (1984), Carver (1984), and Miliani (1984) consider EST as a branch of ESP, others such as Robinson (1980), Mc Donough (1984), Stevens (1977) and Blue (2001) maintain that EST is a sub-branch shared by EAP and EOP depending on the area English would be used for. Echoing this view, Blue (2001) writes: ***"English for science and technology cuts across for***

occupational purposes and language for academic purposes, as it has both occupational and academic applications". Hence, EST can be either curriculum-oriented if it is applied in the formal educational system or activity-oriented if it involves a specific activity outside this system.

Mc Donough (1984), however, considers EST as a sub-branch of EAP maintaining that EST is academically oriented, as illustrated in the following diagram:

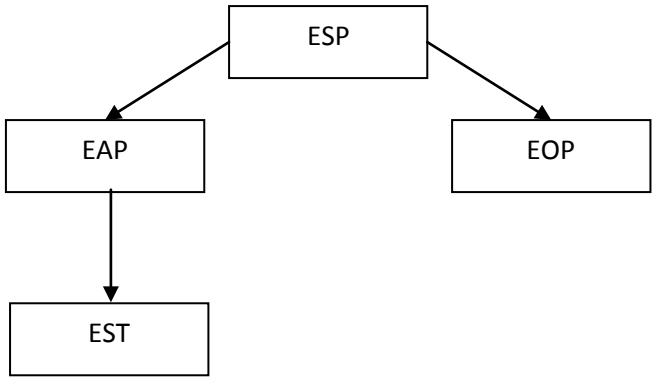


Figure 1.3: Subdivisions of ESP

(Mc Donough, 1984: 6)

The aforementioned areas of EST use (see section 1.5.2) have shown that it can be both academically and professionally oriented depending on the communicative tasks scientists and technologists have to tackle (see Table 1.1). Thus, taking into account the different areas of language use Physics students will put the language to, the researcher considers EST as being a sub- branch of ESP shared by all of EAP and EOP.

1.5.4. EST vs. General English

The proper profile of a modern qualified scientist imposes well- developed communication skills and high English language proficiency to help him succeed in the contemporary competitive world of science. In the process of educating future specialists and researchers, a shift from general English education is needed and special emphasis on EST becomes necessary.

EST was highly criticized in the past as being poor and lacking in literary style. Besides, scientists were said to express themselves in a complicated and redundant manner. However, with the rising awareness of the importance of scientific knowledge to transfer on a worldwide scale, such views changed. Due to the fact that science students dispose of a limited period of time for learning the target language, emphasis is to be put only on those aspects of English which can help them in their fields of specialization. In other words, EST does not aim to teach the subject matter of science but to provide the learners with the language bases to access and understand materials on science and technology, and to express ideas and concepts in English.

What a scientist does when speaking or writing is performing a series of acts like describing, defining, classifying, exemplifying, comparing, hypothesizing, generalizing, concluding and the like. He is not seeking to arouse emotions or to present beauty, but only to make himself understood leaving aside as little margin for error as possible; using a language in which each term conveys a meaning steadily fixed and vigorously limited.

By contrast, in our every day vocabulary, the meaning of a word is often vague and indeterminate, needing more and more help from context if the meaning is to be grasped. Words in isolation may, then, be inadequate as tools for exact and logical communication. But, this power of exact and logical communication is the first requirement of the scientist. He needs to use words that have a precise meaning and one meaning only, and which enable him to express his ideas with no possibility of ambiguity or confusion. He must know exactly what his words mean and be able to rely absolutely on his hearers/readers attaching to a particular word exactly the meaning which he attaches to it. Otherwise, his production would be considered as pure literature and would lead to a lowering regard of his research. Scientific English is, thus, viewed not so much as a matter of preference but as a communicative necessity in the academic world, in general.

Ordinary vocabulary, with its vague boundaries to the sense of common words, is obviously, therefore, of no use when scientific precision is required. Thus, we must

admit the need of the scientist for a specialized vocabulary and this is provided through English for Science and Technology.

1.5.5. EST Discourse Patterns

The EST community is recognizable by its members' shared interests, common involvement in science and technology, practice of scientific and technological discourse and activities. In this vein, Marsh (2002: 450) defines discourses as "frameworks for thought and action that groups of individuals draw upon in order to speak and interact with one another in meaningful ways". He carries on by saying that these discourses are "historically, culturally and socially generated patterns of thinking, speaking, acting and interacting that are sanctioned by a specific group of people".

In other words, discourse constitutes a model of linguistic behaviour (i.e., language registers, codes and cultural behaviours) a given speech community members have to follow to communicate in a coherent and cohesive way and reach shared interest, mutual support and feedback. For Trimble (1985), EST discourse covers all the area of written English expanding from peer writing of scientists and technically oriented professionals to the writing aimed at skilled technicians. Broadly speaking, the most important feature of EST is its functional- rhetorical approach which puts emphasis on the communicative use of language rather than simply its formal aspects.

It is worth mentioning, at this level, that although both of the terms rhetoric and discourse are used to refer to the presentation of information in its written form, the former is not a substitute for the other but rather a part of it. Rhetoric is defined by Trimble (1985: 85) as "the process a writer uses to produce a desired piece of text. This process is basically one of choosing and organizing information for a specific set of purposes and a specific set of readers". Broadly speaking, rhetoric refers both to the organisation and content of a piece of writing.

As far as EST rhetoric is concerned, EST texts focus on the presentation of facts, hypotheses, results and conclusions. They neither seek to arouse emotions nor to present beauty or fiction. Besides, EST discourse is not concerned with isolated items

of information but with larger discourse units, such as paragraphs, in which these items are gathered to make- up a coherent and cohesive piece of writing.

1.5.6. EST Rhetorical Functions

Clarity of concepts and logical thinking are keystones of scientific English. For this reason, Jones and Roe (1975) insist on the need for rhetoric that unveils how knowledge is mapped into the print and sound system of the English language. The basic rhetorical functions commonly found in EST discourse are: description, definition, classification, instruction and visual- verbal relationships between a visual aid and its accompanying text.

1.5.6.1. Description

Three major types of descriptive information are sorted out, namely: physical description, function description and process description. Each of these functions has distinct characteristics and a definite set of purposes:

- Physical Description deals with the physical characteristics of the object being discussed as well as the spatial relations of its parts to one another and to the whole. In EST, the most frequently described physical characteristics are: shape, weight, volume, color, material, texture and dimension.

- Function Description is generally concerned with the usage or purpose of a given device, or with the functioning of the different parts of that device either separately, with one another or with the whole.

- Process Description is concerned with the detailing of a series of interrelated steps leading towards a definite goal. Although process description is considered by many as a type of function description, it is so complex in itself that it is preferable to have it treated separately.

1.5.6.2. Definition

EST discourse is characterized by the distinction of two broad categories of definitions which are: simple definition and complex definition.

- Simple Definition was the most common category of definition in EST discourse. It is generally completed in one sentence or less and consists of three basic types:

– The formal definition, which gives the most precise information.
– The semi- formal definition, which may leave out one important item but provides as much information and precision as possible.
– The non- formal definition, the one which offers considerably less information and less precision.

- Complex Definition: this is generally an expansion of a simple definition. Complex definitions are usually developed in paragraph units; although they can take up a whole text; and have special functions such as stipulation, operation and explication.

– Stipulation is most of the time found in association with other types of definition. It aims at setting limits to the main definition in terms of time, place, field and meaning.
– Operation, an operational definition contains a set of instructions which tell the reader what to do in order to experience physically and/ or emotionally what is being defined.
– Explication seeks to give the reader new information about the key words found in the original definition.

1.5.6.3. Classification

Classification is worth spending time on since it is very basic to human thinking and scientific expression. Within EST discourse, three types of classification are identified, each of which provides a certain amount of information.

- Complete Classification: this type of classification names the item being classified, determines the class to which it belongs and gives the bases for classification.
- Partial Classification: this generally leaves out the basis for classifying matters. Writers sometimes exclude such basis because they think that this is obvious. Other times, they do omit it just because they are unfortunately poor writers.
- Implicit Classification: this is a subtle way of classifying only the major facts leaving the audience to figure out the rest. In an implicit classification, all of the classifying information is present but not mentioned as such, in a paragraph which does not have classification as its basic rhetorical function.

1.5.6.4. Instruction

Instruction is defined as a discourse that tells the reader what to do and how to do it to achieve a specific goal. Instructions are chiefly restricted to assignments in textbooks, uses in peer writing as well as to laboratory and other manuals used by both academics and trained technicians in research facilities. Besides, two manageable types of instructions are sorted out namely direct instructions and indirect ones. The former are always stated in the imperative whereas the latter sound more like suggestions than commands and, hence, make use of modal verbs as can, may and should.

1.5.6.5. Visual- verbal Relationships

This rhetorical function is more complex than the others. It refers to the relationship between illustrative materials;, such as maps, graphs, tables, charts and representative drawings, and a piece of text. The role of these visual aids, among others, is to add information to that provided by the discourse.

Whatever the type of visual aid used, the accompanying text must provide the reader with the following guidelines:

1- When to look at the visual aid.
2- Where to look for the visual aid.
3- What to look for in the visual aid.
4- Why to look at the visual aid.

Although there are many types of visual aids in scientific discourse, they all share the feature of providing additional information or detail that are difficult or impossible to grasp from a solid text alone.

These were the five main rhetorical functions used in EST discourse. On the whole, looking at language attributes within specific registers is nonetheless important in comprehending language so as to devise efficient methods of paving the way to the practices of the targeted discourse community.

1.5.7. EST Style and Characteristics

Kennedy and Bolitho (1984) define EST as a set of grammatical items, vocabulary forms and functions which are common to the study of science and technology. In other words, there is a high level of correlation between the grammatical structures used and the purpose of language. As far as scientific writing is concerned, there is little scope for individual style. As a natural corollary of this, a greater emphasis is put on the language use rather than its user. Objectivity and impersonal tone are the watchwords in EST since it serves a purely referential purpose.

However, this does not imply that the grammar of scientific and technical writing differs from that of general English. Scientific English uses the same language

elements, structures and lexical forms as any other kind of English but with a difference in frequencies and distributions.

EST favors particular forms such as the present simple tense, the passive voice, conditionals, compound nouns, Modals, logical grammatical connectors, quantity expressions and abbreviated relatives, a high rate of comparative forms as well as the use of modifiers such as adjectives, adverbs and nouns in order to provide accurate details.

EST style is also characterized by the considerable use of technical and sub-technical vocabulary, the density of which varies with respect to the different fields of specialization, besides the use of symbols in some scientific branches. On the one hand, fields such as Mechanics, Computer Science and Electronic Engineering cover a varied register of very specific terms which need to be mastered by EST students in order to deal efficiently with the available scientific literature. On the other hand, fields such as Chemistry and Mathematics are characterized by the use of symbols which constitute essential components of their language.

It is worth mentioning that the extensive use of technical terms characterizing EST is generally troublesome for EST learners since these words tend to change their usual meaning once put into a specialized context. A great number of them come from the words commonly used in our daily life but have strict meanings in EST. Broadly speaking, EST borrows common words to explain and clarify the professional technical concepts. Moreover, EST vocabulary is characterized by the use of one word with multiple scientific meanings and this tends to cause difficulties for the learners since it is not an easy matter to master the various connotations of a word in one subject. Besides, grammar may be used in a specific way in scientific texts that is why one has to look beyond the grammatical level to sort out the specific rhetorical function being expressed. Yet, those specific subject English aspects do not form a language apart from general English. On the whole, EST has its own style and characteristics. Compared with other literary forms, it has higher- level specific scientific nature, organization, accuracy and closeness.

1.6. Teaching EST

As a sub- branch of ESP, EST has undergone the same teaching theories and phases of development ESP has gone through. Before tackling the different parameters and steps undertaken in EST teaching, it would be interesting to have a glance at the various successive teaching practices experienced by ESP since its appearance.

1.6.1. The Development of ESP Teaching Theories

ESP is a pedagogy in which the syllabus, contents and methods are determined according to the learners' specialised subjects (Duan and Du, 2004). However, ever since its appearance in the 1960's, ESP has adopted several teaching theories, in other words, it has experienced several phases of development. This view is supported by Swales, quoted in Smoak (2003) when saying: "***The way we view the field of ESP today is far different from the way we viewed it in the 1960's".*** These major shifts in orientation have come about largely because ESP has developed at a time when fundamental revision of peoples' view of language and learning has been taking place.

At first, ESP was primarily concerned with Register Analysis in the 1960's and early 1970's. Its aim was to identify the grammatical and lexical features of the various specific registers which were, later, taken as the basis for syllabus design. In other words, early ESP materials' designers analysed large corpora of specialised texts to determine the statistical contours of various registers. Ewer and Latorre (1967: 122) put it in the following way: "In order to get a working idea of what this basic language consisted of, a frequency analysis of the English actually used by scientific writers was required".

This first step of ESP development, which focussed mainly on language at the sentence level, has been rapidly influenced by new considerations in the world of linguistics. Previously concerned with language usage, ESP shifted attention above the sentence level and became closely involved, in the 1980's, with the emerging field of Rhetorical or Discourse Analysis. The target of such a procedure was to understand how sentences were combined, and how the linguistic methods were used to determine

the modes of organization and form a meaningful whole. In other words, through Discourse Analysis, the form of the language was related to its use (Dudley- Evans and St John, 1998). Therefore, language use became the pillar for the selection of teaching materials. Allen and Widdowson (1974:49) set out this approach as follows:

> One might usefully distinguish two kinds of ability which an English course at this level should aim at developing. The first is the ability to recognize how sentences are used in the performance of acts of communication, the ability to understand the rhetorical functioning of language in use. The second is the ability to recognize and manipulate the formal devices which are used to combine sentences to create continuous passage of prose. We might say that the first has to do with rhetorical coherence of discourse, the second with the grammatical cohesion of text.

In sum, Discourse Analysis puts emphasis on the way sentences are used when performing acts of communication and tries to develop appropriate materials to carry out these functions. Such functions comprise defining, explaining, exemplifying, generalising, describing, etc.

After Discourse analysis appeared Target Situation Analysis which held that the purpose of an ESP course is to make learners able to function adequately in the target situation. Therefore, the ESP course design should proceed by identifying the target situation, first, and then carrying a rigorous analysis of the linguistic features of that situation. Such a process is usually known as needs analysis and places learners' needs at the centre of the course design process.

ESP knew a radical change during its fourth stage of development. It was no more concerned with the surface forms of the language but rather with the thinking processes governing language use, with the appearance of the skills-centred approach.

The principle idea behind such an approach was that there are shared reasoning processes and interpreting strategies underlying all language use (Hutchinson and Waters, 1987). Such abilities enable learners to extract meaning from discourse without focussing on the surface forms of the language such as guessing the meaning of words from the context in which they are used.

All the stages outlined so far have been fundamentally concerned with the descriptions of language use, however, with the growing awareness of the central position the learner occupies in language learning, in general, ESP adopted the Learning-centred approach as the underpinning of course design. Hence, the learner started to be considered as an active actor of the teaching/ learning process whose needs have to be defined with reference to his present or future real uses of the English language. Accordingly, in such an approach, the teacher, as Tudor (1993: 24) puts it, will need to: *"**…get to know the students well enough to be able to understand both their intentions (what they need and would like to do) and their resources (what they are able to do)".***

Thus, usefulness and effectiveness of the language course will be reached only if the English language samples are based upon the objectives of instruction. Consequently, it has become vitally important that learners should be properly educated and trained in English for the kind of practical use they will have to put the language to. Language has become, therefore, considered in terms of its content and appropriateness to various learners' needs.

Despite its relatively short history, ESP has witnessed numerous major shifts in its development. Changes in theory resulted in the elaboration of different teaching methods and materials but most notably the move from a language to a learner-centred approach. Today's dominating movement in ESP, as in any other branch of ELT, is the acceptance of different approaches and the mixture of various types of material and methodologies with the sole aim to cater properly for learners needs and reach course effectiveness.

1.6.2. EST and Course Design

English is regarded as a medium of access to technology and international communication. The aim of ESP is, then, to develop in the learners an acceptable command of the receptive and productive skills required to understand information written or delivered in English and to communicate in that language. To reach this end, several operations have to be undertaken. In practical terms, this entails

> ***…the use of the theoretical and empirical information available to produce a syllabus, to select, adopt or write materials in accordance with the syllabus, to develop a methodology for teaching those materials and to establish evaluation procedures by which progress towards the specified goals will be measured.***
>
> (Hutchinson and Waters 1987: 56)

In other words, Hutchinson and Waters (1987) describe an ESP teaching operation as consisting of five essential and interrelated phases, namely:

- Needs Identification and Analysis
- Syllabus design
- Materials production
- Teaching
- Evaluation/Testing

Hence, in order to plan suitable teaching materials for the ESP teaching situation, an essential parameter has to be first considered. It concerns the identification and analysis of learners' needs. These needs will, then, act as a guide to the design of a syllabus, course materials as well as teaching and testing methods.

1.6.2.1. Needs Identification and Analysis (NIA)

ESP is defined as "a language course or program of instruction in which the content and aims of the course are fixed by the specific needs of a particular group of learners" (Richard and Schmidt, 2010:198) is an efficacious enterprise. Practically

speaking, ESP aims at preparing a given group of learners to use English in academic (students in different fields), professional (people of different professions such as doctors or engineers), or workplace (like technicians) settings. This coordination is performed through a process called needs analysis or needs assessment.

(i) Definition and Rationale of NIA

According to Iwai et.al (1999), the term needs analysis or needs assessment refers to the activities that are involved in collecting information that will serve as the basis for developing a curriculum that will meet the needs of a particular group of students.

Any ESP syllabus design, including that of EST, is guided by learners needs, defined by Dudley-Evans and St John (1991:229) as the "identifiable elements" of "students' target English situations". Broadly speaking, ESP has its basis on an investigation of the purposes of its learners and the set of communicative needs arising from these purposes. Alongside with this, such phase takes into account learners' personal, socio-cultural and educational traits, their capacities, expectations and interests in the language, the equipments they have to deal with and, above all, the content and objectives of their studies as well as the appropriate way of achieving such objectives. The consideration of all these parameters will provide validity and relevancy for all subsequent course design activities. It is also likely to be motivating for the learners who see the obvious relevance of what they are studying since through this step, teachers will be able to provide students with the specific language they need in order to succeed in their course and future careers.

Long (1996) cites four reasons for performing needs analysis:

- Relevance: to determine the relevance of the material to the learners' situations.
- Accountability: to justify the material in terms of relevance for all parties concerned (teacher, learner, administration, and so on).
- Diversity of learners: to account for differences in learner needs and styles.

- Efficiency: to create a syllabus which will meet the needs of the learners as fully as possible within the context of the situation.

Long (1996) carries on by stressing the fact that when performing a NIA, three important factors have to be taken into consideration which are:

a. Sources

Major sources for needs analysis are:

- Previous needs analyses, which can provide working examples as well as valuable insights into needs of students in similar programs and with similar experiences.
- Students themselves.
- Applied linguists, good sources for language requirements.
- Domain experts, often referred to as insiders. This may include the ESP teacher, subject specialists or students who have previous experience in dealing with the target situation.

b. Triangulation

Cross checking of data provided by at least three of the above sources is important, and adds to the validity of the needs analysis. This stems from the fact that the needs of a given group of learners may be perceived very differently from various angles. Thus, needs analysis should not be unilateral (Smoak 2003). This view is supported by Weir and Roberts (1993: 137) who state:

> A combination of data source is likely to be necessary in most evaluations because often no one source can describe adequately such a diversity of features as is found in educational settings and because of the need for corroboration of findings by using data from these different sources, collected by different methods and by different people (i.e., triangulation).

c. Multiple Methods

A simple method of gathering information may not provide a complete picture of the situation under study. In this sense, Basturkmen (1998) defines needs analysis as: "…the identification of difficulties and standard situations by observation of participants functioning in a target situation in conjunction with interviews and questionnaires."

Collecting data through various methods may add essential insights and help obtain a more realistic picture of the target situation. It is recommended when dealing with complex needs and for validating data (Gilabert, 2005). Moreover, it is worth mentioning, at this level, that learners' needs should be analyzed on an ongoing basis as they are likely to change over time, depending on contextual and human affective variables (Brown, 1995).

(ii) Models of NIA

There is a long history of analyzing students' needs. The centrality of such a process has been acknowledged by several scholars such as Munby (1978), Richterich and Chancerel (1987) Hutchinson and Waters (1987), Berwick (1989), Brindley (1989), Tarone and Yule (1989), Robinson (1991), Johns (1991), West (1994), Jordan (1997), Dudley-Evans and St John (1998), Iwai et al. (1999) among others. Numerous are the studies but all of them prove that the role of NIA in any ESP or General English course is indisputable. In what follows, a thorough overview of the different approaches to NIA will be given.

a. Target Situation Analysis (TSA)

It is also called the socio- linguistic model. In the 1970's, the dominant approach in NIA was TSA which was mainly used for investing necessities. The landmark of needs analysis' studies drawing on TSA is Munby's approach (1978) which established a Communicative Needs Processor (CNP). The CNP profile seeks to present a valid specification of the skills and linguistic forms that a group of learners needs in the intended target situation. These needs will be developed into a

communicative competence specification. Such a model is made up of seven elements namely: purposive domain, setting, interaction, instrumentality, dialect, communicative key and target level. Each compound comprises questions about the target uses of the language in order to identify learners' real world communicative requirements. After a profile has been created, the communicative needs are developed into a syllabus.

Although the Munby's model provides an abundance of details and paves the way for further developments and advances in NIA, it has been criticized as being complex and time consuming. Besides, it excludes learners' perceptions and neglects the actual socio-political and administrative constraints. However, in spite of such criticisms, socio- linguistic variables remain important for effective communication.

b. Present Situation Analysis (PSA)

The second major model of NIA is PSA proposed by Richterich and Chancerel (1980). It "seeks to establish what the students are like at the start of their language course, investigating their strengths and weaknesses" (Robinson 1991:9). That is PSA enables the investigator to look for the students' actual level of proficiency at the beginning of their language courses and to determine their lacks, at the same time. It also seeks information about students' attitudes vis-à-vis the target language and the resources available.

Richterich and Chancerel (1980) suggest three sources of information for a PSA which are:

- The students themselves
- The language teaching establishment
- The user-institution (such as the students place of work and sponsoring bodies)

(Richterich and Chancerel 1980, quoted in Hutchinson and Waters 1987, p.102)

They also suggest using more than one or two data collection methods such as surveys, interviews and attitude scales. Such an approach has not received much criticism. However, two concerns should be raised namely, the lack of attention to

learners' real-world needs and over reliance on learners perceptions of their needs, since learners are not always clear about what they want (Long 2005).

For such reasons, Robinson (1991) and Jordan (1997) advocate that a thorough NIA should encompass both of TSA and PSA. The results of each model are complementary to the other and used as input data for the syllabus design stage. TSA and PSA are still considered as two landmarks in needs analysis studies. Researchers continue to use one of these approaches as a theoretical basis of their studies depending on the nature of the research undertaken.

c. The Learning- Centered Approach

Hutchinson and Waters (1987) advocate a learning- centered approach to NIA to make a shift of attention from the "what" to the "how" to learn. They advocate that learning- needs approach is the best route to conduct the learners from the starting point to the target situation. These authors as well as Robinson (1991) and West (1993) approach learner needs from two directions which are target needs and learning needs.

- **Target Needs**

They represent what the learners need to do in the target situation, .i.e. they are the requirements of the academic or occupational situation the learners are prepared for. This term hides, in practice, a number of further important distinctions specifically necessities, lacks and wants.

Necessities

They refer to the learners' study or job requirements, that is to say, what they have to be able to do at the end of their language course in order to function effectively in the target situation. Needs in this sense are perhaps more appropriately described as "objectives" (Robinson, 1991; West, 1993).

Lacks

Lacks are defined as being the gap between the existing language proficiency of the learners and the one required in the target situation. Thus, they represent what

the learners do not know or cannot do in English. It is, then, lacks which will determine course content.

Wants

They represent what the students themselves would like to gain from the language course. Therefore such needs may be said to be personal aims and are sometimes referred to as "subjective needs" (West, 1993). It is often pointed to the fact that learners' wants may differ from or even conflict with the necessities of the target situation and the lacks identified by the teacher. Nevertheless, the teacher has to consider learners' suggestions and personal aims in order to determine syllabus content.

- **Learning Needs**

The second focus in the learning-centred approach is on learning needs, referring to numerous factors including who the learners are, their age, gender, attitudes towards English and studying English, socio- cultural background, learning background, English background, as well as background knowledge on specialised contents.

Hutchinson and Waters (1987) also recommend the constant and ongoing conduct of NIA (see section 1.6.2.2.) as well as the use of multiple data collection methods to deal with the complexity of students' target needs (see section 1.6.2.1.). On the whole, such an approach is well supported (West 1994, Nation 2000).

d. The Learner- Centered Approaches

Such modes were headed by Nunan (1988), Berwick (1989) and Brindley (1989) who offered three ways of looking at learners' needs namely:

- Perceived vs. felt needs
- Product- oriented vs. process- oriented needs
- Objective vs. subjective need

Perceived needs are considered as being determined by experts who are outsiders from facts while felt needs are derived from insiders (i.e. learners) and

correspond to cognitive and affective factors. Similarly, process- oriented needs focus on the language that learners need in the target situation whereas process- oriented needs stress on how learners respond to the learning situation, including too, affective and cognitive variables which affect learning. As far as objective and subjective needs are concerned, the former collect information about the actual requirements for language use as they exist in the target situation whilst the latter reflect the perceptions, goals and priorities of the learners. They tackle, among other things, information on why the learner has undertaken a foreign language course as well as the classroom tasks and activities he prefers. As a result, objective needs are said to generate the content of the course while subjective needs generate the methodology to follow when presenting such content. In short, these three pairs of needs can be seen as corresponding to TSA and PSA respectively.

e. Deficiency Analysis

Deficiency analysis is the route to cover from the present situation to the target situation. In other words, it maps students' existing proficiency against the target one by always keeping their learning needs in mind. This process forms the basis of the language syllabus and establishes the priorities to be given in such a practice as it highlights students' lacks.

f. Strategy Analysis

As its name entails, strategy analysis focuses on learning styles and the strategies that the learners employ to learn a language. Learning style refers to the individual's preferred way of learning (i.e. auditory, visual or kinesthetic/tactile (Reid, 1987)) whereas learning strategy is the mental process the learner employs to learn the language (Nunan 1991). Accordingly, strategy analysis tries to establish how the learners wish to learn rather than what they need to learn.

g. Means Analysis

Holliday and Cooke (1982 cited in West 1994) suggest means analysis as another approach to NIA which seeks to adjust language courses to local situations in

order to make them workable. Means analysis is derived from the idea that what works well in one situation may not in another one and that language courses should be adapted to the different educational, professional and workplace settings rather than being imposed without any prior understanding of the local constraints and exigencies. Therefore, means analysis takes into account the environment in which the course will be run by considering the resources available, the teachers, the teaching methods and students' actual attitudes, among others, in order to see how the language course can be implemented (Jordan 1997).

h. Language Audits

This approach takes into account some broad issues of language policy that were not initially considered in the scope of NIA. It is most commonly used to determine the role held by a foreign language in a commercial or industrial enterprise such as an organization, a company or a country. Because of their large scale nature, language audits are not considered as being so relevant to ESP teachers. Besides, they need to be supported by further NIA of individual learners (West 1994).

With so many approaches to NIA, one might feel frustrated as to which model to opt for. Yet, it should be kept in mind that the different types of NIA are not exclusive but complementary to each other, and that a single model cannot be reliable enough of what is needed to enhance learning. Moreover, it is important to remember that what really matters is how to exploit the results obtained through NIA to the target students' benefits. In this light, Dudley- Evans and St John (1998: 125) propose a modern and comprehensive vision of needs analysis under the heading of "the current concept" of NIA. This view encompasses all the aforementioned approaches to NIA and includes the following:

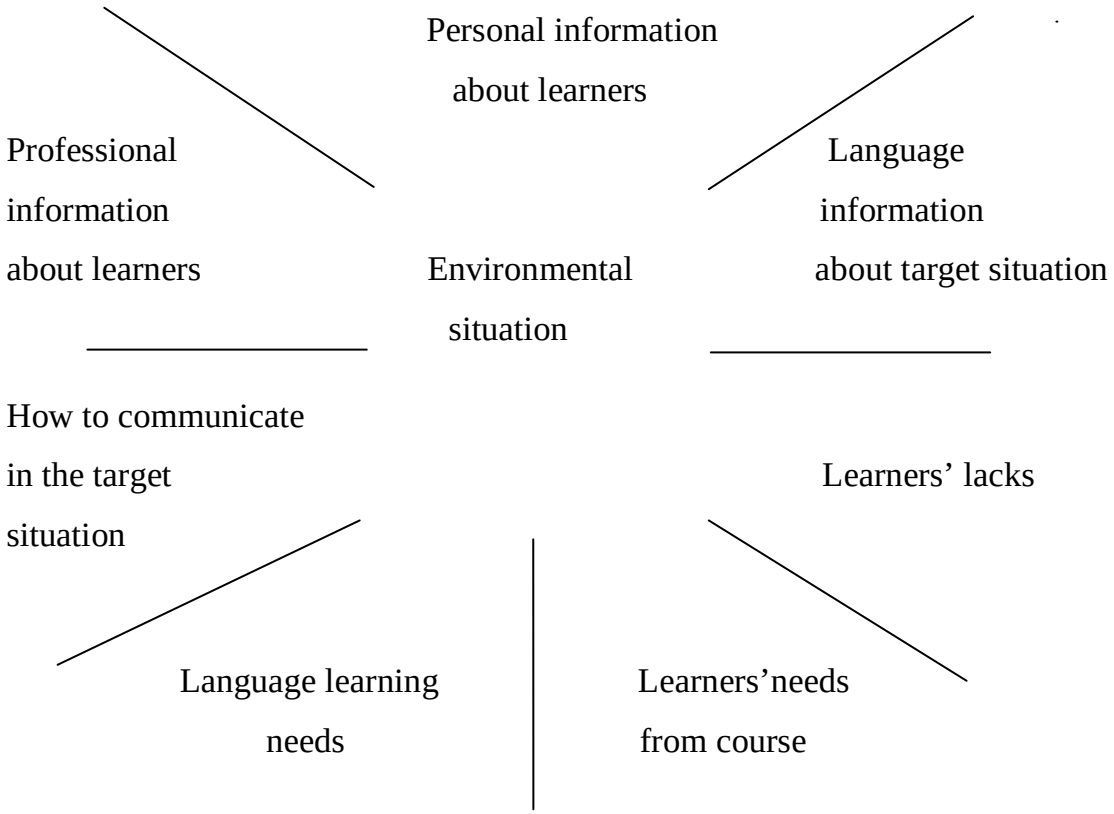


Figure 1.4: What Needs Analysis Establishes
(Dudley- Evans and St John, 2009:125)

The general scope of needs analysis previously discussed stresses its importance as a key stage in the entire educational process from the determination of aims and objectives to the development of materials. Likewise, the efficiency of any ESP/ EST course depends on NIA as the infrastructural foundation on which the whole teaching syllabuses will be planned and materials designed.

1.6.2.2. Syllabus Design

Though there is an enormous literature on syllabus design, it remains a difficult task to be fulfilled. Hence, before designing the model that best meets the

requirements of an EST or any other ESP teaching learning situation, one needs to start from a theoretical basis finding out what is exactly meant by a syllabus.

(i) Definition of a Syllabus

The syllabus is composed of the subjects, the language structures and tasks that should be studied in a particular course. This is clearly stated by Hutchinson and Waters (1987: 80) who define the syllabus as: "***…a document which says what will (or at least what should) be learnt".*** Moreover, Yalden (1987: 87) posits:

> ***The syllabus is now seen as an instrument by which the teacher, with the help of the syllabus designer can achieve a certain coincidence between the needs and aims of the learners and the activities that will take place in the classroom.***

For Yalden, the syllabus is an organization of the learners' needs and aims into a number of activities which will constitute the content of courses. Furthermore, Corder (1973: 296) puts:

> ***A finished syllabus is the overall plan of the learning process. It, too, must specify what components or learning items must be available or learned by a certain time and what is the most efficient sequence in which they are learned.***

Hence, the syllabus is a plan of work which acts as a guideline for the teacher. It determines the content of the course, i.e. language structures, subjects and tasks, that is to be taught and the way in which such a content has to be organized. In sum, one of the main purposes of the syllabus is to make explicit the linguistic content of teaching in a particular situation and to break down the mass of knowledge to be learned into manageable units.

(ii) Variables in Syllabus Design

Language is a complex entity and cannot be taught in one go. Through syllabus design, course content is provided and arranged for an effective

teaching/learning process. However, before the design process, a set of criteria have to be taken into consideration. In this sense, Allen (1984: 65) reveals:

> ***Since language is highly complex and cannot be taught all at the same time, successful teaching requires that there should be a selection of material depending on the prior definition of objectives, proficiency level and duration of the course. This selection takes place at the syllabus planning stage.***

Thus, course objectives, learners' actual knowledge and time allotment are to be highly considered when designing a syllabus. Other methodological considerations are taken into account notably learners' learning styles and the pedagogical approach (Brumfit, 1984). Besides, Dubin and Olshtain (1986) mention a number of environmental factors said to influence syllabus design, summarized in the following figure:

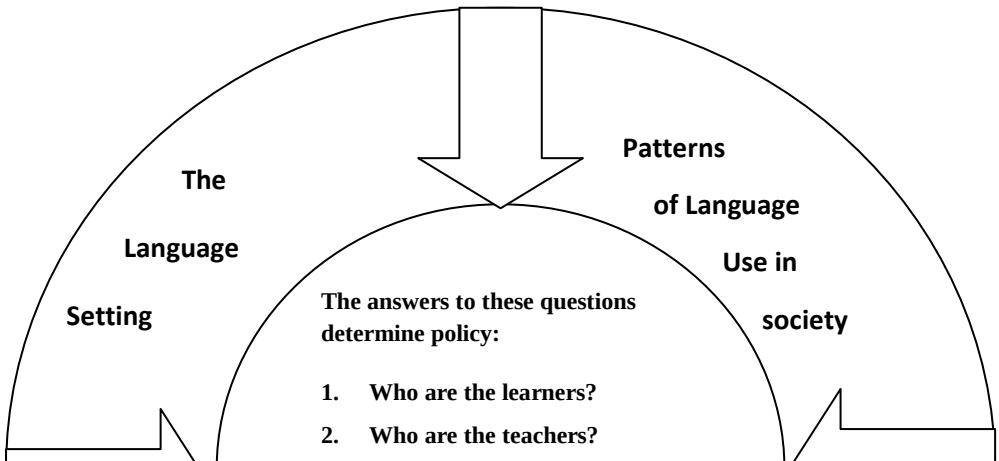


Figure 1.5: Environmental Factors in Course Design
(Dubin and Olshtain, 1986: 6)

On the one hand, the syllabus design is greatly influenced by a set of environmental constraints, namely:

- The language setting, which concerns the status of the language in the community in which it is used. It can be the mother tongue, a second language or a foreign language.
- The areas of language use in society.
- The role of the language in the political life taking into account the country's economy and technology (Asworth, 1985).
- Learners' attitudes towards the language. This depends on their degree of awareness of the language importance.

On the other hand, the answers provided to the questions inside the circle supply information about the teaching learning situation. They embody part of the analysis of both the target situation and the learning situation.

Miliani (1994), on his part, has summarized four essential points that have to be taken into account before designing a syllabus. These are:

- Situation analysis.
- Setting aims and objectives.
- Generating Syllabus content.
- Assessment

Situation analysis deals with the educational institution and the means it provides in terms of finance, teaching materials and staff. It also provides a learners' profile including their motivation and attitudes towards the language course as well as the teachers' profile covering their attitudes towards the course and their professional "know-how".

Aims and objectives are set as a result of learners' needs analysis. The aims are defined at a broad level as general statements, while objectives refer to what the learners have to achieve at the end of their learning experience.

When generating syllabus content, four criteria are considered. These are:

- Validity: the language of the syllabus has to be authentic and acceptable.
- Significance: the syllabus content has to cater for the aims and objectives set.
- Interest: the content should arouse and sustain learners' interest.
- Learner ability: syllabus content should not go beyond learners' level of competence.

Furthermore, the content of the syllabus has to be flexible enough to allow for eventual revisions as learners' needs are subject to change. Finally, assessment allows the evaluation of learners' degree of acquisition, course objectives, teaching techniques, and the syllabus itself.

Miliani (1984) notes that the relation between the studied factors is cyclical. A failure in the designed programme would, therefore, probably mean that a deficiency has occurred when dealing with one of the four points previously mentioned.

(iii) The Design Process

The working out of all syllabuses goes through three fundamental steps which are:

- Setting objectives
- Selecting and grading content
- The choice of the syllabus

a. Setting Objectives

The general goals for which a given language programme is being taught or learned are generally embodied within the curriculum. They provide a rationale for the syllabus or course designer in the sense that they indicate the type of communicative and pedagogic objectives which are both appropriate and feasible for the educational system in question. In this sense, Dubin and Olshtain (1986: 34) maintain that:

> ***A curriculum contains a broad description of general goals…***
> ***A syllabus is a more detailed and operational statement of teaching and learning elements which translates the philosophy of the curriculum into a series of planned steps leading to more narrowly defined objectives.***

Therefore, the production of the syllabus involves the syllabus designer to determine course objectives from the curriculum generalized goals since:

> ***Goal statements are relatively imprecise. While they can act as general signpost, they need to be fleshed out in order to provide information for course and programme planners. This can be achieved through the specification of objectives.***
>
> (Nunan, 1988: 61)

Thus, the design of a programme to a learning requirement begins by a careful determination of the learning objectives followed by the working of a relevant syllabus and the elaboration of a course based on it, in relation to learners' attainment and needs. In other words, setting objectives is an integral part of syllabus production. They can be useful, not only to guide the selection of content (structures, functions,

notion, tasks…) but also to give a sharper focus for teachers, to give learners a clear idea of what they can expect from a language programme and help in developing means of assessment and evaluation.

It is worth mentioning at this level that in the real world, if one looks at the language programmes in operation, it is not impossible to find many situations where an operational guide on the syllabus level does not contain a statement of more general goals, (i.e. we may have a syllabus without a curriculum). However, absence of concrete statement about policy does not indicate that goals are totally missing. More likely, it may mean that the general goals are presented by the beliefs and attitudes of teachers and administrators in the programme and learners needs, even though there is no written curriculum. This is generally the case in ESP teaching/learning situations (see section 1.6.2.2.).

b. Selecting and Grading Content

Setting objectives paves the way for the selection and production of the necessary content. Such a content covers the language forms and functions needed by the learners to cater for the requirements of the target situation, and will be presented within suitable activities. This means that there should be a congruence between syllabus objectives, learning content and activities, in order to reach course effectiveness. In this sense, Nunan (1988: 67) argues:

> ***There is a desirability of relating classroom activities to syllabus goals and objectives so that courses and programmes derived from such syllabus have an overall coherence of purpose. Failure to provide links between goals, content and learning activities can lead to a situation in which the desired outcomes of a programme are contradicted at the classroom level.***

As well as listing what should be learned, a syllabus can also state the order in which it is to be learned (Hutchinson and Waters, 1987). This means that the content

selected to meet course objectives has to be organized in a gradual manner in order to be more efficient. This is why Nunan (1988: 67) posits: ***"Grading…is one of the central steps in syllabus construction…any proposal failing to offer criteria for grading and sequencing can hardly claim to be a syllabus at all***".Moreover, activities which can be exploited at different levels of difficulty are more useful than those which are only suitable for a single proficiency level.

c. The Choice of the Syllabus

A syllabus is normally organized according to the principles of a given pedagogical approach. However, the existence of various teaching approaches results in the existence of different types of syllabus, three of which are most frequently used to teach ESP. They are:

- The structural, grammatical or linguistic syllabus: centered on the teaching of structures and grammatical items.
- The functional/notional syllabus: based on the teaching of functions and notions.
- The situational syllabus: resting on the teaching of tasks and functions through specific situations.

These are the most widely used types of syllabus. Nevertheless, other kinds of syllabuses, based on other different approaches, exist as well.

Course designers who carefully consider the various approaches to syllabus design emphasize the fact that a set of syllabuses need to be combined and integrated in an eclectic manner in order to bring about positive teaching and learning results. In this respect, Swan (1985) says: ***"The real issue is not which syllabus to put first: it is how to integrate eight or so syllabuses…into a sensible teaching programme."*** (Swan, 1985, cited in Hutchinson and Waters, 1987: 89).

Therefore, any teaching material must, in reality operate several syllabuses at the same time. One of them will, probably, be used as the principle organizing feature,

while the others are still there even if they are not so apparent. Otherwise, a syllabus framed only on one aspect; be it structures, functions, situations, tasks or whatever; will in all probability miss the opportunity to develop the acknowledged elements efficiently.

Designing a syllabus is not an easy task to fulfil. Besides, the role of the syllabus is a complex one, but it clearly satisfies a lot of needs. Its importance stems from its multi-functional purpose. Hence, one needs to be crucially aware of the different functions the syllabus fulfils so that it can be designed and used most appropriately. The syllabus is also an important document in the teaching learning process in the sense that it provides a set of criteria for materials production, teaching and testing. As such, it should not be rigid but flexible, not closed but open-ended, and not static but subject to constant revision as a result of feedback from the classroom, in order to maximize the aims and process of learning.

(iv) EST Syllabus Design

It is difficult in considering syllabus design to separate the issues found in general language programmes from those that arise in specific purposes courses. However, EST learners, as any ESP ones, need to use English appropriately in order to handle communication acts in the target situation. Therefore, syllabus designers, in this case the EST teachers themselves, try to plan suitable teaching syllabuses and materials for the EST teaching situations. Such syllabuses are constructed on the target needs as formulated by the students and analysed by ESP teachers and subject specialists. The determination of these needs is done through the process of NIA suggested by several scholars, as the first step to design any ESP syllabus.

During this phase, the necessary data is collected concerning the requirements of the target situation, learners' needs, lacks and wants, the educational setting, the resources available and the type of content required. In other words, needs analysis is the starting point from which all aspects of the ESP teaching/learning process are derived, since through this step course objectives are determined. This is clearly stated

by Robinson (1991: 17) who posits that: ***"as a result of needs analysis, we should be able to draw up our objectives of the ESP course."***

Setting objectives is an integral part of syllabus design. They allow the selection and production of appropriate content. Moreover, the EST/ESP teacher has to ***"…contrive a systematic and progressive syllabus"*** (Senhadje, 1993). This means that the content selected has to be graded before being taught.

Close quoted in Mc Donough (1984:54) summarizes three hierarchical steps through which an EST/ESP course is built:

> ***A foundation that could serve for any purpose (would refer to as common core).***
> ***A super structure that could serve for any scientific purpose.***
> ***A later superstructure that could serve for some special scientific purpose.***

Since the aim of EST/ESP courses is to enable learners to handle effectively the communicative tasks required by the target situation, it is necessary to provide syllabuses whose content enables to acquire the necessary language knowledge. To achieve this purpose, Yalden (1987: 94) suggests that:

> ***One might begin with grammar and pronunciation only, as one does in a structural approach, but introduce work in the language functions, and in discourse skills fairly early, and in time increase the component of the course***.

It is, thus, necessary to present different aspects of the language knowledge in an eclectic manner so as to enable learners to use the target language appropriately. It may be possible to use a structural/situational syllabus as a point of departure of the course, moving to a functional plan of organization, followed by a notional/skill combination, leading to a fully communicative design for the final phases of the course.

In short, the EST/ESP teacher needs to recognize that the various approaches are different ways of looking at the same thing. All communication has a structural level, a functional level and a discoursal level. They are not mutually exclusive, but complementary and each may have its place in the EST/ESP course. After designing an appropriate syllabus, the EST/ESP teacher embarks upon producing suitable teaching materials which, in turn, will pave the way to undertake teaching tasks and evaluation measures.

1.6.2.3. Materials Production

In any ESP situation, including EST ones, appropriate materials are most of the time not available. This view is supported by Hutchinson and Waters (1987: 106) who state: ***"It is likely that a course tailored to the needs of a specific group of learners will not be available."***

Therefore, the production of materials represents an urgent need to be met to improve the teaching of the target language. For this reason, materials' writing is a fact of life for a large number of EST/ESP teachers and is considered as being one of the most characteristic features of ESP in practice. The EST/ESP teacher has to devise materials which present an obviously useful area of the language so that learners can see the direct link between the course content and their needs. Such an idea is strongly emphasized by Meads (1978: 2) who says: ***"The efficiency of ESP materials should be measured by the degree to which the student recognizes the relevance of the content to his immediate needs."***

ESP, in general, is an approach to language teaching which aims to meet the needs of particular learners. This means, in practice, that much of the work done by EST/ESP teachers is concerned with designing appropriate courses for various learners. Thus, whereas course design plays a relativity minor part in the life of the general English language teacher – since courses, in this case, are usually being determined by tradition, choice of textbook or ministerial decree– for the EST/ESP teacher, materials design is often a substantial part of the workload. Furthermore, the production of such materials is not an easy task to fulfil since this teacher is not a

subject specialist. Besides, few teachers; if not any; have had any training in the techniques and skills of materials' production.

In EST/ESP, materials are created on the basis of the data yielded by the analysis of learners' needs and the plan of work provided by the syllabus. Needs analysis provides the necessary information about the type of language required during the EST/ESP teaching situation in terms of target needs (related to real-life situations) and learning needs (related to the learning situation). The syllabus, on its part, translates such pieces of information into learning objectives upon which course content will be selected and graded. After that, the EST/ESP teacher proceeds to the production of adequate materials and suitable activities.

The EST/ESP learner needs to acquire the linguistic repertoire and to handle the communicative acts related to the field he is/will be working or studying in. This is why, the use of authentic materials is, generally, viewed as necessary in EST/ESP teaching. In this vein Robinson (1990: 5) claims: ***"A key concept…felt to be particularly relevant for ESP is that of authenticity."***

Authenticity is an important criterion in the determination of EST/ESP applicable materials merely because of the orientation towards a definite purpose. It is proposed that the only way in which learners can learn to handle authentic material is by exposure to it. Such an exposure should occur as extensively as possible (Johns 1995).

Speaking about authenticity, Gulliver (2001) goes further by arguing that an ESP course has to have a high degree of what he calls "task authenticity" and "text authenticity". ***"Task authenticity is the extent to which tasks in the language classroom are comparable to tasks the students need in their content courses or jobs"*** (Gulliver 2001: 398), whereas ***"Text authenticity is a measure of the extent to which the language used in the language classroom is comparable to the language students are likely to encounter in 'the real world' "*** (Gulliver 2001: 398). The same author pursues by stating that without a high degree of task and text authenticity, the EST/ESP course

runs the risk of losing the advantages of cost-effectiveness, higher motivation, sense of relevance and improved learning, that justify its existence.

The determination of course objectives, students lacks and expectations and the use of authentic language will generate the production of suitable teaching materials. However, when designing ESP courses, teachers may also have recourse to some already published materials, even through Kennedy and Bolitho (1984: 22) consider that "The ***more specific the learners' needs are, the less likely they are to be met by published material".*** Thus, such materials may be considered as inadequate. Yet, they are not useless and can provide practice in one or more areas of language use. This is why, it is up to the ESP teacher to adopt or adapt these materials according to students' needs.

Throughout their works, Hutchinson and Waters (1987) suggested two interesting and complementary models as bases for the design of ESP materials, the first of which is illustrated in the figure below:

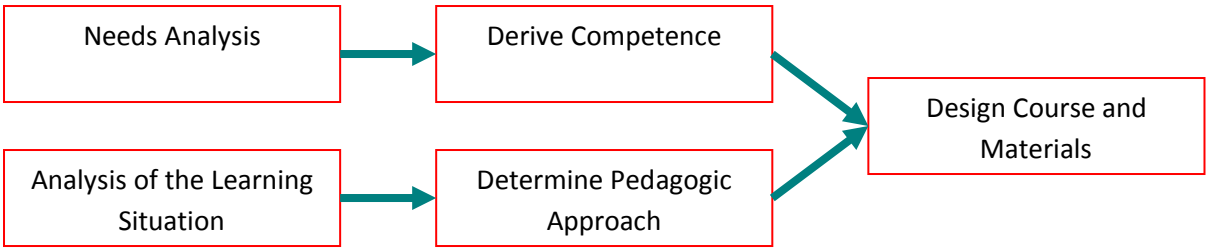


Figure 1.6: Approach to Course Design

(Hutchinson and Waters, 1987)

In designing materials, Hutchinson and Waters proceed by, first, analysing learners' needs in order to derive the required level of competence in the target situation. Through this step, the teacher can also determine learners' lacks and expectations. The analysis of the learning situation, then, provides information about the environment of the learning situation and allows the course designer to determine the process through which the ESP course or materials will be presented, i.e., the pedagogic approach. The combination of these elements, i.e., learners' needs and

lacks, the learning environment and the pedagogic approach, will allow the identification and production of the type of content and materials suitable for the ESP course.

When designing their own materials, Hutchinson and Waters (1987: 109) used the model summarized in the following figure with the aim to provide a coherent framework for the integration of the various aspects of learning.

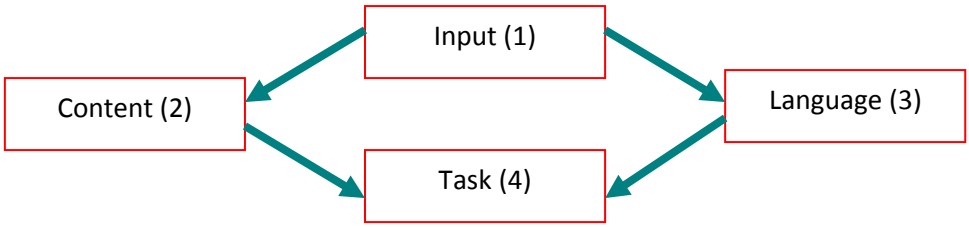


Figure 1.7: A Materials Design Model

(Hutchinson and Waters 1987: 109)

According to the requirements of the target situation, the necessary input will be selected. This input will, therefore, lead the learners to perform a communicative task using the content and language knowledge built up through the unit.

The previous writers also suggest that materials should not be tightly structured as to produce a monotonous pattern of lessons. A material model must be clear and systematic, but flexible enough to allow for creativity and variety. In any teaching situation be it in general English or in ESP, the teacher's task is to present the content and the different activities of the courses in a variety of ways with the aim to help the students to learn the target language.

1.6.2.4. Teaching

In any teaching situation be it in general English or in ESP/ EST, the teacher's task is to present the content and the different activities of the courses in a variety of ways with the aim to help the students to learn the target language. Stevens (1988: 41) defines the ESP/ EST teacher as: ***"Almost always he or she is a teacher of General English who has unexpectedly found himself/herself required to teach students with special needs".*** This means that a teacher of ESP/ EST is, generally, a teacher of

general English who becomes in charge of ESP/ EST courses. Such an experience has often been described as being a shock because of the fear of being unable to cater for learners' specific needs.

In addition to his normal functions as a classroom teacher, the ESP/ EST teacher has a great variety of often other simultaneous roles as a needs analyst, syllabus designer, materials' writer, tester and evaluator. This is the reason why people like Swales (1985), Robinson (1991) and Dudley Evans (1998) prefer to use the term "ESP practitioner" rather than "ESP teacher". Such functions stem from the fact that the ESP learners have particular needs and, thus, special learning interests. Accordingly, Robinson (1991) states that flexibility is a key quality needed by the ESP/EST teacher, in order to change from being a general to a specific language teacher and to be able to cope with different groups of learners.

Furthermore, and in order to meet the same end, the ESP/EST teacher has to be eclectic. Miliani (1994) clarifies this point by stating:

> ***Intrinsically speaking, eclecticism does not recommend certain principles and reject others. It leaves the door open for any stratagem or technique which could fit in a given situation. It all depends on the teacher's know-how and his approach to language teaching.***

This implies that an eclectic teacher should be a sceptical person but not a prescriber. He should have this know-how or savoir-faire in transmitting the information required and more precisely in presenting the input to the learners. In other words, he has to adopt or adapt different teaching methods, techniques and materials in order to live up learners' expectations and reach the required competence.

1.6.2.5. Assessment

Assessment is one of the most important parts of the educational system, in general, and an essential component of the ESP/ EST teaching and learning processes just as needs analysis, syllabus design, materials production and teaching.

The ESP/ EST challenge lies in satisfying specific needs. Evaluation helps, then, to assess how well the needs that have created the demand for a given course are being served. It seeks, thus, to measure learners' achievements, to diagnose their difficulties and to evaluate the syllabus as well as teachers' performance. In other words, the results of assessment reflect how and what teachers teach, how and what learners learn and what happens during both the teaching and learning practices. Such outcomes help to improve the teaching techniques and to make the necessary adjustments and pedagogic decisions. For a better evaluation procedure, Hutchinson and Waters (1987) suggest two interrelated levels of assessment:

- ***Learner Assessment***

  It aims essentially to measure learners' performance and level of proficiency (i.e. what they already know). This kind of evaluation is said to fulfil two functions; besides assessing students' performance, it enables to diagnose their linguistic problems and difficulties and provides a positive feedback about the type of input required in the following courses, to cater for learners' needs and lacks.

- ***Course evaluation***

  It concerns the evaluation of the course itself. That is to say, it checks whether the ESP course has met its aim(s) or not.

These two forms of evaluation are complementary and of a great help for the ESP teacher. They give him an interesting opportunity to test himself and to assess the efficiency of his teaching materials and methods. Hence, one has to develop a positive attitude towards tests' results and to see them less as determiners of grades and more as the starting point for any necessary revisions and improvements.

1.7. Conclusion

This chapter has set out to show the necessary features that characterize the sphere of EST, displaying its main patterns and discourse properties. Besides, it has listed the different stages that should be undergone when designing EST courses and put stress on one practice which constitutes the pillar of all ESP/ EST course design

processes that is Needs Identification and Analysis. Through this step, students' learning purposes are investigated and the set of communicative needs arising from these purposes determined. This will make it possible for course designers, who are generally EST teachers, to plan suitable teaching syllabuses and produce adequate teaching learning materials. It is just after this step that teaching and the relevant evaluation measures can be practised.

In the next chapter, the researcher will shift focus on the worldwide newly applied higher education reform, commonly known as the LMD system. This system has been initiated by European countries and aims at restructuring and harmonising higher education studies and enhancing students' mobility throughout the world in search for teaching quality, better opportunities and new horizons within this era of global change and development.

This interest in the LMD system will, accordingly, allow the researcher to undertake the practical part of her research and which aims essentially at evaluating ESP teaching in Algerian universities under this recently implemented reform.

Chapter Two

The LMD System: Emergence, Structure And Implementation

2.1. Introduction

Since the late nineties, higher education systems worldwide witnessed various crises, challenges and reforms under the effect of the globalisation process and the various pressures it imposed in the different political, economic and social sectors. At the level of higher education, these crises were manifested in frequent strikes by the lecturers and students, a reduction in states' subsidies, a fall in academic standards in relation to market demands, and a huge spread of unemployment. As a response to such difficulties, European countries, followed by worldwide ones, decided to harmonize their training courses for higher education and to adopt a system of common diplomas based on the Licence-Master-Doctorate scheme, more commonly known as the LMD system. This reform covers the institutional, the structural and the educational fields. The latter remains, however, the most concerned since the whole system has undergone a renewed organisation.

The LMD system has reshaped the architecture of higher education and brought about new tools to facilitate its implementation and enhance cooperation, mobility and competitiveness between different parts of the world in view of achieving teaching quality and responding to the new world's demands.

2.2. The LMD System: Globalisation and Higher Education

Just as globalisation has imposed English as the world's international language and favoured its expansion as a vehicle of communication in the different scientific, technological, political and economic fields, it has affected the educational systems throughout the world, as well. At the level of higher education, the phenomenon of globalisation is, in fact, omnipresent and considered as an external economic and political process to which universities are exposed. In this sense, Albach, et al. (2004) state: *"Globalisation is defined as the broad economic, technological, and scientific trend that directly affects higher education and is largely inevitable"*. Higher education is currently expected to meet a wide range of needs for evolving knowledge

societies and economies. Such demands encompass educating increasing numbers of students, creating new opportunities for them, developing research and innovation , responding to local and regional economic challenges, and acting to improve quality and efficiency in all aspects of the higher education mission.

While these trends began before the turn of the 21st century, the speed of change has accelerated in recent years. In this emerging globally connected knowledge society, higher education is no longer on the margins of the social and political preoccupations. Rather, it has been brought centre stage as a key factor in national competitiveness and modernization.

As a response to this manifestation, many European countries have embarked on the process of setting up the European Higher Education Area (EHEA) in order to harmonise their higher education systems, provide better academic opportunities in their universities, entail cooperation as well as competition, and enhance their role as important contributors to a knowledge- based society, a type of society that fits perfectly in the globalisation era. Such a reaction was represented in the implementation a new reform at the level of European universities called the LMD system, which is the core of what is known as the Bologna Process. This process is an important step towards developing a more harmonised higher education system across countries in Europe and worldwide.

2.3. The Bologna Process

The Bologna Process embodies a series of ministerial meetings and agreements between European countries designed to ensure comparability in the standards and quality of higher education qualifications represented in what is nowadays known as the LMD reform.

This process owes its name to the Bologna Declaration signed in 1999, in this Italian city. It is one of the many schemes that have been developed, before and after 1999, in order to create a European Higher Education Area (EHEA) by 2010. The EAHE is based on international cooperation and exchange that is attractive to

European students and staff, as well as to students and staff from other parts of the world.

The will of establishing the EHEA goes back to 1988, when the responsibles of the European Universities gathered in Bologna, on the ninth centenary of the oldest university in Europe, and signed the Magna Carta Universitadum. The fundamental principles of this document were:

- The university is an autonomous institution and must be intellectually independent of all political authority and economic power.
- Teaching and research in universities must be inseparable.
- Freedom in research and training is the fundamental principle of university life.
- A university is the trustee of the European humanist tradition and its constant care is to attain universal knowledge.

(Suàrez and Suàrez, 2005: 3)

This document made also reference to the mobility of teachers and students and the need for a general policy of equivalent status, titles and examinations. Such principles have finally been stressed on and recognised a decade later through the Sorbonne Declaration of 1998.

At the European level, the LMD system was launched on the 25th of May 1998 when the French, German, British and Italian ministers in charge of higher education met at the Sorbonne, on the occasion of the 800th anniversary of this university, to appeal for the creation of a European Higher Education Area. On the same occasion, the four ministers established and signed the Joint Declaration on the Harmonisation of the Architecture of the European Higher Education System. The three principles underlying this declaration were:

- To facilitate the mobility of teachers and students in the European area as well as the integration of students in the European labour market.
- To improve the international recognition of qualifications through a gradual convergence towards a common framework of qualifications and cycles of degrees.
- To promote lifelong learning.

(Suàrez and Suàrez, 2005: 3)

The Bologna Process represents, then, a commitment by European countries to undertake a series of reforms to achieve greater consistency and uniformity across European higher education systems without impacting upon their self- government in matters related to their internal higher education. In other words, a characteristic of the Bologna Process is that the main policy goals are agreed upon and then implemented in participating countries. These participating countries commit to reviewing their systems and structures of higher education in order to found the EHEA. However, the EHEA is not intended as a centralised European system of higher education. It is rather a higher education area in which countries have agreed to implement common key features in their educational systems so that student, teacher, researcher and staff mobility, and recognition of qualifications will be greatly enhanced.

2.4. The Bologna Ministerial Meetings

The Bologna Process is a pan- European project, without precedent in the history of the continent. Its implementation needed continuous supervision, as it implied major changes in the higher education systems of most European countries. Therefore, every two years, approximately, since 1998 there has been a follow-up meeting of the countries involved in the process.

Since 1998, seven ministerial conferences devoted to mapping out the short- and medium-term goals of the Bologna Process and reviewing progress in implementation have been held in different European cities, namely Paris (at the Sorbonne University),

Bologna, Prague, Berlin, Bergen, London, Leuven/ Louvain-la-Neuve, and most recently, in April 2012, Bucharest. A roadmap has been drawn for further progress to be made by 2020. During each of these intergovernmental meetings, the Bologna Process objectives and work program have been expanded. Simultaneously, programmatic declarations and communiqués were passed as displayed below.

2.4.1. The Sorbonne Declaration (1998)

On May 25th, 1998, the ministers in charge of higher education in France, Germany, Italy and the United Kingdom signed the Sorbonne Joint Declaration on the Harmonisation of the Architecture of the European Higher Education System. This so called Sorbonne Declaration is generally seen as the precursor of the Bologna Process. It formulated the aim to create a European Higher Education Area through a set of measures summarized in the following points:

- Improving the international transparency of courses and the recognition of qualifications by means of gradual convergence towards a common framework of qualifications and cycles of study.
- Facilitating the mobility of students and teachers in the European area and their integration into the European labour market.
- Prepare students for their future vocations and support their personal development.
- Designing a common degree level system for undergraduates and graduates.

(Higher Education in Europe, 2009)

2.4.2. The Bologna Declaration (1999)

In 1999, higher education ministers of twenty-nine countries met to pursue the discussion begun at the Sorbonne and concluded by signing the Bologna Declaration on the 19th of June of the same year. This declaration became the primary document used by the signatory countries to establish the general framework for the

modernisation and reform of European higher education. Consequently, the process of reform came to be called the Bologna Process.

In 1999, the signatory countries included the fifteen then European Union (EU) member states, three European Free Trade Association (EFTA) countries (Iceland, Norway and Switzerland) and eleven EU candidate countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia). International institutions such as the European Commission, the Council of Europe and associations of universities, rectors and European students also participated in drafting the declaration. This marked the solid commitment of the organisations with decision-making power in higher education and of all agents that constitute the higher education community towards the establishment of the EHEA.

In the Bologna Declaration, ministers affirmed their intention to:

- Adopt a common framework of reference that facilitates and favours the international recognition of qualifications and degrees, by means of the implementation of the Diploma Supplement.
- Organize the formation on two main cycles; a first undergraduate cycle relevant to the labour market and a second cycle aiming at pursuing graduate studies.
- Introduce a system of credits rewarding the achievements of students. Many countries did not have a system of study credits and determined their degrees only in years or semesters. The objective of establishing a system of credits was to promote widespread student mobility.
- Promote the mobility of students, teachers, researchers and administrative staff by overcoming obstacles.
- Promote European cooperation in education quality assurance.
- Give a truly European dimension to higher education in terms of curricular development and inter-institutional cooperation.

(European Higher Education Area (EHEA), 2008)

The Bologna Declaration also formulated the objectives of increasing the international competitiveness of the European system of higher education and stressed the need to ensure that this system attracts significant attention from around the world.

2.4.3. The Prague Communiqué (2001)

In May 2001, a conference was held in Prague (Czech Republic) to evaluate the achievements of the previous two- year period and identify the main priorities that should drive the Bologna Process in the years ahead. Thirty-three countries participated in this conference with Croatia, Cyprus, Turkey and Liechtenstein as new members. At that time, the European Commission also became a member of the Bologna process.

The education ministers of member states decided, then, to establish a Bologna Follow-Up Group (BFUG) responsible for the continuing development of the Process. The BFUG is composed of representatives of all signatory countries and the European Commission and is chaired by the rotating European Union's presidency. The Council of Europe, the European Association of Institutions in Higher Education (EURASHE) and the National Unions of Students in Europe (ESIB), later renamed the European Students Union (ESU), take part as consultative members in the work of the BFUG.

The Prague Communiqué of 2001 expanded the process to subjoin the subsequent points:

- Promotion of lifelong learning. This is considered as an essential element of the EHEA which is built upon knowledge-based societies and economies. Lifelong learning strategies are necessary to face the challenges of competitiveness and the use of new technologies and improve social cohesion, equal opportunities and the quality of life.

- Involvement of higher education institutions and students as active partners in the establishment and shaping of the EHEA as well as in the development and implementation of reforms.
- Enhancement of the competitiveness of the EHEA and its attractiveness vis-à-vis the rest of world and mainly to students from non- European Union countries.

(Higher Education in Europe, 2009)

2.4.4. The Berlin Communiqué (2003)

Held on the 19th of September 2003, the Berlin Conference (Germany) was an important stage in the follow-up of the Bologna Process. With the inclusion of seven new signatory countries namely Albania, Andorra, Bosnia-Herzegovina, Macedonia, Russia, Serbia-Montenegro, and the Vatican, the circle extended to forty signatory countries.

With the Berlin Communiqué, the Bologna Process gained additional impetus by setting certain priorities for the next two years, these were:

- Development of quality assurance at institutional, national, and European levels.
- Starting the implementation of the two- cycle system.
- Recognition of degrees and periods of studies, including the provision of the Diploma Supplement automatically and free of charge for all graduates as of 2005.
- Elaboration of an overarching framework of qualifications for the EHEA, within which degrees should have different defined outcomes. First and second cycle degrees should have different orientations and various profiles in order to accommodate a diversity on individual, academic and labour market needs.

- Inclusion of the doctoral level as the third cycle. It was considered necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process and to promote closer links between the European Higher Education Area (EHEA) and the European Research Area (ERA).

(Higher Education in Europe, 2009)

In the Berlin Communiqué, The UNESCO European Centre for Higher Education (UNESCO- CEPES) joined the work of the BFUG as a consultative member.

2.4.5. The Bergen Communiqué (2005)

By May 2005, the Bologna Process extended to forty-five signatory countries with the inclusion of Armenia, Azerbaijan, Georgia, Moldova and Ukraine. The ministers responsible for higher education met in Bergen (Norway) to discuss the mid-term achievements of the process and set goals and priorities towards 2010.

In the Bergen Communiqué, ministers enlarged their priorities to include:

- Reinforcing the social dimension and removing obstacles to mobility.
- Awarding and recognising joint degrees.
- Creating opportunities for flexible learning paths in higher education, including procedures for recognition of prior learning.

(Higher Education in Europe, 2009)

The Bergen Conference also marked the adoption of two additional documents that are currently being implemented by Bologna Process members namely the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the Framework of Qualifications for the European Higher Education

Area (FQ- EHEA). The Standards and Guidelines document addresses both internal and external quality assurance reviews whereas the Qualification Framework identifies the suggested outcomes and competences for each of the three cycles (i.e. Bachelor, Master and Doctorate) and the number of credits required to achieve each degree.

The European Association for Quality Assurance in higher education (ENQA), the Education international Pan-European Structure and the Union of Industrial and Employers Confederations of Europe (UNICE), later to become Business Europe, joined the BFUG as consultative members.

2.4.6. The London Communiqué (2007)

During the London ministerial meeting, held on the 17th and 18th of May 2007, the ministers reaffirmed their determination to see the process continue until its full implementation in 2010 and welcomed Montenegro as a new member to the process. This conference provided a landmark in establishing the first legal body to be created through the Bologna Process that is the European Quality Assurance Register (EQAR). This is to become a register of quality assurance agencies that comply largely with the European Standards and Guidelines, and are therefore legitimate to work in the EHEA.

London also saw developments in two key areas: the social dimension, where ministers agreed to develop national action plans with the monitoring of their impact, and the global dimension, where ministers agreed on a strategy to develop the global dimension of European higher education.

2.4.7. The Louvain-la-Neuve Communiqué (2009)

The next ministerial conference was hosted by the Benelux countries[1] at the universities of Leuven and Louvain-la-Neuve (Belgium) on the 28th and 29th of April

[1] A union of countries comprising three neighbouring countries in Midwestern Europe, namely Belgium, the Netherlands and Luxemburg.

2009. During this meeting, the ministers emphasized the achievements of the Bologna Process, highlighting in particular the increased compatibility and comparability of European higher education systems through the implementation of structural changes and the use of the European Credit Transfer and Accumulation System (ECTS) and the Diploma Supplement. Admitting that the EHEA was not yet a reality, the Louvain-la-Neuve Communiqué also established the priorities for the decade to 2020 and decided that, in the years to come, the Bologna Process would be co-chaired by the country holding the European Union's presidency and a non- European Union's country since its membership had expanded.

2.4.8. The Bucharest Communiqué (2012)

The ministers responsible for higher education in the forty-seven countries of the EHEA have met in Bucharest (Romania) on the 26th and 27th of April 2012, to take stock of the achievements of the Bologna Process and agree on the future priorities of the EHEA. The ministerial conference in Bucharest adopted a communiqué that is both concise and comprehensive in scope. The communiqué came at a time when countries were faced by major economic challenges, and it offers a vision of higher education as a major part of the solution for recovery. The ministers emphasized the importance of higher education in lifting countries out of the current economic crisis and identified three domains as priority area for higher education in Europe in the coming years. These are:

- Quality Assurance: it is essential for building trust and reinforcing as well as maintaining the attractiveness of the EHEA offerings. Efforts had to be set up to develop the social dimension of higher education, reduce inequalities and provide adequate student support services, counselling and guidance, flexible learning paths and alternative access routes, including the recognition of prior learning. For this reason, ministers committed to both sustain the public responsibility for quality assurance and to actively involve a wide range of stakeholders in this development namely the ENQA, ESU, EUA and EURASHE.

- Enhancing employability: today's graduates need to combine transversal, multidisciplinary and innovation skills and competences with up-to-date subject specific knowledge in order to contribute to the wider needs of the society as well as the labour market. Thus, personal and professional development of graduates should be enhanced. This is achieved by enhancing lifelong learning and improving cooperation between employers, students and higher education institutions, especially in the development of study programmes that help increase the innovation, entrepreneurial and research potential of graduates.

- Strengthening mobility for better learning: mobility is essential to ensure the quality of higher education, enhance students' employability and expand cross-border collaboration within the EHEA and beyond. Therefore, sufficient financial support has to be provided to students to ensure equal access and mobility opportunities and joint programmes and degrees have to be developed as part of a wider EHEA approach.

(EHEA Ministerial Conference, Bucharest 2012)

The next EHEA ministerial conference will take place in Yerevan, Armenia, in 2015, where the progress on the priorities set above will be reviewed.

2.5. The Bologna Transparency Tools

The Bologna Process does not aim just to harmonise national education systems but also to provide devices to connect them. In addition to a fundamental restructuring of higher education in Europe around three cycles (Bachelor-Master- Doctorate) instead of the traditional long programme, Bologna members have agreed to implement a number of recognition and transparency tools to promote quality assurance systems, remove obstacles to the mobility of students, implement a system of easily readable and comparable degrees and establish a common credit system. Many of these were already effectively used in higher education systems and were simply adopted by the bologna process.

The bologna tools are:

- The Three Degree Cycle.
- The National Qualifications Frameworks (NQF)
- The European Credit Transfer and Accumulation System (ECTS)
- The Diploma Supplement (DS)
- Quality Assurance
- The Recognition of Foreign Qualifications
- Joint Degrees

(Bologna- An Overview of the Main Elements, 2010)

2.5.1. The Three Degree Cycle

As any reform, the LMD system brings novelty and this lies in a new architecture for higher education articulated around three levels of training, each corresponding to a degree. These are:

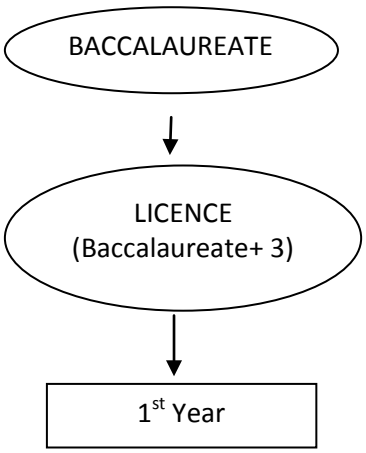
- The Licence or Bachelor: it corresponds to a course of three years after the Baccalaureate and aims at inculcating the learners a high level of technical skills and aptitudes. The licence can lead to a professional degree, which prepares the students for immediate integration into the workforce, or a non-professional degree aimed solely at preparing the students for the next diploma, namely the Master.

- The Master: it covers an additional two-years course after the License and encompasses a scientific and technical training program which enables conception, orientation, and direction of socio- economic activities.

  The Master completes the Bachelor's education. There is a professional Master which is oriented towards active working life and a research master for students interested more particularly in continuing towards the third degree which is the Doctorate.

- The Doctorate or PhD: it is prepared in three years and terminates the university curriculum. The Doctorate is based on training through research which will enable students to work in fields of orientation and innovation.

The LMD architecture can be summarized in the diagram below:



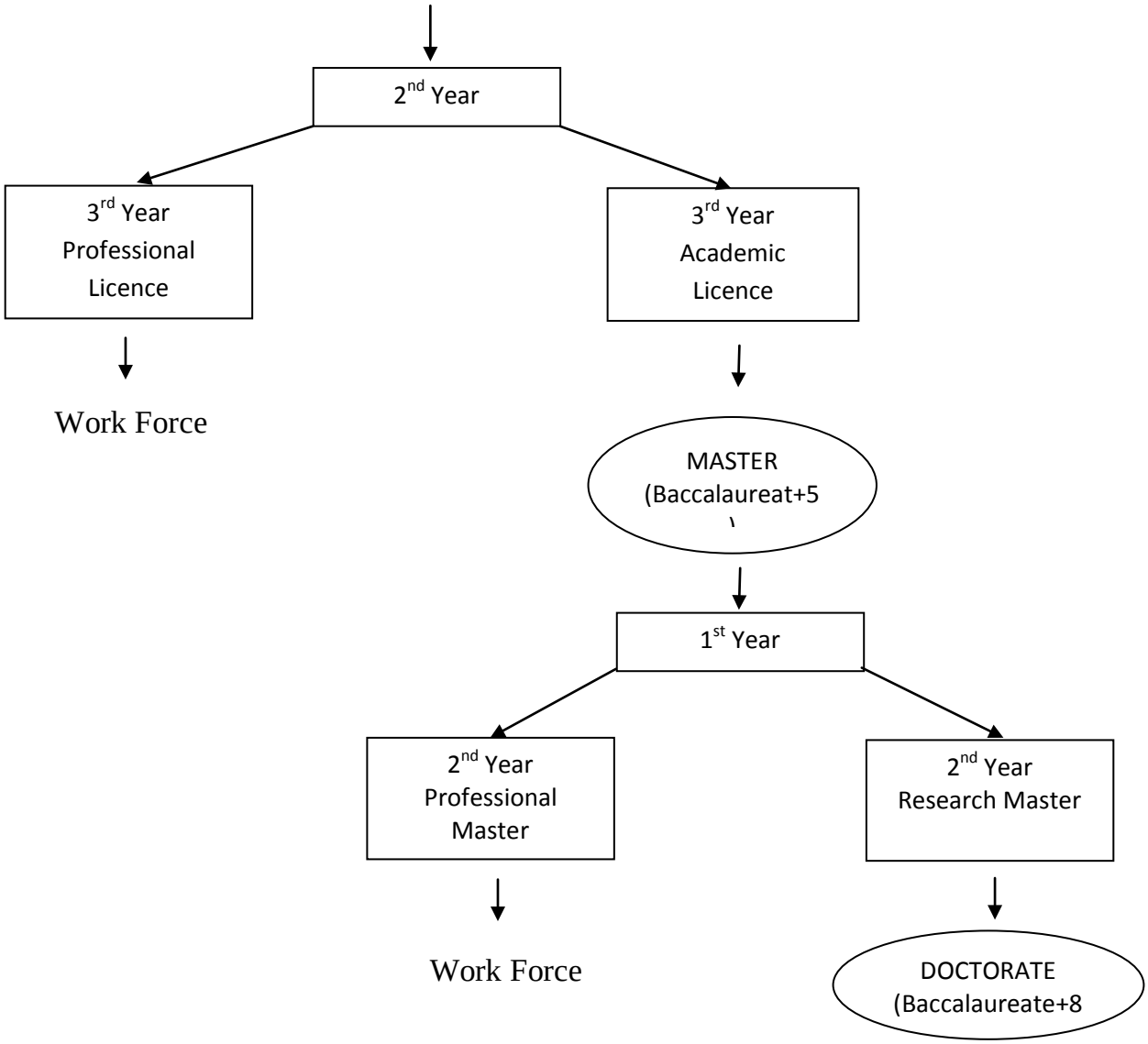


Figure 2.1: The LMD System's Architecture

The LMD architecture institutes functional links between the academic career and the professional one by giving the student a continually possible return to the university.

The three-cycle degree structure is the component of the Bologna Process which the signatory countries are most committed to apply, to help create the EHEA. It is considered as an important means of addressing fragmentation of degrees and programmes in Bologna Partner Countries, to make them more understandable, visible and attractive in Europe and beyond. Easily readable degrees and programmes help

increase student and graduate mobility. They also make university cooperation more structured and integrated, leading to joint, double and multiple degrees.

This new three-cycle structure is theoretically fully in place or has at least been extensively introduced in all countries in most institutions and programmes throughout the EHEA. However, several study fields, such as medical studies, architecture and engineering remain outside these new structures in some countries.

2.5.2. The National Qualifications Framework (NQF)

The National Qualifications Framework is an instrument for classifying qualifications according to criteria for specific levels of learning achieved. It aims to improve the transparency, access, progression, and quality of qualifications for the labour market and civil society. It describes the various qualifications and learning achievements that can be obtained in a given country and relates them coherently to each other. It shows what a learner knows, understands and is able to do, based on given qualifications, and how learners can move between qualifications.

Qualifications frameworks play an important role in developing degree systems and study programmes in higher education institutions. They are also important instruments to compare different national systems and make them more transparent in order to facilitate learners' mobility. These instruments reflect the shift from traditional input-based approaches for categorising qualifications, to a focus on learning outcomes, credits and the profile of qualifications.

The development of NQF has been encouraged in recent years by a range of initiatives and processes. In the context of the Bologna Process, European ministers of education adopted the overarching Framework for Qualifications of the European Higher Education Area in Bergen, in May 2005 (see section 2.4.5). They also agreed, then, that National Qualifications Frameworks should be set up by 2007 and implemented by 2010 in all Bologna signatory countries.

In parallel to the above-mentioned process, a European Qualifications Framework (EQF) for lifelong learning has been developed in the context of the Lisbon Strategy (see section 2.4.7) and adopted by the European Council and Parliament in 2008. The main purpose of the EQF is to act as a "translation device" and neutral reference point for comparing qualifications across different national education and training systems.

2.5.3. The European Credit Transfer and Accumulation System (ECTS)

ECTS is one of the cornerstones of the Bologna Process and is increasingly used by institutions in other continents. It is a tool which enables students to collect credits for learning attained throughout higher education. The system aims to increase transparency of learning outcomes and learning processes and facilitate the recognition of studies. In practical terms, it facilitates comparisons and provides a clear understanding of the workload involved in programmes and courses. It is also an essential means in facilitating student mobility and study periods abroad. In practice, sixty credits represent the workload of one year of full time formal learning (i.e., academic year) and its learning outcomes. These learning outcomes describe what a learner is expected to know, understand and be able to do, after the successful completion of a learning process.

2.5.4. The Diploma Supplement

It is a document which stipulates the different qualifications a given student has acquired throughout his studies and describes the structure of the higher education system in which they were gained. The Diploma Supplement has a standard format that is easy to understand and easy to compare. It aims at enhancing international transparency and mobility through facilitating the mutual recognition of academic and professional qualifications. The Diploma Supplement is tightly closed to the Bologna Process' objective of creating a system of easily readable and comparable degrees.

According to the Bologna principles, the Diploma Supplement should be issued automatically and given free of charge to graduates at the end of their studies.

2.5.5. Quality Assurance

The Bologna Process includes the promotion of European co-operation in quality assurance as one of its main objectives. Quality assurance refers to the process of evaluating, monitoring, guaranteeing, maintaining and improving the quality of higher education systems, institutions and programmes.

Ensuring equally high standards in higher education across Europe was on the Bologna Process agenda from the very beginning. To support this aim, The European Network for Quality Assurance in Higher Education (ENQA) was established in 2000 and transformed into the European Association for Quality Assurance in Higher Education in 2004.

In 2003, the Berlin Communiqué gave the ENQA a mandate to explore ways of ensuring an adequate peer review system for quality assurance agencies and to develop an agreed set of standards , procedures and guidelines on quality assurance. This was approved by the Bologna ministers at the 2005 Ministerial Summit in Bergen in the form of the Standards and Guidelines for Quality Assurance in The European Higher Education Area.

This mandate functions at three levels. It sets the standards for internal quality assurance at institutional level, for external quality assurance by national and regional agencies, and for peer review of the agencies themselves. Fundamentally, it focuses on institutional responsibility. It is the higher education institution which is primarily charged with monitoring the sound operation of programmes and awards, students' assessment and teachers' appraisal, learning resources and students' support, management information systems and the quality of the information destined for public consumption. At the following meetings, the ministers continued to emphasise the importance of quality assurance and the key role it plays in modernising European higher education.

2.5.6. The Recognition of Foreign Qualifications

Recognition of foreign qualifications has been at the heart of the Bologna Process and is a means of promoting the mobility of individuals and boosting the employability of graduates worldwide. Among the different tools available, the Lisbon Recognition Convention, an international convention, which allows qualifications granted in one country to be recognised in another country on the basis of defined standards. The convention has been elaborated jointly by the Council of Europe and the UNESCO. It concerns mainly the members of the Council of Europe, the UNESCO Europe and the North America region.

The convention stipulates that degrees and periods of study must be assessed and recognised in another country, unless substantial differences are proved. Students and graduates are guaranteed fair procedures under the convention with no discrimination on grounds such as the applicant's gender, race, colour, disability, language, religion, and political opinion, as well as national, social or ethnic origin. In practice, ministers of education are usually in charge of recognising foreign qualifications for both academic study and employment purposes. The convention also encourages higher education institutions in all signatory countries to issue the diploma supplement to its graduating students in order to facilitate recognition.

The Lisbon Recognition Convention Committee also adopted a recommendation on the recognition of Joint Degrees in 2005, which encourages the recognition of Joint Degrees if all parts of the joint programmes are quality assured members and recognised institutions.

2.5.7. Joint Degrees

The Bologna Process has paved the way for increasingly innovative, cooperative, and cross border study programmes under the so-called Joint Degrees. Such an initiative is believed to enhance the development of joint quality assurance, recognition, transparency and convergence of higher education systems through

Europe, student and staff mobility, graduate employability and attractiveness of European education in general.

At European level, an amendment to the Lisbon Recognition Convention was adopted in 2005, to facilitate the recognition of Joint Degrees qualifications. Therefore, many countries have adapted their legislations to enable Joint Degrees to be awarded. Even if bilateral partnerships are nowadays more common than multi-lateral ones, many fields of study are currently offering such a programme throughout Europe. The most concerned ones are Economics, Business, Engineering, Law and Management, followed by European Studies, Political Science, Communications and Media, Foreign Languages and Social Sciences. Moreover, Joint Degrees are more common at Master and Doctorate levels than at first degree level, or outside the university sector. The languages of tuition are usually those of the partner countries and / or English.

Implementing the various Bologna tools is obviously a complex process requiring substantial changes in higher education systems and tremendous efforts to implement more student-focussed approaches and new quality procedures. However, such initiatives are pre-requisites to facilitate mobility and promote transparency throughout the EHEA and beyond.

2.6. The LMD Terminology

With the application of the LMD system as a new organisational scheme, new keywords have emerged. Because of the novelty of this system, it seems relevant to present some of the essential elements of its pedagogical management. These can be summed up in:

1. Semestrialisation

For a better organisation and more flexibility in the LMD system, the division is based on semesters rather than years of formation. The semester is the period of time necessary to complete an actual course of study during an academic year. In

this new structure, the academic year is divided into two academic semesters. A semester counts 16 weeks of study and assessment, comprises 4 modules in average and includes at least 300 to360 hours of study, depending on the type of degree under preparation. The first semester lasts from early October to the end of January, whereas the second one from early February to the end of May. The examinations are held at the end of each semester.

2. Teaching Unit

A teaching unit is a set of lessons organized in a coherent pedagogical manner and logical educational progression. Each semester covers four main teaching units. These make up the skeleton of the whole system and are organized in a pedagogic and coherent way, they cover:

- The Fundamental Unit, where the rudimentary and core subjects are grouped.
- The Methodological Unit, which is primarily destined to prepare learners to acquire skills in methodology. Thus, by the end of their formation, they will be able to be active workers in the field of research.
- The Discovery Unit, where students can get acquainted to new subjects in new fields, so they can widen the scope of their knowledge. This eases the passage from one discipline to another and is one of the facilities offered by the LMD system.
- The Transversal Unit, comprising compulsory language and ICT courses.

The teaching of these units varies from one semester to the other. Furthermore, each unit has a defined value in European Credits in proportion to the work (classes, supervised work, practical work, project, course- work, etc) the student must provide in order to obtain his or her teaching unit.

3. Credits

In the LMD system, the courses are organised on the Credit System. It is a system whereby the university uses a unit or credit to measure the completion of a

course that is required for an academic degree. In other words, a credit is a unit quantifying the volume and importance of the acquired knowledge and training as well as the work done by the student (i.e., lectures, tutorials, practical work, work placement, term paper, project, personal work, examination, etc) in each teaching unit and for each study semester. Each teaching unit corresponds to a number of credits that can be capitalized and transferred, these are more technically called ECTS (European Credit Transfer and Accumulation System). The total number of credits for each semester is equal to 30. Therefore, the licence curriculum, which comprises 6 semesters, corresponds to a validation of 180 ECTS, whereas the Master degree, which covers 4 semesters, corresponds to a validation of 120 ECTS. These credits are awarded only when the course has been completed and all required examinations have been successfully taken.

This system of credits is valid in all higher education institutions in Europe. It is extremely useful for LMD students because if a student has validated his two first semesters and got 60 ECTS in Britain, for instance, he can carry on his Licence degree in France since the number of credits obtained proves that he has validated the first year in his own country.

4. The module

It is the basic unit of university education assigned in one semester. It consists of one to two coherent and autonomous disciplinary elements allowing a smooth assessment of learning outcomes. Each module has a minimum of 75 hours of study (or 10 to 25 days of field work). In a modular program, courses can be taught in the form of theoretical courses and / or practical field activities.

5. Capitalization

Capitalization is an innovative educational principle which consists of a constant recognition of students' ownership of a validated module. This lifelong accumulation of credits allows, on the one hand, a more rational management of students' stages of university progress and, on the other hand, the establishment of

functional links between the university and the professional career by giving the student an incessantly possible return to the university.

6. Fields

The degrees are listed by fields (e.g. Sciences, Technology, Health, Arts and Languages and Law). From the field opted for, students choose a specialist subject which may itself be broken into specialities and particular options. The diploma obtained carries the name of the specialist subject and the speciality.

7. Assessment

The assessment of knowledge, skills and competencies are key components of the LMD system. In this architecture, the assessment of students acquisition and learning is semestrial and not annual. Students are assessed and given grades, first, during the semester through continuous or ongoing assessment. This consists of marking the students for each assignment completed during the lectures and class works (written and oral tests, papers, short talks, reports, presentations, homework, etc). Second, a final exam is organized at the end of each semester, in addition to a possible catch- up exam.

Each institution establishes its own assessment policy within general university guidelines and has to make it public to the students. These regulations concern, among others things, the modes of assessment, cheating, late submissions, and absences, as well as the procedures for the consultation of the exam copies by students. The final mark of a module is composed of the overall average of the grades obtained in the different types of assessments using a weighting scale. This weighting is determined by the teaching staff of the module. At the end, a module is acquired either by validation or by compensation

8. Validation

In order to progress in his or her university studies, the student should validate modules. A module is validated if its global mark is superior or equal to 10

out of 20 and without any mark lower than a given threshold (i.e., 5/ 20) in its composing elements. Therefore, a course is validated if:

- All its modules are validated.
- All its semesters are validated.

A validated course gives, then, right to the acquisition of the corresponding graduate diploma. A student who has not validated one or several modules benefits from a make- up exam in all the non- validated modules. Compensation is attained through averaging of all the modules.

9. Transferability

Institutions may use credits obtained from other bodies: other universities from the EU, training course, distance learning, professional experience, etc. This system is therefore very flexible and encourages students' mobility.

10. Course- type

After the progressive acquisition of the identified competences, students will be oriented to another function according to the project, i.e., academic or professional. Hence, the students will benefit from the mobility they gain to other institutions and even countries.

11. Progressive Orientation

There is a great tendency to orient the students progressively towards other specialities. The more the student progresses, the more he is oriented towards a new discipline depending on his outcomes. Hence, the student's competence is what determines his orientations during the formation period.

12. Teaching Team

It is a group of teachers in charge of the design and monitoring of a given programme (licence, Master or Doctorate). These teachers provide also support and tutoring to the learners all along their different degrees.

13. Tutoring

This is a new pedagogical activity for the teacher involved in the LMD system. This ingredient enables a direct relation between the teacher and the student outside the academic sessions so their interaction becomes easier and closer. The sought teacher's role behind tutoring is that of the guide as he may give learners pedagogical information they may need throughout their path as he may get informed about their difficulties and inquiries. This new responsibility widens the task of the teacher as he is supposed to advise and orient his students throughout their learning process. In a nutshell, tutoring is a way out to apply the learner- centred approach. All teachers, not just LMD ones, are expected to use tutoring in their educational settings.

2.7. The Global Implementation of the LMD System

The appeal of the Bologna Process to implement the LMD system has been very impressive, with more and more countries joining by becoming signatories. In 2012, forty-seven countries were implementing the LMD reform. The report to the 2012 Ministerial Conference in Bucharest (EACEA/Eurydice, 2012) on the implementation of this process indicated that the introduction of the three-cycle degree structure in most institutions and programmes has been one of the most significant achievements of the system. Progress has also been made in developing National Qualifications Frameworks, the European Credit Transfer and Accumulation System (ECTS), and the Diploma Supplement, increasing student mobility and international exchange. Another area of success has been the creation of Quality Assurance mechanism and the establishment of the European Quality Assurance Register

(EQAR). In 2012, the creation of the European Higher Education Area (EHEA), as envisaged in the Bologna Process, has also become a reality.

Today, the Bologna Process stands out as a highly significant reform that has generated a chain of national- level reforms in higher education internationally. Its effects are not limited to European countries or the signatory countries, as this move is being attempted in several countries outside the European orbit of the Bologna Process illustrating its global impact.

- **North America**

Higher education leaders in the United States and Canada issued several reports which drew attention to the advances being made in Europe through the Bologna Process, comparing the situation in the United States unfavourably with the one emerging in Europe. Thus, the Bologna Process acted as a wake-up call for higher education reform in the United States. Consequently, North American higher education experts identified elements of the LMD system that could be adapted to their national contexts of greatly decentralized and varied education. In this sense, discussions have concentrated on the idea of setting up some form of national degree framework in the United States.

In Canada, a statement was made to create a pan-Canadian degree qualifications framework and assessment standards for new degree programmes and providers, as a step towards addressing the Bologna challenge. This statement aims to provide common descriptors of degrees granted in the country and fixes common assessment standards, paralleling in some ways the Bologna Process.

- **Latin America**

The Inter-American Organization for Higher Education (IOHE), which includes more than 300 institutions and national university associations in 26 countries, initiated a programme to create a Latin American and Caribbean

Higher Education Area. This is an innovative and flexible common space that is built in a collaborative manner and contains the basic policies and formal conditions for a common area of higher education: quality, credit transfer and accumulation systems, curricular harmonization, a common framework of qualifications and the recognition of academic titles.

❖ Asia

Australia led an attempt to establish an Asia-Pacific Process similar to the Bologna Process, which became known as the Brisbane Process. The 2006 Brisbane Communiqué, signed in Brisbane (Australia) by 27 Asia-Pacific education ministers and senior officials, aimed to support students' regional and academic mobility and exchange. It also referred to the need to establish common quality assurance standards and cooperation for enhanced recognition in the region.

In South-East Asia, higher education ministers took initiatives to create a South East Asian Higher Education space among its ten member countries[2]. The five action-lines for this organization revolve around student mobility, Quality Assurance, Credit Transfer System, the Diploma Supplement, and an Association of South-East Asian Nations research clusters. The harmonization measures in the CIS countries[3] attempt to align their universities with international standards and their education systems with those of the West. They also attempt to develop a comparable structure of credit transfer systems between universities located in the CIS.

❖ Africa

Considerable efforts were made to create an African higher education space and education ministers launched the African Union's Higher Education

[2] The ten member countries consisting South-east Asian Higher Education are Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.
[3] Commonwealth of Independent States.

Harmonization Strategy in 2007. Such an initiative put forward three main objectives namely: harmonization of systems, qualifications recognition and quality assurance. The ministers also set an ambitious goal for 2015 to establish a continental framework of higher education qualifications.

Some separate initiatives have also been undertaken at the sub-regional level, among which is the work undertaken by the West African Economic and Monetary Union (WAEMU) to promote student mobility and regional cooperation.

As far as North African countries are concerned, these regions are not formally part of the Bologna Process but have adopted and flexibly implemented some of its principles and tools. The well established partnership relations with the European Union has enabled European and African higher education institutions to undertake a number of joint projects with the aim of promoting the Bologna structures and reforms.

These numerous initiatives in different regions of the world indicate the importance of the LMD reform in the re-shape and development of higher education not only in Europe, but globally as well.

2.8. Algeria and the Tempus Programme

Tempus is the abbreviation used for the Tran-European Mobility Programme for University Studies. It is a specific programme that has been launched by European countries, twenty years ago, to promote the modernisation of higher education systems in the European Union's neighbouring countries, commonly known as Partner Countries. Since its appearance, this programme has fostered cooperation between higher education institutions in the European Union and the Partner Countries. It has also enhanced mutual learning and understanding between different states, peoples and cultures; and has encouraged voluntary convergence of higher education systems in these countries with European Union's policies and strategies including the Bologna

Process. This process has become a reference for most Tempus Countries which aim to modernize their higher education systems in order to follow the flow of globalization.

Since its appearance, the Tempus Programme has gone through four main phases:

Phase One: it lasted from 1990 to 1993, and was launched to respond to the modernisation needs of the higher education sector in Central and Eastern European countries, after the fall of the Berlin Wall in 1989. These countries later became members of the European Union.

Phase Two: it lasted from 1994 to 2000 and covered further Eastern Europe countries and Central Asia. During this period, the national priorities of the programme were defined by the national authorities and, then, implemented.

Phase Three: it extended from 2000 to 2006. During this phase, the geographic scope of the Tempus Programme was enlarged to cover the Mediterranean region. The programme aimed at:

- Enhancing cooperation between countries of the same region.
- Promoting socio-economic development in Partner Countries.
- Promoting inter-cultural understanding as a means of sustainable growth and peace.
- Reinforcing the "intercultural" and "civil society" dimension of the European Union's policies in these countries.

(Overview of Higher Education Systems in the Tempus Partner Countries)

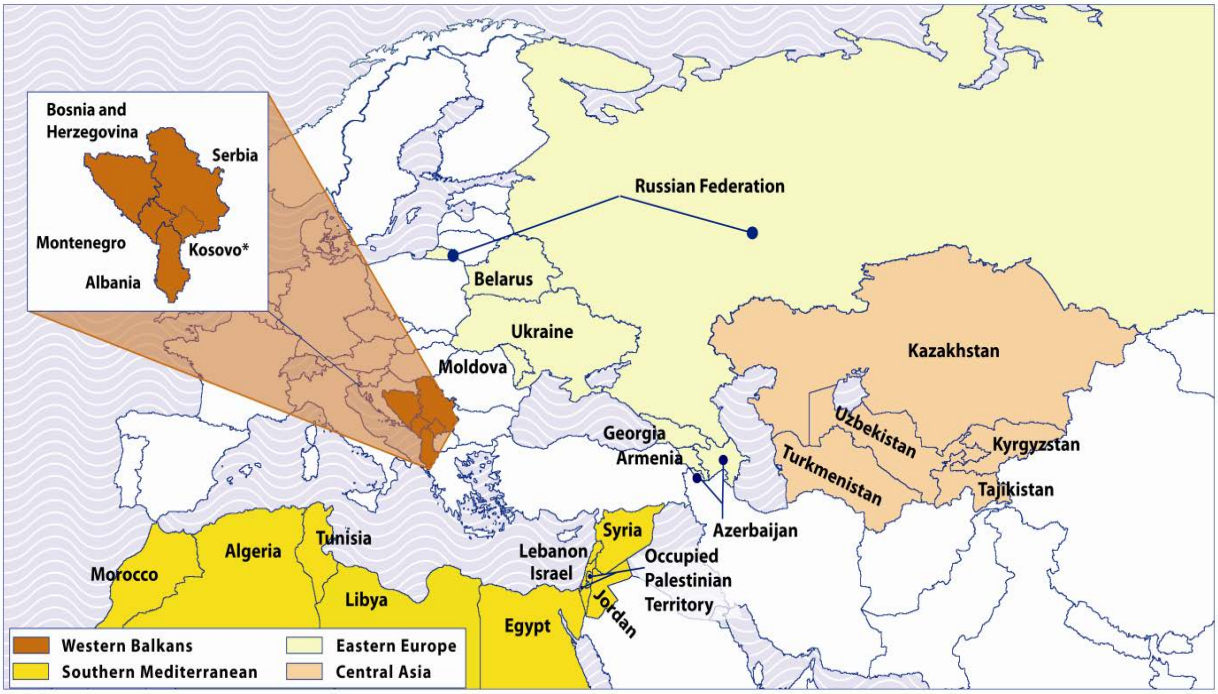
Phase Four: starting from 2007, it furthers emphasis on international cooperation and reinforces the socio-economic role of higher education.

The Tempus Programme currently covers twenty-nine (29) Partner Countries located in six (6) different regions worldwide. These include:

- Caucasus countries: Armenia, Azerbaijan and Georgia.

- Western Balkans countries: Albania, Armenia, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Kosovo, Montenegro and Serbia.
- Eastern Europe countries: Belarus, Moldova, The Russian Federation and Ukraine.
- Central Asia countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan.
- North Africa countries: Algeria, Libya, Morocco and Tunisia.
- Middle East countries: Egypt, Israel, Jordan, Lebanon, Palestine and Syria.

The following map gathers the different Tempus Partner countries.



Map 2.1: Tempus Partner Countries

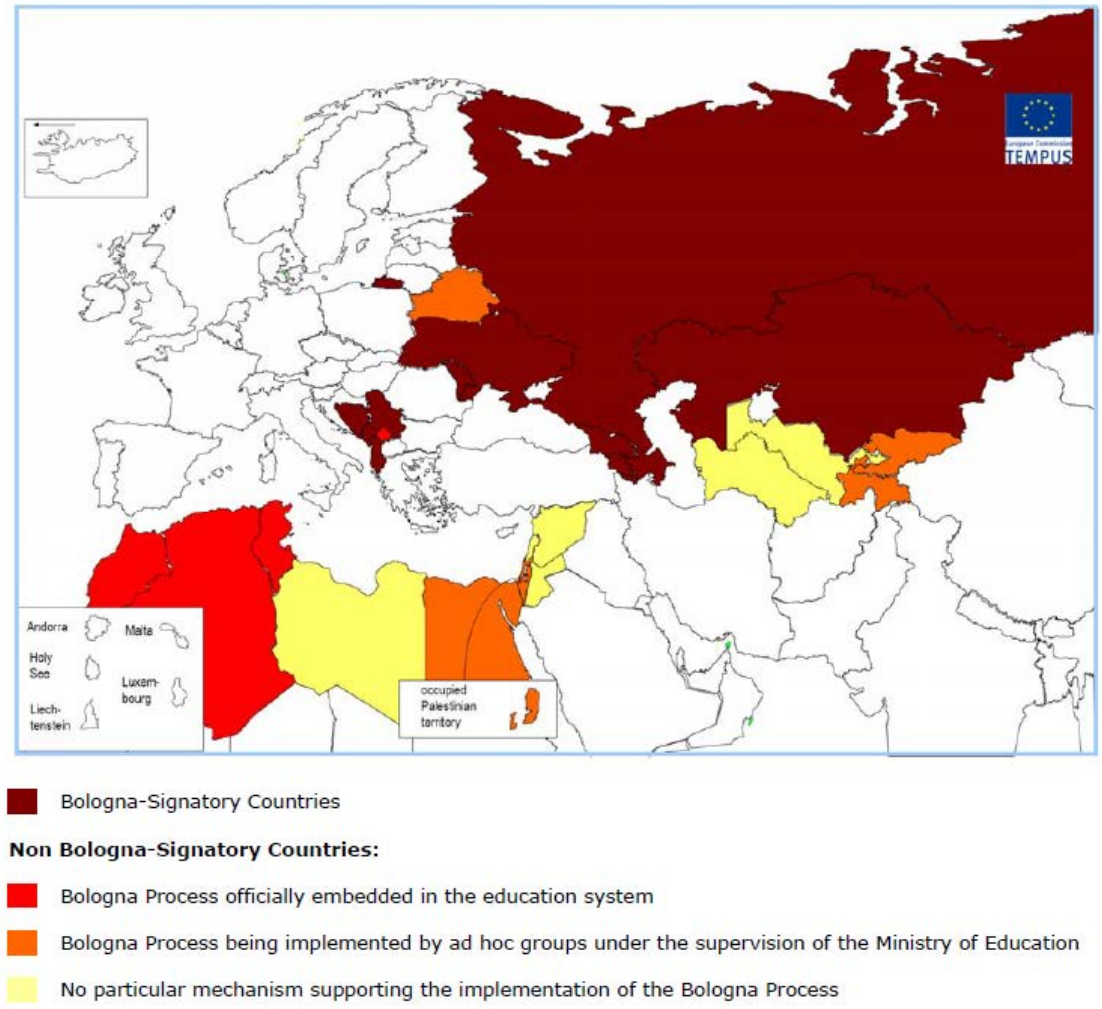
(State of Play of the Bologna Process in Tempus Partner Countries 2012: 59)

Since the Launch of the Bologna Process, ten (10) Tempus countries have signed the Bologna Declaration, namely: Albania, Armenia, Azerbaijan, Bosnia and

Herzegovina, Georgia, Moldova, Montenegro, Russia, Serbia and Ukraine. Besides, five (5) other countries: Egypt, Israel, Jordan Morocco and Tunisia, have taken part in the 2010 Bologna Process Forum to discuss how to enhance worldwide higher education cooperation.

Even if it is not part of the Bologna Declaration signatory countries, Algeria has officially introduced the Bologna Process to its higher education system strategy and made it part of its national policy. This is the case of three other countries: Kosovo, Morocco and Tunisia. However, in Belarus, Egypt, Israel, Palestine, Kyrgyzstan and Tajikistan, the Bologna Process was put into practice on a voluntary basis under the supervision of the ministers of higher education. As far as Jordan, Lebanon, Libya, Syria, Turkmenistan and Uzbekistan are concerned, no official organism is currently supporting the implementation of the Bologna Process except the Tempus Higher Education Reform Experts, who act as intermediates between Bologna signatories and the ministers of these countries.

The map below summarizes the different methods of implementing the Bologna Process in Tempus Partner Countries.



Map 2.2: Methods of Implementation of the Bologna Process

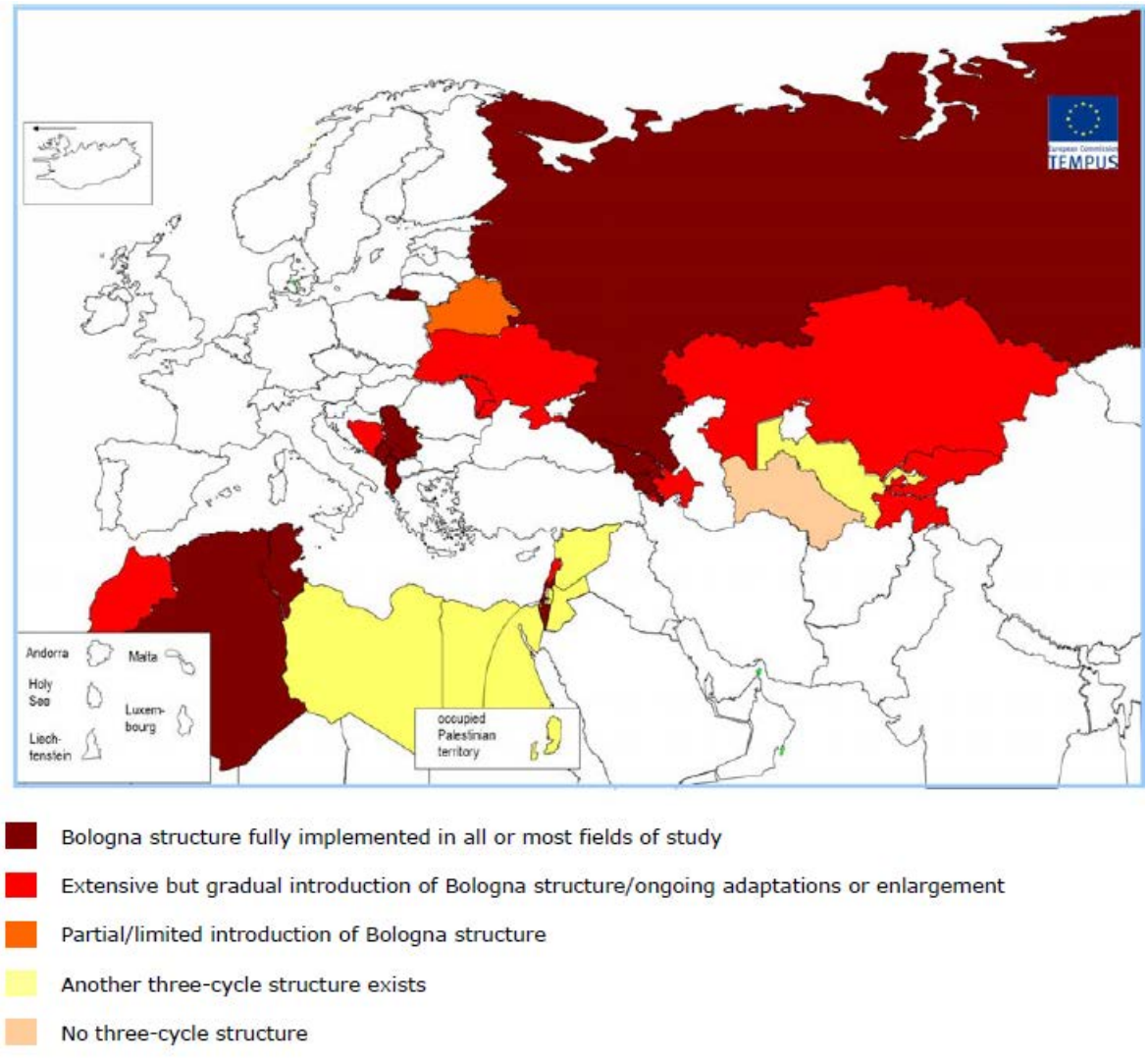
(State of Play of the Bologna Process in Tempus Partner Countries 2012: 6)

In what follows, the researcher will provide an overview of the State-of-the-Art of the implementation of the different Bologna transparency tools in the Tempus Countries. These approaches have been adopted on a voluntary basis, at different dates and with various paces.

2.8.1. The Three Degree Cycle

The Three Degree Cycle structure, along with the ECTS, is among the widely spread and used Bologna tools in the Tempus Countries. The Bologna cycle structure

for the Bachelor and Master levels is fully applied in most institutions in these countries. It has been applied in both signatories and non-signatories of the Bologna Declaration covering Maghreb countries, Lebanon, Israel, Kazakhstan, Kyrgyzstan, Tajikistan and Kosovo. In the remaining countries, the application of this structure is exclusive in some, partial in others, and inexistent in the rest, as illustrated in the map below. Regarding Algeria, the Three Degree Cycle is currently implemented in all fields of study.

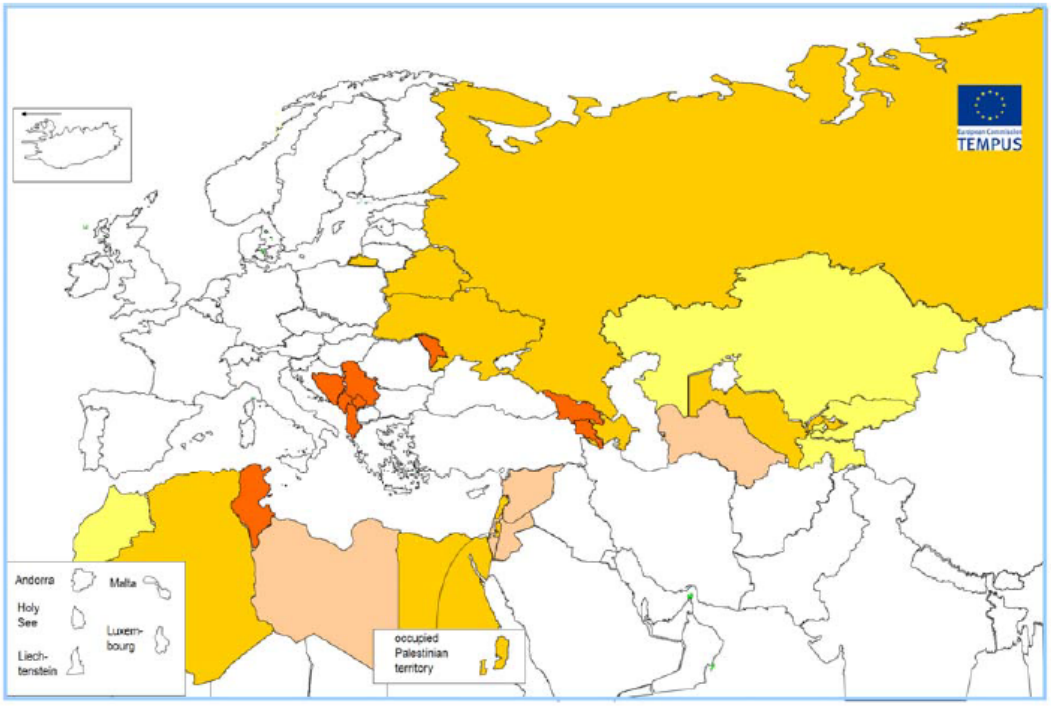


Map 2.3: The Implementation of the Three-Cycle Structure in Tempus Countries

(State of Play of the Bologna Process in Tempus Partner Countries 2012: 20)

2.8.2. The National Qualifications Framework

None of the Tempus Countries has fully completed the process of the adoption of the National Qualifications Framework at its national level. On the one hand, most of the countries concerned have started it, even if they are in its initial stages. On the other hand, others have not yet formally decided on the introduction of such a process. As far as Algeria is concerned, the implementation of this Bologna tool is being discussed. The stages of the implementation of the National Qualifications Framework in the different Tempus Partner Countries are shown in the map below:

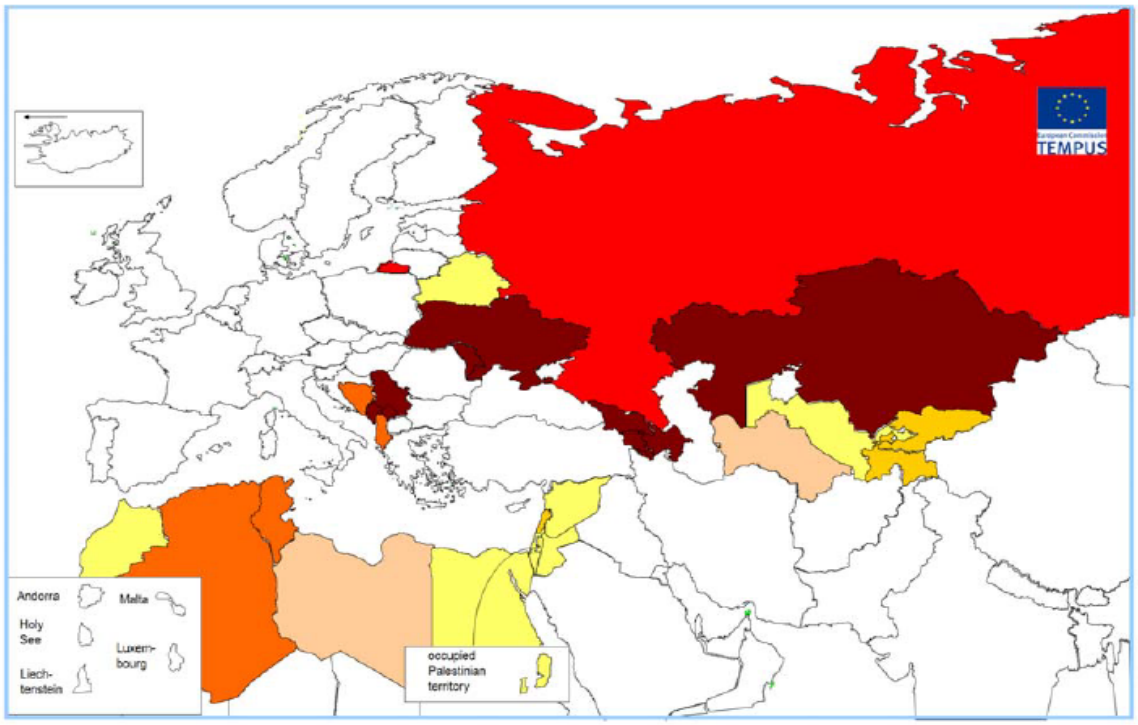


Map 2.4: Stages of Establishing the National Qualifications Framework in Tempus Countries

(State of Play of the Bologna Process in Tempus Partner Countries 2012: 39)

2.8.3. The European Credit Transfer and Accumulation System (ECTS)

Most of Bologna Partner Countries, with the exception of Libya and Turkmenistan, have adopted the system of credits as applied by the Bologna Process. However, such an implementation is still divergent from one country to the other. In Algeria, more than 75% of the higher education institutions are using ECTS for accumulation and transfer purposes. The map below displays the level of implementation of the ECTS at the level of Tempus Countries.



More than 75% of institutions and programmes are using ECTS for both transfer and accumulation purposes. Allocation of ECTS is based on learning outcomes and student workload.

More than 75% of institutions and programmes are using ECTS for both transfer and accumulation purposes. Allocation of ECTS is based on student workload.

More than 75% of institutions and programmes are using ECTS for both transfer and accumulation purposes. Allocation of ECTS is based on contact hours, or a combination of contact hours and student workload.

75% or less institutions and/or 75% or less programmes are using ECTS for both transfer and accumulation purposes. Various references are used to define the credits.

Another credit system

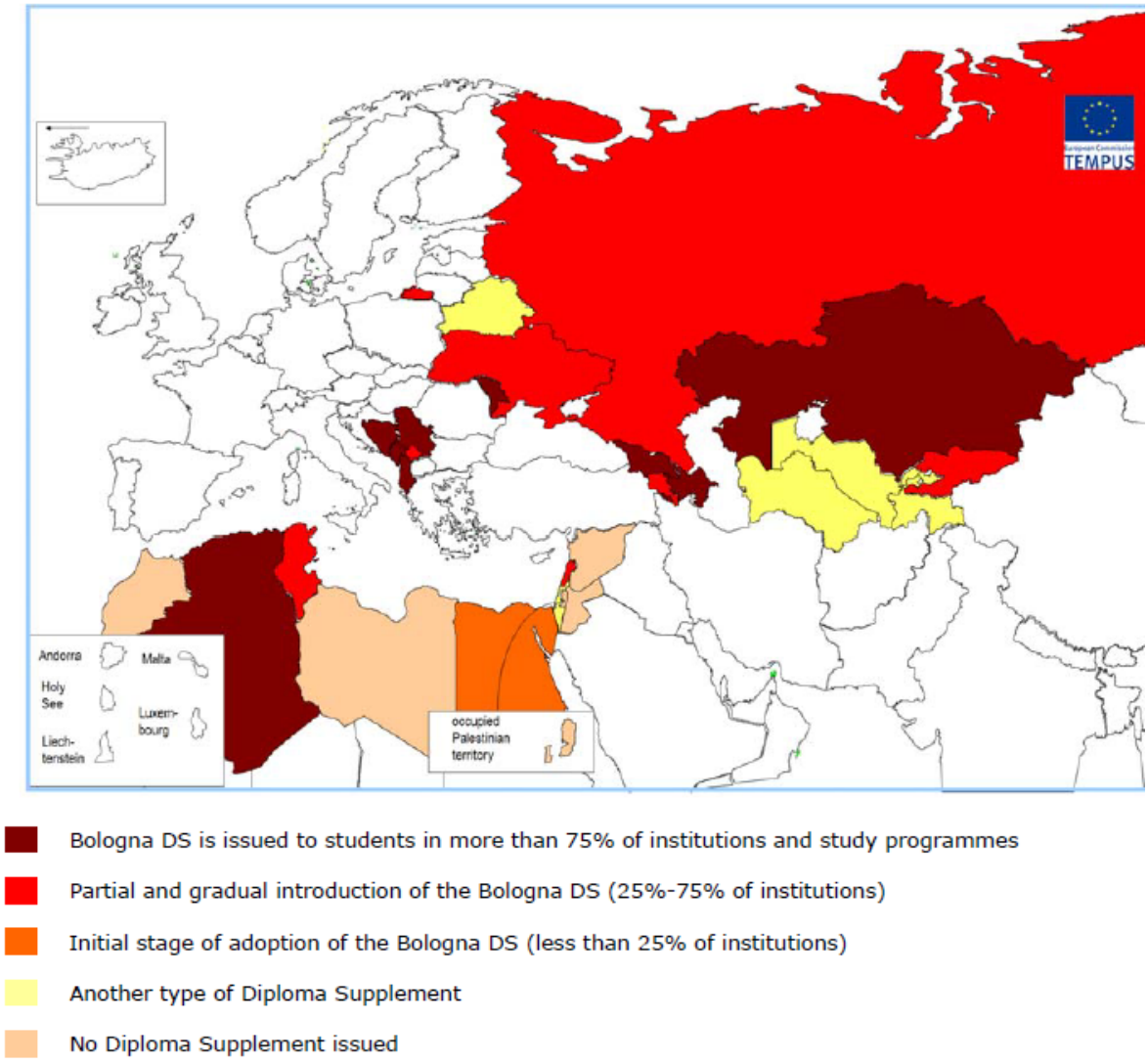
No credit system

Map 2.5: The Implementation of ECTS in Tempus Countries

(State of Play of the Bologna Process in Tempus Partner Countries 2012: 28)

2.8.4. The Diploma Supplement

Except Jordan, Libya, Morocco, Palestine and Syria, all the remaining countries deliver the Diploma Supplement at the level of their institutions. However, such a delivery differs from one context to the other. As for Algeria, the Diploma Supplement is automatically delivered to students in more than 75% of the higher education institutions, as displayed in the following map:

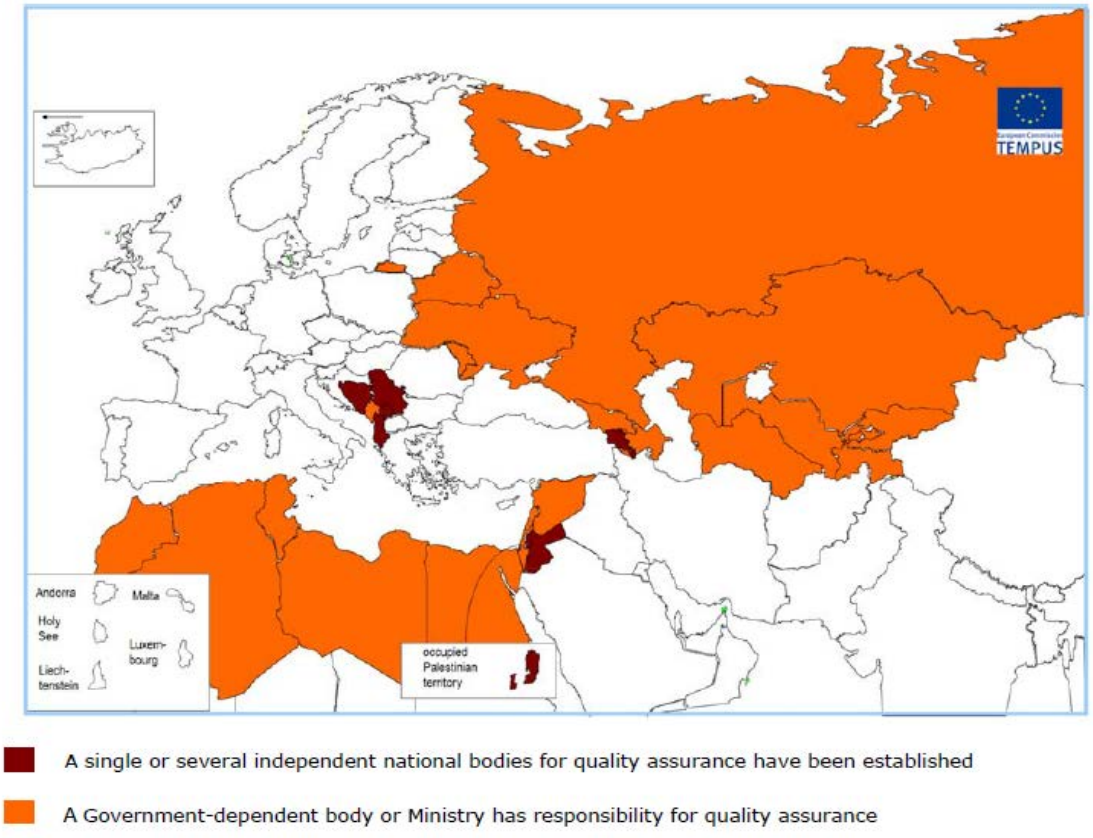


Map 2.6: Level of Implementation of the Diploma Supplement in Tempus Countries

(State of Play of the Bologna Process in Tempus Partner Countries 2012: 33)

2.8.5. Quality Assurance

Quality Assurance measures differ from one set of Tempus Countries to another. In Algeria, Quality Assurance is under the responsibility of the Ministry of Higher Education. In some of the remaining Tempus Countries, such as Azerbaijan, Belarus, Egypt, Georgia, Israel, Kazakhstan, Kyrgyzstan, Lebanon, Libya, Moldova, Montenegro, Morocco, Russia, Syria, Tajikistan, Tunisia, Turkmenistan, Ukraine and Uzbekistan, Quality Assurance is under the charge of either a government-dependant body or a Ministry. In the remaining countries, namely: Albania, Armenia, Bosnia and Herzegovina, Jordan, Palestine, Serbia and Kosovo, Quality Assurance the responsibility of one or several independent national bodies. The provision of Quality Assurance in Tempus Countries is illustrated in the map below:

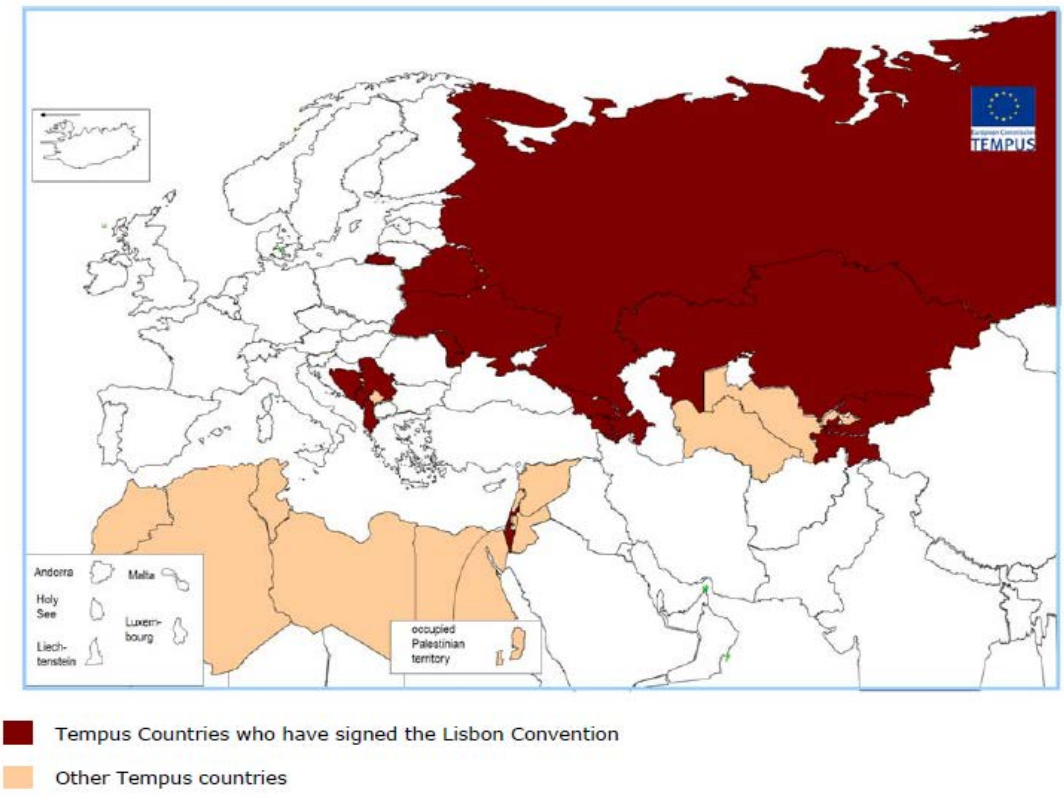


Map 2.7: National Quality Assurance Bodies in Tempus Countries

(State of Play of the Bologna Process in Tempus Partner Countries 2012: 45)

2.8.6. The Recognition of Foreign Qualifications

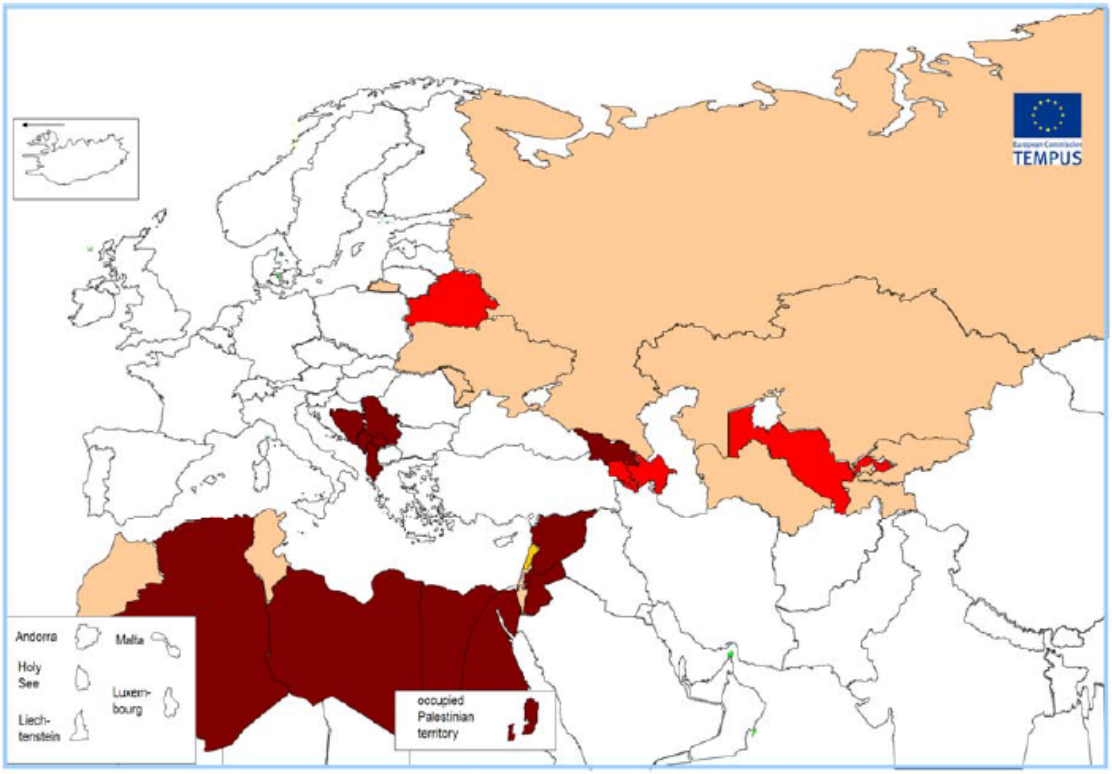
The Lisbon Convention has been signed by all Tempus Countries which have signed the Bologna Declaration, but also by other non-signatory countries which are members of the Council of Europe, namely: Belarus, Israel and Tajikistan. Algeria is part of the remaining countries which have not ratified this convention yet, but are applying its principles as shown in the map below:



Map 2.8: Signature of the Lisbon Convention by Tempus Countries
(State of Play of the Bologna Process in Tempus Partner Countries 2012: 55)

2.8.7. Joint Degrees

In Algeria, Joint Programmes and Degrees have been approved by higher education legislation as in many other Partner Countries, essentially Albania, Bosnia and Herzegovina, Egypt, Georgia, Jordan, Kosovo, Libya, Montenegro, Palestine, Serbia and Syria. However, in Armenia, Belarus, Azerbaijan, Uzbekistan, Joint Programmes and Degrees are put in application but not yet approved by legislation. Concerning Lebanon, this legislation is ratified by legislation but not yet put into practice. In the remaining countries, Joint Degrees are not mentioned in higher education legislation. The provision of Programmes Joint and Degrees in the numerous Partner Countries is provided in the map below:



Joint programmes and joint degrees are allowed in the higher education legislation.

Joint programmes are allowed in the higher education legislation. Joint degrees are not foreseen in the legislation.

Joint programmes and joint degrees are mentioned in the higher education legislation but provisions need to be defined.

Joint programmes and joint degrees are not mentioned in higher education legislation whatsoever.

Map 2.9: Establishment of Joint Degrees and Programmes in Higher Education Legislation in Tempus Countries

(State of Play of the Bologna Process in Tempus Partner Countries 2012: 55)

On the whole, the different implementation processes and phases of the Bologna Transparency Tools in the Tempus Partner Countries show that even if some of them are not yet signatory countries, they are highly influenced by the Bologna Declaration and increasingly promoting its different principles and approaches. Moreover, this implementation is different in terms of pace, from one country to another, depending on geographical locations and internal policies' priorities.

In the next sections of this chapter, the researcher will focus on the LMD system implementation incentives and processes in two countries: Algeria and France. This constitutes the first step of her descriptive comparative study as far as ESP teaching under this new reform in these two countries is concerned.

2.9. The LMD System in Algeria

As a country situated in the Mediterranean area, Algeria shares many diplomatic, economic and cultural activities with Mediterranean countries. It has also a tendency to establish friendly relations with the leading powers of the world, among others. These two factors are prerequisites which push her to follow the flow of globalisation. Many fields are subject to change in Algeria as this worldwide phenomenon makes all the governmental departments and institutions go towards one direction and apply the international norms of every field by taking care of the Algerian foreign as well as domestic policies. At the level of higher education, a new reform has been recently introduced by the Algerian government in order to meet the requirements imposed by the new socio- economic environment. Such a reform is embodied in the LMD system.

The LMD system is just a case in point of the Algerian readiness to evolve and develop. Its application in Algeria is considered as a step towards globalisation

because this European programme has proved its success and it has, more or less, been adopted by not only European countries, but also most countries of the world. Before dealing with the implementation of such a reform in Algeria, one needs to clarify how globalisation has both directly and indirectly favoured and promoted the adoption of such a system by local authorities.

2.9.1. The Implementation Incentives

The Algerian university crossed a long way since its creation after the independence in 1962. It has gone through several reforms, according to the changing socio- economic needs of the country as well as those of science and technology. The most important one is the 1971 reform which restructured deeply the landscape of higher education in Algeria and was intended mainly to arabize and algerianize all higher education.

The following years witnessed an immense quantitative evolution of higher education in Algeria. There was an important growth in terms of its infrastructure- be it material or human. However, embryonic in the early seventies, the Algerian university has experienced a rapid and significant growth by the mid nineties. This growth generated multiple constraints and was followed by a succession of problems and issues that led to a gradual decadence of the teaching and learning quality at university level.

For a number of years, various committees have been established at the national level, the most important ones are the CNRSE (National Commission on the Reform of the Educational System) and CES (Council of Higher Education). All the participating academic and non-academic observers underlined deficiencies in the Algerian higher education system. These deficiencies affected different aspects of the system, namely:

- Educational programmes no more met the new socio- economical data.
- Mono disciplinary training in the classical approach where the concept of general culture was completely absent.

- A significant failure rate due primarily to uncertainty about the future among students.
- Lack of motivation among teachers and students.
- Centralized management of the university.

These facts proved the malfunctioning of the old system implemented in the Algerian universities since the independence of this country. The following diagram illustrates the pre-LMD structure of Algerian higher education.

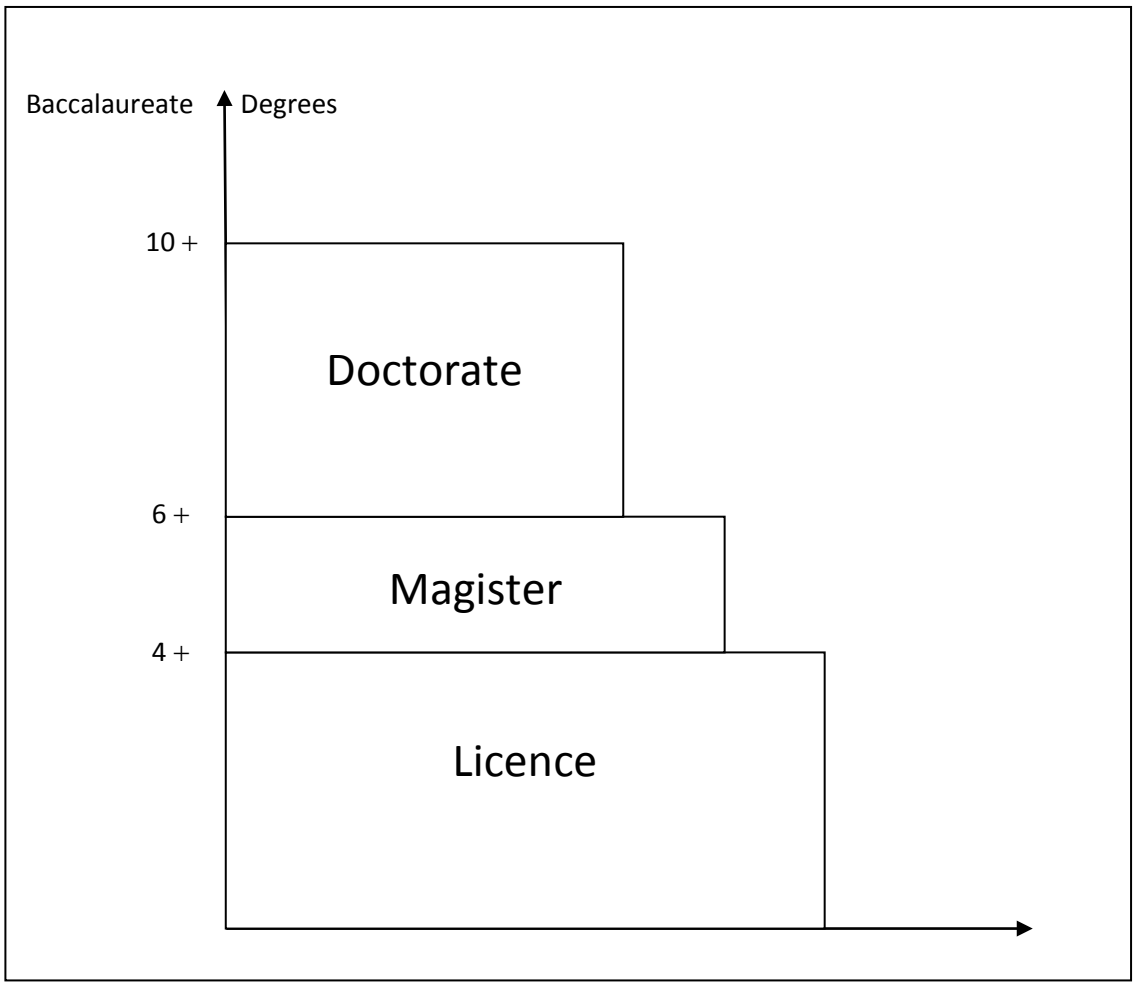


Figure 2.2: The Pre-LMD Structure of Algerian Higher Education

The pre-LMD system, also referred to as the classical system, built around four years for the Licence degree, two years for the Magister, and four subsequent years for the Doctorate, did not respond to the main challenges imposed by the changing situation of economy, politics and society in Algeria, an important shareholder of many foreign countries. In other words, there was a serious disagreement between social demands, market demands and what the university produced. Given all these problems, in 2001, the government and education policy makers decided to diagnose the situation, re- think the educational system, and integrate a new reform that can correspond and respond to socio-economic mutations contributing to a significant evolution of this country. As a matter of fact, a final decision was made to implement the European educational system known as the LMD in 2004.

2.9.2. The Implementation Process

Following the recommendations of the national committee of the education reform, a reform plan was adopted by the Cabinet on April 30th, 2002 and the Ministry of Higher Education and Scientific Research approved a ten- year strategy (2004-2013) to develop the sector. One of its main themes was the development and implementation of an overall and deep reform of higher education, starting by the establishment of a new architectural education, including an updating and upgrading of various educational programs, and a reorganization of the educational management.

In the same line, the Algerian Ministry of Higher Education and Scientific Research posted, in January 2004, a guideline summarising the main new tasks of the university in what follows:

- Provide quality training.
- Make a real osmosis with the socio- economic environment developing all possible interactions between the university and the outside world.
- Develop mechanisms for continuous adaptation to changing jobs.
- Be more open to global developments, especially those of science and technology.

- Encourage diversity and international cooperation by the most appropriate terms.
- Lay foundations for good governance based on participation and consultation.

Therefore, a reform of the higher education system imposed itself so as to deal with the prevailing shortcomings and make it more proficient, competitive and attractive. Besides, this would enable Algerian universities to be more responsive to the challenges imposed by globalisation, meet the expectations of the labour market and cope with the rapid development of science and technology. To achieve these goals, the Ministry of Higher Education drafted a comprehensive scheme that has been debated, discussed and enriched for several years. Such a reform introduced the international LMD system.

The new architecture chosen for Algerian higher education is articulated, as in the other countries which have adopted the LMD system, around three levels of training, each corresponding to a degree:

- The Licence level, corresponding to a course of three years after the Baccalaureate leading either to an academic Licence or a professional Licence.
- The Master level, corresponding to an additional two years of study, leading either to a research Master or a professional Master.
- The Doctorate level, corresponding to an additional three years after the master level.

For the implementation of this reform, the government worked in accordance with the National Evaluation Committee, composed of known academic features, on a decision-making procedure prior to putting it into practice. Before taking a final decision and drafting an official document, there was a long discussion and consultation of a large number of teachers of higher education (i.e., more than sixty)

coming from about ten universities. The document has been the fruit of a serious debate of about one year. Most of the engaged partners, including even students in some cases, did their best to make this enterprise succeed just for the sake of encouraging the future well being of the Algerian university.

The LMD system started to be applied in the flow of the academic year 2004-2005. This was considered just as a pilot experience, then, and not all universities agreed to start it be it a heavy responsibility on their shoulders. It was included just in some universities as Annaba, Bejaia, Constantine, Mostaghanem and Tlemcen, to cite some.

Currently in Algeria, the system is in the use phase since most Algerian universities have adopted it. The requirements for operating and maintaining this system are multiple and entail time and resources to be satisfied. For this, it is useful to note that the government has invested a lot of money in recent years in colossal educational, scientific, material and structural means to meet all requirements defined by the new data and raise the Algerian university to the status of an international university. After having dealt with the implementation of the LMD system in Algerian universities, the researcher will, then, focus on such a process in French universities.

2.10. The LMD System in France

Over the past few years, France has been participating in the movement of the Bologna Process designed to harmonise the diplomas offered by the different countries in the EHEA. Hence, Higher education in France is, nowadays, organised around three degrees according to the European model: the LMD system. The goal of this process is to offer more opportunities to students through smooth recognition procedures allowing increased mobility and a wider range of educational opportunities.

2.10.1. The Implementation Incentives

The origin of the Bologna Process in France can be traced back to 1998, when the ministry of education called for the preparation of a report aimed at proposing a

harmonisation of the structure of diplomas in the European space. However, the report's real objective was connected with an in-depth analysis of the French case, which was perceived, then, as being at risk. It was widespread, at that moment, that the French higher education and research was deteriorating, despite the numerous attempts to introduce reforms during the past decades. The effect of globalisation on French education, as on the other nations worldwide, generated considerable reform pressures on all sectors of the society, as was the case of higher education. French higher education became increasingly troubled by high and rapidly increasing costs and this exceeded state's available revenues. In other words, the government could not afford the multiple costs of higher education covering instruction, staff salaries, universities' modern equipments, research sponsoring and students' living. In this vein, Eicher and Chevaillier (1992), from the University of Dijon's Institute for Research on the Economics of Education, write: "The conclusion is clear. There is a financial crisis in education in most countries. That crisis is much deeper than macro statistics reveal; and it is not going to disappear soon... if new solutions are not found."

Therefore, it became clear that the French system of higher education could not achieve the desired recovery unless an external shock was applied, that is the Bologna Process and the new university studies scheme it brought, based on a European harmonisation process. Consequently, this reform has been effectively and rapidly adopted in France.

2.10.2. The Implementation Process

France officially adopted the LMD system for higher education in 2004, in line with the Bologna Process. Implementation of the LMD system in French institutions of higher education has been gradual. From 2006 on, all university programmes had to be aligned with the LMD system. Under this scheme, universities confer a Licence after three years of study, a Master degree (Research Master or Professional Master) after two further years, and a Doctorate normally after three more years. To have a clear picture of the changes introduced to the structure of degrees at French universities after the implementation of the LMD system, the following graphs are provided. They give the pre- and post-LMD organization of degrees, respectively:

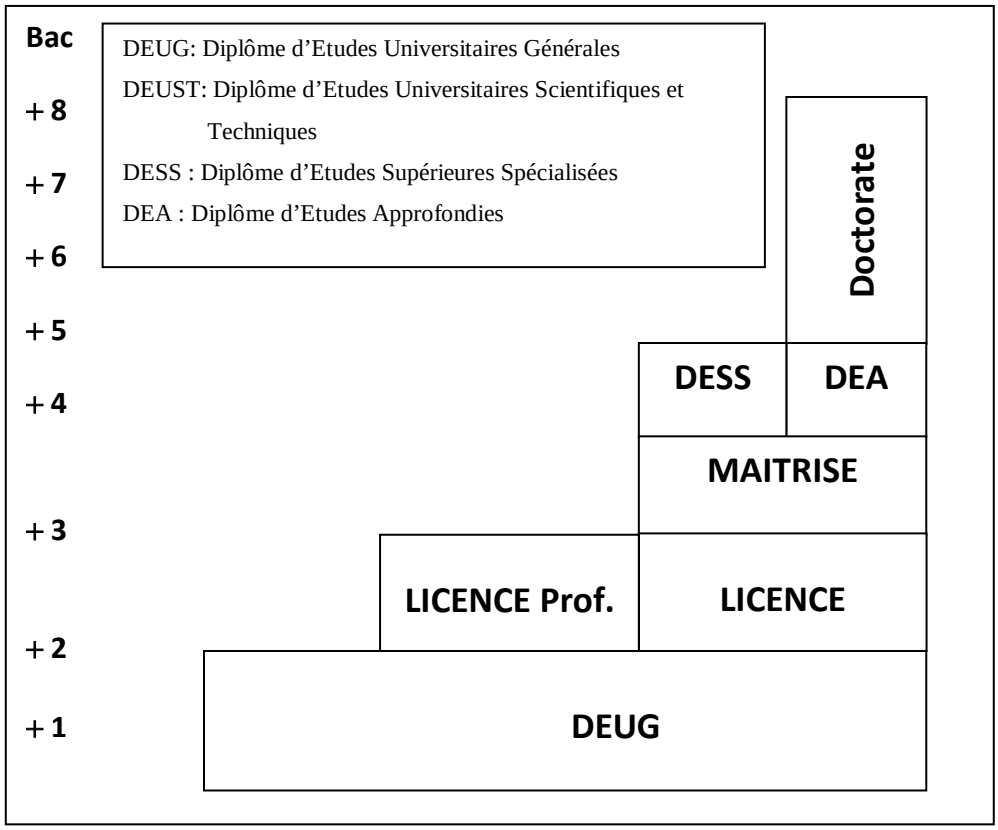


Figure 2.3: The Pre-LMD Structure of French Higher Education (www.upmc.fr)

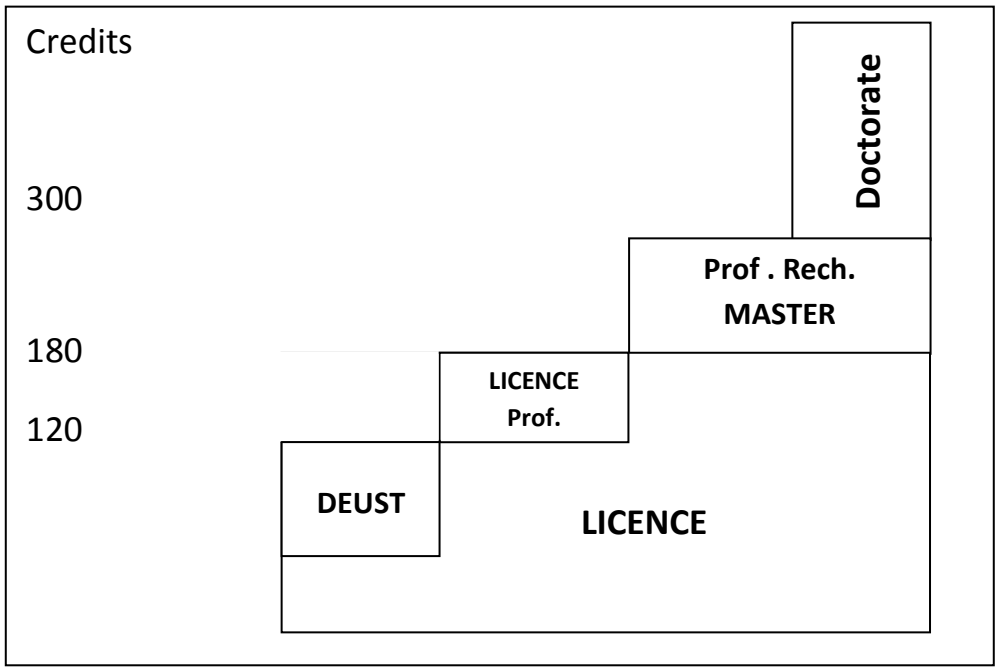


Figure 2.4: The Post-LMD Structure of French Higher Education (www.upmc.fr)

The new structure brought by the LMD system has operated changes mainly at the level the internal organisation of the Licence and Master degrees. At the level of the Licence, the DEUG, which sanctions a multidisciplinary undergraduate general education and guidance, is issued through the Licence Degree, whereas the DEUST, which aims at occupational integration, is maintained and can be held after four semesters. Trainings in DEUST lead to senior technician's qualifications in domains as sports activities, business, maintenance, accounting, computing, social support, etc. Holders of DEUST can continue their studies in professional licence or in general academic Licence.

At the level of the Master, the first year (M1) is being created by the transformation of the former "Maitrise" which previously certified the fourth year of university studies; whereas the second year of Master studies (M2) replaces the DEA and DESS which faded in favour of a professional or research Master.

At the level of Doctoral studies, no changes have occurred. Any student holding a European master or the equivalent may apply for admission to a doctoral program in France. Programs generally last three years. Candidates who prepare and successfully defend a thesis or dissertation receive the Doctorate degree.

In sum, the LMD operation in France allows everyone to choose and build his/her training courses according to his/her academic and professional projects. Besides, it offers more opportunities to students through a wider range of educational opportunities and smooth recognition procedures allowing increased mobility throughout French universities or those of the European space.

2.11. Conclusion

This chapter has outlined the emergence of the LMD system and the main incentives behind its appearance and implementation mainly globalisation and the Bologna Process. It has, then, provided a critical examination of the state of implementation of its main policy action lines, such as comparable degree structures and quality assurance systems, and assessed its impact in fostering greater students'

mobility, widening participation in higher education, and developing lifelong learning. The LMD system has gained importance and prestige throughout time. After having been adopted by the forty-seven countries constituting the EHEA, it spread at the global level and has been adapted to the different higher education systems.

Since the present work focuses on a comparison between Algeria and France as far as teaching ESP under the LMD system is concerned, the researcher has put emphasis, by the end of this chapter, on the implementation of the LMD reform in these two countries, respectively, dealing with the main incentives and the functioning of such a system in both settings.

In the next chapter, the practical part of this work will be undertaken. For this reason, two universities will be chosen as samples representing the Algerian and French higher education systems correspondingly. These are the University of Tlemcen (Algeria) and the University of Paris-Sud (France).

Chapter Three

Situational Analysis and Research Methodology

3.4. Research Methodology

3.4.1. Research Design

3.4.2. Informants

3.4.2.1. Informants in the University of Tlemcen

i) The Teacher

ii) The Learners

c. Licence Students

b. Master Students

3.4.2.2. Informants in the University of Paris-Sud

iii) The Teachers

iv) The learners

b. Licence Students

b. Master Students

3.4.3. Research Tools

3.4.3.1. Interview

iii) Master Students' Interview

d. Objectives

e. Design

f. Procedure

iv) ESP Teachers' Interview

b. Objectives

b. Design

c. Procedure

3.4.3.2. Students' Questionnaire

i) Objectives

ii) Design

iii) Procedure

3.4.3.3. Observation

i) Classroom Observation

a. The Observation Scheme

b. The Observation Process

ii) Observation of Authentic Use of the Target Language

3.5. Conclusion

3.1. Introduction

The present chapter is mainly practical. It undertakes the core of the present research which is a thorough comparison between Algeria and France as far as teaching ESP under the newly applied LMD reform is concerned. To do this, the researcher will first start by providing an overall description of the ESP teaching/ learning situation in these two countries, respectively. After that, focus will be put on the Departments of Physics in the Faculties of Sciences of Tlemcen (Algeria) and Paris-Sud (France) Universities.

Previous research undertaken by the investigator had revealed that ESP/ EST teaching was done at random within the classical system in Algeria and didn't cater for students' actual needs (Hemche, 2006). Thus, the present study seeks to investigate into EST teaching and learning within the newly applied higher education architecture and check if this brings better results and raises ESP/ EST in Algeria to international standards. For this reason, a comparative study is done with France, one of the leading European countries in the implementation of the LMD system. It has adopted such a reform, adapted its multiple tools and promoted its expansion with all what this implies in terms of infrastructures, founds, as well as human and material resources.

To collect the necessary data to conduct the present study, several research tools have been selected and used in each setting. These include interviews with ESP teachers and Master students, 3rd year Licence students' questionnaires, and observations of the teaching/ learning process and the target uses of the language. The overall reason behind the use of this set of research tools is to evaluate the prevailing ESP teaching/learning situations in both countries under concern, correspondingly, so as to be able to carry out a comparative study and assess the effect of the implementation of the LMD system on ESP instruction at the national level as contrasted to one of the first countries who have adopted this reform.

3.2. Situation Analysis in Algeria

The present section aims at presenting the Algerian context under concern. To do this, the researcher will first start by providing a broad view about the status of the English language and its teaching in Algeria. After that, the general ESP situation in this country will be dealt with, before focussing on its teaching in Algerian universities and mainly at the level of the Department of physics in the Faculty of Sciences at the University of Tlemcen.

3.2.1. The EFL situation in Algeria

As any country willing to expand its economic, political, social and cultural relationships, Algeria was obliged to implement and promote English teaching in its educational system to cater for the requirements of the different academic and/or professional requirements and provide better opportunities for its citizens being students, teachers, researchers, workers or businessmen.

The first introduction of English to the Algerian educational system goes back to the post World–War era when Algeria was still under the French colonisation. This decision was initiated by the French colonial authorities and English was mostly taught by French teachers who used the same teaching methods as the ones practised in the French metropolis. After independence, English continued to be taught but as the second foreign language in Algeria after French, which has been attributed the status of the first foreign language.

The privileged languages in Algerian education and administration have always been Arabic and French. However, the vital role played by the English language as well as its paramount importance at an international scale made Algerian decision makers implement and promote English language teaching as part of the official curricula at almost all levels of education. Such a process stems from a real awareness of its multiple roles in the prevailing widespread complex and thoughtless globalisation process.

Ourghi (2002) classifies the aims of foreign language policy into three main areas namely: educational-scientific, economic and cultural. In the same line of

thought, he presents the roles performed by the English language in the Algerian society under the following headlines:

a- The Educational-Scientific Role: it prepares the learners through a knowledge-base acquisition process so as to facilitate their access to science and technology, favour their participation as active members of the society and promote their professional development.

b- The Economic Role: Ourghi (2002) summarizes the English economic functions in Algeria in what follows:

- To help economic development since it is the language of international banking, economic affairs and trade.
- To guarantee effective communication with foreign partners due to the fact that English is the language of international organizations and conferences.
- To influence the understanding of economy and therefore contribute to economic growth since it is considered as the international language of tertiary education.
- The awareness of knowledge economy helps to prepare future negotiators and business managers and makes them become effective economic actors.
- By this way, Algeria would be a ble to broaden its horizons in economy and business relations and engender more economic opportunities.
- Since English is considered as the language of technological transfer, its teaching ensures access to scientific, technological and research information.

c- The Cultural Role: it aims essentially at making Algerian students open-minded towards international norms, encouraging their empathy towards other people's cultures and promoting interaction with them without any apprehension of misunderstanding or cultural shock.

Ourghi (2002) further focuses on the fact that these functions should be intertwined into an integrated knowledge economy strategy since the incorporation of the English language into the Algerian educational system aims at a life time learning that seeks a socio- economic development.

As previously mentioned, being aware of the global prominence of the English language, Algerian decision makers introduced its instruction at nearly all levels of education. Except at the primary stage, where an experimental attempt was carried out during the school year 1993- 1994 to introduce English as the first foreign language, four years of English teaching are presently provided in middle schools and three in secondary ones. At university level, English instruction is supplied with varying durations depending on the departments and on the specialities undertaken. In this sense, when the Algerian authorities took the decision to build universities and to create different institutes and departments in the late sixties, in order to develop the higher education sector, English was included in many curricula taught at university.

In English Departments, English is taught as the main subject and its instruction covers a series of modules such as Grammar, Linguistics, Phonetics, Literature, Civilization, Oral Production and Written Production, to cite some. In these departments, English lectures are taken in charge by full-time teachers holding a Magister or a Doctorate degree, or part-time teachers in preparation for a Magister degree. In the remaining departments, English is taught as a compulsory module in many different specialities such as Computer Sciences, Economic Sciences, Physics, Mathematics, Engineering, Biology, Medicine, Psychology, etc.

Students enrolled in these studies are supposed to learn English to fulfil particular purposes related to their actual or future academic and /or occupational careers. Hence, the English courses provided to them should be tailor- made to accomplish their immediate needs. In other words, they need English for Specific Purposes lectures taken in charge by trained and experienced ESP practitioners.

3.2.2. The ESP Situation in Algeria

With the globalisation process, the importance of the English language as an international language and an essential communicative tool in both academic and professional settings for its non- native speakers is, nowadays, neither unknown nor

disputed. For this reason, Algeria has integrated after independence the teaching of English in her educational system and promoted its expansion at nearly all levels of instruction nationwide. At tertiary level, English is taught as the main subject at the level of English Departments whereas English for Specific Purposes courses are integrated at the level of the remaining departments in order to prepare the future elite to be active actors at the national and international scales in the various fields of specialisations.

3.2.2.1. ESP in Algeria

The teaching of ESP courses is not a recent phenomenon in Algeria. It goes back to the early 1970's when ESP courses started to be fashionable in the Arab World, as was the case in many parts of the world. This success was generated by the conviction that since English was the language of science and technology, its mastery would guarantee the career's success for all those who master it. Thus, ESP courses were introduced in the curricula of the licence. Unfortunately, subsequent legislations changed the structure of higher education studies and withdrew, for unknown reasons, ESP courses from the licence curriculum and included them at the level of post-graduate studies namely the Magister.

In 1988, the Algerian Ministry of Higher Education and Scientific Research has put into practice the creation of three ESP centres throughout the Algerian territory. These centers were located in Oran, Algiers and Constantine. Such a project came to birth after a series of contacts with a number of British universities including Glasgow, Manchester, Leeds, Sheffield, Nottingham and Salford. It made provision for a group of Algerian students to join these higher education institutions as full-time postgraduate scholars while these universities committed themselves to develop the Algerian-British co-operation principally in the field of science and technology at Magister and doctoral levels.

Each university had to be associated to an Algerian higher education institution for the sake of keeping an eye on course development and teaching as well as joint supervision and research. Accordingly, the three aforementioned ESP centres were set

and supplied, by the British Council, with the necessary pedagogical equipments (Bencherif, 1993). Their principle role was to provide support for the ESP units operational at the level of the Algerian universities that established association with the British ones in order to prepare the ground for foreign lecturers to carry out their supervising, research activities, and teaching using English as a medium of instruction.

Besides, these centers took in charge the teaching of English to subject specialists mainly in scientific and technological streams, provided specific training to the students and teachers intending to carry out further studies in Great Britain, and developed ESP programmes to Exact Sciences, Economic Sciences, Technology and Management streams.

Despite these contributions, the Ministry of Higher Education and Scientific research has never agreed to grant ESP centers an official status. This resulted in the total dissolution of the ESP centers of Algiers and Constantine. The only remaining one is that of Oran but it is no more fully fulfilling its previously assigned missions. Its current activities are limited to borrowing books to students, teachers and researchers as well as organising seminars and study days.

3.2.2.2. ESP and the LMD System

Algeria has always been affected by the various forces and reforms brought by globalisation including the international competition and the rapid technological development. To cope with these challenges, Algeria tries to be up-to-date with any initiative that can serve and sustain an opening to the outside world. One of the most prominent reforms undertaken by the Algerian government is the implementation of the LMD system at the level of higher education in order to be in congruence with the European and worldwide higher education systems since it aims at meeting global needs.

At the Algerian level, the LMD system was introduced during the year 2004, on an experimental basis in ten higher education institutions (see section 2.9). After that, it was gradually generalized to all Algerian universities. This system has brought many

adjustments and reconsiderations to higher education studies' organisation. One of the mostly concerned fields is English for Specific Purposes.

With the implementation of the LMD system in the Algerian universities, an apparent importance was provided to ESP teaching since it has been re-introduced and incorporated as an essential component of the Licence curricula in a number of departments that have been once deprived from it, covering almost all the specialities. This fact is dictated mainly by the nature of the LMD degree which is shaped by two main orientations, namely the academic and the professional ones. Hence, if the students opt for an Academic Licence, this will enable them to conduct further research at the level of the Master degree. However, if these learners are oriented towards a Professional Licence, ESP courses will become, then, an indispensable tool for any possible future vocational career.

Moreover, these ESP courses are nowadays provided across all the faculties nationwide and in many departments. Hence, different ESP courses are provided, in Algeria, under different labels. The most common ones are EST (English for Science and Technology), EBE (English for Banking and Economics), and ESS (English for Social Sciences).

With the growing number of universities all around the country, and the multiplication of peripheral institutes offering ESP courses, supposed to be of precise nature to fulfil specific learners' needs, demand for English teachers has increased. Consequently, the vast majority of teachers who have been prepared to teach General English are asked to teach ESP. In other words, language teachers who have been trained in areas such as linguistics, phonetics, civilization, and literature are generally solicited to teach ESP courses. Therefore, ESP lectures are mainly provided by part-time General English teachers, holders of a licence degree. The vast majority of them are engaged in other institutions such as Secondary or Middle schools, or are preparing a Magister degree.

This shift is very challenging and considered as a hard task for a General English teacher. In this sense, Hutchinson and Waters (1987: 160) state: "teachers who

have been trained for General English or for the teaching of literature find themselves having to teach with texts that they know little or nothing about." In the same line of thought, Strevens (1988) describes this experience as being a shock. Hence, teachers who have been trained as General English teachers often find it quite difficult to deal with the requirements of their new situations, and this may result in their failure when involved in an ESP teaching situation. In other words, ESP courses are facing serious obstacles, in Algeria, which stand in the way of ESP teachers and learners as well.

In the next section, focus will be put on a specific Algerian ESP situation, more explicitly that of the Department of Physics in the Faculty of Sciences at the University of Tlemcen.

3.2.3. ESP at the University of Tlemcen: the Case of the Faculty of Sciences

Abou Bekr Belkaid University of Tlemcen, was created by the decree of 1989 and has witnessed a rapid growth and expansion these last years. It is nowadays divided into five different poles; located in Chetouane, La Rocade, Imama, Bel Horizon and the City- Centre; making provision for 280 formations in graduation, 80 in post- graduation and 60 specialities in Medicine. On the whole, the university receives nearly 40.000 students taken in charge by 1.600 teachers, 38% of whom are Doctors (Algeria Press Service, December12th, 2013).

The university has currently a very important infra-structural organisation. It consists of eight faculties, each consisting of one or more departments and providing a diversity of specialisations in many fields. These faculties are:

- The Faculty of Sciences.
- The Faculty of Technology.
- The Faculty of Medicine.
- The Faculty of Arts and Languages.
- The Faculty of Humanities and Social Sciences.
- The Faculty of Law and Political Sciences.
- The Faculty of Economics, Business Sciences and Management.

- The Faculty of Natural Sciences, Life Sciences, Earth Sciences and the Univers.

Therefore, the organisation of the University of Tlemcen can be summed up in the following figure:

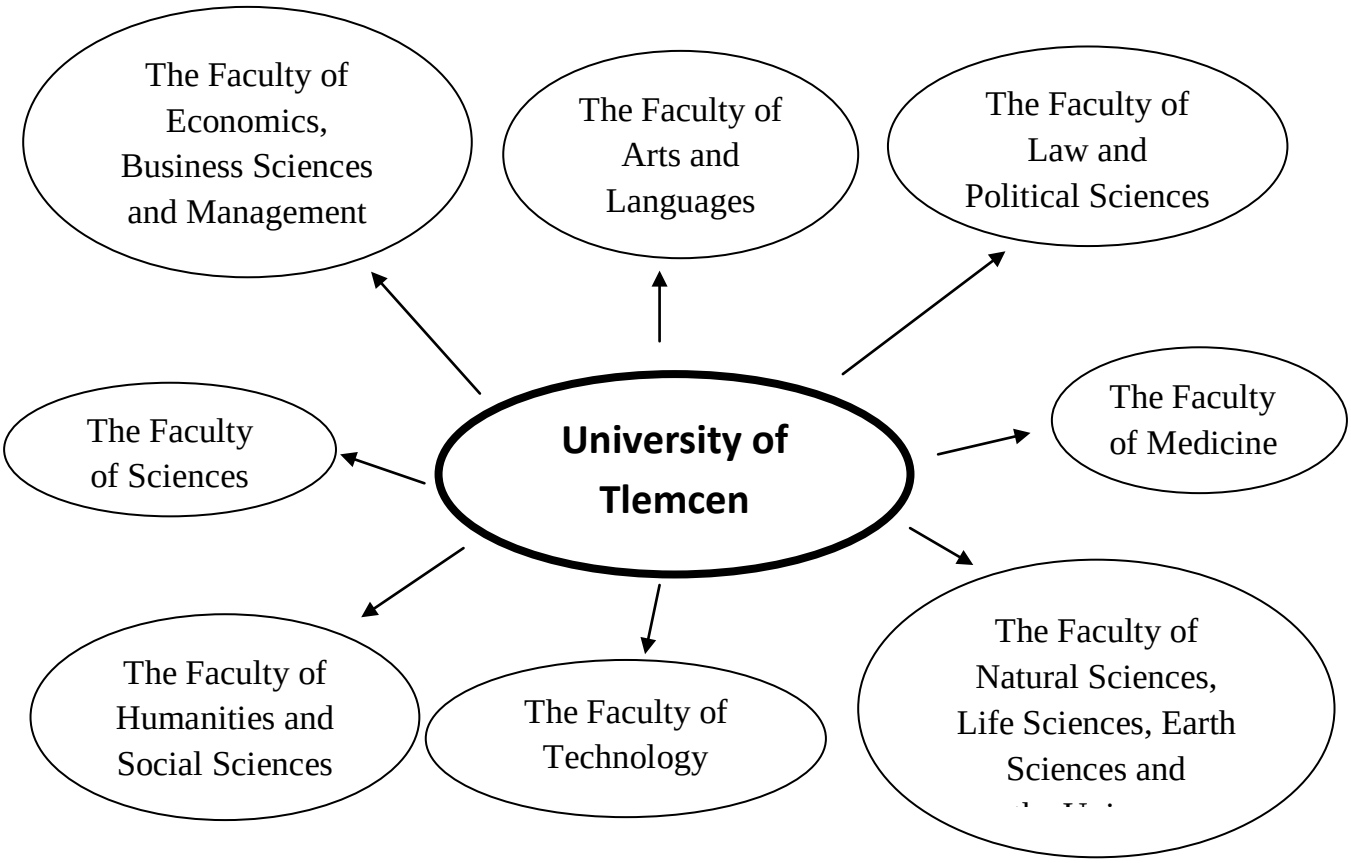


Figure 3.1: The Organization of the University of Tlemcen

Such a division has the advantage of allowing the significant use of the existing infra-structure, but generates high exploitation and running costs.

The University of Tlemcen is one of the universities to have adopted the LMD system since the first year of its implementation at the national level in 2004. Such a system is based on open competitive and effective exchanges with all national and international partners in order to improve the quality of university education and ensure its adequacy with the needs of research as well as the demands of the labour market.

Under this newly applied world reform, ESP courses are offered in different departments at Tlemcen University with the aim of responding to learners' evolving

needs and enabling them to undertake research and investigation. The present research is targeting one ESP teaching situation at the University of Tlemcen, more precisely, that of third year Licence students at the Department of Physics in the Faculty of Sciences**.**

3.2.3.1. The Faculty of Sciences - University of Tlemcen

At the University of Tlemcen, the Faculty of Sciences offers two common cores during the first year of the Licence (1st year Licence). These common cores are related to the following disciplines:

- **Matter Sciences** (referred to as **SM**[4] in the Physics terminology) / **Sciences and Techniques** (referred to as **ST**[5] in Physics terminology).
- **Mathematics** (referred to as **M** in Physics terminology) / **Computing** (referred to as **I**[6] in Physics terminology.

The common cores offered during 1st year Licence at the Faculty of Sciences in the University of Tlemcen are summarized in Figure 3.2

After the first year, students have to undergo further common cores at the level of the second year of the Licence (2nd year Licence). Their orientation is done according to their grades as well as their areas of interest. Students' orientation at the level of the second year is done according to the following scheme:

- Students initially enrolled in the **ST/ SM** common core are directed either towards the **ST** common core or the **SM** common core during the first semester of 2nd year Licence. After this step, two paths are proposed:

  - Students who have followed the **ST** common core during the third semester carry it on during the fourth semester of the Licence.

  - Students who have followed the **SM** common core during the third semester, are directed either towards Physics or towards Chemistry

[4] **SM** refers to the French abbreviation of "**Sciences de la Matière**"
[5] **ST** refers to the French abbreviation of **" Sciences et Techniques"**
[6] **I** refers to the French abbreviation of **" Informatique"**

during the fourth semester to receive basic instruction in Physics and Chemistry, respectively, aiming at preparing them to undertake specialisation at the level of 3rd year Licence.

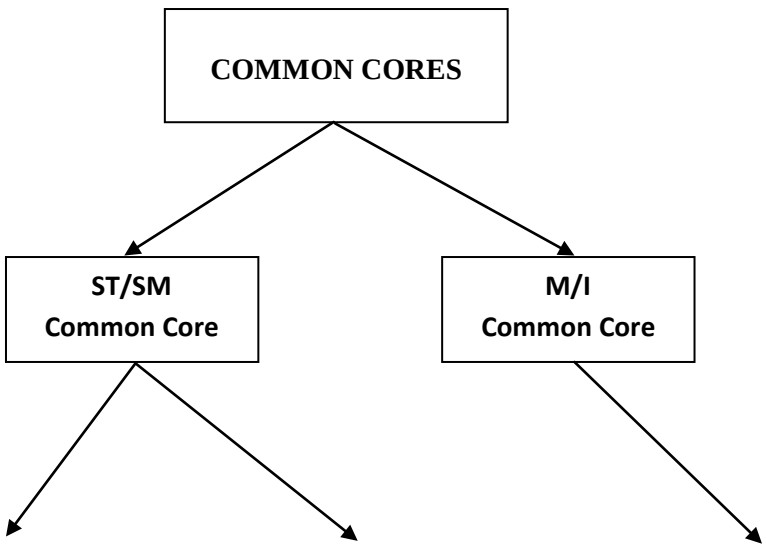
- Students initially enrolled in the **M/I** common core are directed towards an extra common core either in Mathematics or in Computing. Their final specialisation is decided on during 3rd year licence.

Students' orientation during the second year of the Licence is summed up in Figure 3.2.

As previously mentioned, **SM** students are directed towards a common core in Physics or a common core in Chemistry at the level of the fourth semester. These will opt for their final specialisations in Physics or Chemistry at the level of 3rd year Licence, that is to say at the beginning of the fifth semester. In other words, the third year of the Licence is a year of specialisation for Physics students. For this reason, this level has been chosen as the focus of the study. There are two specialities offered at the level of the Licence in Physics at Tlemcen Faculty of sciences, namely:

- Energetic Physics and Materials
- Physics of Gas and Plasma

These two specialities lead to an Academic Licence in Physics paving the way to Master studies in the same field. The figure below summarizes the structure of the Licence Degree in Physics at the level of the Faculty Sciences in the University of Tlemcen.



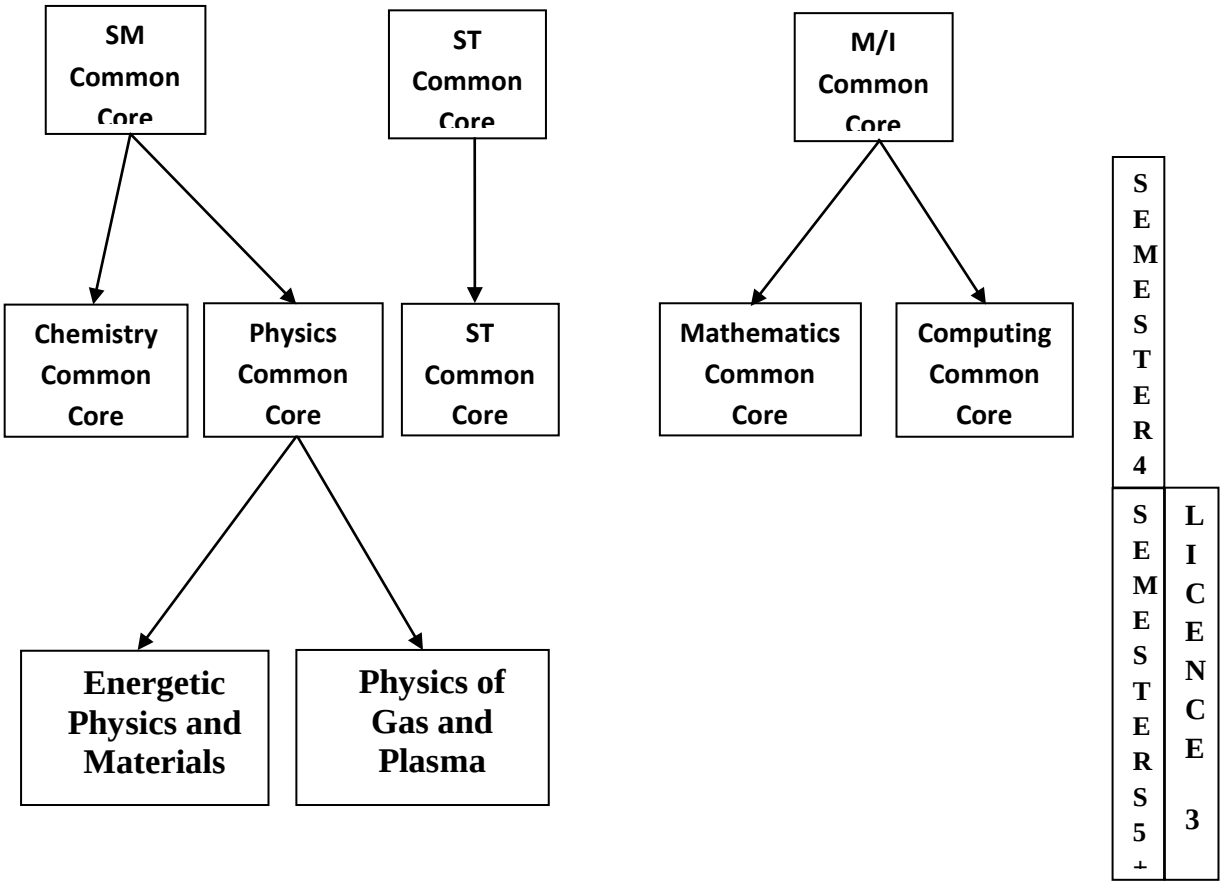


Figure 3.2: The Structure of the Licence Degree in Physics at the University of Tlemcen

It is worth mentioning at this level that the number of specialities proposed in a given field depends on the number of students enrolled in its common core at the level of the fourth semester. During this semester, students are offered a list of many specialities in Physics that can be undertaken during the third year. However, the total number of 2nd year Licence Physics students does not generally exceed 60, the final decision on the specialities that will be provided during 3rd year Licence depends, then, on the choices of the majority of the students. In this sense, the head of the Department of Physics declared that they are unable to provide more than two specialities, at the level of 3rd year Licence, for approximately 60 students. Thus, there are generally two groups of Physics students at the level of the third year, each following one sub-speciality in Physics. These two groups receive separate teachings in the domains of Physics but are taught in one group during ESP courses.

3.2.3.2. Description of the Teaching/ Learning Situation in the Department of Physics

As previously mentioned, the present research deals with EST teaching in Algeria, namely that of 3rd year Licence students in the Department of Physics, at the level of the University of Tlemcen.

Alongside with their studies, Physics students receive an ESP training and more precisely an EST one at the level of their department during their Licence degree. This training has to enable the learners as future researchers or subject teachers to read scientific literature, especially the one related to their specialization, to keep abreast of the latest developments and discoveries in such a field and be in contact with other peers, at the international level.

i) The Status of English in the Department of Physics

Despite the introduction of the LMD system and its emphasis on ESP instruction in the different specialities nationwide, the latter still holds a low status in Algerian universities. In the case under study, an appropriate instruction of ESP courses and a good students' mastery of the English language are necessary. This stems from the fact that third year students are undertaking a specialisation that prepares them to embark upon Master studies, a step at which a good command and usage of the English language are prerequisites from the beginning of this degree. However, ESP instruction is still neglected in the Department of Physics. The language course has the coefficient one, compared with the other subject modules whose coefficients vary from four to nine.

Besides, apart from the language sessions and some grammar books available in the library, no other help or facility is proposed by the department to better prepare the students for their target uses of the language. These facts make that even if the English course it is compulsory in the Department of physics, it is regarded as an additional

subject by the students under concern. It is very important to fulfil their needs but less considered as a module than the main subjects included in the curriculum.

ii) ESP Teaching Load

At the university level, the time allocated to ESP courses differs according to the field and level of study. Therefore, students in different departments do not receive English courses with the same time load. For students enrolled in the Licence of Physics at the University of Tlemcen, EST courses are provided starting from the beginning of the second year, that is to say when these learners are still under the ST common core before their orientation towards their final specialisation which can be either Physics or Chemistry. During this year, English instruction is provided during both semesters. However, during 3rd year Licence, that is the year of specialisation, ESP courses are provided just during the first semester.

ESP courses are also provided at the level of Master studies but just during the first semester of this degree. These represent the last ESP courses provided at the level of this department since no language sessions are programmed during the second year of the Master degree or throughout the Doctorate degree where students have just seminars in Physics.

In this Department of Physics, the official weekly teaching time is of one hour and a half during all the semesters concerned with ESP teaching. However, these sessions are frequently reduced to one hour teaching time, only, for varying reasons related mainly to the students' or their teacher's unpunctuality.

The following table illustrates the timing in terms of hours and years of study allocated to the teaching of EST at the level of the Licence and the Master degrees, in the Department of Physics at the University of Tlemcen.

Degrees	**Licence**			**Master**	
Years	**1st Year**	**2nd Year**	**3rd Year**	**1st Year**	**2nd Year**

Semesters	S1	S2	S3	S4	S5	S6	M1	M2	M3	M4
Teaching Load/ Week			1H30	1H30	1H30	1H30	1H30	1H30		

Table 3-1: ESP Teaching Load in the Department of Physics at the University of Tlemcen

Another fact to be mentioned at this level is that these ESP courses are programmed in the afternoon either from 14.00 pm to 15.30 pm or from 15.30 pm to 17.00 pm. This fact has a great impact on learners' attendance which is claimed to be irregular, except for examinations. Furthermore, the English module generally starts three weeks or more after the beginning of the academic year.

3.3. Situation Analysis in France

The present part of the work focuses on the French situation under study. It starts by presenting the EFL situation in France. Subsequently, the ESP situation in France will be dealt with, then stress will be put on its teaching in the Faculty of Sciences at the University of Paris-Sud, and more precisely at the level of the Department of Physics.

3.3.1. The EFL Situation in France

Education in France includes the teaching of two to three foreign languages until the pupils end secondary education. Among all the existing languages in France, English is at the same time the arch-enemy and the most desirable language one needs to possess in his linguistic repertoire. In this sense, one of the previous French Education Ministers, Xavier Darcos, encouraged in 2008 every pupil to become bilingual in English. Thus, the vast majority of pupils throughout France study English as the first foreign language, and all must study it at some stage during their compulsory school years.

The last ministers have encouraged the learning of English in the primary schools and the first years were very hectic. English is part of primary school curriculum in France. Teaching this language starts at the level of the second year. This learning is provided by the teacher himself who chooses the language he wants his students to be acquainted with by focussing either on English or Spanish. Therefore, a French primary school pupil may be provided instruction in English one year and Spanish the next year. The English teaching load in French primary schools is between two to two hours and a half a week per class.

French pupils have to choose their first foreign language in the sixth grade, at the age of eleven when entering the middle school. The choice is between English or German and sometimes Spanish, which is offered in few schools. At this level again, English is by far the most popular choice. Its teaching load at this stage is of one hour and a half to two hours a week. The teaching of English in French middle schools is centred on communication activities and aims at enhancing communication skills such as presenting oneself, expressing tastes and preferences, and speaking about hobbies. Its purpose is the acquisition of well-defined linguistic competences. This is part of the European Common Reference for Languages[7] published in the Council of Europe in 2002.

Teaching English in a French secondary school varies a lot if you are in town or in a country, the social and cultural levels are different and the means, too. Recently, English courses' teaching load has been reviewed at the high school and reduced to two hours a week, because these students are in preparation of the baccalaureate exam.

At university level, the situation is more complex since, at this level, students have to make their own paths and direct their choices towards the speciality that best prepares them for a future career and each speciality offers its own curriculum with a specific English teaching load. If students opt for English studies, they will be directed toward English Departments where courses are provided in English in a variety of modules such as grammar, Phonetics, Linguistics, Civilization, literature and Sociolinguistics, among others. However, if students decide on perusing studies in

[7] The English translation of « le Cadre Européen Commun des références pour les Langues »

other specialities than English, they will have to enrol to other departments such as Psychology, Sociology, Biology, Law, Economics, Mathematics, Chemistry, Physics or Computing, to cite some. In these fields, students are essentially taught the subject matters in French along with some ESP courses. These courses aim at preparing the students to better cope with the requirements of their future careers under the realm of globalisation in which a good command of the English language constitutes a prerequisite.

3.3.2. The ESP Situation in France

In 1973, a ministerial decree was issued making the teaching of foreign languages, in general, and English, in particular, compulsory in science universities in France (Rembowski, 1985). Such a step strengthened the place of ESP teaching in the different curricula since it organized French universities as interdisciplinary groups linking the teaching of languages, and mainly English, to sciences, medicine, economy, technology and law.

3.3.2.1. ESP in France

In the 1960's and 1970's, the arrival to France of numerous foreign students, faced with the necessity to master the French language, pushed the ministerial and higher education authorities to develop teaching and research in French as a foreign language. This has generated the creation of new universities encompassing many faculties which themselves gathered different departments.

The expansion of the university sector enhanced the adoption of the Orientation Law on the 12th of November 1968 which set French universities as public institutions with a purely scientific and cultural character organised into interdisciplinary groups joining this way Arts and Letters to Sciences, Law, Economy, Medicine and technological studies. This ministerial decree led to the opening of the first language departments in the non-literary faculties. The only language departments for non-specialists at that time where located at the level of the university institutes of technology. The Grandes Ecoles have also played an important role in this movement

through the creation of language departments at the level of their organisms. This was encouraged by the impetus of the numerous language teachers who decided to leave their former work places, mainly at the level of language faculties and secondary schools, to devote their careers to new domains related to the teaching of English for Specific Purposes.

This movement gave birth to two trends of English teaching in France namely: teaching English as a language of culture and teaching English as a language of speciality. Therefore, research was encouraged in English for Specific Purposes in France and mainly in its different branches to develop this approach to language teaching and promote its recognition. Such an initiative was and is still supported by two important organisations in France, namely LANSAD (Langues pour Spécialistes d'Autres Disciplines) and GERAS (Groupe d'Etude et de Rescherche en Anglais de Spécialité). As a result, the number of articles related to research in ESP increased a lot. In 2005, new fields of research in ESP have been explored and the number of teachers in this domain grew a lot. This resulted in the creation of specialised ESP journals in France.

The recognition of the importance of ESP teaching in France was also manifested in many propositions for research, the provision of ESP teacher training, and recruitment of teachers in the various ESP specialities such as English for Science and Technology, English for Law, English for Economics and English for Arts. This teaching, and other ESP ones, provide an in- depth understanding of the English functioning in each speciality as well as its culture.

The number of posts offered for ESP teaching in France actually reflects its importance in French higher education. 20% of French doctors in English are directed towards teaching ESP. This percentage is even more important with professors since it has reached 64%, according to the official report of higher education published in November 2004 (Mémet 2005).

3.3.2.2. ESP and the LMD System

By the beginning of the 21st Century, a new organisation of higher education studies was adopted by European countries under the heading of the LMD system. This reform aims at the harmonisation of European higher education and enhances the mobility of European students between disciplines and between vocational and general education. Therefore, European university graduates started to face increasing professional language and intercultural demands. Consequently, many European countries adopted programs intending to develop studies abroad and to teach subject matters in a foreign language. As part of the movement, France reconsidered the teaching of ESP courses at the level of its universities which became compulsory from the first year of the Licence. In other words, the LMD system brought a growth in the demand of ESP courses in France since English has become a communication language and a lingua franca in all specialities throughout this country.

With the adoption and implementation of the LMD system in France, several conflicts and uncertainties arose. In addition to strengthening the place of ESP courses at the level of French universities, a new movement appeared appealing for the provision of university subject courses in the English language in the different fields of study. This gave birth to an uproar which generated many conflicts and hot debates among academics and politicians for fear of the future of the French language at the national and international scales.

Teaching and lecturing in a foreign language in France has always been banned by a law passed in 1994, except in the case of language courses or visiting professors. In 1994, Loi Toubon, adopted on July of the same year and named after the Culture Minister who framed it, stated that French was obligatory in official government publications, state-funded schools, advertisements and French workplaces. Its main purpose was to maintain the French integrity of the French language and nation at the same time.

The global spread of the English language made the government relax the ban and this gave birth to a linguistic war in France, when the higher education minister Genevieve Fioraso introduced a bill, in May 2013, which allows English to be used as a teaching language in French universities even when English is not the subject.

The proposed law aims to permit French universities to use English for teaching, allowing professors to lecture in English rather than French, if they are teaching a European programme or in partnership with a foreign institution. Its goal, as explained by Fioraso, is to attract more students from such countries as China, Brazil and India, where English is widely taught. In this sense, she said "Ten years ago, we were third in welcoming foreign students, but today we are the fifth" (Le Nouvel Observateur, May 2013). In other words, Fioraso's proposed law aimed at authorizing a broader category of university classes, particularly those taught by foreign professors or dealing with sciences for which English is the world's main language. For some, as the French right-wing MP's and the Académie Française, this proposal amounted to a betrayal of the national language, more specifically, of a particular way at looking at the world. For others, including French academics and scientists, that bill was just a means of accepting the inevitable. For them, English is conquering the world as the key to academic success and it would be unrealistic to resist such an inevitable revolution.

Fioraso's proposal was voted into law in Summer 2013. She hoped that introducing more English language lessons at tertiary level will increase the number of foreign LMD students at French universities from the current level of 12% to 15% by 2020.

3.3.3. ESP at the University of Paris-Sud: The Case of the Faculty of Sciences

The University of Paris-Sud, also called University of Paris XI, is a prestigious and a multidisciplinary university with a strong science and health component. It enjoys an outstanding international reputation thanks to the exceptional quality of its research, the appeal of its programs of study, its multiple partnerships and the knowledge and skills of its staff. In forty-five years of existence, this university has become a major player of the French higher education and research scene to be ranked the1st university in France, 6th in Europe, and 37th worldwide in the Academic Ranking

of World Universities (ARWU). In the latest edition of ARWU ranking done in 2012, the university is graded the 7th in Mathematics and 19th in Physics.

The university consists of five training and research units still called faculties, three University Institutes of Technology and an Engineering School. It covers five geographic sites. These institutions are distributed among several campuses in the southern suburb of Paris including Orsay, Cachan, Chatenay-Malabry, Sceaux and Cremlin Bissetre campuses, the main of which is located in Orsay.

The University of Paris-Sud introduced the Licence-Master-Doctorate architecture to its multiple faculties in 2004, as is the case of the University of Tlemcen. Such a reform has been generalized to all the specialities provided covering Law, Economics, Pharmacy, Natural Sciences, Mathematics, Computing, Biology, Physics, and Management, to cite some.

The present research focuses on 3rd year Licence students of Physics. This speciality is offered at the level of the Faculty of Sciences in Orsay, on which focus will be put in the following part of the work.

3.3.3.1. The Faculty of Sciences - University of Paris-Sud

This faculty provides teaching under the LMD architecture in disciplines as diverse as Mechanics, Computer Sciences, Physics, Chemistry, Biology and Earth sciences, among others. Each speciality is allotted its own department.

The Department of Physics, which hosts the students under concern in the present study, offers instruction in the three degrees of the LMD system, a Magister in physics, besides a possibility to follow a preparation for entry exams to Engineering Schools. In other words, students enrolled in the Licence of Physics can have either:

- A general instruction in physics to obtain an Academic Licence that allows them to pursue further Master studies, in France or abroad, in the following specializations:
    - Fundamental and Applied Physics

- Information, systems and Technology
- Sciences and Materials
- Mechanics Physics
- Nuclear Energy

Master studies can take place in France or abroad. Students have the choice to fulfil their M1 or M2 in one of the French universities than Paris- Sud or in one of its partner universities situated in the European Higher Education Area (EHEA). This is one of the opportunities offered under the realm of the LMD system embodied into what is called Joint Degrees' programs. Moreover, the majority of the Masters offered are Research Masters.

- A professional training to obtain a Professional Licence degree, and join the labour market. These Professional Licences are of three types:
  - Administration of Computer Equipment.
  - Technical Physics and Energies.
  - Optics.

- A preparation for a Magister exam in the following domains:
  - Fundamental Physics.
  - Information, System and Technology.

The Magister lasts three years and covers the third year of the Licence plus the two years of the Master.

- A sound preparation reserved for the most motivated students to join an Engineering School; after the second year and based on a competition; in France or abroad to pursue studies in the following specialities:

  - Electronics
  - Computing
  - Materials
  - Optronics

Whichever the orientation opted for after the completion of the Licence degree, all third year Physics students are offered an optional training in a research laboratory or in an industrial enterprise in France or abroad during the second semester of 3rd year Licence, that is during the S6. This training, which is awarded 5 ECTS, lasts a minimum of 7 weeks and is, in the majority of cases granted by the university.

During the two first years of the Licence at the level of the University of Paris-Sud, Physics students undergo two common cores during which they acquire a mastery of the different mathematical tools and Physics' concepts which allow them to handle qualitatively the various domains of Physics including Optics, Mechanics, Electricity, Magnetism, Electromagnetic waves and Thermodynamics. On the basis of such teaching, students will choose the speciality to undertake during the 3rd year Licence. There are different specialities in Physics offered at the level of the Licence, each speciality gathers from sixty to seventy students. These specialities are:

- IST: Information, Systems and Technology
- MEC: Mecanics.
- PAPP : Physics and Application.
- PC : Physics and Chemistry.
- PFON : Fundamental Physics.

The figure below summarizes the structure of the Licence Degree in Physics at the level of the Faculty Sciences in the University of Paris-Sud.

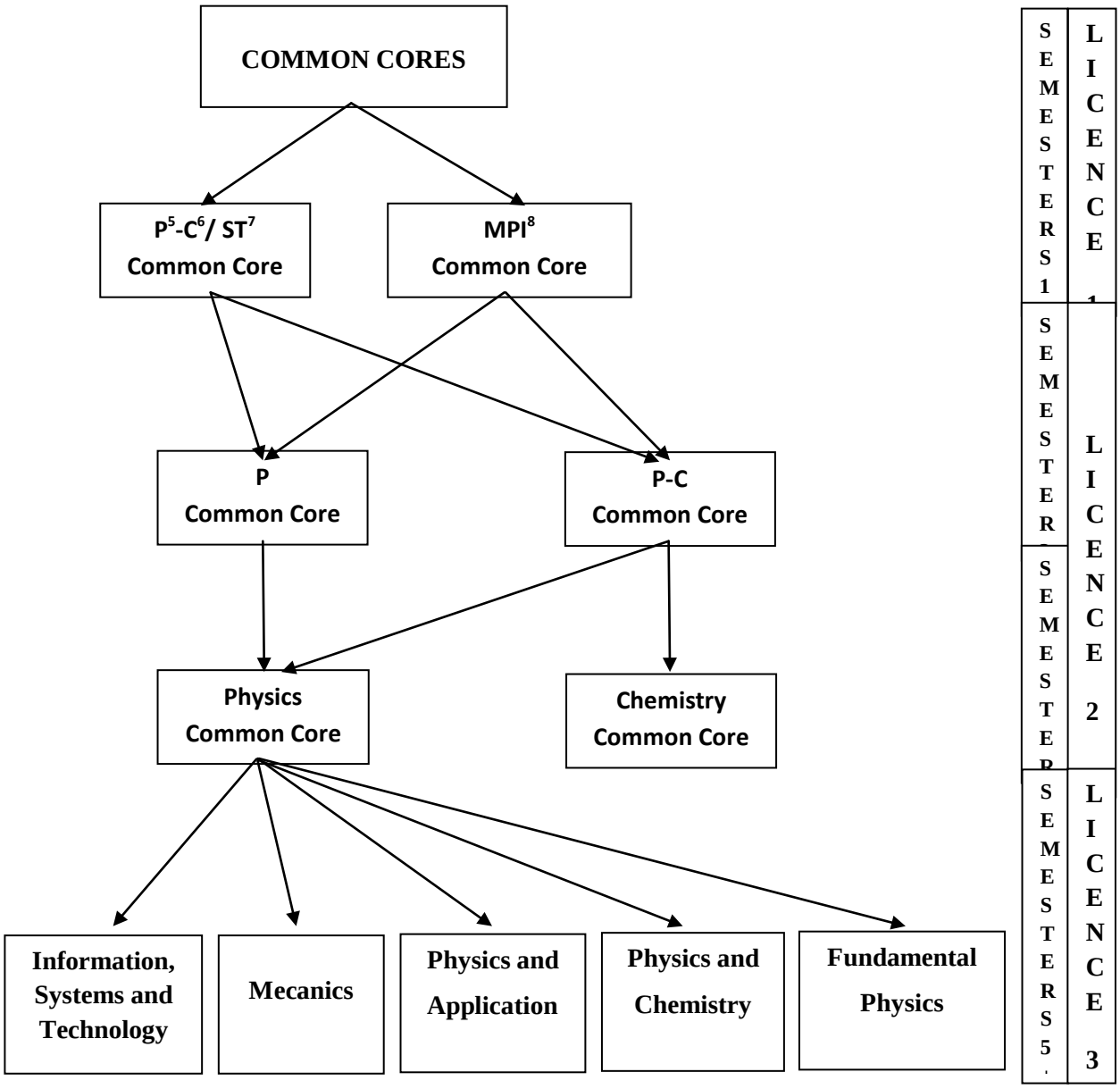


Figure 3.3: The Structure of the Licence Degree in Physics at the University of Paris-Sud

[5] **P** refers to the French abbreviation of **"Physique"**
[6] **C** refers to the French abbreviation of **"Chimie"**
[7] **ST** refers to the French abbreviation of **"Sciences de la Terre"**
[8] **MPI** refers to the French abbreviation of **"Mathématique, Physique, Informatique"**

3.3.3.2. Description of the Teaching/ Learning Situation in the Department of Physics

This part of the research deals ESP/ EST teaching to third year Licence students in the Department of Physics, at the level of the University of Paris-Sud. In this department, several specialities are offered during the third year (see figure 3.3), each one gathering sixty to seventy students. However, since the present work undertakes a comparative study between Algerian and French ESP teaching in the LMD system, and since there are just two specialities provided for 3rd year Algerian Physics students, the researcher will focus attention on just one speciality provided at the same level in the French university. Two main reasons justify this choice: The first one is that the multiplicity of specialities in the domain of Physics in the French Faculty and their different time tables made it difficult for the investigator to get in touch with all 3rd year Licence students and their ESP teachers because of the relatively short period of her training. The second reason is that the total number of Algerian 3rd year Licence students undertaking speciality in Physics approaches the number of French L3 students in one speciality. Therefore, the researcher preferred to deal with approximately the same number of students in both contexts, to be more accurate in her research. For the same reason, the researcher has chosen 3rd year Licence students specialising in Physics and Application in the two universities as these students have had ESP courses at the same levels and during the same semesters throughout their Licence degree. Besides, both groups under focus in Algeria and France are respectively preparing an Academic Licence in Physics in view of undertaking a Master Degree. Thus, they are supposed to have the same target needs as far as the English language is concerned.

i) The Status of English in the Department of Physics

In the Department of Physics of the University of Paris-Sud, ESP courses are provided in all the specialities during 3rd year Licence. This teaching is given great importance since students are given ESP courses in small groups of 10 to 15, according to their level, in the Department of Languages. The Department of languages offers courses that are open to everyone, i.e., students, teachers, researchers, university staff, employees for companies, unemployed people and private individuals. Moreover, this department provides instruction in many languages: English, French, French as a foreign language, German, Italian, Russian, Spanish, and Chinese.

For students enrolled in the Licence of Physics, as in the other scientific degrees, a Placement Test is designed at the beginning of the academic year in order to assess their language aptitude, determine their lacks as far as the different target situations are concerned and divide them into groups according to their English level. This will subsequently determine the teaching approach opted for by the ESP teacher, even if all the groups, consisting the same speciality, are administered the same type of content throughout the different semesters.

Under the LMD system, English is part of the general program of all scientific courses and taught as a compulsory module. However, students can take courses in another language, from the ones previously cited, as an option. The teaching of ESP courses at the level of the Department of Languages is very beneficial and helpful for science students. Besides offering ESP instruction, the department proposes:

- **A Multimedia Centre**: this center is not open for students just for self-study but also offers:
    - 20 minutes one-to-one sessions under the guidance of language teachers. These propose help and advice for Curriculum Vitaes, pronunciation, practicing for job interviews, grammar problems and preparing a year abroad.
    - English conversation sessions, with a maximum of six students per group, organized by students' tutors who are native speakers.
    - Specialized language learning software.
    - Watching films in their original version.

- Reading and borrowing books, magazines and newspapers in their original versions.

- **A Preparation for the TOEIC, TOEFL, CLES and BULATS tests** [9]

- **Conversation Sessions**: the Department of Languages organizes informal conversation sessions to practice English at lunchtime or in the evening.

- **Debates:** debating is all about understanding, deciding and convincing. The sessions offered aim at enhancing students' ability to analyse, present their arguments clearly, freeing their creativity, working in a team and perfecting their strategic thinking.

It is worth noting at this level that evaluation in the Department of Languages is based on continuous assessment which is the only mode of assessment on application. There is no final exam but only a series of tests throughout the semester. At its end, one mark is communicated to the department the student is affiliated to.

ii) ESP Teaching Load

Throughout the Licence of Physics in the University of Paris-Sud, ESP courses are offered starting from the second semester of the first year. Their teaching loads vary from one year to another and from one semester to another depending on the type of instruction received, i.e., common core or general teaching in a field or specialisation. At the level of the Master, ESP courses are provided just during the first semester. Their teaching load varies from one speciality to the other

[9] These tests aim at preparing the students linguistically to integrate the professional life

ranging from one hour and a half to four hours per week. This difference of the weekly teaching time depends on learners' needs as far as the target situation is concerned.

The majority of ESP courses in this department are programmed in the afternoons, starting either at two o'clock or at four o'clock. These timings have no impact on students' attendance which is both regular and significant. Since the study of the French context focuses on one speciality provided at the level of 3rd year Licence, which is Physics and Application, its teaching load at the level of the Licence and the Master degrees will be provided in the table below:

Degrees	Licence						Master			
Years	1st Year		2nd Year		3rd Year		1st Year		2nd Year	
Semesters	S1	S2	S3	S4	S5	S6	M1	M2	M3	M4
Teaching Load/ Week			2H	2H	2H	2H	1H45	1H45		

Table 3-2: ESP Teaching Load in the Department of Physics at the University of Paris-Sud

3.4. Research Methodology

In the present section, the researcher will provide the research methodology that functioned as the pedestal of the present comparative study. This includes the research design, the informants as well as the various research instruments that were used for data collection.

3.4.1. Research Design

In order to conduct any scientific research, one has to start, first, by selecting the appropriate research model to follow so as to give valid outcomes to his/her study. Different types of research exist in Applied Linguistics. In this sense, Nunan (1992) distinguishes between experimental research, ethnographic research, case study, classroom observation, elicitation, interaction analysis and programme evaluation.

Each of these methods has its own characteristics which justify its use in one study or another.

Since the first step undertaken by the researcher to carry out her research will be a description of ESP instruction under the newly applied LMD reform, in both the Algerian and French contexts, she has decided to opt for a descriptive study. A descriptive study involves collecting information on how things are, through data review, surveys, interviews and/or observation. It attempts to:

> Describe, explain and interpret conditions for the present, i.e., "what is". The purpose of a descriptive research is to examine a phenomenon that is occurring at a specific place(s) and time. A descriptive research is concerned with conditions, practices, structures, differences or relationships that exist, opinions held, processes that are going on or trends that are evident.
>
> **(Dorneyei, 2007)**

A descriptive study can be simple, comparative, or correlational (ECS and Mc REL, 2004).

- Simple description is used when the researcher wants to collect data to describe persons, organisations, settings or phenomena.
- Comparative description draws contrasts between two or more groups or settings with the intention to test a particular hypothesis.
- Correlational description is used to describe the statistical association between two or more variables.

Alongside describing EST instruction in Algeria and France, the researcher will be comparing these two situations so as to be able to evaluate ESP teaching in Algerian universities. Therefore, the present study is a descriptive comparative research. The main purpose behind this process is to depict any deficiencies or shortcomings at the level of Algerian higher education and, therefore, suggest

adequate reforms and practices, based on the French model, out of the desire to raise ESP instruction in Algeria to international standards.

The main steps of the present study can be summarised in the figure below:

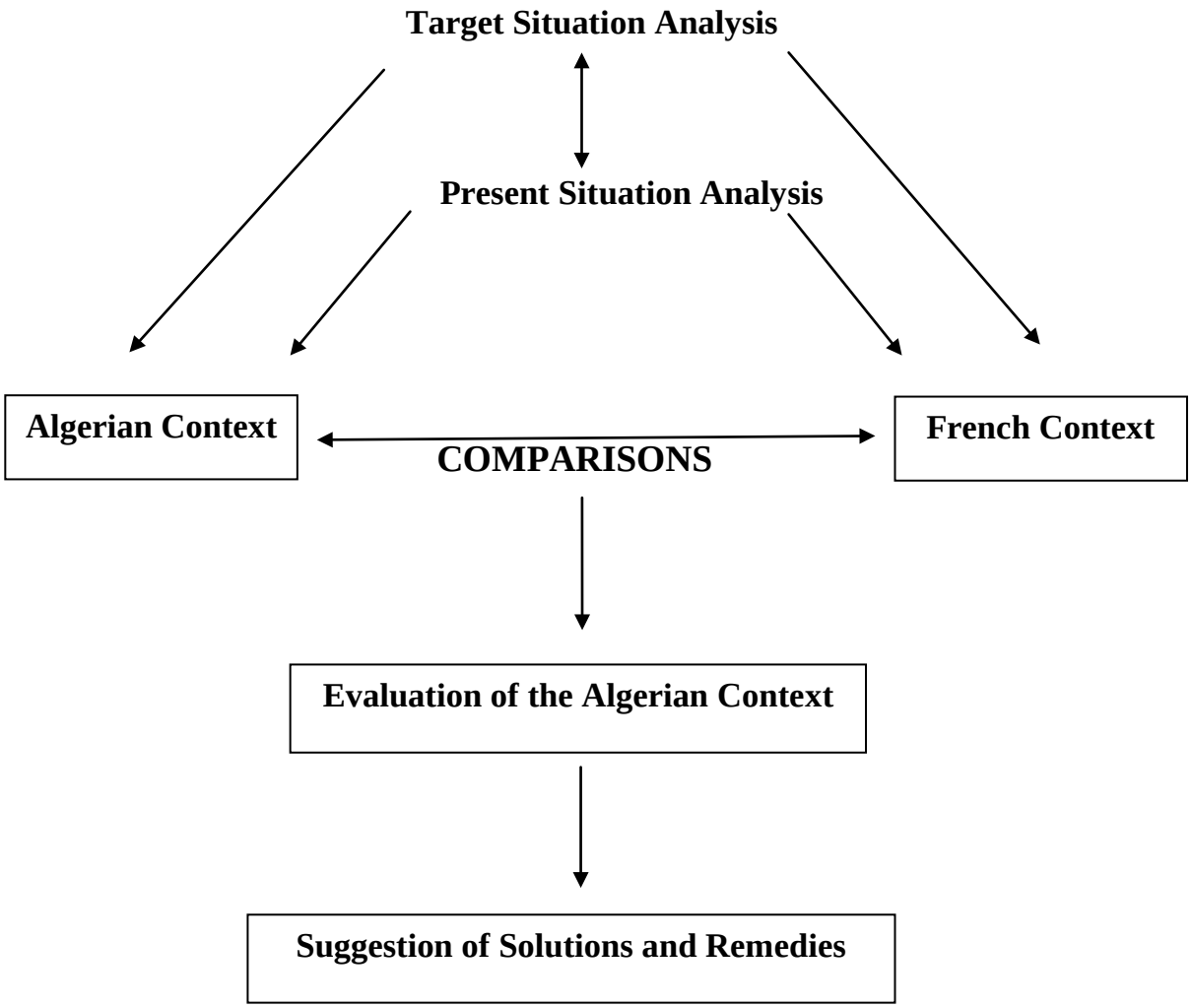


Figure 3.4: The Research Procedure

3.4.2. Informants

In order to fulfil her comparative study between the two universities under investigation, as far as teaching of ESP under the LMD system is concerned, the

researcher relied on Physics Master students, 3rd year ESP teachers as well as learners as informants in both contexts.

3.4.2.1. Informants in the University of Tlemcen

In the present section of the research, the researcher will present the informants used for data collection in the Algerian context. These involve 3rd year Licence students and their English teacher, as well as Master students, in the Department of Physics at the University of Tlemcen.

i) The Teacher

The situation in this department mirrors what is happening at the national level as far as the lack of ESP practitioners is concerned. Indeed, the teacher involved in this study is a subject specialist. He had a PhD in Physics in the USA and has been teaching Physics in the University of Tlemcen for ten years. The head of the department said that since there is an overstaff availability at the level of this section and that most of the teachers previously appointed to teach ESP to Physics students have always been General English teachers, he preferred to assign members of his own department to take in charge ESP courses because, as he added, they were at least acquainted with the Physics terminology and could translate it without any problem to their students.

Thus, the teacher in charge of the ESP course under concern received no special training before being in charge of ESP learners. Such lack of pre-training constitutes a severe problem since, on the one hand, the teacher does not possess the pedagogical attributes to teach scientific English, and on the other hand, he is asked to select and design appropriate ESP teaching materials for his students. This stems from the fact that no syllabus or teaching materials are provided by the department.

ii) The Learners

As previously mentioned, and for the sake of collecting the necessary data for her research, the researcher had recourse to 3rd year Licence students as well as Master students at the level of the Department of Physics, at the University of Tlemcen.

a. Licence Students

The total number Algerian students involved in this research is forty-five. They have access to the Department of Physics after having undergone two common cores during three semesters (see section3.2.3.1). At the beginning of the fourth semester, that is in the middle of the second year, the students in question have joined the Department of Physics to receive instruction in General Physics. At the beginning of 3rd year licence, they start their specialisation in one of the two aforementioned areas of expertise taught in this institution. The licence obtained from this department is purely academic and prepares the students for further studies and research at the level of the Master degree. This degree can be undertaken in the University of Tlemcen, in another Algerian university or abroad in one of the universities of EHEA, under the heading of Joint Degrees. This opportunity is looked for by most Algerian students, especially those enrolled in the scientific domain regarding the multiple opportunities and types of training offered (see section 2.5.7).

Third year students involved in the case under study are aged between nineteen and twenty five years old and had their Baccalaureate exam in Mathematics, Natural and Experimental Sciences, or Electronics. On the whole, their previous English learning experience is of eight years, i.e., seven years before university and one year at the university. The fact that these students have studied in different learning environments makes their group heterogeneous. Since the subjects learned are different in each of the aforementioned streams, these students' proficiency level in English varies. During 3rd year Licence, the students under concern have one session of one hour and a half of ESP instruction per week.

b. Master Students

In order to identify the requirements of the target situation and the various uses of the English language to pursue one's specialization in Physics after the Licence degree, the researcher held an interview with Physics Master students from the Universities of Tlemcen and Paris-Sud, respectively.

During Master studies, Physics students in both settings continue specialisation in the speciality chosen during 3rd year Licence. However, at the level of the Master, further sub-specialities are proposed to the students in the domains chosen during the Licence. Therefore, the specialisation undertaken during the Master Degree can bear the name of the one started during 3rd year Licence, or the name of one of its sub-divisions.

The different specializations provided at the level of the Master Degrees in the Department of Physics, at the University of Tlemcen are the following:

- Energetic Physics and Materials
- Physics of Gas and Plasma
- Physics of Polymers
- Physics of Condensed Matters
- Theoretical Physics

The researcher interviewed ten first and second year Physics Master students, chosen randomly from the aforementioned specialisations, in the University of Tlemcen.

3.4.2.2. Informants in the University of Paris-Sud

This part of the research involves 3rd year Licence students and their English teachers, as well as Master students in the Faculty of Sciences, in the Department of Physics at the University of Paris-Sud. Their profiles are provided in the following sections.

i) The Teachers

The teachers in charge of teaching ESP to 3rd year Licence students under concern are two language teachers and have completely different qualifications and different careers. The first on has a DEA (Diplome d'Etudes Approfondies) in English and has been teaching the English language for twenty years. She has taught General English in the English Department for three years then decided to devote herself to ESP teaching, by curiosity and passion at the same time, as she said. In other words, she has been teaching ESP for seventeen years. The second teacher had his B.A (Bachelor, i.e., Licence) then a Major (equivalent of a Master) in the USA. His teaching experience is of three years, exclusively in ESP.

ii) The learners

The learners who served as informants in the French university were 3rd year Licence students and Master students, at the level of the Department of Physics, at the University of Paris-Sud.

a. Licence Students

In the University of Paris-Sud, 3rd year Licence Physics students sit for a placement test at the beginning of the year to determine their English language proficiency and decide subsequently on which aspects of the language emphasis has to be put during the ESP course.

In order to carry out the present study, the researcher benefited from a training of two weeks, that she extended to four weeks, offered by the university she is affiliated to. However, because of this short period of time, the big amount of data the researcher had to collect, the big number of third year students, and the numerous specialities offered in this department at the level of this year, the researcher decided to focus on the students of just one speciality, namely: Physics and Application. This sampling was not done at random but rather on purpose. In fact, third year students enrolled in Physics and Application are in preparation of an Academic Licence in view of integrating Master studies, as is the case of the Algerian students under investigation. Moreover, both groups of students have undergone nearly the same

common cores during the two previous years. To put it differently, the students involved in the French context have access to the 3rd year Licence in Physics after having undertaken two different common cores during the four previous semesters. During the third year, they start their specialisation in Physics and Applications, one of the five specialities offered by the Department of Physics in the University of Paris-Sud.

The total number of students in this specialisation is fifty. They are aged between nineteen and twenty eight years old. The oldest ones among them are five foreign students, coming from Algeria, Tunisia, South Africa, China and Portugal, all of whom have completed some studies in their own countries, but have subsequently decided to come to France in search for a promising future, as they said.

These students have, on the whole, eight years of English learning experience, i.e., seven years before university and one year at university level. Most of them have an intermediate level in English. Their ESP teaching load during 3rd year Licence is of one session of two hours a week.

As far as ESP instruction in this institution is concerned, the students of each speciality are separated into groups, according to the results of the placement test taken at the beginning of the academic year. Besides, each group is taught English separately from the others. Accordingly, 3rd year Licence students specialising in Physics and Application are separated into four groups during ESP sessions. Their English teaching is taken in charge by two ESP teachers. In other words, each teacher is responsible of two groups.

b. Master Students

In order to determine the target uses of the English language to pursue specialisation in Physics and be able to compare such uses with the Algerian context, the researcher interviewed Master students fulfilling specialization in Physics, at the level of the University of Paris-Sud. As in the Algerian context, French Master students can carry on specialisation either in the speciality chosen during 3rd year

Licence, or in one of its sub-divisions. The different areas of expertise followed at the level of the Master degree in the French Department of Physics are the following:

- Physics and Application
- Fundamental and Applied Physics
- Information, Systems and Technology
- Mechanic Physics
- Nuclear Energy

In the French context, as well, the researcher interviewed ten first and second year Physics Master students, chosen randomly from the aforementioned specialisations, in the University of Paris-Sud.

3.4.3. Research Tools

The main concern of this research work is to undertake a descriptive comparative study of teaching ESP in the LMD system in an Algerian and a French university. It seeks first to provide the State-of –the –Art of ESP teaching in Algerian and French universities under this new international architecture of studies. This study will, then, evaluate ESP teaching in Algeria by comparing it to the one provided in France, one of the leaders of the LMD system and among the four countries to have first adopted this reform. The main aim behind all this process is to depict any area(s) of deficiency at the level of the implementation of the LMD system in Algerian universities so as to put forward any remedial suggestions that can raise Algerian higher education to international standards.

To meet these ends, the researcher has recourse to several data collection tools. These instruments have been selected according to the type of information sought for and the sources of data used. However, it is worth mentioning, at this level, that the same research instruments are used both in Algeria and France for the sake of providing an accurate comparison and appropriate remedies.

3.4.3.1. Interview

Interviews are considered as one of the most common research instruments used to elicit information from the subjects under investigation. They may be used as the primary research instruments or rather occupying an additional role, as cross-checking tools, i.e., triangulation.

Interviews enable the researcher to be in direct contact with the informants. In this sense, Mc Donough et al. (1997:182) state: " Interviews (...) are just another way of asking questions, this time is face to face interaction...". Therefore, the nature of the interaction that exists between the interviewer and his respondents during the interview process enables the former to extract real information about the subjects' life, perceptions as well as beliefs. In the same line of thought, Cohen et al. (2000: 267) claim:

> Interviews enable participants- be they interviewers or interviewees- to discuss their interpretations of the world in which they live, and to express how they regard situations from their own points of view. In these senses the interview is not simply concerned with collecting data about life: it is part of life itself, its human embeddedness is inescapable.

Similarly, Patton (2002: 341) adds: "We interview people to find out from them those things we cannot directly observe, we have to ask people questions about those things".

There are three types of interviews: structured, semi-structured and unstructured. In this vein, Nunan (1992: 149) states: "Interviews... can be placed on a continuum ranging from structured through semi-structured to unstructured". These three types of interviews differ in terms of formality and according to the sort of information the investigator is trying to obtain. In the current research, two types of interviews have been used, namely: a semi-structured interview with Master students, and a structured interview with ESP teachers.

i) Master Students' Interview

For the sake of identifying students' target needs in English to carry on specialization in Physics and, simultaneously, check if the changes brought by the LMD system cope these needs, in Algeria and France, an interview was held with Physics Master students from the two universities under concern in this study.

a. Objectives

The main aims underlying the interview held with Algerian and French Physics Master students are the following:

- A Needs Identification and Analysis as far as the use of English for Master students is concerned, in both settings.
- An evaluation of the quality of ESP instruction provided at the level of the licence in Algerian and French Physics Departments.

b. Design

The investigator adopted a semi- structured interview since, according to Nunan (1991: 149- 150), this type of interview allows the interviewer to have

> A general idea of where he or she wants the interview to go... it gives the interviewer a degree of power and control over the course of the interview... this form of interview is a privileged access to other people's lives.

This means that the interview's informal characteristics enable the interviewee to talk freely about the area under study. It can provide deep "illuminating information that cannot be obtained by any other way" (Weir and Roberts 1993: 145).

The preparation of such an interview involved the following steps, synthesising Nunan's (1991) and Weir and Roberts' (1993):

- The determination of objectives, i.e., the type of data one wants to collect.
- The determination of the type of questions that lead to the determined objectives, i.e., a careful division of questions, accompanied with

decisions of where to allow freedom of speech and where the interviewer will have to intervene and to add questions.

- The division of the set of questions according to the interviewees.

The researcher was also aware of what the interview requires in terms of explanations of the nature of the research, the purpose of the interview, the way data are to be used and mainly questioning in such a way to encourage the respondents to relate their experiences and opinions (Nunan, 1991).

The questions of the interview held with Physics Master students turned around the following preoccupations:

- The provision of ESP instruction at the level of Master studies.
- Importance and areas of English use during Master studies.
- The difficulties encountered when handling the English language to fulfil target needs.
- The main reasons behind these difficulties.
- Students' suggestions to overcome these difficulties and fulfil adequately their target needs.

During the interview, some sub-questions were sometimes added and some explanations were provided to the interviewees when needed.

c. Procedure

In each setting, Physics Master students spend most of their time in research laboratories, when they are at the university. For this reason, the researcher asked for permission from the laboratories' responsible, who are at the same time Master students' supervisors, to conduct her interview with Master students in the research laboratories they were affiliated to. Ten first and second year Master students were chosen randomly in each setting by the researcher. Each informant was interviewed individually and apart from his peers to feel at ease and be more informative in his answers. Throughout this process, the researcher relied on audio-recording and note taking to report the interviewees' answers.

For more details, see Master Students' Interview in appendix A.

ii) ESP Teachers' Interview

Teachers' interview was prepared out of the desire to have a clear picture about the reconsiderations brought to ESP instruction under the LMD system, in Algeria and France, and check if these changes cope with student's target needs. Moreover, it seeks further information about the similarity or difference of ESP teaching in both contexts, and sort out further practices to remedy the Algerian ESP situation. Accordingly, a structured interview was held with 3rd year ESP teachers in the Departments of Physics at the level of Tlemcen and Orsay Universities, respectively.

a. Objectives

The primary objectives of the interview were to collect data on:

- Teachers' background and qualifications.
- The new changes brought to ESP teaching under the LMD system.
- Students' proficiency in English and motivation.
- The use of NIA as a basis of ESP teaching.
- The available teaching aids.
- Course content and conduct.
- Teachers' opinions about the weekly teaching time.
- Teachers' collaboration with subject specialists.
- Teachers' suggestions to improve ESP instruction.

On the whole, the interview was conducted with ESP teachers out of a desire to have information about the state-of-the- art of ESP instruction under the LMD system in the Universities of Tlemcen and Paris-Sud, respectively.
For further details, see the Teachers' interview in Appendix B.

b. Design

The investigator intended, at the beginning of her research, to administer a questionnaire, too, to ESP teachers. However, since there is only one ESP teacher in the Algerian context and two ESP teachers in the French one, she resorted to the use of the interview. The teachers' interview is, then, a structured interview. Mackay (quoted in Jordan 2005: 34) strongly favours this method of gathering information, maintaining that:

> Firstly, since the gatherer is asking the questions, none of them will be left unanswered... Secondly, the gatherer can clarify any misunderstanding which may crop up in the interpretation of the questions. Thirdly, and perhaps most advantageously, the gatherer can follow up any avenue of interest which arises during the question and answer session but which had not been foreseen during the designing of the structured interview.

Therefore, this type of interview allow the investigator to gain further precisions and clarifications from the respondents as the interviews proceeded since this method of data collection enables a certain flexibility and freedom from the part of both partners involved in it.

The structured interview held with ESP teachers encompassed, on the whole, twenty-one questions which were sequenced as follows:

Questions 1 to 2: sought information about teachers' qualifications and teaching experience in General English.

Questions 3 to 6: sought information about teachers' ESP teaching experience.

Question 7: inquired about the changes brought by the LMD system to ESP instruction.

Questions 8 to 10: aimed at assessing ESP class size, students level of competence and motivation.

Question 11: aimed at knowing if there is any NIA prior to the ESP course.

Questions 12 to 13: intended to know whether there were any syllabuses or teaching aids provided by the responsible Department.

Questions 14 to 17: sought information about course content and conduct.

Questions 18 to 19: aimed at revealing teachers' opinions about the weekly teaching time.

Question 20: asked about the existence of any collaboration between language teachers and subject- specialists;

Question 21: invited the informants to put forward some remarks and suggestions to improve the ESP teaching/ learning situation.

c. Procedure

The interview was held with three teachers, one at the level of the Department of Physics at the University of Tlemcen and two at the level of the Department of Physics at the University of Paris-Sud. The Algerian teacher is in charge of teaching ESP to all 3rd year Physics Students from two different specialities, whereas the two French ones share the task of teaching ESP to 3rd year students from just one speciality in Physics. Each of the teachers was interviewed after the completion of the classroom observation process (see section 3.4.3.4.i). All the interviews took place in the classrooms where these teachers were giving their ESP courses, after the departure of all students. It is worth mentioning at this level that the researcher relied on both audio-recording and note-taking when interviewing ESP teachers in both settings.

3.4.3.2. Students' Questionnaire

Since the learners are the centre of the concept of ESP, they were considered as an integral part of data collection in this research. Therefore, to support the data collected through ESP teachers' interview, a questionnaire was distributed to the learners as a second source of information. The students' questionnaire was designed out of a desire to check if the changes brought to ESP instruction cope with students'

target needs, if ESP instruction provided in Algerian and French universities, under the LMD system, is similar or different, and to obtain students' suggestions in order to improve ESP instruction in both settings.

i) Objectives

The use of the questionnaire enables the investigator to gain information about the teaching/ learning situation of the ESP course. Furthermore, Richterich and Chancerel (1980: 59) state that: "Questionnaires are structured instruments for the collection of data which translate research hypotheses into questions". This means that the questionnaire helps the investigator to check the validity of his/ her research hypotheses through written questions addressed to the persons involved in the situation under study. These are referred to as informants and can be the students, the ESP teachers, the subject specialists, and so on.

The main objective of the questionnaires, distributed to 3rd year Licence students in the Departments of Physics at the Universities of Tlemcen and Paris-Sud, was to collect data about:

- Students' knowledge of the language (their linguistic background).
- Students' attitudes towards the English language.
- Students' needs from the English language.
- Students' opinions about the teaching load and the content provided.
- Students' difficulties as far as the English language is concerned.
- The type of ESP instruction they would like to have.

On the whole, the investigator's purpose from this questionnaire was to determine students' linguistic background, first, then to undertake a needs analysis. This process will enable her to elicit students' lacks and requirements, on the one hand, and to evaluate the type of ESP teaching provided, in each setting, in terms of fitness and efficiency, on the other.

ii) Design

The questionnaire distributed to the students involved in this research comprised nineteen questions which were sequenced as follows:

Questions 1 to 2: sought information about students' profile.

Questions 3 to 5: aimed at collecting information about students' language background, level of competence and motivation to learn English.

Questions 6 to 7: were asked to provide information about students' attendance to the English course.

Question 8: aimed at assessing the different uses of English in the target situation and to evaluate, therefore, the importance of this language in their actual and future career as physicists.

Questions 9 to 11: were asked to reveal the type of content provided during 2nd and 3rd year Licence.

Questions 12 to 13: aimed at grading the four skills in terms of importance and difficulty.

Questions 14 to 15: were asked to provide information about other difficulties encountered by the students in English.

Question 15: sought students' opinion about the weekly teaching time.

Question 16: asked the students about the main reasons of their difficulties in English.

Question17: aimed at knowing if the students had recourse to out of classroom services to cater for their lacks in the English language.

Question 18: invited the learners to make further remarks and suggestions to better the current ESP teaching/ learning situation.

For more details, see Students' Questionnaire in appendix C.

iii) Procedure

It is worth mentioning, at this level, that a pilot questionnaire was, first tried out on ten Algerian 3rd year Licence Physics students from the Faculty of Sciences at the University of Tlemcen. The aim of this pilot survey was to have a basis for the production of the final questionnaire.

In the piloting stage, the investigator wanted to check:

- If the instructions were clear and easy to follow;
- If the questions were clear.
- If the students were able to answer the questions.
- If any of the questions was:
    - Embarrassing
    - Irrelevant
    - Patronising
    - Irritating
- The time that was needed to fill in the questionnaire.

The informants were also invited to give any other comments and suggestions that might help to make the questionnaire more effective. The results revealed that, because of some ambiguous wording, some questions required further clarifications, others needed the omission or addition of some words and others were judged as being useless. Therefore, to avoid misunderstandings, deficiencies and repetitions, the questionnaire was reviewed.

The final version of the questionnaire was written in English and French, for both groups under concern, in case the students could not understand English. Furthermore, it respected the concerns of confidentiality so that the informants might be more honest and informative in their responses (Wallace, 1998).

The questionnaire was administered to all 3rd year Licence students in the Department of Physics at the University of Tlemcen and to those specialising in Physics and Application in the Department of Physics at the University of Paris-Sud. The total number of questionnaires distributed in each setting was fourty-five in the Algerian context and fifty in the French one. In order to insure that all the

questionnaires were returned, the researcher asked for permission from subject specialists to distribute the questionnaires during their lectures. The reason behind this is that not all students attended ESP sessions but attended subject-specific lectures. The teachers solicited had shown no objection, so the students were handed the questionnaires and given a period of half an hour to answer the questions before giving back the handouts to the investigator.

3.4.3.3. Observation

For the sake of triangulation of data in order to provide answers for the research questions set, another research tool was used by the researcher in this study, observation. This instrument is defined by Mason (1996: 60) as a method of "generating data which involves the researcher immersing him or herself in a research setting, and systematically observing dimensions of that setting, interactions, relationships, actions, events, and so on, within it". In the same line of thought, Loftland (1971: 32) describes observation as:" The most penetrating of strategies, the most close and telling mode of gathering information". Besides, Patton (1990: 202) argues that: observational data "enable the researcher to enter and understand the situation that is being described". In short, observation is considered as being one of the acceptable tools to gather authentic data about a given situation. Observation may be structured or unstructured. Dyer (1995 quoted in Kevin, 2008: 4) explains that structured observation can test hypotheses about specific behaviour while unstructured observation tends to describe all the behaviour in situation.

Due to the nature of the present research which is mainly a descriptive comparative study, the researcher decided to adopt an unstructured observation approach. Punch (1998:186 quoted in Bell 1991) says: "researchers who decide to adopt an unstructured approach of observation generally do so because they may have a clear idea of the purpose of the observation". Accordingly, the researcher used this unstructured approach both during classroom observation and when visiting a set of settings where the target uses of the language are manifested, namely Physics research laboratories and international conferences in Algeria and France.

i) Classroom Observation

Dornyei (2007: 178) claims that classroom observation provides "direct information and it is one of the three basic data sources for empirical research". Moreover, Weir and Roberts (1993: 136) regard it as: "... the only way to get direct information on the classroom behaviour of teachers and learners". Thus, in order to seek information about what was actually happening in the teaching and learning situations under concern, the researcher had recourse to classroom observation. In other words, classroom observation aimed essentially at:

- Highlighting the changes brought by the LMD system to ESP instruction in Algeria and France.

- Assessing the quality of ESP instruction provided in both contexts.

- Depict any teaching or learning practices, from the French context, that can help improve ESP teaching in Algeria.

a. The Observation Scheme

Classroom observation was carried out by the researcher in the Departments of Physics, during 3rd year Licence ESP sessions in both Faculties of Sciences at the Universities of Tlemcen and Paris-Sud, respectively. In order to carry out such a task, the investigator developed a classroom observation grid, inspired from the Communicative Orientation of Language Teaching scheme, known as the COLT scheme, suggested by Nunan (1992).

Nunan's scheme is made up of two parts. The first one puts emphasis on the description of the classroom activities whereas the second one centers on the description of the classroom language. Each of these two parts focuses, in its turn, on particular aspects of the language course. These two divisions are:

A. **Classroom Activities**: it consists of five main elements, namely:
    - Activity type

- Participant organization
- Content
- Students modality
- Materials

B. **Classroom Language**: it covers seven other components, which are:

- Use of the target language
- Information Gap
- Sustained speech
- Reaction to code or massage
- Incorporation of preceding utterance
- Discourse initiation
- Relative restrictions of linguistic form

Each component consists of a set of questions. The whole scheme suggested by Nunan (1992) is provided in the table below:

Features	Questions
Part A: Classroom Activities	
1a. Activity Type	-What is the activity type, e.g. drills, role-play, dictation.
2a. Participant Organization	-Is the teacher working with the whole class or not? -Are students working in group or individually?
3a. Content	-Is the focus on classroom management, language (form, function, discourse, sociolinguistics) or others? -Is the range of topics broad or narrow?
4a. Students' Modality	-Who selects the topic- teacher, students or both?
5a. Materials	-Are students involved in listening, speaking, reading, writing, or combinations of these? -What type of materials are used? -How long is the text -What is the source, purpose of materials
Part B: Classroom Language 1b. Use of the Target Language	-How controlled is their use? -To what extent is the target language used?
2b. Information Gap	-To what extent is requested information predictable in advance?
3b. Sustained Speech	-Is discourse extended or restricted to a single sentence, clause or word?
4b. Reaction to Code or Message	-Does the interlocutor react to code or message?
5b. Incorporation of Preceding Utterance	-Does the speaker incorporate the preceding utterance into his or her contribution?
6. Discourse Initiation	-Do learners have opportunities to initiate discourse?
7. Relative Restriction of Linguistic Form	-Does the teacher expect a specific form, or is there no expectation of a particular linguistic form?

Table 3.3: Questions Relating to the Principle Features of the COLT Scheme
(Nunan 1992: 99)

The purpose of the classroom observation carried out by the researcher was to determine if there are any gaps existing between the English knowledge provided to the students and the one required in the target situation, assessing:

- The teaching materials used.
- The way the course is conducted.
- Learners' actual language proficiency.

The data collected through such a process would, therefore, enable the researcher to compare between the two ESP teaching and learning processes taking place in each of the two settings under concern.

To fulfil this task, and inspired from Nunan's model, the investigator developed her own classroom observation grid to collect the desired data. The irrelevance of certain elements, existing in Nunan's scheme, to the present research led the researcher to exclude them from her observation grid, presented in what follows:

Classroom Observation

Field:
Speciality:
Date:

A/ Classroom Activities

Features Observed	Comments
Teaching Materials	
Content' specificity	
Activity Type	
Participants' Organization	

B/ Classroom Language

Use of the Target Language		
Discourse Initiation		
Language Output		
Difficulties Encountered by Teachers and Learners	Teachers	Learners

Table 3.4: Classroom Observation Grid (adapted from Nunan, 1992: 99)

b. The Observation Process

Being observed may be considered as a stressful experience and could be unwelcomed by the teachers observed. For this reason, the researcher made it clear, before the start of this operation, that it was used as a means of gathering information only and did not aim, at all, at inspecting or evaluating the teacher or his teaching.

To the investigator's surprise, the teachers observed did not show any worry about this point and invited her to attend as many sessions as she needed to carry out her observation task. Each group has, then, been observed during the ESP class, once a week, over a four-week period. On the whole, each group has been observed during four ESP sessions.

In the Department of Physics at the University of Tlemcen, the number of 3rd year Licence students was fourty-five but only twenty students were under observation. These represented the students who were always present to the language course during the four-week experiment.

In the Department of Physics at the University of Paris-Sud, the number of third year Licence students constituting the sample population under observation was sixty. These students were split into groups according to their language proficiencies and were given language courses during the same afternoon by two English teachers. Therefore, two groups were having ESP courses from two to four o'clock and two other groups from four to six o'clock in the afternoon. Two groups of these students were under observation. One group from those having ESP courses at two o'clock, and one group from the two ones having ESP courses at four o'clock. The total number of students composing these two groups was twenty-seven but twenty-five of them were under observation during the four-week experiment since two of them missed two sessions during this period. The remaining students' attendance was regular.

The information gathered through classroom observation differed from one context to the other. These will be displayed and analysed in the next chapter.

ii) Observation of Authentic Use of the Target Language

Besides interviewing Master students about the various target uses of the English language after the 3rd year Licence, the researcher wanted to "investigate the natural contexts" in which they occur (Nunan 1992: 53). In this respect, Richards (2005: 61) reports that "observation of learners' behaviour in a target situation is another way of assessing their needs, for example, observing clerks performing their job in a bank will enable observer to arrive at certain conclusions about their language needs"

Therefore, in order to observe the target uses of the language, the researcher visited several institutions, mainly Physics research laboratories, both in Algeria and France. These are:

- The Laboratory of Materials and Renewable Energies, at the University of Tlemcen.
- The Laboratory of Applied Physics and Mechanics, at the University of Paris-Sud.

During this investigation, the researcher was shown several authentic examples of the target language use in the domain of Physics such as reference books, already presented and / or published research articles, research reports, conference papers in course of preparation and thesis proposals.

The investigator also lived authentic situations of English use in the field of Physics by attending many international scientific manifestations held at the national and international levels, i.e., in Algeria and France, respectively, in this field. These included conferences, colloquiums, and workshops. Many Algerian, French and other foreign Master students, Doctorate students, subject specialists and researchers in Physics took part in these meetings to present their latest findings and innovations, exchange opinions and ideas, and update knowledge. The attendance of a number of Algerian and French 3rd year Licence Physics students to some of these meetings was also noticed. The latter contributed with their supervisors as co-authors of certain articles or posters presented during these scientific manifestations.

To be more precise, the researcher attended three international conferences held at the national level as well as a colloquium and two workshops held in France. Those attended to in Algeria are the following:

- The 15th International Meeting on Thermal Sciences: Future Energies, organised by Tlemcen University on September 24th- 26th, 2011.
- The 1st International Conference on Numerical Physics, organised by Oran University on October 13th – 15th, 2012.
- The 3rd International Conference on Optics, Photonics and their Applications, organised by Algiers University on December 9th – 11th, 2013.

The Colloquium and workshops attended to by the investigator in France coincided with her presence in France to take part in the "30th TESOL International Conference" held in November 2011, on the one hand, and to fulfil a training granted by the University of Tlemcen to complete the practical part of her doctoral research in 2013, on the other. These meetings are:

- Hadro Collider Physics Symposium, organised by Paris University on November 14th – 18th, 2011.
- An International Colloquium on the Role of Category Theory in Physics, organised by Paris University on from November 30th to December 3rd, 2011.
- A Workshop on Scientific Perspectives in the MeV Domain, Particles Physics, organised by Paris university on January 15th- 16th , 2013.

It goes without saying that the major means of presentation and communication used in these occasions was the English language since they witnessed a significant presence and participation of physicists from different parts of the world. The table below gives an idea about participants' nationalities in the aforementioned scientific manifestations:

International Meeting	**Organizing University**	**Participants' Nationalities**

The 15th International Meeting on Thermal Sciences : Future Energies	Tlemcen University (Algeria)	United Kingdom, Canada, Itaty, Algeria, USA, Morocco, Tunis, South Africa, Poland, Spain
The 1st international Conference on Numerical Physics	Oran University (Algeria)	USA, United Kingdom, Bulgaria, Italy, Algeria, Spain, France, Poland, Hungary, Lebanon, Germany, Japan
The 3rd International Conference on Optics, Photonics and their Applications	Algiers University (Algeria)	Russia, Rumania, Algeria, France, Brazil, Italy, Finland.
Hadro Collider Physics Symposium	Paris University (France)	Italy, Lausane, Tokyo, United kingdom, Milano, Germany, Austria, Italy, Munich,India, France, Lisbon, Boston, Mississipi.
An International Colloquium on the role of Category Theory in Physics	Paris University (France)	France, United Kingdom, Luxembourg, USA, Germany, Greece
A Workshop o Scientific Perspectives in the MeV Domain	Paris University (France)	Italy, St Petersbourg, Netherlands, Arizona, Spain, USA, Poland, Germany.

Table 3.5: International Conferences in Physics Observed by the Researcher

This investigation was essentially exploratory and aimed at determining what was happening and how English was used in real-life situations. The data was collected through note-taking and audio- recordings, when possible.

The information gathered through the description of the target situation, i.e., Master Students' interview and authentic uses of the target language, was studied and analysed to determine the areas and settings of language use, the social roles performed by the target language and the use of the four skills. The different results will be presented and analysed in the next chapter.

3.5. Conclusion

The present chapter was mainly descriptive. It has dealt with an overall description of the prevailing ESP teaching/ learning situations in the two cases under concern, namely those of third year Licence students in the departments of Physics at the level of the Faculties of Sciences at the universities of Tlemcen (Algeria) and Paris-Sud (France).

This description gathered many parameters. It started by displaying the EFL policies in both countries, before putting emphasis on one of its main aspects particularly English for Specific Purposes. After that, the researcher has tried to offer a thorough account of the two cases under study in terms of the educational setting, the status of ESP courses, their teaching load and the facilities offered in terms of materials and teachers.

The researcher has moved, then, to describe her research design. This covered interviews with Physics Master students and ESP teachers, 3rd year Licence students questionnaire, classroom observation and an immersion into the target uses of the language. The main aim behind the various research instruments used was to provide answers for the present study's research questions. In the following chapter, the data collected in each context will be discussed and analysed before being contrasted to each other.

Chapter Four

Data analysis, Interpretation of Results and Comparisons

4.1. Introduction

4.2. Data Analysis Procedures

4.2.1. Qualitative Analysis

4.2.2. Quantitative Analysis

4.3. Data Analysis

4.3.1. Target Situation Analysis

4.3.1.1. Master Students' Interview

4.3.1.2. Observation of Authentic Use of the Language

i) Areas of Language Use

ii) Settings of Language Use

a. The Physical Settings

b. The Linguistic Settings

c. The Human Settings

iii) Language Skills

4.3.2. Present Situation Analysis

4.3.2.1. Teachers' Interview

i) Analysis

ii) Comparison and Interpretation of Results

4.3.2.2. Students' Questionnaire

i) Analysis

ii) Comparison and Interpretation of Results

4.3.2.3. Classroom Observation

i) Analysis

ii) Comparison and Interpretation of Results

4.4. Discussion of the Main Results

4.5. Conclusion

4.1. Introduction

The main concern of this chapter is to shed light on the reality of the prevailing situation of ESP teaching under the LMD system in Algeria. Previous investigation undertaken by the researcher revealed that ESP teaching was not given enough importance in the classical system and didn't cater for students' immediate needs as far as the target uses of the English language were concerned.

The LMD system, as an international higher education reform adopted by European countries and aiming at fostering students' mobility and international exchanges, has reviewed the place of ESP courses in the different curricula and introduced its teaching at previous stages than before. As a country willing to extend her different political, economic and social relationships, Algeria, too, took the decision to implement such a reform at the level of her universities. Consequently, ESP courses are nowadays provided in many institutions nationwide beginning from the Licence degree. However, the researcher wonders whether the fact of reviewing the stage at which ESP courses are introduced in Algerian universities entails better considerations and outcomes of such an approach to English teaching. For this reason, she has decided to investigate into ESP teaching in Algeria, and more precisely EST one, under the realm of the LMD system. The purposes behind this is to collect real facts about how such a process is undertaken in Algeria and to compare it to a similar situation in France, which has been chosen as a model, with the aim to depict any drawbacks or difficulties and provide therefore some adequate solutions.

To collect the necessary data to carry out the present research, the investigator has chosen two similar situations in Algeria and France, namely those of third year Licence students in the Departments of Physics at the level of the Faculties of Sciences at the Universities of Tlemcen and Paris-Sud, respectively. The data was gathered through the multiple research tools exposed in the preceding chapter (see section 3.6). These research instruments have been exploited in the same way in both Algerian and French contexts. Two major aims are behind the use of these research tools. The first one is to sort out students' target needs from the English language, these reflect the areas of English use to achieve students' specific purposes. The second reason is to

determine students' actual level of competence in the English language so as to sort out their learning needs, lacks and wants. The collected data in both Algeria and France will be analysed and interpreted, then compared to each other so as to appropriately evaluate ESP teaching in Algeria in the newly applied LMD reform.

4.2. Data Analysis Procedures

Norton (2009) believes that the validity of any research does not only take into account just the validity of the research instruments but also, and more significantly, how data are collected and analyzed. Cohen et al. (2007) state that the decision of data analysis procedure is determined mainly by:

- The focus of the research.
- The precise character of the data.
- The sorts of data as being employed.

Therefore, just as the researcher relied on many research instruments to collect the necessary data for her study, she decided to combine between two types of procedures to analyse such data namely qualitative and quantitative. In this sense, Greene et al. (qtd. in Dornyei 2007: 164) state that these two approaches to data analysis have a complementary function and "... are used to measure overlapping but also different facets of a phenomenon, yielding an enrich understanding by illustrating, clarifying, or elaborating on certain aspects. In the same vein, Hamzaoui (2006: 130) posits: "Using more than one type of analysis is believed to provide more reliable research findings since the latter are not compressed into a single dimension of measurements". In sum, the combination of different procedures to data analysis favours a multi-level of investigation of the matter under concern and offers a near full picture of reality. However, attention has to be paid to the way the data collected are handled under these different types of analysis.

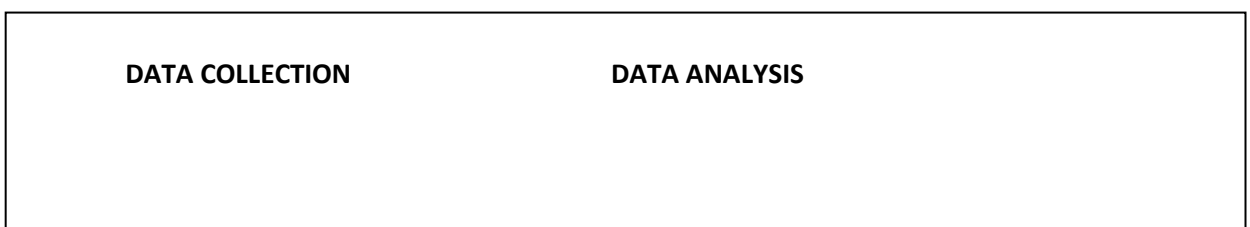
4.2.1. Qualitative Analysis

Qualitative analysis has been adopted mainly in the field of human sciences. It is an approach which emphases on the qualities of entities and on processes and meanings that are not experimentally examined or measured in terms of quantity, amount, intensity, or frequency. In other words, qualitative analysis focuses on exploring and discovering rather than measuring or proving, since it is concerned with understanding human behaviour from the actor's own frame of reference Nunan (1992). Its purpose is to explore, describe, and discover facts that may take different forms such as verbatim descriptions, interviews, written responses, or observations (Weir and Roberts, 1994). This method paves also the way for quantitative data analysis. As the present study is a descriptive comparative one, the researcher relies on qualitative analysis for the analysis of the results obtained from all the research instruments used. These include Master Students' interview, ESP teachers' interview, ESP students' questionnaire, as well as classroom and authentic use of the target language observations.

4.2.2. Quantitative Analysis

This process has been favoured in fundamental sciences. It seeks to present the collected data under a numerical form that is later translated into tables, graphs or pie-charts giving percentages to facilitate deductions and enable comparisons. In the present work, the researcher has relied on quantitative analysis for the analysis of students' questionnaire only.

To close this section, the researcher provides the following figure to summarize the different procedures for data collection and analysis used in the present research:



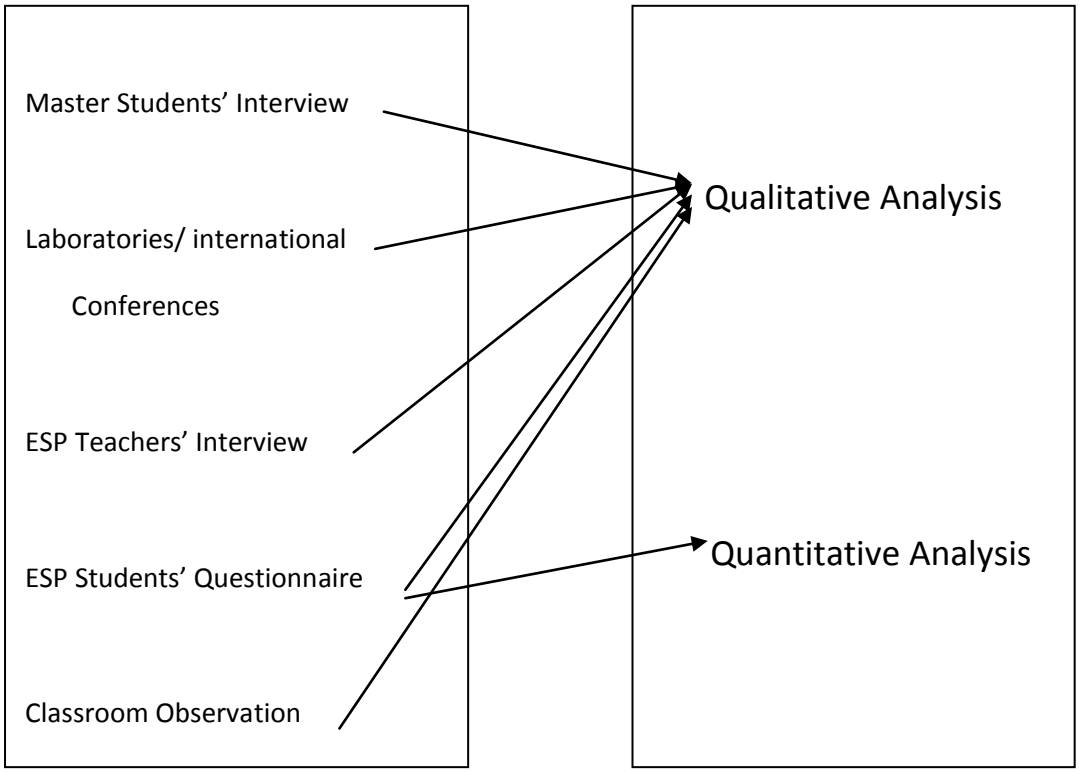


Figure 4.1: Data Collection and Analysis Procedures

4. 3. Data Analysis

The data gathered through the different research instruments used in this study will be analysed. The researcher will start by examining the information obtain from Physics Master Students' Interview and the observations of the authentic uses of the language in order to determine the target uses of the English language. After that, the researcher will move to analysing the data gained, in each setting, from ESP teachers' interview, 3rd year Licence Students' questionnaire and classroom observation, so as to determine what is actually happening in both teaching/ Learning situations under concern. By contrasting students' target needs with the current ESP teaching/ learning processes in each setting, the researcher will be able to evaluate ESP instruction in Algeria and suggested adequate remedies.

4.3.1. Target Situation Analysis

In order to have a clear picture of 3rd year Licence Physics students' target needs in English as far as their current and future careers as physicists are concerned, to check if these requirements are the same for Algerian and French students involved in the same field and level of study in the LMD system, and to assess the quality of ESP instruction provided at the level of the Licence in the Algerian and French settings under concern, an interview was held with Master students in Physics at both Departments of Physics in the Universities of Tlemcen and and Paris-Sud, respectively. For the same purposes, some international scientific meetings in the domain of Physics, held in Algeria and France, were attended by the researcher.

4.3.1.1. Master Students' Interview

The primary goal of the interview held with Master students was to shed light on further 3rd year Licence Physics students' target needs in English as soon as they embark upon post-graduate studies. The second aim of this interview was to evaluate the quality of ESP instruction provided at the level of the Licence in the Departments of Physics in the Algerian and the French universities. For these reasons, the researcher interviewed ten first and second year Physics Master students in both Universities of Tlemcen and Paris-Sud, respectively. The data obtained from Master students' interviews is the following:

- ***Students' ESP teaching load at the level of the Master.***

Algerian students said that they have/ had one hour and a half ESP instruction, often reduced to one hour only, per week during the first year of the Master degree whereas French ones declared having one hour and fourty-five minutes ESP instruction a week during the same year.

No ESP courses are provided during the second year of the Master degree in the Departments of Physics both universities.

– ***Students' opinions and suggestions about the teaching load.***

Algerian students find the teaching load during first year Master insufficient and proposed pursuing ESP courses till the last semester of the second year of this degree. Since the present interview was semi-structured, the researcher wanted to know the reason behind these two responses. To this, Algerian students replied that whenever they were confronted to the target uses of English during their career, they were handicapped and were not at all at the level required. For them, the nature of ESP courses provided at the level of the Licence had a great part of responsibility in this negative situation since they were focussing on some generalities of the English language and not English for Specific Purposes. They further added that even the ESP courses at the level of the Master had to be reviewed because they were of the same type as the ones provided during the Licence.

For French students, the situation was somehow different since except for three students who preferred extending ESP courses to the second year of the Master, the other students declared that, even if they didn't have an advanced level in the English language, they were able to manage at ease the different uses of the target language they were confronted to. When the latter were asked to justify their answers, they replied that the type of content they had been exposed to and the different activities they handled in English during the Licence, and even the ones they had or were having at the level of first year Master, have well prepared them to use English in the target situations. They added that even if there were no more ESP courses during the Master, they could always rely on the help and facilities provided by the Department of Languages in terms of the multimedia center, conversation sessions under the guidance of native speakers, and the multiple debates held on various scientific and non-scientific topics.

– ***The need for the English language during the Master Degree.***

All the respondents, in both contexts, were affirmative in their answers and insisted on the importance of English all along Master studies.

– ***The moment at which the use of English arises during the Master Degree.***

To this question also, the respondents' answers, in both settings, were similar and all of them affirmed that they started getting in touch with subject-specific or any other scientific documents written in English from the beginning of the Master degree. They put forward that Master studies last just two years, a period through which they had to take Physics courses and carry on research so as to prepare their thesis. During this process, they are confronted to various uses of the English language.

– ***Areas of English use during Master studies.***

Here again, Master students' answers in both countries matched a lot and are summarised in what follows:

- Reading scientific books, newspapers and other sources of information to prepare research articles and the thesis.
- Writing abstracts, scientific articles, and research reports.
- Proposing articles for communication and publication
- Publishing in international journals where a good mastery of the English language is required
- Presenting papers in international conferences.
- Discussing and exchanging data with foreign researchers during the different scientific manifestations (conferences, workshops, seminars, etc).
- During master studies, work in the laboratory starts very early. Very often, there are some new materials and products used in the laboratories which notices and instructions are written only in English.
- Using the Internet for exchanges with foreign researchers and joining scientific and subject-specific forums.
- Various opportunities are offered in the LMD system. The major ones are scholarships allowing Master students to prepare the whole degree or one of its two years abroad in foreign scientific faculties and laboratories. In these situations, the mastery of the English language constitutes a requisite condition.

– ***Difficulties encountered in English during Master studies and their reasons.***

Algerian students listed the following difficulties:

- Difficulty to read in English.
- Difficulty to write in English
- Difficulty to understand what is read or spoken in English.
- Difficulty to express oneself and exchange with foreign researchers. They added that this trouble gains importance especially during foreign researchers' visits or when attending international conferences and this makes them feel as if they were not physicists, as they said.

As far as the reasons for such difficulties are concerned, Algerian Master students highlighted once again the nature of ESP courses provided at the level of the Licence and Master degrees which do not fit with the type of English uses they are confronted to.

The French students, on their part, didn't specify any significant area of difficulty. They linked this, once again, to the type of content and practice provided during their previous ESP courses and insisted on the fact that the multiple services constantly provided at the level of the Department of Languages sustained and promoted their progress as far as the English language were concerned, being general or specific.

– ***Students' suggestions concerning the prevailing ESP situation.***

Algerian students suggested the following:

- To review the content and teaching method of ESP courses at all Licence levels.
- To provide a more specialised and narrowed content during 3rd year Licence, which corresponds to the beginning of specialisation.
- To introduce ESP courses from the first year of the Licence till the second year of the Master.

- To appoint specialised teachers in the field of ESP to assure course effectiveness.

French students, on their part, proposed the provision of ESP courses during M2 to keep up practising the various target uses of English with their language teacher and sustain their level.

4.3.1.2. Observation of Authentic Use of the Language

In order to have a clearer picture of students' target needs, and in addition to interviewing Master students, the researcher has also visited many Physics laboratories in Algeria and France and attended some international meetings held in the domain of Physics in these two countries so as to be confronted to vivid target uses of the English language (see section 3.4.3.4.ii). The different data collected, observations done and notes taken throughout all these processes, combined with the information drawn from Master students' interview, enabled to determine, accordingly, the areas and settings of English use and the language skills required for such a use. This information is drawn from the Target Situation Analysis Framework suggested by Hutchinson and Waters (1987), and displayed in what follows:

i) Areas of Language Use

Physics students may be confronted to different uses of the target language as soon as they embark upon Master studies. These uses are academically-oriented and depend on the types of situations the learners are involved in. They include:

a. Extracting information

As Master students, on the one hand, fresh specialists and researchers, on the other, these persons have to read, understand and extract the scientific information needed, especially the one related to their field, in general, and specialisations, in particular. To do this, they are compelled to have recourse to a multiplicity of references and sources of information that are accessible exclusively in English, ranging from scientific books, reports, magazines, international articles, meetings as

well as the Internet. These students need also to read the different instructions of use before handling any material or product in the laboratories. These notices are also written in English since most of the materials used in the laboratories are of a foreign origin.

b. Undertaking a Research

Being appropriately informed from a diversity of sources is a pre-requisite to undertake or pursue one's scientific research, be it personal work or done in collaboration within a scientific community. Moreover, it is worth mentioning that conducting a research is a sine qua non for obtaining a research degree so as to pursue one's career.

c. Producing Dissertations

LMD students are plunged and initiated to research at an early stage than before. For the students under concern, specialization begins at the level of the License whereas it used to start at the post-graduate level in the classical system. These students are constantly and increasingly urged to write their dissertations in English, as is the case in other parts of the world, because this would facilitate the circulation of their findings and contributions to foreign experts and international scientific communities, and, hence, further their careers.

d. Reporting the Research Activity

Reporting the research activity is one of the most important parts and recurring activities of the research process. The written research report is considered as the means of communicating knowledge within the scientific community. Moreover, any specialist, be it a Master student, subject teacher or researcher in the field of Physics, is required to publish his research reports as well as scientific articles, comments and summaries in international journals and magazines or via the Internet.

e. Publishing the Research Activity

Publication in academic journals or other sources is the most prestigious and desirable form of reporting research. It represents the primary means of disseminating the products of research within the discourse community and establishing a research reputation.

However, publishing is one of the most difficult tasks to fulfil for many specialists, particularly English non-native speakers. Getting one's work published in one of the aforementioned sources is sometimes daunting but challenging as well. However, it is essential to ensure that one's work is available to one's colleagues internationally because it has no sense to undertake a research and keep it for oneself.

f. Taking Part in Scientific Meetings

Several international scientific meetings are held in the field of Physics, in different parts nationwide. Numerous Algerian and foreign students, i.e., post-graduates but graduates as well, subject teachers and researchers in this field take part in such occasions to present their research, report their findings, exchange pinions and update knowledge. Other international meetings, of this kind, are held abroad where Algerian attendance and participation is also very significant. Needless to mention that the only means of communication used in those and all of the other international seminars, conferences, study days and workshops is essentially the English language.

g. Keeping Contact with Foreign Researchers through the Internet

With globalization and the implementation of the LMD system, new horizons have been open to science and research. Contact with international scientific communities is easily established, collaborative work encouraged, and exchanges are sustained. However, one is not compelled to travel to fulfill these tasks but just to sit in front of his computer and connect with his foreign peers. In other words, the use of the internet has given a new dimension to research in the different fields, including the one under focus, and needless to mention that the use and mastery of English are its key prerequisites.

h. Profiting from Scholarships and Joint Degrees' Programs

Under the LMD system, scholarships and chances to carry out the whole Master degree or part of it are regularly proposed within conventions between international universities, under the framework of scientific and cultural exchange. Physics Students are overt out of the desire to specialize in one of the sub-field s of physics which is not provided in their own country and by the same way discover other people's culture.

All these uses of the target language listed above represent the most and foremost way to join the scientific discourse community. Moreover, they are very important from both the scientific and individual perspectives. From the research standpoint, they represent the primary means to get informed, keep up with the latest developments in one's field, and exchange ideas, novel findings and knowledge. If scientists do not communicate, progress in developing new reliable knowledge would be very slow. From the individual viewpoint, they are the primary means of establishing one's own research personality and building a career.

Furthermore, it is worth mentioning that the more one contributes to scientific meetings and publishes scientific articles, during his graduate/ post-graduate studies, and professional or research careers, the more he will be privileged when posts or promotions are being offered. The different situations mentioned above will involve the language user, in this case physicists, in different environments and circumstances of language use.

ii) Settings of Language Use

After determining the various uses the English language is put to in the main target situations, a set of settings of language use has been selected according to three essential criteria, namely: physical, linguistic and human.

a. The Physical Settings

The target language may be used in different physical environments to fulfil either academic or professional purposes. In the case under concern, these settings are, in both cases, nearly the same and involve the following:

- The classroom, i.e. during the teaching/learning process.
- The library, i.e. where the physicist finds the needed literature for his studies and research. This activity can also occur at home, in a personal study or work.
- The research laboratory, at this level, the student or researcher carries out theoretically and practically and performs experiments in order to test new ideas and find out new knowledge. In a laboratory, one is likely to work alone or collaboratively with other Algerian or foreign fellows, on a given research project.
- The cyberspace, where it is possible to search for the information needed, publish findings, reports and articles, and communicate with other subject specialists through the Internet.
- The conference room, the English language is also put to use during international meetings for various purposes. It may be used to present scientific achievements, results and findings; to argument and take part in debates; and to interact and exchange ideas with visiting experts, lecturers and researchers.

It is worth mentioning that the Algerian and French physicists can find themselves in the afore mentioned settings either in their respective countries or abroad where they may spend a short or relatively long period depending on their target objectives.

b. The Linguistic Settings

English may be used in three distinct situations:

- ❖ In Algeria or France, for example, during international conferences in order to interact with visiting scientists

- ❖ In a foreign country where English is the native language such as Canada, the USA or England, where LMD students can go to pursue further studies and/or research and advanced physicists can take part in other scientific manifestations such as collaborative work or conferences.

- ❖ In a foreign country where English is not the native language but rather a second or foreign language, as Switzerland or Italy, where physics' subject-specialists may be invited to attend or take part in international scientific seminars.

-

c. The Human Settings

The target language is used when the individual is either:

- Alone, when reading scientific books, theses, magazines, reports, and so on; or producing a personal work in English like a research report or a scientific article, or

- With other members of the scientific community as in a research laboratory or during a meeting, to fulfill specific purposes.

iii) Language Skills

The target situation requires the use of the English language in different areas to meet several ends. Such a use involves the four language skills:

- ➢ Listening: Master students need to listen to and understand the target language to fulfill several purposes, for instance when working with foreign researchers.

- ➢ Speaking: The English language is needed to interact and converse with foreign scientists and visiting experts, to take part in seminars and give oral presentations.

- Reading: The physicist needs to read and understand the scientific literature available, especially the one related to his field of specialization. The references available involve scientific books, magazines, articles, reports, summaries, and so on.

- Writing: The practice of this skill includes taking notes, writing and/or publishing research articles, scientific comments, summaries, reports of personal experiments, conference papers, and so on.

After having dealt with the different uses of the target language Physics' students are required to fulfill after the Licence degree, the various areas and settings of language use, as well as the language skills needed to perform such purposes, the investigator moves, therefore, to analyse the data collected about the teaching/learning situations under concern. The broad aim of this analysis is to make it possible to evaluate the current conditions under which ESP courses are provided within the LMD system in Algeria.

4.3.2. Present Situation Analysis

In order to gain a thorough and overall understanding of what is actually happening in the Algerian ESP situation under consideration and evaluate it through a comparison undertaken with a French similar context so as to be able to detect the different elements affecting such a situation either positively or negatively, the researcher had recourse to several research instruments namely: ESP teachers' interview, ESP students' questionnaire and classroom observation. These tools have been used in both contexts, that is to say at the level of the Departments of Physics in the Universities of Tlemcen and Paris-Sud, respectively.

4.3.2.1. Teachers' Interview

In view of having a clearer picture about the reconsiderations brought to ESP instruction under the LMD system, in Algeria and France (in terms of teachers' qualifications, teaching materials, content and aids), to check if these changes cope with students' target needs, in each setting, seek further information about the similarity or difference of ESP teaching in these two countries, and sort out further practices to remedy the Algerian ESP situation, a structured interview was held with one 3rd year Licence ESP teacher from the Departments of Physics in the University of Tlemcen and two 3rd year Licence ESP teachers from the Department of Physics at the University of Paris-Sud.

i) Analysis

The data obtained from ESP teachers' interview will be presented and analysed in the table below, according to the rubrics previously cited in section 3.4.3.1.

Themes	Algerian ESP Teacher	French ESP TeacherS
Teachers' qualifications and experience in General English Teaching	He has got a PhD in Physics from a university in the United Stated of America. He has been teaching Physics for 10 years and has never taught General English.	One has got a DEA (the former French equivalent of the Master Degree) and had taught General English for 3 years, and the other studied in the United States and held a BA (a Bachelor or Licence Degree) then a Master Degree, there, in the English language and has been teaching General English for 2 years.
ESP teaching experience	His overall ESP teaching experience started 2 years ago in the Department of Physics. He has received no previous	The first teacher has been teaching ESP for 17 years in numerous departments namely Electrical Engineering, Biology, Chemistry

Themes	Algerian ESP Teacher	French ESP Teachers
	ESP training since he was originally a Physics' subject teacher. Thus, he has never been teaching ESP in the classical system.	and then Physics. She had received no ESP training before starting teaching ESP. She had been teaching ESP for 9 years under the classical system, but in other departments than that of Physics, namely Electrical Engineering and Biology. As far as ESP teaching in the Department of Physics under the LMD system is concerned, her teaching experience is of 5 years. The second teacher has been teaching ESP for 3 years. Before starting teaching ESP, he received a
		qualified training called the CELTA[8]. This teacher has no experience in teaching ESP under the Classical system but has been teaching ESP for 3 years under the LMD system
The changes brought by the LMD reform to ESP instruction in the department of Physics.	He was unable to give any practical details related to this point. However, he declared being aware of the fact that the LMD system strengthened the place of ESP courses in the	The first teacher stated that the LMD system has brought changes to ESP instruction in general be it in the department under concern or in others. She declared that in addition to introducing ESP courses at the

[8] It stands for the Cambridge Certificate in Teaching English for Speakers of Other Languages. The CELTA provides trainees with proven techniques for teaching English as a foreign language for students of all nationalities. One of the major features is that it combines theory with hands-on practice to form fully competent teachers able to deal with varying teaching situations.

	different curricula and introduced them at early stages in the scientific fields since they were previously introduced at the level of post-graduate studies. He added also that such training is supposed to be guided by a syllabus provided by the administration, and should focus on certain aspects that go hand in hand with the way ESP instruction is provided in	level of the Licence with varying and sometimes considerable weekly teaching time in some scientific domains, the LMD system puts more focus on the quality of the teaching and services provided to ESP learners. To clarify this point, this teacher referred to the fact that all students taking ESP courses have to sit for a Placement Test at the beginning of the year in order to determine their level of English proficiency. These
Themes	**Algerian ESP Teacher**	**French ESP Teachers**
	other European countries to assure a certain harmony in terms of content as well as quality of outcomes. He added that, unfortunately, these matters stand as ideals in our country, for the moment. The proof, he added, is that a as Physics' specialist, he has been appointed to teach ESP just because he has studied for some years in the United States of America and is supposed to master some technical terminology in Physics. As a consequence, he is compelled to manage the situation in his own way, depending on the	students are then divided into groups according to their respective levels in English and have ESP courses adjusted to their lacks and needs to be able to behave adequately in the different target situations. She added that even if students in one domain or speciality are taking ESP courses in separate groups, the general content and course objectives are the same. In other words, these students go through a process of a Needs Identification and Analysis (NIA), under the LMD system, before receiving any ESP instruction. Another point was highlighted by this teacher as a positive aspect brought by the LMD system which

Themes	available local means. **Algerian ESP Teacher**	is the provision of ESP courses in the Department of Languages, in addition to the multiple facilities offered at the level of this institution in terms of multimedia center, preparation for TOEIC, TOEFL and BULATS tests, conversation sessions with native speakers as well as debates on various daily-life, general as well as specific scientific topics. **French ESP Teachers**
		The second teacher said that he had never taught ESP in the classical system and he could not speak about the changes brought by the LMD system to ESP instruction. However, he stated that he could ascertain from what he was experiencing as an ESP teacher that the ESP courses actually provided under the LMD system were very specialized and addressed very specific needs depending on the students' field of study.
ESP class size	At first, he said that he didn't know the exact number of students making up his ESP class. The reasons were that he was simultaneously teaching two groups of 3rd year Licence	The first teacher answered eleven in the first group and fifteen in the second, whereas the other teacher had eleven students in one group and thirteen in the second. It is worth recalling that each of these two

Themes	Algerian ESP Teacher	French ESP Teachers
	students from two different specializations in Physics, on the one hand and that students' attendance varied, on the other hand. Consequently, he had a look at the list provided by the administration before giving his answer. He said that the total number of 3rd year Licence students supposed to take the ESP course was forty-five whereas he was used to teach some eighteen to twenty-two students. He added that it happened to him, in some instances, to have a very large group, especially during the two first months of the year, to the extent of searching for a bigger classroom or lecture hall to give his ESP course, whereas in other cases, the number of the students was too few to give a course, but most of the time he had approximately twenty attendees out of forty-five. This variation in the size of the ESP class was reported, by the interviewee, to be due to three main reasons:	teachers was taking in charge two groups of 3rd year Licence students specialising in Physics and Application. This grouping was based on students' respective levels in English. French students' attendance to ESP courses was claimed to be regular and absenteeism very rare. The interviewees advocated two main reasons for this assiduity: - ESP learners are regularly assessed during ESP courses. The only mode of assessment in application in the Department of Languages is continual assessment, as stated by the LMD system. There is no final exam at the end of the semester so the students' final mark of the ESP module represents the average of all the tests set for during the whole semester. This mark will, therefore, be communicated to the Department of Physics. -The second reason favouring students' studiousness is strongly linked to the first one. Since learners are continually assessed, their presence to the ESP course is, then, obligatory. In fact, students' absences are strictly checked and

	-The teacher does not check or mention substantial students' absenteeism. Thus, they did not attend regularly ESP sessions. -The students were tested in English just twice a year, once at the end of each semester. **Algerian ESP Teacher**	one unjustified absence to one of the tests blocks totally the calculation of the concerned student's average and implies his or her adjournment. Both teachers noted that the fact of teaching these students in small groups was very beneficial for the learners as well as teachers. **French ESP Teachers**
Themes	Therefore, they centered their ESP course attendance on these two periods. -Because of other primary commitments of the ESP teacher, who is first a subject-specialist, ESP courses' time-tabling was sometimes disturbed and courses were sometimes advanced, postponed or reduced to one hour course only, even if this is contrary to learners' benefits.	It paved the way for a more learner-centred learning, made it easy to coordinate the different classroom activities and enhanced students' active participation in the learning process. The interviewees added that teaching small groups is also reassuring for teachers since it enables them to investigate more profoundly into learners' lacks and difficulties so as to provide adequate instruction and support in view of helping them to fulfil their target needs.
Students' level of competence and motivation	The teacher claimed that Students' irregular attendance and the constantly changing learning conditions tended to inhibit seriously the teaching/ learning process and affect negatively students' level in English and motivation. He replied that his learners were to be considered as	Both teachers estimated that their 3rd

Themes	Algerian ESP Teacher	French ESP Teachers
	beginners, in general. He linked this shortcoming to the absence of ESP teaching during 1st year Licence, on the one hand, and to the nature of the English courses provided during 2nd and 3rd year Licence. Nevertheless, the teacher added that there were few students with an intermediate level who made the exception, but their level did not improve as the courses proceeded. Concerning students' motivation, the teacher answered that most of them were highly motivated towards the ESP course by the beginning of the year. This was due to their awareness of the prominent place held by the English language to perform their target needs. However, the interviewee insisted on the fact that as the courses proceeded, the situation changed and the learners began to realize that the courses provided neither met their requirements nor catered for	year Licence students had an intermediate level in English and were motivated towards the ESP course. They linked these two facts to the type of ESP courses' content provided throughout the Licence as well as to the numerous facilities and help provided at the level of the Department of Languages

Themes	their lacks.	
Prior NIA to the ESP course	**Algerian ESP Teacher** He said that there was no prior NIA of the concerned students' target needs neither from the part of the administration nor from his part. He added that he had no time to undertake such a process because of his other commitments as a subject specialist in Physics.	**French ESP Teachers** Both teachers said that all the scientific streams' students sit for a Placement Test at the beginning of the academic year. The results of this test determine students' level of proficiency. Therefore, ESP learners are divided into small groups according to their level in English and according to the speciality they have undertaken in order to adjust ESP instruction according to their needs and lacks.
The Departments' provision of syllabuses and teaching aids	He answered negatively. The department of Physics does not provide any syllabus or teaching material for ESP teaching. This compelled him to have sometimes recourse to some already published materials taken from different sources but, they were not totally adequate to students' level and target needs. Other times, this teacher tried to	Both of them replied that there was no syllabus provided by their department and freedom was given to them to devise the suitable teaching materials according to the levels and needs of the students they were in charge of. However, these teachers declared that the overall course objectives and aspects to focus on throughout the whole year, for each level and each speciality, were set by the Department of

	devise and use his own materials but these were frequently, again, unsuitable for the type of learners he was in charge of. In other words,	Languages and this helped them a lot when designing their teaching materials. Moreover, and in order to help these teachers, and other French ESP ones, to fulfil
Themes	**Algerian ESP Teacher**	**French ESP Teachers**
	the content provided failed to cater for learners' needs and lacks.	their task and prepare their courses, the Department of Languages put at their disposal a set of teaching aids including scientific books, subject specific documents (i.e. lab- reports, research abstracts, published and unpublished articles, etc), press extracts, as well as some audio and audio- visual tools.
Course content and conduct	He answered that he focussed mainly on general scientific English, the presentation and explanation of the scientific jargon and the translation of texts or passages from French to English and vice versa. To do this, he relied essentially on providing handouts, to the students, containing General Science texts, followed by comprehension questions, some grammar practice then translation. He furthered by saying that he had not enough time to devise more elaborated	Both of them answered that this encompassed the practice of academic and scientific English necessary for scientists in general and Physicists in particular. To do this, these teachers reported using a diversity of teaching materials such as handouts for reading comprehension, grammar and word study practice, authentic lab-reports and scientific articles, genuine audio-visual presentations of Physicists and visual projections to enhance students' participation. As far as the language activities stressed on during teaching units are

Themes	and purposeful teaching material because of his other commitments as a **Algerian ESP Teacher**	concerned, both teachers stated dealing mainly with listening and reading comprehension, word study, structure study, language use **French ESP Teachers**
	teacher of Physics. As for the language activities planned for a given unit. He replied that he focussed essentially on listening and reading comprehension and that whenever he brought a new text for study, he read it many times to explain it to his students before asking them to answer comprehension questions. Therefore, this teacher used to focus mainly on the receptive skills of the language and gave little importance to the productive ones.	and language output. Regarding the importance given to each of the four language skills, the interviewees said that they tried to combine as much as possible between the four language skills during their ESP courses since all of them were of a relatively equal importance to fulfil students' target needs. However, both teachers added that they sometimes devoted entire sessions exclusively to the practice of the listening and speaking skills since these two aptitudes are causing some difficulties for their learners.
Teachers' opinions and suggestions about the weekly teaching time	He found that the ESP weekly teaching time was far from being enough to prepare adequately 3rd year Licence students to fulfill their target needs. The reason was that these students were undertaking specialisation in	Both teachers considered the weekly teaching time as being insufficient to fulfil students' target needs and be adequately prepared to fulfil specialisation in the field of Physics were the use of English is highly required. Consequently, the first teacher suggested two ESP sessions

	Physics and compelled to be in great contact with the	per week of two hours each, whereas the second teacher
Themes	**Algerian ESP Teacher**	**French ESP Teachers**
	English language to carry out their research. Accordingly, this teacher suggested two sessions of ESP instruction of one hour and a half a week.	proposed one hour of ESP instruction a day, five days a week.
Collaboration with subject- specialists	He declared that he was in regular contact with other subject teachers, especially those who have been in charge of ESP courses some years before, in order to discuss the difficulties faced to provide an attractive content, and his disillusion towards students' low level of performance in English. He added that even his colleagues used to face the same intricacies and linked this to their lack of experience and guidance as far as ESP teaching is concerned.	The first teacher stated that she tried to collaborate as much as possible with subject-specialists to update her course content and adjust it to the new demands of the students' different fields of expertise. The other teacher replied that, up to the moment of speaking, he had never collaborated with any subject teacher but based his teaching exclusively on the results of the Placement Test and the course objectives set by the Department of Languages. However, he did not exclude such a possibility for future practice.
Teachers' suggestions to improve the ESP teaching/ learning situation	He suggested the following: -Introducing ESP courses at the level of 1st year Licence. -Reviewing the weekly	Both teachers' suggestions turned mainly around: -Providing ESP courses at the level of 1st year Licence to provide more
	Algerian ESP Teacher	**French ESP Teachers**

Themes		
	teaching load at the level of 2nd and 3rd year Licence. -Appointing trained and well qualified ESP teachers to take in charge ESP courses. -Providing an appropriate syllabus designed on students' target needs as well as learning needs, to guide ESP teachers. -Making the students in contact with authentic uses of the target language. -Providing teaching aids, from the part of the department, such as audio-visual aids or ICT tools to enhance learners' motivation and promote effective ESP instruction.	ESP instruction and practice to Physics students and better prepare them to start specialisation at the level of 3rd year Licence and cope with the different requirements of the target situation. -Reviewing the teaching load at the level of 3rd year Licence, again because it is the year during which specialisation starts and during which students realise the significant relevance of the English language to fulfil their target needs. Thus, more training in the target uses of the English language is required.

Table 4.1: Algerian and French ESP Teachers' Answers

ii) Comparison and Interpretation of Results

In the present section of the work, the data collected from teachers' interviews, in the Algerian and French settings, will be contrasted and interpreted.

The ESP teacher involved in the Algerian case under study was a subject specialist in Physics, who received no ESP training and was in charge of two groups of 3rd year Licence students from two different specializations. The ESP teachers involved in the French situation under concern, however, were two experienced ESP

teachers who equally share the task of teaching ESP to four groups of 3rd year Licence students undertaking specialization in one speciality in Physics.

Therefore, it is clear that ESP teachers' qualifications are taken into account in France before appointing them to teach ESP. The situation is far from being the same in Algeria since as it was clearly stated by the head of the Department of Physics and the teacher interviewed, most of the teachers appointed to teach ESP in this institution, were subject specialists. Each two to three years, a new teacher was appointed to take in charge ESP students.

As regards the changes brought by the LMD system to ESP instruction in Algeria, the researcher realized that, apart from including ESP lectures at early stages in the curriculum, the situation is worse than its teaching under the classical system. In a previous research done by the investigator concerning the teaching of ESP in the classical system in the Department of Physics (Hemche, 2006), all ESP courses in this department were provided by language teachers holding either a Licence or a Magister in General English. Thus, these teachers were, at least, able to provide a variety of language activities, even if these dealt mainly with the general aspects of the target language, to maintain students' level of proficiency in English. With a teacher of Physics taking in charge language courses, variety of language activities and their proper practice are unlikely to happen. In other words, this Algerian ESP situation is rather disadvantageous as far as students' target needs are concerned.

The ESP French teachers interviewed expressed a concatenation of positive changes brought by the LMD system to ESP instruction in terms students' target needs consideration, the quality of teaching and the constant support and guidance offered by the Department of Languages to both ESP teachers and learners. To sum up this point, ESP teaching is still neglected in Algeria, as was the case in the classical system, whereas it is inciting a real attention and centeredness in French universities in view of ensuring teaching quality in its broad sense.

When questioned about students' attendance, level of competence and motivation, the Algeria ESP teacher stated that even if his learners had a relatively low

level in English, they were highly motivated to learn English because of the prominent role held by this language to fulfil their target needs. However, such motivation used to be displayed by the beginning of the year mainly. As the courses proceeded, it tended to diminish because of the nature of the content provided and this was manifested in students' repeated and frequent absences. In fact, these nonattendances were neither reported by the teacher, nor sanctioned by the Departments' administration.

Concerning French students' attendance, level of competence and motivation, both French interviewees replied that their learners' presence to the ESP course was regular. At this level, these teachers advocated that students' absences were repeatedly checked and reported to the administration which imposed severe sanctions. Moreover, these learners were taught ESP in small groups so great attention was given to their lacks and target needs to learn English. Consequently, they had a relatively intermediate level in English and were motivated towards the ESP course.

It appears at this level that students' motivation towards the language course is not a sufficient factor to guarantee their studiousness and progress. Being taught in large groups and irrelevant content tends to affect negatively students' motivation and, then, leads to repeated absenteeism and poor language proficiency, as is the case with Algerian students. However, a prior consideration of students' level of competence, to the ESP course, and the imposition of certain administrative measures, like sanctioning absenteeism, as is the case in the French context, would act as positive factors to sustain students' attendance and, hence, improve their level in the English language.

As far as carrying on a NIA prior to the ESP course is concerned, this process was not undertaken by the Algerian teacher whereas all French ESP learners sit for a Placement Test at the beginning of the academic year. This process aims essentially at determining students' level of language proficiency and, by the same way, their lacks as far as the target uses of the language are concerned, in order to design and provide adequate teaching materials. NIA is the departure point of all ESP teaching processes (see section 1.6.2.1). All ESP teachers have to follow this procedure before their

teaching in order to design an appropriate syllabus and select appropriate teaching materials that guarantee learners' centeredness.

Regarding the provision of teaching syllabuses and aids by the responsible departments, the Algerian teacher replied negatively and said that he was in total charge of designing and selecting the suitable teaching materials. To prepare their ESP courses, the French teachers, also, were not supplied any teaching syllabuses but the overall and final objectives of the ESP course were set by the department' administration and some teaching materials and aids were put at their disposal to help them devise their ESP courses.

In order to ensure harmony throughout the different types of teaching, syllabuses have to be provided by the head of departments to guide the teachers. ESP, as an approach to language teaching, has to obey the same principle. Therefore, ESP teachers should be guided in terms of teaching syllabuses and materials. This would facilitate their task, on the one hand, and ensure course relevance and effectiveness, on the other.

The fact of working without any guiding syllabus makes ESP teachers feel at a loss and devise unsuitable teaching materials and tasks which do not fit with students' target needs and lacks, as was the case of the Algerian ESP teacher under concern.

As for the French ESP teachers, and due to the general course objectives supplied by the department, their ESP courses' content was more narrowed and centered on teaching and practising the type of English necessary for scientists in general and physicists in particular, relying essentially on authentic uses of the English language. As for the importance devoted to the language skills, these teachers favoured the simultaneous combination of the four language skills to better prepare the learners cope with the target situation. At this level again rises the need of a teaching syllabus to guide teachers in general and particularly ESP ones, since learning objectives vary from one situation to another in this approach to language teaching.

All the three teachers interviewed consider that the weekly teaching time is insufficient to adequately accompany students throughout their specialization in

Physics. They all suggested reviewing the weekly teaching load and their propositions varied from three (3) to five (5) hours a week.

As far as teachers' collaboration with subject specialists is concerned, none of the three teachers interviewed excluded such a possibility. Whereas one of the French teachers stated having never collaborated with subject specialists, the Algerian and second French teachers declared having regular contact with physics' teachers to seek either advice or guidance. In this vein, Hutchinson and Waters (1987: 164) stress the importance of the constant cooperation between ESP and subject teachers, by stating: "the subject specialist can help the ESP teacher in learning more about the learners' target situation. At the same time the ESP teacher can make the subject specialist more aware of the language problems learners (and ESP teachers) face". In other words, these authors assert that both of the language and subject teachers are important actors in the teaching of ESP.

French teachers' suggestions to improve the prevailing ESP teaching learning situation turned mainly around increasing the teaching load of ESP courses during the three years of the Licence. The Algerian teacher, however, provided a list of suggestions articulated around the increase of the teaching load, considering students' target needs, lacks and wants, the appointment of well- qualified ESP teachers, the provision of appropriate syllabuses to guide ESP teachers, and the provision of more teaching aids to expose the learners to authentic uses of the language.

It is worth recalling at this level that the interview was held with ESP teachers in the Algerian and French settings out of the desire to answer the four research questions set by the investigator at the beginning of her work. Therefore, the different data gathered and suggestions set by ESP teachers in both contexts give an idea about the type of changes brought by the LMD system to ESP instruction, in Algeria and France. Whereas in the French context, enough changes have been brought to ESP instruction in terms of placement tests, class size, teachers' training, teaching materials, aids and multimedia tools; teaching ESP in Algeria has not yet been given its due- status. This has been clearly displayed in the appointment of unqualified teachers to provide ESP courses, the unfavourable learning conditions, the irrelevant

teaching materials as well as methods used. Consequently, the changes brought to ESP instruction under the LMD system cope with students' target needs in France and fail to cater for Algerian students' requirements since ESP teaching is not undertaken in the same way in these two countries. Consequently, ESP teaching in Algeria has to receive more attention by providing the adequate adjustments to reach teaching quality and course effectiveness. This could be done by reconsidering the ESP teaching staff, teaching materials, learners' target needs, learning conditions as well as providing the appropriate up-to-date facilities that promote effective learning and enhance learners' autonomy.

4.3.2.2. Students' Questionnaire

Students' questionnaire was designed in order to elicit more information necessary to the present situation analysis. It seeks to check if the changes brought by the LMD system cope with students' target needs, in Algeria and France, if ESP instruction provided in Algerian and French universities, under the LMD system, is similar or different, and to obtain students' suggestions in order to improve ESP instruction in both settings. The questionnaire was distributed to 3rd year Licence students in Physics in the Faculties of Sciences at the Universities of Tlemcen and Paris-Sud, respectively.

i) Analysis

The data obtained from the students' questionnaire in both settings is the following:

Question 1: Students' gender

The quantitative analysis of Physics 3rd year Licence students' gender in both settings revealed that the number of male students undertaking specialisation in Physics stands relatively high compared to female proportion. These results are summarised in the tables below:

Algeria	France

Frequencies / Sex	**AF**	**RF**	**AF**	**RF**
Male	28	62,22%	30	60%
Female	17	37,78%	20	40%
Total	45	100%	50	100%

Table 4.2: Students' Sex Partition in the Algerian and French Contexts

Question2: Students' age

The students under concern in the Algerian context are aged between nineteen (19) and twenty five (25) years old whereas those involved in the French context are aged between nineteen (19) and twenty eight (28) years old.

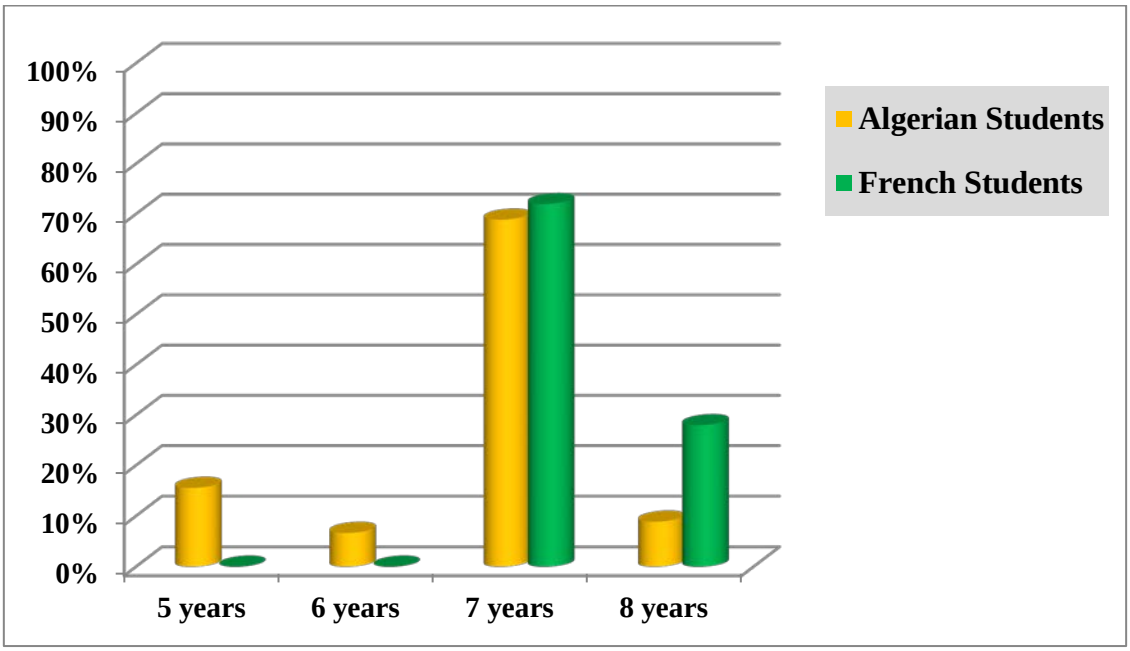
Question 3: English learning before university

Students' English learning experience before university is summarised in what follows:

	Algeria		**France**	
Number of Years	**AF**	**RF**	**AF**	**RF**
Five years	7	15.15%		

Six years	3	06.67%		
Seven years	31	86.89%	36	72%
Eight years	4	08.89%	14	28%
Total	45	100%	50	100%

Table 4.3: English Learning before University in the Algerian and French Contexts



Bar-Graph 4.1: English Learning before University in the Algerian and French Contexts

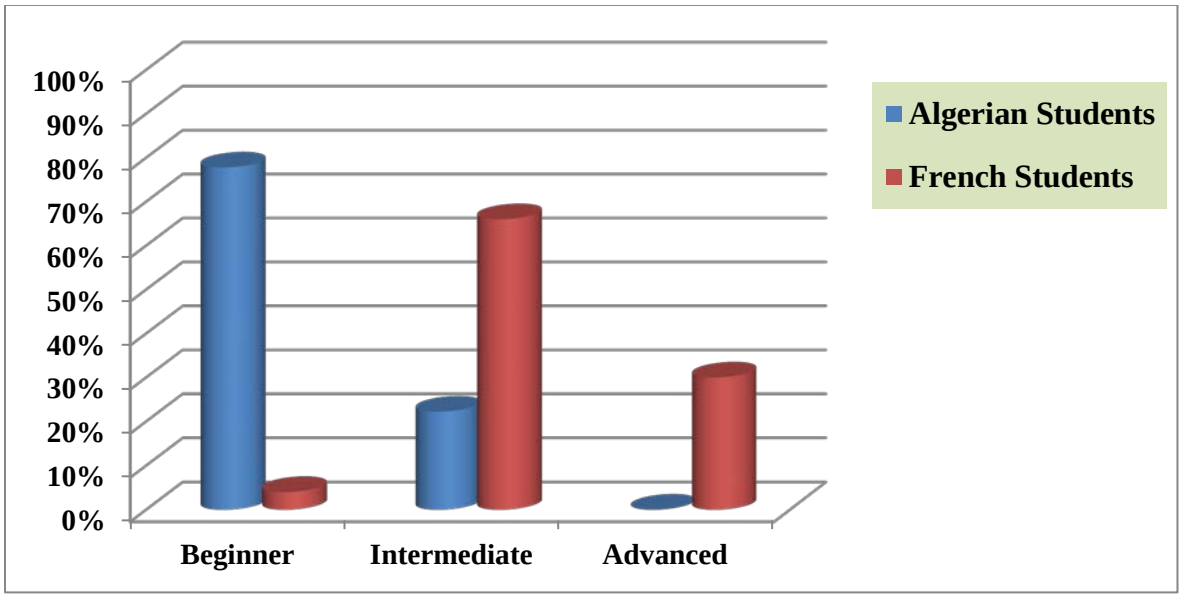
Students' English instruction before university does not differ too much from one context to the other. Algerian students' exposure to this language prior to university varies from five (5) to seven (7) years whereas French students' exposure varies from seven (7) to eight (8) years. However the major frequency in both settings is of seven (7) years of English instruction before university.

Question 4: Students' self assessment

Students' self evaluation in English differs from one context to the other and is summarised in the tables and pie-charts below:

	Algeria		**France**	
English Proficiency level	**AF**	**RF**	**AF**	**RF**
Beginner	35	77.78%	02	04%
Intermediate	10	22.22%	33	66%
Advanced	0	0%	15	30%
Total	45	100%	50	100%

Table 4.4: Students' Self Assessment in the Algerian and French Contexts



Bar-Graph 4.2: Students' Self Assessment in the Algerian and French Contexts

The table and figure above show that most of the Algerian students (77.78%) consider that they have a beginner level of English despite the provision of ESP courses at the level of L2 and L3 levels. The rest of them (22.22%) evaluate themselves as having an intermediate level in English. Thus, none of the Algerian students admit that they have an advanced level.

In the French context, facts are somehow divergent. A minority of the students (4%) think that their level in English is weak, while the majority (66%) consider themselves as intermediate. Besides, a considerable proportion of the students (30%) judge that they have an advanced level in the English language.

Question 5: Students' motivation

As far as this affective variable is concerned, all of the students without any exception in both settings expressed their motivation to learn English and linked this with the importance and relevance of the English language to fulfil their immediate and future target needs.

Questions 6 and 7: ESP course attendance

Algerian Students	French Students
Physics students at the University of Tlemcen claimed that the total number of 3rd year Licence students supposed to take ESP courses was forty-five, since learners from both specialities are taught ESP together. However, the real number of students attending ESP courses varies from fifteen (20) to twenty (25).	At the University of Paris-Sud, the students replied that the total number of 3rd year Licence students in the speciality under concern was fifty (50) and all of them attended ESP courses.

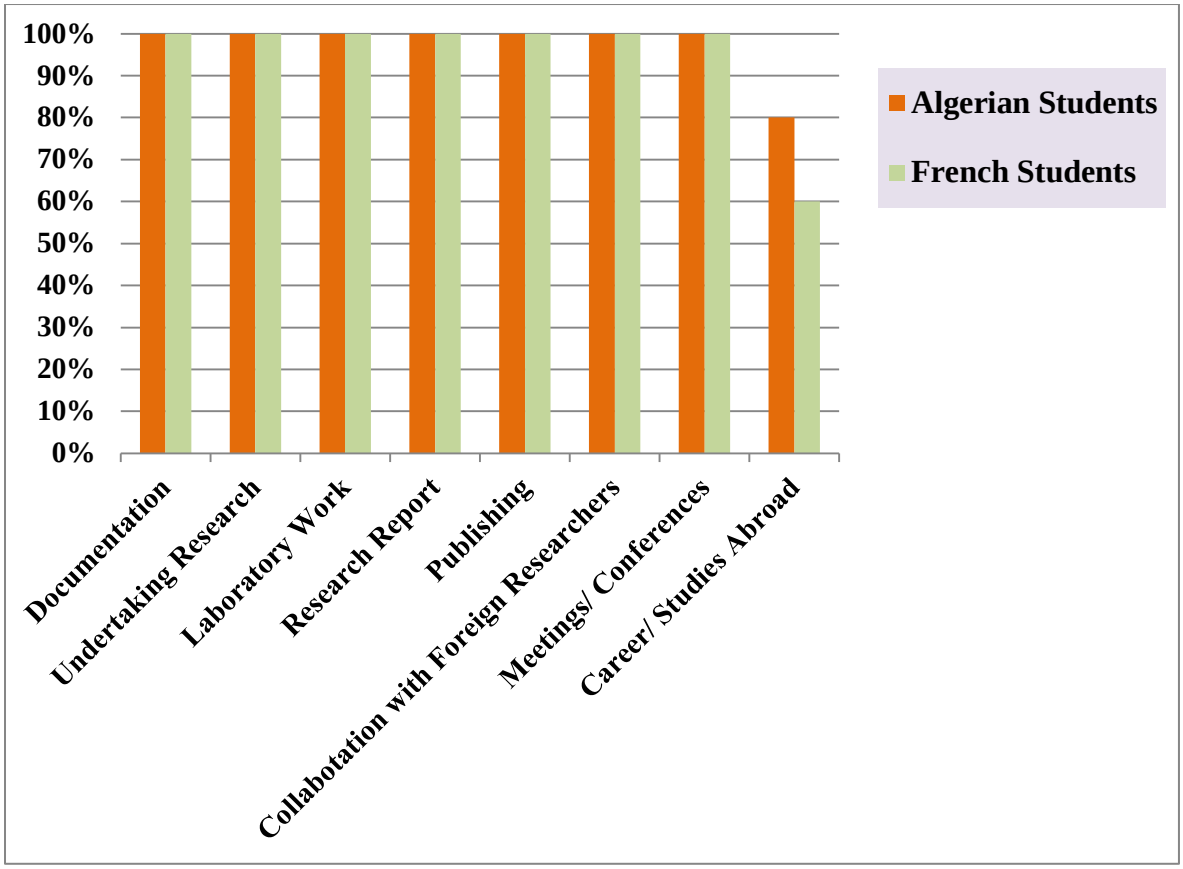
Table 4.5: ESP Course Attendance in the Algerian and French Contexts

Question 8: Students' target needs from the English language

In both contexts, the students questioned expressed a concatenation of needs as far as the use of English in the target situation is concerned. Their answers are summarised in the following points:

- Extracting information
- Undertaking research
- Manipulating materials and products in research laboratories
- Reporting research
- Publishing research in international journals
- Working in collaboration with foreign researchers
- Taking part in scientific meetings and conferences
- Pursuing one's career (further studies and/ or research) abroad.

Algerian and French Students' ratios as far as these answers are concerned are summarised in the following bar-graph:



Bar-graph 4.3: Students' Target Needs from the English Language in the Algerian and French Contexts

Question 9: ESP course content at the level of 2nd year Licence

Both Algerian Physics students and French ones had ESP courses at the level of 2nd year Licence. However, their replies concerning the content provided at that level differed a lot.

Algerian Students	French Students
They said that they dealt mainly with the translation of some scientific words from English to French. Moreover, they were sometimes given general English texts to read, and then answer some comprehension questions.	They reported that this course focussed mainly on: - A review of English grammar. - An introduction to basic scientific English vocabulary and structures. - The practice of the reading skill on actual scientific topics. - Summarising short and long scientific passages. - Writing a Curriculum Vitae. - The steps to follow when writing a scientific article. - Debating about some research articles in Physics. - Listening to scientific audio recordings in the field of Physics.

Table 4.6: ESP Course Content at the level of 2nd Year Licence in the Algerian and French Contexts

Question 10: ESP course content at the level of 3rd year Licence

Algerian Students	French Students
All of them replied that 3rd year Licence ESP courses turned mainly around: - Reading scientific texts.	The content provided to these students revolved around: - The study and use of the vocabulary

Algerian Students	French Students
- Answering reading comprehension questions. - Translating scientific texts from English to French and vice versa.	related to the field of science in general and Physics in particular. - Dealing with the phonetic transcription of scientific and subject-specific words. - Using authentic texts to deal with reading comprehension, lexis study, grammar practice and sentence structures. - The study of the structure of Physics' scientific reports, articles and dissertations. - Presenting orally free topics related to Physics or to the specialisation undertaken. - Presenting lab-reports. - Debating on some scientific viewpoints and novel findings. - The practice of note-taking - Listening to scientific presentations of native speakers - Watching audio-visual documentaries.

Table 4.7 : ESP Course Content at the Level of 3rd Year Licence in the Algerian and French Contexts

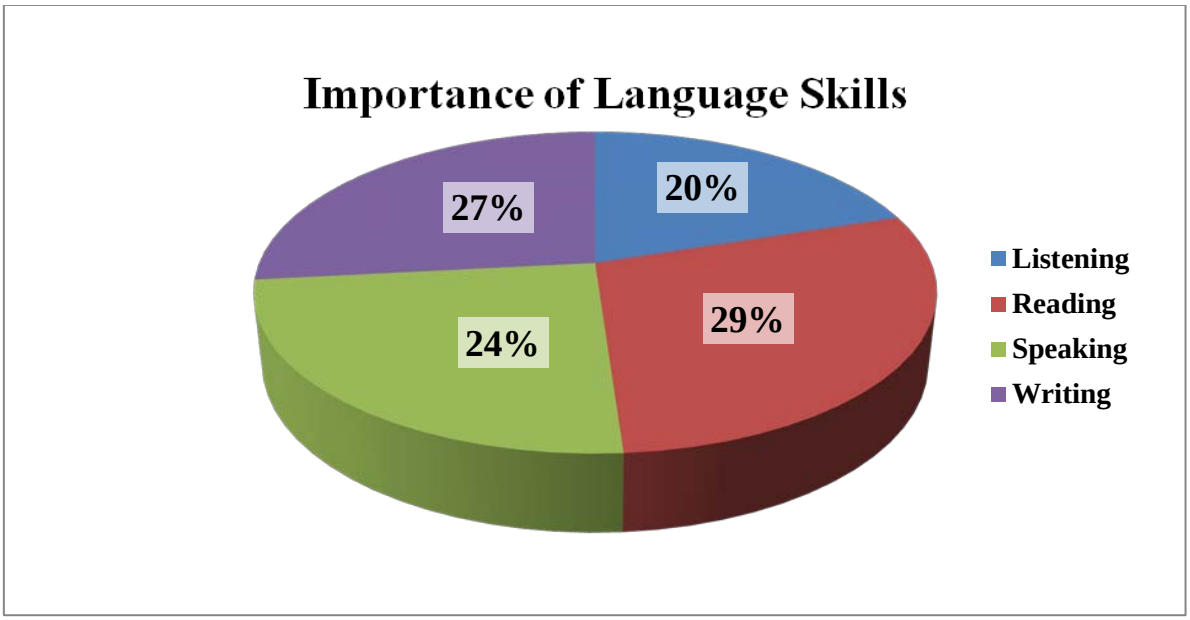
Question 11: Students' appreciation of 3rd year Licence ESP courses

Algerian Students	French Students
All of them replied that they did not appreciate at all the English courses provided at this level because they were still faced with a lot of difficulties as far as the use of the English language to fulfil their needs was concerned. They claimed that the content provided was uninteresting both in terms of themes and activities and added that the fact that all the courses were built upon the same pattern made them monotonous and boring.	Most of the students expressed their satisfaction with the type of ESP content provided at this level arguing that it fitted perfectly with the type of practices they needed to perform in English to fulfil their target needs. Besides, the majority of them highlighted the positive effect of studying in small groups upon their progress.

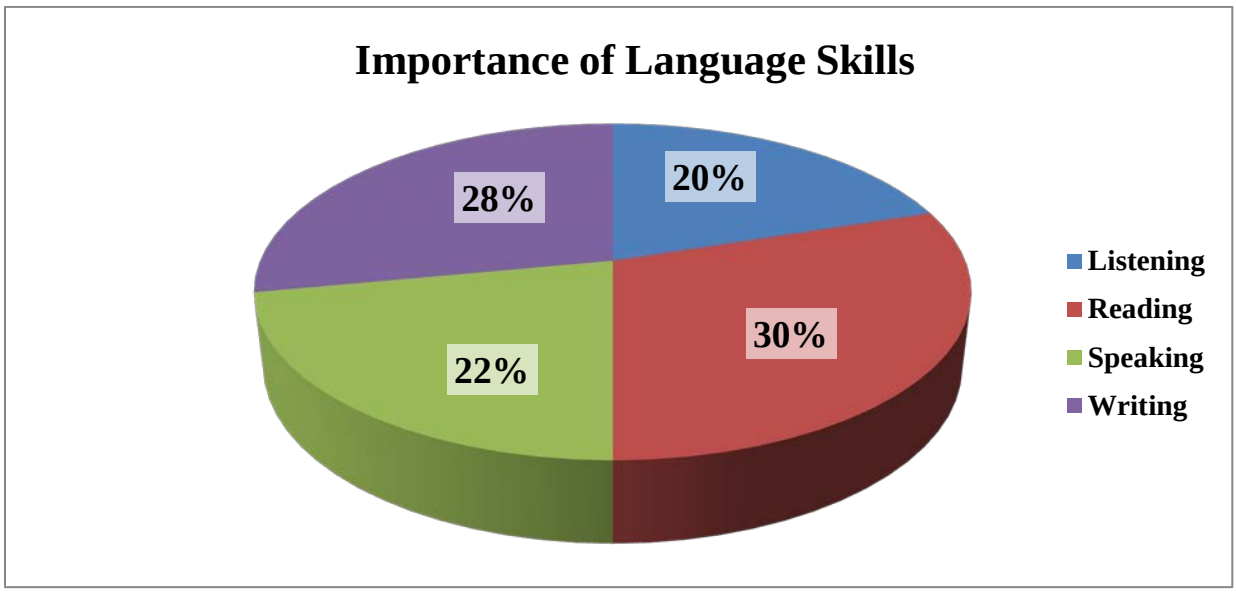
Table 4.8: Students' Appreciation of 3rd year Licence ESP Courses in the Algerian and French Contexts

Question 12: Classification of the four language skills in terms of importance

The students were required to grade the four skills in terms of importance to fulfil their target needs in English. Their answers gave the following ratios:



Pie-Chart 4.1: Classification of the Four Language Skills in Terms of Importance in the Algerian Context



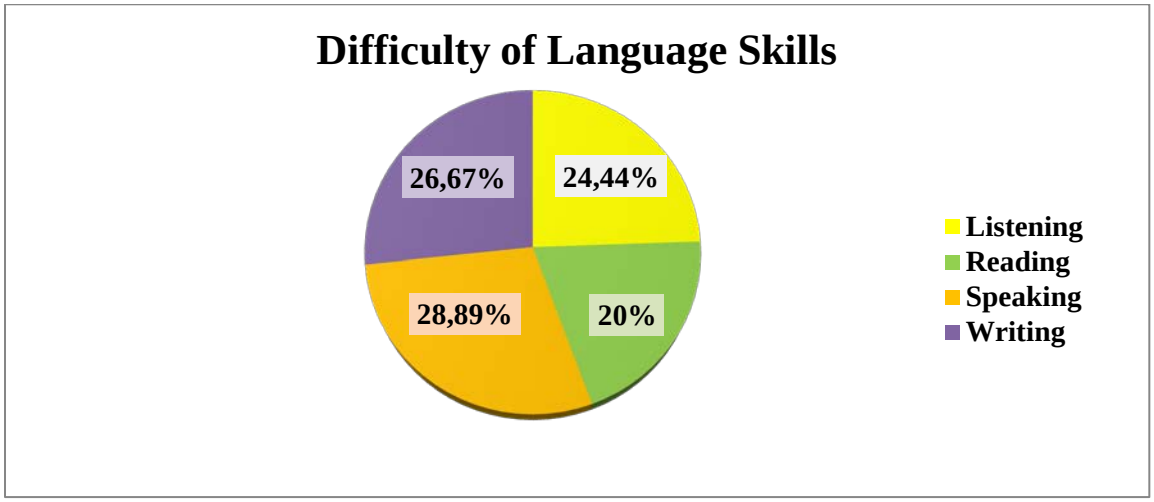
Pie- Chart 4.2: Classification of the Four Language Skills in Terms of Importance in the French Context

It appears clearly from the bar-graph above that the four language skills have nearly the same degree of importance to fulfil students' target needs in both settings. Nevertheless, reading comes first since it was attributed the highest percentage. Writing comes in the second position. As for the speaking skill, it is placed in the third

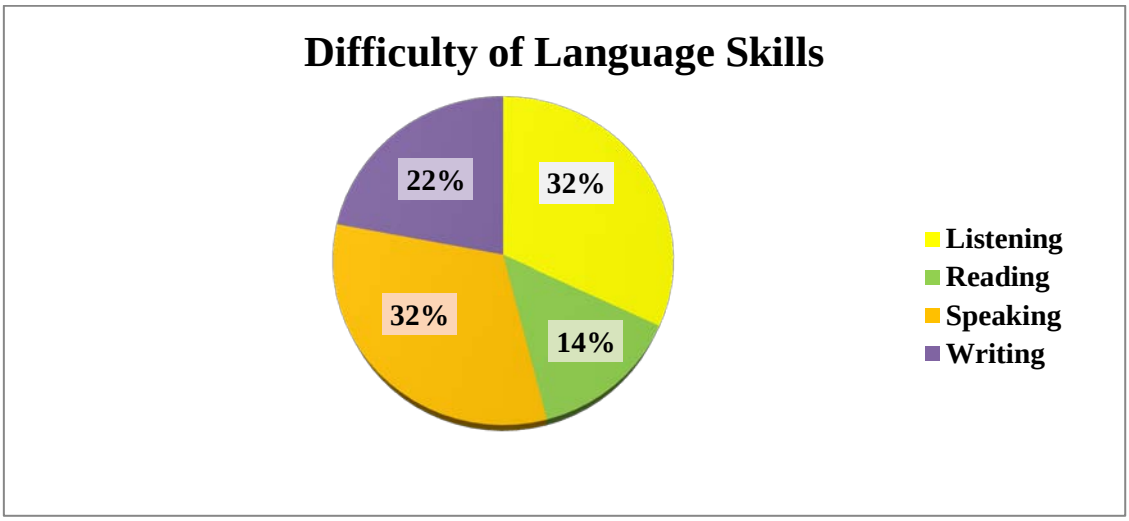
position slightly above listening which was given the lowest ratio. These results revel, therefore, that language receptive skills are as important as the productive ones to meet learners' needs.

Question 13: Classification of the four language skills in terms of difficulty

Classification of the four skills in terms of difficulty in the Algerian and French settings is summarised in the pie- charts below:



Pie- Chart 4.3: Difficulty of Language Skills in the Algerian Context



Pie- Chart 4.4: Difficulty of Language Skills in the French Context

The results show that the majority of Algerian learners have difficulties with the four language skills. Slight differences are noted in terms of percentages since the productive skills of the language, i.e., speaking and writing, were given the highest ratios of 28.89% and 26.67% respectively. Nevertheless, a considerable number of these learners have problems with the receptive skills since listening constitutes a difficulty for 24.44% of them and reading for 20%.

As far as French students are concerned, these have expressed equal difficulties with both the listening and speaking skills which have been attributed the ratio of 32% each. 22% of these students have difficulties with writing and the remaining 14% with reading.

In view of their importance to fulfil students' target needs, appropriate training in these language skills represents an urgent need to cater for learners' difficulties. Such a practice should be integrated in the production and design of teaching materials.

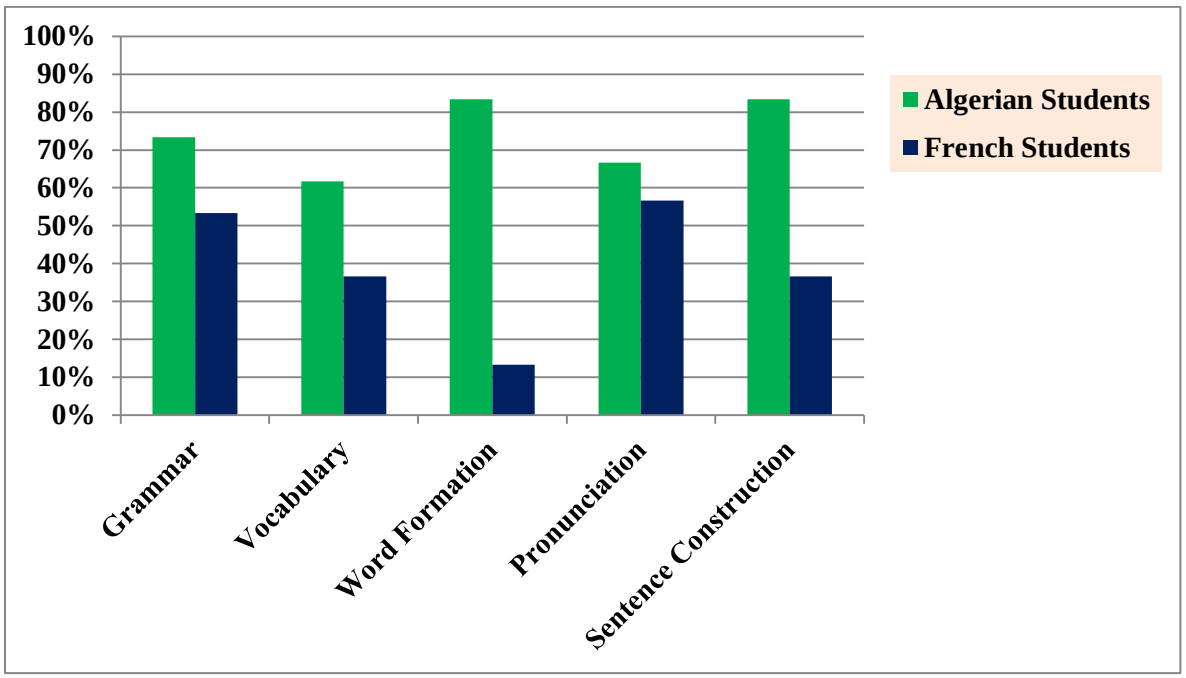
Question 14: Other difficulties encountered in English

Concerning this question which seeks for the difficulties encountered by students when using the English language in terms of grammar, vocabulary, word formation, pronunciation and sentence construction, the answers for both settings are summarised in the following table then bar-graph:

Algerian Students	**French Students**

Areas of Difficulties	AF	RF	AF	RF
Grammar	35	78%	23	46%
Vocabulary	25	56%	16	32%
Word Formation	35	78%	4	08%
Pronunciation	27	60%	25	50%
Sentence Construction	35	78%	16	32%

Table 4.9: Other Difficulties Encountered in English in the Algerian and French Contexts



Bar-Graph 4.4: Other Difficulties Encountered in English in the Algerian and French Contexts

The data represented on the graph shows that Algerian and French 3rd year Physics students have problems with the same aspects of the English language but

with varying degrees. Besides, the data collected displays clearly that Algerian students encounter more difficulties with the English language than French students, during this year.

Question 15: Students' opinions on the weekly teaching time

Algerian Students	French Students
All Physics 3rd year Licence students at the University of Tlemcen, with no exception, replied that one session of one hour and a half a week, frequently reduced to one hour only, is far enough from being sufficient to improve their English level and satisfy their needs. Moreover, when asked to suggest a weekly ESP teaching time, the majority of the students answered at least three hours a week.	Physics 3rd year Licence students at the University of Paris-Sud all shared the same view and found that one ESP session of two hours, a week, was sufficient to adequately prepare them to fulfil their target needs.

Table 4.10: Students' Opinions on the Weekly Teaching Time

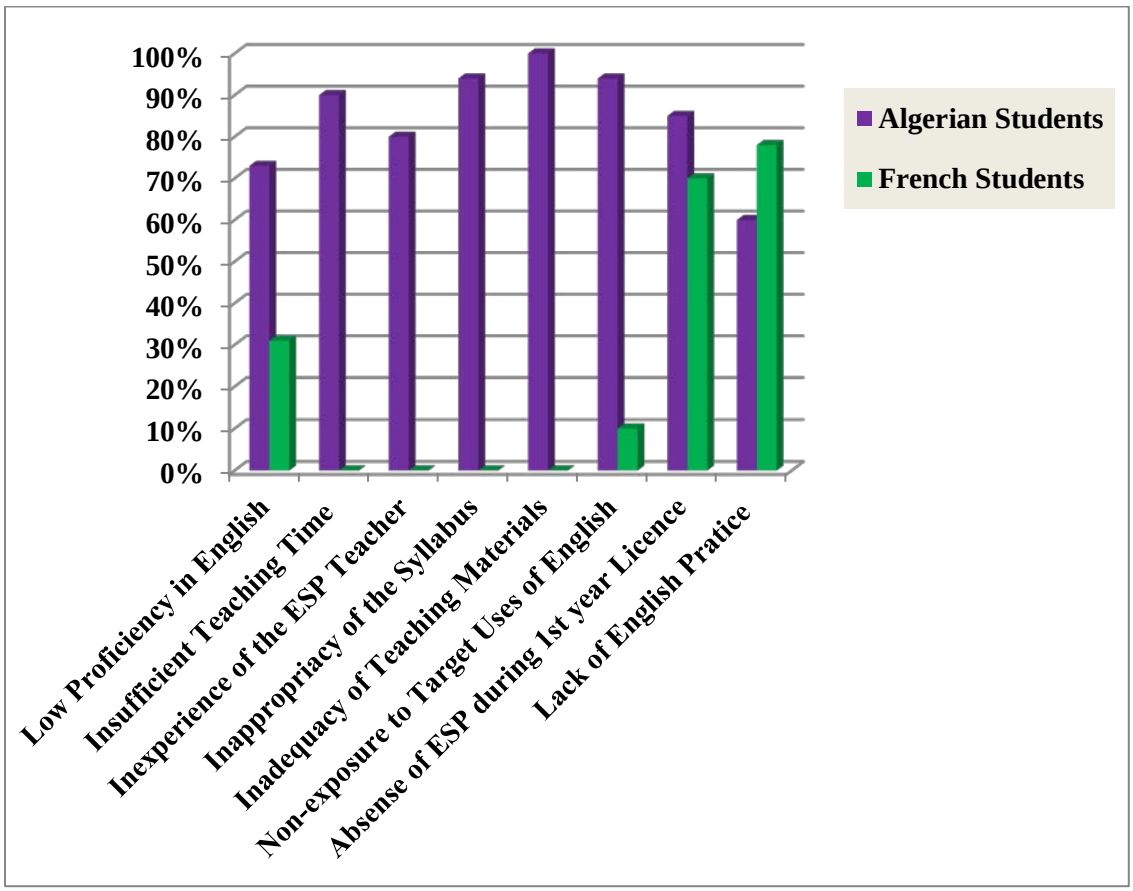
Question 16: The causes of the problems encountered in English

While most French students linked their difficulties in the English language to their low proficiency level, Algerian students cited, in addition to these two factors, the following reasons:

- The inexperience of the ESP teacher.
- The lack of an appropriate syllabus to guide the ESP teacher.
- The inadequacy of the course content provided.

- The non- exposure to and practice of the target uses of the English language.

Students' answers to this question in both settings are represented in the following bar-graph:



Bar-Graph 4.5: Causes of the Problems Encountered in English in the Algerian and French Contexts

Question 17: Students' recourse to out-of- classroom services to cater for their needs

In view of the various lacks encountered by the learners, they were asked if they had recourse to any alternatives in order to fulfil their target needs. Their answers are summerised in the table below:

Algerian Students	French Students
Most of the Algerian students under concern reported that they relied highly on the help of some friends and teachers from the Department of Foreign Languages and mainly from the English or Translation sections. Some of them stated that they resorted to the use of the Internet to translate some passages or full articles from English to French to be able to understand them or to use the information they contain in their own research. Others added that they have subscribed, from the beginning of the year, in private institutions which provide scientific English courses.	Not all of the French students involved in this study expressed the need to resort to out-of classroom services to fulfil their target needs. However, those who did such stated that they received all the help required at the level of the University's Department of Languages which offers various services and facilities to assist the learners throughout their different learning processes. These facilities encountered the multimedia center, English conversation sessions with native speakers and debates on the various scientific and daily-life issues.

Table 4.11: Students' Recourse to out-of- Classroom Services to Cater for their Needs

Question18: Students' remarks and suggestions to improve the current ESP teaching/ learning situation

Algerian Students	French Students
Algerian students' suggestions revolved around the following points: ▪ Introducing ESP courses at the level of 1st year Licence to have a continuous and longer exposure to the English language. ▪ Reviewing the weekly teaching time allocated to the ESP course during 2nd and 3rd year Licence. ▪ Reviewing the content of ESP courses during 2nd and 3rd year Licence and adjust it to students' target needs. ▪ Taking into account students' actual level in English as well as target needs to ensure content relevancy. ▪ Adequate exposure to and use of English to be able to fulfil target needs. ▪ Appointing trained and well qualified teachers to take in charge ESP courses. ▪ Providing more facilities at the level of the Department in terms of learning books, teaching aids and multimedia tools to support students' learning and progress. ▪ Helping ESP teachers by bringing some authentic uses of the language they are confronted to for study in order to know how to handle such uses correctly.	Most French students' suggestions turned around introducing ESP courses at the level of 1st year Licence to avoid having a cut of one year with the English language.

Table 4.12: Students' Remarks and Suggestions

ii) Comparison and Interpretation of Results

The data gathered through the questionnaires administered to Algerian and French Physics 3rd year Licence students will be compared and interpreted accordingly.

Most of L3 Physics students involved in both settings are males. Their age generally varies from nineteen (19) to twenty-eight (28) years old. Therefore, these learners are supposed to be old enough to be aware of their English target needs and learning purposes.

As far as Algerian and French students' exposure to the English language prior to university is concerned, the average is of seven (7) years in each setting. So the learners involved in the present study, in both settings, are supposed to have the same English language background. However, when these students were asked to self-evaluate their actual level in the English language, the majority of Algerian students considered themselves as beginners, whereas most French students estimated having an intermediate level in the English language. This implies that the type of English instruction provided in each of the two settings, during the Licence degree, i.e. during 2nd ad 3rd year Licence, is not the same and this has a direct impact on students' actual level of competence in the target language.

Despite this variation in Algerian and French students' level of competence, both of them expressed their motivation to learn English because they were highly aware of the necessity to be able to function correctly in this language in order to fulfil their target needs.

However, such motivation towards the English language is not equally influencing students' attendance to the ESP course in the two settings under concern. Whereas French students' presence to this course is regular and total, Algerian students' attendance is less significant since more than half of the group were often absent during the ESP course. This difference in terms of students' presence between the Algerian and French settings is directly linked to the type of content provided during ESP sessions. In fact, when the learners see the direct link between their target

objectives and the course content, they are eager to learn. The opposite case leads to opposite results.

As far as students' target needs from the English language are concerned, Algerian and French students' responses converged a lot and turned around the same target uses. Therefore, Physics 3rd year Licence students, in both contexts, share the same target needs and communicative functions in the English language under the harmonized LMD system.

The LMD reform aims at synchronizing the higher education system throughout many parts of the world and this has been noticed regarding the provision of ESP courses at the level of the Physics Licence degree since, in both contexts, ESP courses are provided during 2nd and 3d year levels. However, this equal provision of ESP instruction at these two levels to both Algerian and French Physics' students did not imply equality in terms of the language content and practices provided. Indeed, whereas the ESP instruction offered to Algerian students during these two years focussed mainly on reading then translating general and scientific English texts, a certain variety and gradation of content was noticed as regards the ESP content provided to French students during these two years. Their 2nd year ESP courses focussed mainly on reviewing English grammar, an introduction to basic scientific vocabulary and structures as well as an introduction to the uses of the four language skills as required in the target situation. During the third year, the ESP course content and practice, in the French context, became more centred on the uses of the English language needed during students' specialization. The English course was also more varied and developed in terms of the macro and micro skills needed in the field of Physics.

As previously stated, the type of content provided during ESP sessions has a great influence on students' appreciation of the English course. On the one hand, the Algerian students under concern expressed clearly their dissatisfaction with the nature of the ESP courses offered to them, arguing that they were built upon a monotonous and boring pattern, which failed to cater for their needs, lacks and wants. This fact had a great impact on students' ESP course attendance. On the other hand, the French

students were satisfied with the overall ESP content provided to them, stating that it helped them a lot to handle the target uses of the language required during their specialisation. Accordingly, French students' attendance to ESP courses was regular.

As soon as Physics' students start specialization in this field, the real need for the English language arises. The data analysis revealed also that the students concerned in both settings need, nearly equally, all of the four language skills to fulfil their target needs, with reading coming first, followed by writing, speaking then listening. Nonetheless, these students still face some hindrances with these language aptitudes. To be more precise, Algerian students' areas of difficulties fall within the four language skills even if the latter have placed the productive skills first, followed by the receptive ones. French students also face problems with these aptitudes, especially listening and speaking, then writing. As regards reading, these learners seem to keep a certain control over this skill.

Algerian and French students share further areas of difficulties in English concerning grammar, vocabulary, word formation, pronunciation and sentence construction, but with varying degrees since Algerian learners display more lacks in these areas than the French ones. These areas of difficulties mirror the degree of efficiency and relevance of the type of ESP content provided to each sample population and confirms once again that the type of ESP instruction provided in Algeria and France is different, since students, in these two situations, are not prepared in the same way to deal with the common target uses of the English language. Thus, these data should be taken into account to determine the type of language and practice that have to be integrated in the design and production of adequate teaching materials for Algerian students.

When asked about the main reasons lying behind their difficulties in the English language, French students mentioned their own level in the language. To these causes, Algerian students added ESP teachers' inexperience, the inappropriacy of the teaching materials and lack of practice of the target uses of the language. These facts show, once again, that ESP teaching under the LMD system in Algeria does not cope at all with students' actual target needs.

As regards the insufficient ESP teaching load, Algerian students stated having recourse to some out of classroom services to cater for their lacks such as English students and teachers and the internet. For French students, however, two hours ESP instruction per week were enough since, on the one hand, these courses were adjusted to their levels and needs and, on the other hand, constant help was offered at the level of the Department of Languages which made at their disposal many means to support and sustain their English learning and progress. These covered the Multimedia Center, conversation sessions, debates and preparation for different proficiency level tests such as the TOEIC, TOEFL and BULATS tests.

When invited to add any remarks or suggestions in view of improving the current ESP situations in both settings, French respondents suggested mainly the provision of ESP courses at the level of the first year of the Licence to avoid having any cut with the English language. As far as Algerian students are concerned, their suggestions included a better consideration of their target needs, introducing ESP courses at the level of 1st year licence, the review of 2nd and 3rd year ESP course content and conduct, the appointment of qualified ESP teachers and the provision of the necessary teaching aids.

In other words, Algerian students are, through their suggestions, in search for more quality and more relevance as far as ESP instruction is concerned.

On the whole, the questionnaire administered to Physics third year Licence students in the Faculties of Sciences at the level of the Universities of Tlemcen and Paris-Sud, respectively, helped to establish, in both settings, a complete profile of students' target needs, on the one hand, but also a full report of their main lacks and areas of difficulties. By contrasting these two profiles in the two contexts under concern, the researcher discovered that while ESP instruction seems to cope with students' actual needs in French universities, the situation is far from being the same in Algerian ones, since Algerian students are still faced with a lot of hindrances which prevent their ESP learning from being effective. This implies that ESP instruction provided in Algerian and French universities is not similar but different. The data gathered from the questionnaire has also given the researcher an idea about

the type of changes and remedies that have to be brought to ESP instruction in Algeria so as to cope with students' target needs and reach course effectiveness and teaching quality, as formulated by the LMD system. These

Cover the consideration of students' proficiency level and target needs in English, the introduction of ESP courses at an early stage at the level of the Licence, the design of suitable teaching materials, the provision of the required teaching aids and facilities, and most importantly, the appointment of well qualified ESP practitioners to take in ESP courses.

4.3.2.3. Classroom Observation

In order to seek information about what was actually happening in the two teaching/ learning situations under concern, with the aim to sort out the main changes brought to ESP instruction under the LMD reform, check their relevancy to students' target needs, and compare between the types of ESP instruction provided in each setting with the hope to improve ESP teaching in Algeria, the researcher used a third tool: classroom observation. The observation process lasted four weeks with one hour and a half observation session a week in the Algerian context and two hours in the French context. It focussed on Physics 3rd year Licence students undertaking specialization in Energetic Physics and Materials, and Physics of Gas and Plasma at the University of Tlemcen and those undertaking specialization in Physics and Application at the University of Paris- Sud. The data gathered from classroom observation will be analysed accordingly.

i) Analysis

To fulfil classroom observation, the researcher developed an observation grid (see Table 3.6), based on Nunan's COLT scheme (1992). This scheme is made up of two parts namely Classroom Activities and Classroom Language. The analysis of these two parameters in the two settings under concern is provided in what follows:

In the French context, the ESP course activities did not have a fixed pattern. They covered on the whole reading comprehension; semantic, morphological and phonetic word study; grammar practice, writing summaries or reports, listening to authentic uses of the target language, commenting on some scientific or daily life situations; debating on and exchanging viewpoints and simulations (role playing).

A/ Classroom Activities

The analysis of classroom activities stressed on four main aspects, namely: teaching materials, content' specificity, activity type and participants' organization, and is provided in the table below:

Classroom Activities	Algerian Context	French Context
Teaching Materials	Throughout the whole duration of the classroom observation process, Algerian students were presented to the same type of teaching materials by the ESP teacher. These were handouts, containing texts in general science followed by some activities.	During the same process in the French context, the teaching materials were very diverse since both French ESP teachers used to rely on different teaching materials during a single session. These varied from handouts containing texts related to the speciality, lab-reports, scientific articles followed by comprehension, phonetic, grammar,
Classroom Activities	**Algerian Context**	**French Context**
		vocabulary and written production practice. These teachers also used audio-visual presentations from international conferences

		held in the field of Physics in order to develop learners' receptive and productive skills.
Content' Specificity	The themes presented for study in the Algerian setting were related to general science like "the earth movement", "the different types of matters" and "plants' growing process". In one session, however, the teacher brought a text about "Volume", one of the topics of General Physics.	In the French context, the themes studied through the different materials used revolved around General Physics, such as "the properties of air" and "matter and volume", as well as students' own specialization, like "magnets and the "electric bell", depending on the task and the skill(s) focussed on.
Activity Type	During each of the ESP sessions observed, the students used to listen to their teacher reading the text provided, at the beginning of the lecture. After that,	In the French context, the ESP course activities did not have a fixed pattern. They covered on the whole reading comprehension, phonetic practice of
Classroom Activities	**Algerian Context**	**French Context**
	they were asked to answer some reading comprehension questions. As a final step of the lecture, they were compelled to translate the text studied into French or	technical vocabulary, morphological word study, grammar practice, writing summaries or reports, listening to authentic use of the target language, commenting on some

Participants' Organization	were provided another passage in French to translate into English.	scientific or daily life situations; debating on and exchanging viewpoints and simulations (role playing).
Classroom Activities	The Algerian teacher used to work with the whole group and be at the expectation of every student. The Algerian students present during the observation process displayed a certain motivation throughout the activities they were compelled to do during the ESP course. Even if they claimed that the ESP courses had a monotonous model, these students said that the relevance of English to fulfil their target needs compelled them to attend these courses to get the benefits provided, even if they were least, as they specified. Thus, these students were following their teachers' explanations and doing the activities	In the French context, the whole work was shared between the ESP teachers and their learners. At this level, also, the teachers tried to work with all the students who took actively part of the lectures, and of all the activities and tasks provided for practice.
	Algerian Context	**French Context**

	assigned. However, the researcher noticed that students' participation during the ESP course was limited to inquiring about the meaning of difficult words and answering the questions provided in the handouts.	

Table 4.13: Observation of Classroom Activities in the Algerian and French Contexts

B/ Classroom Language

The observation of classroom language focussed on four aspects which are: use of the target language, discourse initiation, language output, and difficulties encountered by teachers and learners. Their analysis is provided in the following table.

Classroom Language	Algerian Context	French Context
Use of the Target Language	Except using English when answering comprehension questions and reading the translated passages from French to English, the majority of Algerian students under concern resorted to using French and/or Arabic when asking for	French students made too much use of the English language. Such use was constantly encouraged by their ESP teacher and by the type of tasks and activities provided during ESP courses. Furthermore, the researcher observed that

	clarification from their ESP teacher or communicating between themselves during ESP sessions.	whenever a student initiated his speech using French, his teacher immediately recalled him to use English and helped him to convey the intended idea in that language. However, the investigator depicted some instances where the students were using French to communicate between themselves when reflecting on some assignments.
Discourse Initiation	When explaining the text under study or dealing with comprehension questions, the Algerian teacher tried, from time to time, to elicit further information from his learners to encourage them to speak in English. However, the majority of these students used French or	French students seemed less frustrated as far as initiating discourse in English is concerned. Plenty of opportunities were offered to make them speak in English and their reaction was always positive. Even if some of them had difficulties to form complete
Classroom Language	**Algerian Context**	**French Context**
	some English words, used in isolation to answer. The teacher often tried to obtain full simple sentences in English, but the students' reaction was completely negative. Thus, it appeared clearly that these students had a poor language	sentences, all of the students showed enthusiasm and motivation towards the use of English to fulfil some tasks such as debating, expressing points of view, commenting on some situations and role playing, among others.

	level, even if the overall course content revolved around general science and used simple structures.	
Language Output	Except translating passages from French to English, Algerian students did not present any other personal production in English, whether written or spoken during the whole observation process.	The nature of the content of ESP courses provided in the French contexts under study put nearly equal importance on the practice of the four language skills. Oral and written productions, however, represented an integral part of ESP courses. These took different forms such as summarising texts, presenting lab reports, describing an experiment, defining new concepts, debating on different scientific viewpoints.
Difficulties Encountered by Teachers and Learners	Both of the Algerian ESP teacher and learners encountered difficulties during the ESP	Both French teachers seemed satisfied with the teaching situations in which they were
Classroom Language	**Algerian Context**	**French Context**
	course. As far as the teacher is concerned, the following hindrances have been noticed: - The teacher's awareness of the inappropriacy of the content provided to students' target needs, but as a subject-specialist, he said that this was all what he	involved. Regarding their students, they seemed to appreciate their ESP course and the content it provided in terms of themes and activities, despite some linguistic lacks displayed at the level of their speech and some

Classroom Language	could prepare for an ESP course, because of his inexperience in language teaching and the lack of time. - Students' frequent absences and the irregular size of the ESP group. - The teacher was complained to make too much use of French and Arabic when reading and explaining the text under study, as his learners faced great difficulties to understand the jargon it included. - The frequent use of French and Arabic from the part of the learners during the ESP course. -Students' lack of participation during the ESP course and their reliance on the teacher. As for learners, the following difficulties have been noticed: -Students' dissatisfaction with **Algerian Context**	difficulties to understand, fully, authentic recordings. **French Context**
	the content provided. -Their inability to understand what is said in English by their teacher. -Their inability to understand	

	what is written in English. - Their inability to answer correctly their teacher's questions or to initiate speech because of their poor command of the English language. - Their non-exposure to the actual target uses of the English language.	

Table 4.14: Observation of Classroom Language in the Algerian and French Contexts

ii) Comparison and Interpretation of Results

Classroom observation enabled to collect genuine information about what was actually happening in the two ESP teaching/ learning situations under concern. This information will help to highlight the changes introduced to ESP teaching under the LMD system, in Algeria and France, to compare between ESP instructions in these two countries, respectively, as well as their relevance to students' target needs. The data obtained will, therefore, help the investigator to have an idea about the type of changes and practices that should be brought to ESP teaching in Algerian to raise it to international standards. The data gathered from classroom observation in the two settings under concern will be compared and interpreted in what follows:

As far as the classroom activities provided in the Algerian context are concerned, these were on the whole limited and unsuitable to learners' target needs. The teaching materials used were not varied, their content was too broad, and the subsequent language activities were of a monotonous pattern. Moreover, despite the present students' motivation towards the ESP course, they stood as passive actors during ESP sessions; and their participation was restricted to completing the limited set of assignments provided by their ESP teacher.

The French context, however, offered a completely different picture. The teaching materials provided were wide-ranging, their context was relevant to students' expectations, and the language activities tackled offered a lot of practice to the ESP learners concerned. This enhanced active participation from the part of these students as well as teachers and enabled the working out of the four language skills.

With reference to classroom language, Algerian students made too much use of code-switching and code-mixing, using French, Arabic or both to express themselves and ask for clarifications during the ESP course. This was due to their poor language background which made them unable to understand and initiate discourse in English. Moreover, these students' language output was restricted to the translation of passages provided by their teacher. Consequently, these ESP learners were neither exposed to, nor properly practising the English language to fulfil their target needs.

In the French case under study, the students made too much use of the English language to perform the different assignments, to initiate discourse or to present oral or written productions. Hence, despite some linguistic difficulties, these students displayed a certain eagerness to learn in view of being able to perform their target needs in the English language.

On the whole, classroom observation revealed that no changes have been brought to ESP instruction in Algerian universities under the LMD system. At this level, the researcher is making reference to a previous research she has undertaken as far as ESP teaching, in Algerian universities, under the classical system is concerned (Hemche, 2006). In fact, that research revealed the existence of a considerable gap between students' target needs in English and the type of instruction provided during ESP courses. This was strongly related to the type of teaching materials and methods used by ESP teachers. Classroom observation undertaken by the researcher in the present study, in the Algerian context, disclosed the existence of the same shortcomings at the level of ESP classes in terms of ESP course content and conduct and a total failure to cope with students' target needs. The observation of the French context, however, revealed the provision of a wide range of relevant teaching materials and a great focus on students' actual requirements. Therefore, what is actually

happening in the Algerian and French universities as far as ESP teaching under the LMD system is concerned is totally different and much needs to be done to improve ESP teaching in Algeria. This entails more centeredness on students' target needs, the design of adequate the teaching materials and the use of suitable methods to reach course effectiveness.

4.4. Discussion of the Main Results

The analysis and interpretation of the data gathered trough the different research instruments, used in both settings under concern, enabled the researcher to check the validity of the hypotheses set at the beginning of the present study.

Regarding the first hypothesis, which stipulates that the LMD system has brought important reconsiderations to ESP instruction in terms of teaching load, materials, facilities, training and assessment in order to reach course effectiveness, the results of the interviews held with ESP teachers, Students' questionnaires and classroom observations undertaken in both settings, revealed that whereas major and significant reconsiderations accompany ESP teaching under the LMD system in French universities, the situation is far from being the same in Algerian ones. In French universities, ESP teaching is based on a prior thorough identification of students' levels of proficiency in the English language so as to determine, first, their lacks as far as the target uses of the English language are concerned and to divide them, then, into groups according to their different levels of proficiency in English. This serves as the basis for the design of appropriate teaching materials and the adjustment of their content and the various course activities according to students' needs. Besides, ESP courses are provided in France by experienced ESP teachers who put proper focus on the language skills needed and the various tasks and activities required by the learners to behave adequately in the current and future target situations. Moreover, these courses are offered at the level at the Department of Languages, an environment that favours language learning and puts at the disposal of both ESP teachers and students a variety of teaching materials, aids and other facilities to favour and sustain ESP instruction. Another element that needs to be highlighted at

this level is that learners' evaluation in such an institution is based on continuous assessment. Such a process assures learners' regular attendance to ESP courses, on the one hand, and favours their interest and progress in the ESP course, on the other hand. In Algerian universities, however, teaching ESP under the LMD system is not yet receiving enough attention and reconsideration. Except for the introduction of ESP courses at the level of the Licence Degree, as part of the LMD reform, no other changes have been brought to ESP instruction in Algeria compared to its teaching under the classical system. In fact, no consideration is given to ESP students' actual necessitiess, lacks and wants, within the ESP teaching process. Moreover, ESP courses are provided by inexperienced ESP teachers to whom neither guidance nor support is offered from their departments. Therefore, the content and conduct of ESP courses are, both, irrelevant and inadequate and do not cope with the requirements of the target situation. Consequently, most students feel disinterested by the ESP course and are frequently absent during ESP sessions. Besides, Algerian ESP learners are assessed twice a year, at the end of each semester, so they focus their presence in ESP sessions is recorded during these periods. Therefore, the first research hypothesis, which states that the LMD system has brought important and similar reconsiderations to ESP instruction in all the countries where such a reform has been implemented, is infirmed.

As far as the second hypothesis, which assumes that the changes brought by the LMD system to ESP instruction cope with students' target needs in both settings, the data gathered through the research instruments used in the present research revealed that ESP instruction in France is based on the results of the placements test all ESP students sit for at the beginning of the academic year in order to determine their English proficiency level and the type of content suitable to cope for their lacks in the target language. Moreover, materials design in the French context is guided by the general course objectives set by the Department of Languages where ESP courses are provided for a better coverage and centeredness on students target needs, lacks and wants. The positive effects of these initiatives were clearly displayed in French students' level of competence, appreciation of the ESP course and regular attendance, as deduced from teachers' interview, students' questionnaire and classroom observation undertaken in the French university under concern. In the Algerian setting,

however, ESP teaching fails to cope with students' target needs and this was advocated by the results obtained from the three aforementioned instruments used. Algerian students have a low proficiency level in English and a great majority of them is frequently absent during ESP sessions. This results from the type of teaching materials and methods used by the ESP teacher. The latter is a subject specialist in Physics and has received no previous training in teaching ESP. Moreover, he is given no guidance and no support from the administration to design ESP courses. Consequently, he tries to devise his own teaching materials but fails to provide appropriate ones to cope with students' target needs. This creates difficulties for the Algerian students under concern and pushes a great number of them to have recourse to out-of- classroom services to fulfil their target needs. To sum up this point, the second research hypothesis which advocates that the changes brought by the LMD system to ESP instruction cope with students' target needs in both settings, is infirmed, too.

Concerning the third hypothesis stating that ESP instruction is similar in Algeria and France under the harmonizing LMD reform, the data gathered through the three research instruments used in this work revealed that in the French context, ESP instruction is offered in the Department of Languages and by qualified ESP teachers. This teaching is done in small groups according to students' English proficiency level determined by the Placement Test students sit for at the beginning of each academic year. Moreover, ESP teachers are provided the general course objectives and the necessary aids to design appropriate teaching materials and cope with students' target needs. In the Algerian context, however, ESP instruction is carried out by a subject specialist who has received no previous training to teach ESP. Moreover, he does not receive any support from his department in terms of teaching materials and aids. Besides, there is no consideration of students' necessities prior to ESP instruction. Therefore, the teacher under concern designs ESP courses that fail to cater for learners' needs and this has a negative impact on their proficiency level, attendance and motivation. Thus, the third hypothesis, stipulating that ESP instruction in Algerian and French universities is similar under the newly applied LMD system, is not confirmed.

As regards the last hypothesis, arguing that ESP teaching under the LMD system in Algeria can reach international standards only if it is seriously and adequately implemented within the institutions concerned, this was confirmed through the triangulation of the results obtained from the different research instruments used to fulfil the present study. Accordingly, a proper consideration of the main bases of any ESP instruction in terms of Needs Identification and Analysis, syllabus design, materials' production, assessment as well as teacher training has to become an integral part of any ESP teaching/ learning process nationwide, first. Second, the current Algerian ESP situation necessitates a review of the principles of the LMD system in terms of financial as well as human resources to ensure teaching quality, qualifications' recognition and staff mobility.

4.5. Conclusion

The main concern of the present chapter was to analyse the data gathered from the different research instruments used so as to be able to compare between Algeria and France as far as ESP/ EST teaching under the LMD system is concerned. The purpose behind such a process was to evaluate the prevailing Algerian ESP teaching learning situation in order to highlight the major drawbacks characterizing such a process in view of suggesting appropriate remedies, based on a French parallel situation, which has been taken as a model. The overall results obtained from the comparison undertaken by the researcher revealed that ESP instruction, in Algeria, is facing major difficulties under the LMD reform, as was the result of a previous research done by the investigator concerning ESP teaching in the classical system. Even if such instruction is nowadays provided under the realm of the LMD system, a reform aiming at harmonizing higher education studies and ensuring teaching quality, ESP teaching in Algeria does not obey the principles of such a reform and fails to cope with Algerian ESP students' target needs and aspirations for future better careers in the different fields of expertise. For these reasons, the main aim of the coming chapter would be the provision of some suggestions and remedial practices that would improve ESP teaching, in general, to international standards in Algeria. These

recommendations would be, largely, based on the data gathered throughout this work as far as ESP teaching under the LMD system in France is concerned. This country has been chosen, on purpose in this study, as a model representing the leading and successful countries as far as the implementation of the LMD system is concerned.

CHAPTER FIVE

Reforming EST Instruction in Algeria

5.1. Introduction

The previous chapter has concentrated on comparing between Algeria and France as far as ESP teaching in the LMD system is concerned. The results obtained revealed that despite the introduction of such a system as a higher education reform in Algerian universities, and despite the reconsideration it brings to ESP instruction in the different curricula, ESP teaching has not yet been given its due status and importance in Algerian universities. Consequently, there exists a considerable gap between the type of ESP instruction provided and the one required in the target situation. Moreover, extra pedagogical problems engendered by the educational system have been identified such as lack of a teaching syllabus, teaching materials, teaching aids as well ESP teachers' training. All these shortcomings are to a great extend responsible for students' difficulties and failure to fulfil their target needs.

For the sake of an upturn regarding the prevailing ESP teaching/learning situation in Algerian universities under the LMD system, the researcher will try to focus, in this part of her work, on providing some suggestions and remedial actions in order to reconsider the status of ESP instruction in Algeria and raise it to international standards, as stated by the LMD principles.

To meet this end, the investigator will start by providing some administrative reforms and managerial implications by reviewing the place of ESP courses in the curriculum, then providing a suggested ESP syllabus for the Licence degree to better prepare the learners under concern to undertake specialization in Physics. Moreover, as there is no teaching guidance, no training for the ESP teachers and no assistance from the administrative staff, further suggestions about teachers' preparation, teachers' role, and teaching materials will be set. These aim essentially at enhancing course efficiency and promoting learners' autonomy to become effective users of the target language.

Finally, the researcher adds some suggestions that may be introduced to ESP instruction in Algeria with the aim to give it a better consideration and outcomes,

ensure teaching quality and competitiveness and rise it to international standards under the global LMD reform.

5.2. Important Considerations for ESP Instruction

The LMD system has reviewed the place of ESP in the different teaching curricula and introduced it at an early stage, i.e., at the level of the Licence. In fact, this module used to be taught at the level of post-graduation under the classical system. However, despite the fact that English is a compulsory module and of paramount importance for the learners to fulfil specialisation in Physics, it is still not considered as an important module like the other ones included in the curriculum of Physics. For this reason, the researcher suggests in the present section to review the place of ESP in the Curriculum of Physics, as stated by the LMD principles. This could be done by reconsidering the English course timing, and the establishment of Placement Tests as an integrated procedure prior to any ESP instruction.

5.2.1. English Course Timing

In view of the importance of 3rd year Licence ESP courses to help the learners concerned fulfil specialisation in the field of Physics, the researcher and her informants suggest increasing the teaching load of this module during this year, in the Algerian context. In the French setting, 3rd year Licence students had one ESP session of two hours a week. Moreover, ESP courses were adjusted to students' target needs and held at the level of the Department of Languages which offered the necessary teaching materials, aids and facilities to promote effective ESP instruction. Despite these facts, French ESP teachers suggested increasing the ESP weekly teaching time to better prepare their learners undertake specialisation in Physics. In the Algerian case under study, the students have one English session of one hour and a half a week, often reduced to one hour only. This teaching time is very restricted and reported, by the Algerian ESP teacher and learners, to make the teaching task very complex and difficult. Therefore, in order to promote ESP in the Algerian case under study, the researcher recommends three hours a week, at least, as it was suggested by the

aforementioned informants. This could be a reasonable teaching load, especially during 3rd year Licence which is a year of specialisation for Physics students, in order to attain course consistency and effectiveness and allow an extensive training in and practice of the language uses required in the target situation.

5.2.2. The Need for Placement Tests

As a reform, the LMD system seeks teaching quality, on the one hand, and as an approach to English teaching, ESP aims at coping with students' target needs, on the other hand. Reconsidering the ESP course timing in the curriculum is not enough to ensure the aforementioned aims, since there still exists the problem of large and heterogeneous ESP classes in Algerian universities, as in the Algerian case under study where the subject specialist was in charge of teaching ESP to a large group of students, from two different specialities in Physics and with varying proficiency levels in English. Such facts make the ESP teachers, in general, faced with the dilemma of what to teach and how to teach in order to cope with different students' proficiency levels and, at the same time, prepare them adequately to cope with the various requirements of the target situation. Therefore, they focus mainly on imparting their students with the General English language and on reinforcing their existing language background, putting aside the proper objectives of ESP courses. For these reasons and to reach the aforementioned aims, the researcher suggests the integration of a procedure prior to any ESP instruction in Algerian universities, namely: placement tests, as was the case in the French setting under concern. For Robinson (1991: 146), the aim of the placement test is

> to determine the learners' state of knowledge before the ESP course begins... the placement test is diagnostic, indicating how far and in what ways the learner falls short of the proficiency level... the test results will be used in forming the nature and content of the ESP course that the learner will take.

Therefore, placement tests enable a better and individualised consideration of ESP students' language background at the beginning of each year, in order to determine each student's language proficiency level. Accordingly, students will have be to placed in groups that provide the necessary instruction required to cope for their lacks and help them gain the required language proficiency to reach the broad course objectives stated for each level.

In the University of Paris-Sud, ESP students from all the scientific streams sit for a Placement test at the beginning of each academic year. The aim is to determine each student's proficiency level in English to as to place him/ her in the corresponding group providing ESP courses adapted to his/her lacks and target needs, at the same time. This process allows more learner-centeredness in language teaching, as targeted by the ESP approach, and accordingly, more teaching quality. Accordingly and as previously stated, the researcher advocates the inclusion of the Placement Test procedure prior to all ESP instruction in the Department under concern, as well as all the other Algerian departments offering ESP teaching.

Placement tests may take different forms and encompass different activities. They may be either written, oral, or a combination of both. Furthermore, they may cover multiple-choice grammar and vocabulary questions, reading and comprehending passages or language production.

The inclusion of placement tests as an integral part of the instructional process requires more involvement from the Department's administration and staff in general since this entails the creation of more ESP learning groups for each level and for each speciality in order to reach course effectiveness. The researcher suggests, then, the planning of at least three separate ESP groups at the level of 1st and 2nd year Licence, one group for the students who are judged to have a beginner level in English, a second for those with an intermediate level, and a third for those having an advanced level in English. This division into three groups is preferable especially that the number of first and second year Physics students is relatively high, i.e., during the two

first years of the Licence, Physics students are enrolled in two subsequent common cores (see section 3.2.3.1). Moreover, the ESP instruction received at these two levels is of primary importance since it is intended to impart the learners the necessary instruction and preparation in the English language in order to properly undertake third year ESP courses directed towards training the learners to handle effectively the communicative tasks required to fulfil specialisation in Physics. At the level of 3rd year Licence, and since the Department of Physics offers two different specialisations in this field, the researcher suggests, that after sitting for a placement test at the beginning of the year, students should be divided into two classes according to their speciality, since even if the language uses are the same, the themes dealt with are normally different from one speciality to the other. Moreover, the learners of each class/ speciality have to be divided into two further groups, at least, according to their English proficiency level. To state it differently, the researcher recommends that for each speciality, ESP students should be split into two groups, one gathering those having a beginner level in English and one for those with an intermediate and advanced level. Such a division is favourable for both teachers and learners. On the one hand, it favours the teacher's role as an ESP practitioner and facilities classroom management. On the other hand, it allows more centeredness on learners' lacks and difficulties and more focus on the language practice and communicative competence required in the target situation.

5.3. ESP in the Licence Degree

ESP instruction provided in the Algerian situation under concern is both insufficient and inadequate to ensure the development of a full target language competence in its wider sense. Moreover, one has to emphasise the fact that the students involved in this situation have received no ESP instruction before entering the university. Besides, they come from different learning environments, since they obtained their Baccalaureate from different streams namely: Mathematics, Natural and Experimental Sciences and Electronics, and have received different types of knowledge and practice of the English language with huge gaps and disparities between the curricula provided to them. These facts made that the group under concern

is heterogeneous as far as English background is concerned. Even if these students are on the whole poor users of the English language, their weaknesses vary from one student to the other. This was highly supported by the results obtained from the Algerian teacher's interview, students' questionnaires and classroom observations.

The LMD system seeks to harmonize the higher education systems worldwide with the aim to provide better academic opportunities and outcomes. However, this reform leaves a certain flexibility for each country to adapt its principles according to this country's internal policy and educational contexts. In view of achieving the aforementioned aims, the investigator suggests a reconsideration of the distribution of ESP courses at the level of the Licence curriculum in the situation under concern, or any other similar Algerian ESP teaching/learning situation. Such a change revolves around the introduction of English courses starting from the first year of the Licence and a more goal-directed organisation of the ESP syllabi provided during the three years of the Licence so as to adequately prepare the learners concerned to handle the various communicative acts required in the target situation. This new organisation is displayed in what follows:

5.3.1. First Year Licence: Foundation English Courses

The provision of English courses during 1st year Licence will prevent the clear cut with that language for a year period, first. Moreover, since the learners come from different language environments and with different language aptitudes, English teaching during this year will aim essentially at strengthening students' language background and remedy their lacks in General English by developing the basic skills and strategies of language learning in view of rendering the group of students more homogeneous. Therefore, the language teacher will lay heavy stress on reviewing the basic grammatical rules and structures of English, through a review of the use of tenses, articles, adverbs, adjectives, word construction, sentence construction, and work on students' pronunciation. It is worth mentioning at this level that this type of practice is to be presented in a structured way, under the form of teaching units providing the study of texts, related to General Science or general Physics, and

subsequent work on related activities, in order to facilitate course proceeding for both teachers and learners. This type of English instruction provided during 1st year Licence will make the learners better prepared to undertake ESP courses at the levels of 2nd and 3rd year Licence. However, a certain gradation in terms of content, difficulty and integration of the target uses of the language should be maintained as the courses proceed during these two years.

It is worth-reminding at this level that besides the Algerian teacher interviewed, the post graduate students and 3rd year Licence ones also expressed the desire of having English courses since the first year of the Licence and went further by suggesting the prolongation of these courses till the second year of the Master degree. This reflects the prominent importance and the need of the English language to prepare them to undertake specialisation and to ensure their success in the target situation. It also mirrors the students' positive attitude towards the target language which is an important factor to help them improve their language ability. Thus, even if the majority of these students have a beginner level in English, they are motivated and willing to spend more time in learning ESP to be able fulfil their target needs.

Furthermore, the earlier and the longer the students' exposure to the target language is, the more favourable it will be for them because this helps them to become active and independent users of the language. Besides, no matter how much time such an exposure lasts since it remains a relatively short period compared to students' future academic or professional careers.

5.3.2. Second Year Licence: Foundation ESP Courses

These courses refer to the type of English instruction that should be provided during the 2nd year Licence. After having strengthened students' knowledge of the general basic language principles necessary to the use of General English during the first year, focus will be moved to the general principles underlying the appropriate use

of scientific English during the second year. In other words, 2nd year Licence syllabus will aim at reinforcing students' linguistic competence through a foundation course in scientific English to serve as the basis for the ESP oriented courses, offered during the specialisation in 3rd year Licence, and which aim to impart the kind of communicative competence needed by the learners to fulfil their target needs..

During 2nd year Licence, the ESP teacher will narrow emphasis on the type of English used in science in order to equip the learners with the language bases to access and understand materials on science and technology, and to express ideas and concepts in English with no possibility of ambiguity or confusion. In other words, 2nd year Licence syllabus has to stress the practice of the common notions, discourse patterns and rhetorical functions used in scientific English. However, one has to recall that scientific English uses the same language forms and structures as General English but with varying frequencies and distributions, with the aim to provide accurate scientific details. Synthesising the various scientific English discourse patterns and functions put forward by Jones and Roe (1975), Strevens (1977) and Trimble (1985), second year ESP program will introduce the students to the practice of :

- Scientific discourse Patterns, these cover the following:
    - The present simple tense
    - The passive voice
    - The conditionals
    - Modals
    - Logical grammatical connectors
    - Adverbs
    - Adjectives
    - Compound nouns
    - Quantity expressions
    - Comparative forms
    - Modifiers

- Scientific rhetorical Functions, they gather the following

- Description
- Definition
- Classification
- Instruction
- Visual-verbal relationships

- Scientific language Notions, they include expressing
    - Point of time
    - Duration
    - Frequency
    - Location
    - Dimension
    - Motion
    - Quantity
    - Grammatical numbers
    - Numerals
    - Operations
    - Commencement
    - Cessation

- Technical and Sub-technical Vocabulary, which varies from one theme to the other.

At this level again, the course content has to be provided within well structured teaching units, however, it would be preferable to work more on texts related to general Physics rather than General science in order to initiate and then accustom the learners to the type of technical and sub-technical vocabulary found in the field of Physics.

On the whole, the overall objective of ESP instruction provided during 2nd year Licence would be to serve as a transition to enable a gradual move from known to unknown, from the easiest to the complex, from the regular to the irregular and most

importantly from the general to the specific. In sum, students must know how to walk before they run as Hutchinson and Waters (1987: 5) clearly state it: "Particulars are not to be examined, till the whole has been surveyed."

5.3.3. Third Year Licence: ESP for Specialisation

After having been introduced to and trained in the main structures, patterns, functions and notions characterising scientific discourse during 2nd year Licence, 3rd year Licence syllabus has to focus essentially on the type of language and communicative acts required in a specific specialisation in order to fulfil students' target needs.

The results obtained from Algerian Master students' interview, on the one hand, and those gained from the ESP teacher's interview, students' questionnaire and classroom observation, on the other hand, revealed the existence of a considerable gap between the type of ESP instruction provided in the present teaching situation and the type of language uses required in the target situation. 3rd year Licence students' practice of the English language during ESP courses focussed essentially on answering some reading comprehension questions and on translating passages from English to French or vice versa, whereas these students are compelled to perform a set of communicative acts in the English language in order to fulfil specialisation in Physics. Therefore, the researcher suggests that the ESP teacher has to exploit the students' previously acquired background in the English language, during 1st and 2nd year Licence, in order to introduce them to the target and genuine uses of the English language required during their specialisation in Physics, during 3rd year Licence. These requirements involve the use of the four language skills, thus learners need to be trained to read, write, listen and speak appropriately in the type of English used in their specialisation. To reach this aim, the ESP teacher has to confront his learners to genuine occurrences and practices of the language needed to fulfil communicative purposes in the target situation. These practices have to cover not only the four language skills, as previously stated, but also the social skills, as well. Indeed, under the LMD system, and in the era of globalisation, plenty of opportunities are offered to

LMD students, as such or future researchers, promoting their mobility and constant exchange with partners from all over the world and at any stage of their career (see section 4.3.3).

3rd year Licence ESP instruction has to rely essentially on the use and study of authentic materials handled in the target situation in order to accustom the students to utilize appropriately their receptive and productive skills so as to fulfil specialisation in Physics and handle appropriately the different communicative purposes arising from such a situation. This will sustain students' motivation and encourage their active participation in the teaching learning process, since they will see the relevance of the content and practices provided to fulfil their target needs, instead of remaining as passive receivers of knowledge, over relying on their language teacher during ESP sessions.

On the whole, 3rd year Licence syllabus will to be designed to make the students gradually move from knowledge acquisition to language production, autonomous expression, and knowledge exchange in formal scientific English, as well as in informal English, depending on the context in which they are found.

5.4. The ESP Teacher

When investigating the requirements of the target situation and the prevailing teaching learning conditions, it has been deduced that alongside learners' needs, lacks, wants and the course design process, the ESP teacher's qualifications and attributes have to be reconsidered as well in order to ensure course effectiveness, learners' success and teaching quality, in general. Accordingly, the researcher will focus, in this section of her research, on providing some recommendations and guidelines as far as ESP teachers are concerned in order to fulfil properly their teaching task.

5.4.1. ESP Teacher Training

In the present research, the lack of the Algerian ESP teacher training constituted a serious shortcoming and made him unable to devise and present the adequate teaching materials. Moreover, many researchers, such as Robinson (1991)

and Swales (1985), relate the failure of ESP teaching/learning situations to the lack of teacher training. Training constitutes for ESP teachers a process of challenge for the development of their professional knowledge, skills, competence, and interests, a process of reinforcement which contributes to the familiarization with new ESP methods, to renew the teaching techniques, and to the change of attitude and the role of ESP teacher (Lawton, 1990). Therefore, in order to be fully prepared to achieve efficiently his role as an ESP teacher, one has to go through two essential processes namely: pre-service training and in-service training.

5.4.1.1. Pre-Service Training

In order to acquire the necessary attributes to be able to function adequately as an ESP practitioner, the ESP teacher should be, first, well prepared through what is technically called a pre-service teacher training. This phase includes instruction in the different sciences involved in TEFL such as Phonetics, Linguistics, Psycho-pedagogy, teaching techniques, methodology, and so on (Miliani, 1993). Moreover, the ESP teacher needs to have a sound knowledge about the context to provide and the different areas to emphasize depending on learners' needs. For this reason, the ESP trainee needs also to be introduced to the practice of the various competences involved in any ESP teaching situation, namely: the needs identification and analysis process with its underlying principles as well as methodological implications, syllabus design, materials production, and students' assessment and course evaluation see (section 1.6.2).

Besides theory, pre-service training should pave the way for practice. This means that the trainee has to be given the opportunity to observe ESP teachers at work, after which he/she could be asked to teach a class under the trainer's supervision so as to be evaluated and get feedback on his own teaching practice. This training has to occur before being appointed to teach ESP and last for at least a year period to be fully beneficial. Moreover, the trainee has to practice ESP teaching many times during this period and constantly evaluated by his trainer to follow his progress, regress. Moreover, trainee's evaluation has to be seriously taken into account by the recruiting department to see if his fits for a given job or not. Otherwise, his training period has to

be extended until he acquires the required qualifications of a competent ESP practitioner. This process will ensure teaching quality and course effectiveness.

Yet, one has to realize that there is nothing specific about the principles underlying good ESP methodology and practice. The teacher who has come to ESP from General English does not need to think that a whole new methodology must be learnt. On the contrary, the classroom skills and techniques acquired in General English teaching can be usefully put to use in ESP situations. This leads us to speak about one of the prime requisites for an ESP teacher, which is flexibility. This quality enables him to move from being a general language teacher to a specific language teacher and, hence, to cope with the different demands of his ESP teaching task (Jordan 2005).

5.4.1.2. In-Service Training

One of the greatest simple obstacles of evolution from General English teaching to ESP teaching is in-service teacher education. Coming from a background unrelated to the discipline in which they are asked to teach, most Algerian English teachers are usually unable to rely on personal experiences and savoir-faire to cope with the demands made on an ESP practitioner. Consequently, Algerian ESP teachers feel at a loss and encounter serious attitudinal, conceptual, linguistic, methodological and organizational difficulties once dived into the deep waters of ESP teaching. Besides, they become slaves of the published textbooks and use sporadic materials which are generally quite unsuitable for Algerian learners

To get rid of such inconsistencies, it is essential to provide an in-service teacher training for Algerian ESP practitioners in order to focus on ESP issues. In service-training occurs when the person is teaching and in the era of globalization, ESP practitioners need to be up-to-date with the evolving needs and requirements of the target situation. Since the LMD system favours international exchange and staff mobility, it may take place either in Algeria or abroad in the form of workshops, seminars, short courses or trainings. In-service training aims at helping the teachers to have an important knowledge of the language they is teaching namely EST, to master the specific terminology related to this area, and become familiar with the widest

possible range of teaching techniques to rely and language aspects to focus on when performing his task.

5.4.2. ESP Teacher Development

Within the LMD system, constant development, review and update of teaching content and techniques are required so as to provide adequate instruction and facilitate the recognition of qualifications acquired so as to promote students' and higher education staff mobility. To meet these ends, great responsibility is put on ESP teachers' shoulders, who are compelled to act actively in order to have a full vision of their students' growing and changing needs and to devise appropriate teaching materials and use adequate teaching techniques. In order to do so, ESP teachers should rely on further processes which would facilitate their task and contribute to their own development. These include:

5.4.2.1. Cooperation with Subject Specialists

Instead of being appointed to teach ESP, a task which did not bring any tangible benefits to the present teaching/learning situation neither from the teacher's nor from the learners' point of view, the Algerian teacher involved in the present situation would have helped more if he has acted as a cooperator with an ESP teacher. ESP practitioners' ignorance of the specialist subject still constitutes a barrier for teaching ESP. This is why subject specialists' cooperation is a pre-requisite to achieve the effectiveness of the ESP educational programme. Cooperation is one distinguishing characteristic of ESP which may take different forms and rests upon the willingness to co-operate on the part of both sets of staff, i.e., the language teacher and the subject specialist. If this kind of relationship is not forthcoming, it would be possible that an approach less related to the content of the learners' area of interest might be adopted.

The subject specialists' help may be demonstrated in the provision of information including the description of the target situation, identification of the problem areas of the learners in English when working in a laboratory, and the

provision of suitable teaching materials that demonstrate the target uses of the language and cater for learners' needs such as Physics books, laboratory reports, research articles, Physics' journals and magazines. The subject teacher may also record talks on audio/ video cassettes during scientific meetings. These will raise learners' motivation and provide useful materials for note-taking practice, extensive listening exercises, comprehension exercises and summary writing.

Such a relationship between the language and the subject teachers allows the former to gain adequate knowledge about the specialist subject, design appropriate courses and be more confidence when performing his tasks as an ESP practitioner.

5.4.2.2. Team Teaching

The ESP teacher and Subject specialist co-operation may be further established by introducing team teaching (Robinson 1991, Dudley Evans and St John 1998). Team teaching adds a lot to the authenticity and credibility of the ESP course (Jordan 2005). Nowadays, many university teachers, especially those specialising in the scientific streams, have an acceptable command of the English language since this language has become an integral part of their careers, i.e. research, laboratory work, international conferences, trainings abroad. Therefore, besides providing support material to the ESP teachers, the subject specialist can assist him throughout his ESP sessions. During this process, the latter can, for instance, provide further explanations and clarifications to the learners, in English, whenever they are faced with new technical vocabulary and link it with authentic instances of its use in the target situation. The subject teacher can also make ESP students benefit from his experience, as a physicist accustomed to the target uses of the language, by giving further descriptions and details of the realistic settings where the English language is used to fulfil specialisation. This information would be very helpful especially when the learners will be asked to display their productive capacities to present their own productions, such as laboratory reports, research summaries and simulations of research presentations or debating. Therefore, whereas the language teacher will help his learners with the language points, the subject specialist will focus essentially on the accuracy of the content provided and the way it is sequenced.

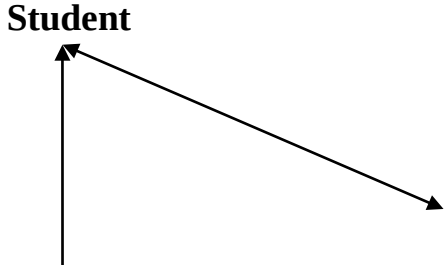
Team teaching is reported to bring many benefits to the ESP classroom as far as the tutors and the learners are concerned. However, for Jordan (2005: 121), there are certain essential elements needed for the success of such a process namely:

- Willingness to collaborate on part of both sets of staff;
- Clear demarcation as to where their respective responsibilities lie;
- Awareness of each other's conceptual apparatus and teaching approach;
- The joint effort being viewed by the student as a complementary teaching situation.

Thus, the ESP teacher and subject specialist have to gather their efforts and make their respective knowledge and capacities work to the benefit of their ESP learners in order reach course effectiveness and, thus, maximize students' chances to fulfil adequately their target needs.

5.4.2.3. Cooperation with ESP Students

Besides collaborating with subject specialists, and since ESP is a learner-centred approach, the researcher suggests that the ESP teacher can also co-operate with his own ESP learners to have a clear picture of their difficulties and needs. Moreover, he can get in touch with former ESP students who are nowadays experiencing the target uses of the English language, as was the case of the Master students the investigator interviewed during this research, to get a better profile of students' needs and difficulties once confronted to the target uses of the language. Besides, Master students are highly familiar with the special content of materials needed to fulfil specialisation in Physics, than the ESP teacher himself. In the same line of thought, Mc Donough (1984) suggests the integration of ESP learners in what she calls team work and suggests the following figure:



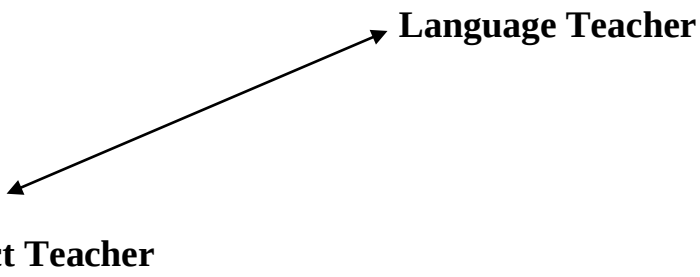


Figure 1.5: The Triangular Set-up in Physical Space

(Mc Donough 1984: 103)

Team work is advantageous also for the ESP learners involved in this process since being in contact with both types of teachers, i.e., the ESP teacher and the subject specialist, will make them benefit a lot from their respective knowledge, experience and savoir-faire.

The ESP teacher may further his in-service education by being in regular contact with other ESP teachers nationwide or abroad. This may be achieved through the organization of meetings and the creation of, or adherence to, national or international organizations to promote the support and development of ESP. These will provide opportunities for ESP practitioners to meet and discuss any issues and difficulties which may arise in their ESP teaching either in theory or practice, and a possibility to harmonize and improve their teaching syllabuses, materials and practices.

ESP teachers' professional development, with all what this implies, is highly recommended and very beneficial for the promotion of ESP instruction in Algeria. However, such commitments are time consuming and require a great devotion from the part of the persons involved. This is why, the researcher's last recommendation, at

this level, would be to appoint full-time teachers because providing and teaching a scientific content is not enough but much remains to be done to cater for learners' needs and become, therefore, a fully-fledged ESP practitioner.

5.5. ESP Course Design

The investigation undertaken in the two previous chapters has shown that the current ESP course design process presents a major drawback since there is no previous analysis and no account of the ESP learning situation. A typical consequence of this is that the teacher is put in the untenable position of having to devise and teach materials at random and which fall to match course objectives. Moreover, the learners are provided with uninspiring content and language exercises which lack any clear communication focus. Therefore, the development of their capacity to communicate effectively in the target situation is completely neglected. For this reason, it is advisable for the course designer, who has to be a language teacher in an ESP context, to carry out a rigorous identification and analysis of students' target needs in order to sort out course objectives before the production of any teaching materials. Moreover, as no guidance is offered to the ESP teacher in order to undertake such a task, the researcher will try to suggest, in this part of the work, how an ESP course could be designed and conducted.

Far from restricting the teacher's work in the classroom, a good course design should allow for guidance, greater freedom and enhancement of the learning process. It does not only guide the teacher's activities in the classroom, but also gives him a sense of direction in his teaching and helps to attain progressively the broader more general aim of the whole course.

In order to design appropriate courses, hoped to cater for students' target needs, lacks as well as wants, the researcher suggests the following steps, the first of which is the design of the teaching syllabus.

5.5.1. The Teaching Syllabus

If in language teaching, the teacher is often faced with an inadequate syllabus, the problem with ESP teaching lays in the inexistence of a syllabus. The situation under concern is no exception as this has been clearly acknowledged by the ESP teacher involved in the case under study. Despite the introduction of the LMD reform to the Algerian higher education system, no reconsiderations have been brought in order to provide an adequate ESP instruction. Instead of appointing trained ESP teachers to take in charge two groups of third year Licence students from two different specialisations in Physics, a subject specialist has been attributed this duty. This teacher has received no specialized training to teach ESP and lacks any type of support and guidance from the administration. Freedom is given to him to devise ESP teaching materials which have proved to be unsuitable for the students' target needs. However, it should be recognized that the elaboration of a particular syllabus for specific learners is not an easy task to fulfil and requires a painstaking effort on the part of the teacher to cover all the aspects involved in an ESP teaching process (see section 1.6.2).

Since ESP learners need to use English appropriately in order to handle communication acts in the target situation, the researcher suggests that the ESP syllabus will be communicatively based. Nevertheless, this does not mean that grammar teaching should be neglected, but it has to be introduced through the teaching of functions. Moreover, a syllabus which seeks to teach students how to communicate in whatever situation should acknowledge the complexity of communication because it can hardly be framed on one aspect of the language, be it functions, notions, structures, skills, content, tasks or whatever, otherwise it will not reach the objectives set. Furthermore, the multiplicity of students' target needs and the state of the art of the situation under concern urge the investigator to suggest the adoption of a synthetic and eclectic approach when designing the syllabus in order to enable the students to develop the required competence rapidly and effectively. Thus, it is essential to combine and mix different types of syllabuses and use a multi-syllabus which emphasises and provides training in the language skills, study skills, structures, functions, notions, content, tasks and situations required in the target situation. It is worth mentioning that this mixture of approaches to syllabus design is quite usual and highly desirable especially in an ESP context, since it embarks the learners upon

various uses of the English language that cater for the requirements of the target situation. Moreover, when constructing a syllabus, one has to keep in mind that whichever the content selected, it has to be sequenced and presented in a gradual manner in order to be more efficient and better assimilated. At this level, it will be possible to design appropriate ESP courses.

The researcher's final recommendation, at this level, is that the ESP teaching syllabus should be given to the learners at the beginning of the year in order to raise their awareness about course objectives and sustain motivation when realising the relevancy of the ESP course to their target needs.

5.5.2. Themes

Theme selection is of crucial importance in the course design process, especially at this level. One has to recall that in our specific context, the ESP learners are 3rd year Licence students who are specializing in the field of Physics, on the one hand, and already confronted to the target uses of the language, on the other hand. This is why, it is advisable, if not necessary, to select themes that belong to students' specialisations. Such themes can also be suggested by the subject specialists or by the learners themselves, i.e. learners' wants have to be taken into account in materials design (See section 1.6.2.1.).

Moreover, when the students have an identifiable and real-life need for studying the language, they tend to lack motivation in learning English and regard this latter as an imposition if they are confronted to themes which are irrelevant to their field of study. Consequently, the more closely and overtly a selected theme can be associated with students' area of interest, the least time is likely to be wasted and the more learners will be motivated to work and to deal with the content provided, accordingly.

5.5.3. Text Selection

After the choice of the appropriate themes that will be the subject matter of the units, the language teacher will have to deal with the selection of the appropriate texts for language practice, which is not an easy task. Since the learners in question are already handling the different target uses of the language, the ESP teacher has to make

great efforts for the provision of authentic texts for study. Such an exposure is the most desirable and the more fruitful at this level merely because of the orientation towards a definite purpose. In this sense, Meads (1978: 12) posits: ***"The efficiency of ESP materials should be measured by the degree to which the student recognizes their relevance to his immediate needs".***

Thus, in addition to assuring course effectiveness, authentic texts are intensively motivating and beneficial. This is why this exposure should be as extensive as possible for the learners and should occur from the beginning of the course. The original texts selected should encompass those text genres that the learners are expected to become familiar with and to produce for academic or professional purposes. These materials may be taken from various subject-specific sources including scientific or technical textbooks, up to date magazines and newspapers, specialised journals and articles, written by native or non-native speakers of the target language.

Text authenticity allows the identification of and the familiarity with the level of formality, level of semantic difficulty, the specific vocabulary, the rhetorical devices and even the grammatical structures and the characteristic organizational principles found to occur more frequently in the target uses of the English language. Moreover, the ESP teacher has to be cautious about the selection and use of authentic texts since besides their role as representatives of language use, they have to be effective instruments of language learning. In other words, it is recommended to avoid the blind use of authentic texts in the sense that they represent particularities of specific situations but such materials should have a pedagogical purpose as well in order to reach course objectives. This means that in using a text, the question that should be put would not be "Is this text authentic?" but rather "What role do I want the text to play in the learning process?" In other words, we should be looking at the fitness of the text to the teaching/learning purposes (Hutchinson and Waters, 1987). Morrow in Robinson (1980) strongly recommends that every text should have a topic, function, channel and audience that are particular to it in order to suit the target situation.

Hence, the language teacher has to take into account the possible drawbacks of authentic texts. Their use in an ESP context should be ***"… the means by which he (the learner) can bridge the gap between classroom knowledge and an effective capacity to participate in real language events."*** (Wilkins 1976: 19).

For this reason, the language teacher has to investigate the target needs of his learners and teach the language in use in the particular situations relevant to his students' field of study. In sum, authentic texts can be adopted, adapted or abridged if we feel that this would improve its pedagogic usefulness. Nevertheless, such materials have to be strikingly interesting in the first instance, suited to learners' needs and interests and capable of generating a lot of useful and interesting classroom activities so as to reach the objectives sought for.

5.5.4. Language Tasks

It happens that even with the use of interesting authentic texts, the ESP teaching/ learning situation remains unsuccessful. The main reason lies in the fact that such materials are used in an interesting way because too much of the preparation time has been spent in looking for them and not enough in their exploitation. For this reason, it is advisable that after the selection of relevant texts, the ESP teacher has to plan and devise a series of adequate activities for the sake of overcoming students' weaknesses, catering for their needs and attaining course objectives.

The analysis of the situation under study has revealed that the students require knowledge of the four skills, i.e. an ability to read, write, listen and speak using the English language. Moreover, it has been noted that the learners expressed their lacks in these areas which received any remedy, and this affected negatively their attitudes towards the ESP course. Accordingly, the rationale behind the different types of activities suggested hereafter is to enable the students concerned to sustain their interest, develop their language skills, and make them autonomous users of the target language to fulfil the various communicative purposes required in their fields of specialization. The activities suggested will be graded in terms of difficulty in order to be challenging, and varied to avoid boredom, excite the learners and help them cross

the first hurdle of language learning and language use for communicative purposes. The activities recommended will appear under the following headings:

5.5.4.1. Listening Comprehension Tasks

The listening skill receives special attention in communicative courses especially because it has been longly neglected as a skill on its own right. After a warm-up activity during which the learners are made familiar with the main theme of the unit and invited to speak freely about it using mainly English, the text selected to be the representative of the theme under concern should be presented orally, first, to the learners. Nevertheless, such a presentation should vary as the courses proceed. During the first sessions, for instance, the learners may listen to the teacher reading the text under study after having been provided with handouts containing such a text. Listening may become more complex if the teacher invites the learners to listen carefully to the text first before being distributed to them. In both cases, the language teacher should present the text aloud, carefully and through a step by step reading. By the end of each step, he explains the passages read, highlighting the key and complex items. As the learners progress, the listening comprehension phase may become more challenging with the introduction of audio-recorded real life listening texts. This will arouse learners' interest and progressively build up their confidence in their communication skills since decoding oral language is one of the most important areas of difficulty in the target situation.

However, the learners may have a great deal of difficulty with those naturally-occurring excerpts, this is why the ESP teacher has to consider the presentation speed, the level of difficulty of vocabulary and structures and the appropriateness of the context and the activities they allow for when selecting such materials. Gradually, the students may be exposed to continuous flows of English which display the features of interactional scientific discourse which cause most problems and difficulties for the learners.

Whatever the form under which the selected text is presented, different types of activities can be planned accordingly to check students' level of oral texts comprehension. These activities can be:

- To select a text title;
- To give the number of paragraphs included in the text;
- To give a title to each paragraph;
- To determine true or false statements;
- To seek given information to fill in tables;
- To take notes as answers to pre-designed questions;
- To deal with vocabulary exercises.

Although listening comprehension represents the best introduction to the theme under concern, it is worth insisting that the listening skill has to be continuously encouraged throughout the course and integrated within the other skills in subsequent tasks. This is necessary so as not to accustom the learners to have listening as a skill on its own since the situation is not so in real-life situations.

5.5.4.2. Reading Comprehension Tasks

After the listening comprehension phase, the learners are, if not yet, distributed the text chosen to present the theme under study. In order to ensure that the learners have an internal model of how a text should be read, the teacher should read the passage aloud, once again and several times if necessary, as the students follow with their eyes. During this process, students' attention should be drawn on the following phonological aspects, with the aim to improve their pronunciation:

- Intonation
- Word stress
- Sentence stress
- Contractions
- Elision

Afterwards, some learners may be asked to read the text aloud, too, since this is a good means to check and correct their pronunciation. Those readings, i.e., the teacher's and the learners', may be followed by an oral text comprehension through oral class discussions during which the teacher encourages students' use of the target language as much as possible.

As previously mentioned, those passages must be of those text genres that the learners are expected to deal with and to produce in the target situation, i.e. expository, argumentative, exploratory, instructional, and so on. They may be presented under the form of reports, essays, summaries, articles, excerpts from books, debates, and so on. Each of these genres will have its own context, structure, format, style and various conventions of which the learners should be made aware. Therefore, after giving the students an opportunity for silent and individual reading, it would be up to the language teacher to introduce the right type of exercises which would allow text comprehension. This can be achieved by means of some of these suggested tasks:

- Skimming the text rapidly to obtain the gist of a passage or the main idea of the text;
- Scanning the text thoroughly to pick out the major points or extract the specific information required;
- Finding the type of the text studied, i.e. expository, exploratory, and so on;
- Answering comprehension questions using students' own words;
- Improving students' word guessing strategies, i.e. guessing the meaning of words from contexts;
- Distinguishing between true and false statements;
- Completion exercises;
- Transferring written information into the non-verbal form (tables, diagrams, graphs, and so on);
- Drawing inferences and conclusions.

These exercises have to be introduced gradually and graded in terms of complexity. Moreover, the teacher can ask his students to do them individually as he may encourage pair or group work.

Reading comprehension tasks have to be supported by vocabulary and grammar practice. Vocabulary is an essential parameter to build listening, speaking, reading and

writing proficiencies? Moreover, it is highly dangerous to assume that vocabulary learning will take care of itself or that the learners will absorbs words only by being exposed to them unless they are provided with concrete activities that enable word study. Such activities will allow the learners to master the use of general, sub-technical and specialist vocabulary encountered in their field of study and specialization.

The activities suggested to draw students' attention to systems in vocabulary can take the following forms:

- Words' formation;
- Words' classification;
- Words' relationships;
- Checking the meaning of words or expressions;
- Sentence construction using the studied words or expressions;
- Completion exercises;
- Substitution exercises;
- "Odd man out" exercises.

Besides word study, grammatical tasks need to be integrated as the students experience the target language used in meaningful contexts. These have focus on the grammatical points which are particularly important and frequently encountered in all scientific writings. These include:

- Tenses of frequent use in scientific English, mainly, the present simple, the past simple and the conditional;
- The passive voice, frequently used to describe processes, Word order;
- Sentence construction, i.e., affirmative, negative and interrogative sentences.

5.5.4.3. Productive Tasks

The analysis of the Algerian ESP teaching learning situation under concern revealed that except translating some passages into French or English, the learners did

not present any personal production, whether written or spoken. This is particularly disapproving especially if we consider the requirements of the target situation. For this reason, tasks which encourage language output have to be integrated as an essential step when designing ESP courses. At this level, each of the writing and speaking skills of the learners have to be encouraged and developed through a gradual practice of the different types of writings required in the target situation. Cultivating effective written and oral communication skills is vital for the learners in question in order to fulfil their needs. Moreover, this is a complex process which requires a prolonged contact with subject-specific texts and a great deal of practice. It will make the learners aware of the structures of different types of writings before they can produce them. Additionally, it will train them to pay attention to the sequencing of their ideas and to the ways of connecting them so as to produce coherent personal productions of an acceptable value. Furthermore, each learner has to be aware of the purpose of his writing and the readership aimed at when producing any piece of writing because these will highly influence the form and the content of his production. Consequently, the learners have to be exposed to and trained to produce the different writing assignments required in their particular field of specialisation. Such a practice can begin with simple activities, guided and supported by the language teacher, before moving to more complex and task-solving activities in order to promote learners' self-reliance and autonomy. This is a pre-requisite in the target situation since learners' ESP training is of a limited and short duration.

The different writing assignments that the learners can be trained in include:

- Information transfer : from tables, graphs, diagrams, etc, to a text;
- Summary writing;
- Essay writing;
- Describing an experiment; a process, etc;
- Writing experimental reports; research reports; etc;
- Writing abstracts such as journal abstracts, conference abstracts, research abstracts;
- Writing articles;

- Reporting individual research projects.

These tasks have to be integrated gradually. Moreover, the learners have to be trained to present orally their personal productions in order to better their pronunciation, develop their speech delivery and become more confident to contribute in real-life situations such as scientific meetings. However, the models of genres dealt with in the classroom should not be treated as fixed-rule governed patterns but as prototypes which allow for individual variation.

5.5.5. Formative Assessment

The assessment of students' knowledge, skills and competences are given great importance in the LMD system. This reform advocates the use of formative assessment, a process which promotes grading the students for all the assignments completed during a semester such as homework, group work, research papers, oral presentations and exams.

As far as the present study is concerned, the researcher noticed that ESP students' assessment under the LMD system, in the Algerian context, does not follow the new evaluation procedures brought by this reform since Algerian students are still assessed twice a year, at the end of each semester. This fact has a great impact on students' attendance and, at the same time, on their English level, as the great majority of these students used to be absent from ESP courses during the whole semester and come just to sit for the final exam. In the French situation under concern, however, formative assessment was applied as the only evaluation measure, therefore, students' presence to the ESP course was regular and this had a great impact on their English proficiency level.

Because of these reasons, the researcher suggests the adoption of the formative assessment procedure in the present, and all the other, Algerian ESP teaching/ learning situations. This process is part of the new adjustments brought by the LMD system, on the one hand, and is a way to enhance and sustain students' regular attendance to ESP courses, on the other. Moreover, according to Yoloye (1984), formative assessment aims at getting the truest possible picture of each student's ability and, at the same

time, helping each student to develop his or her abilities to the fullest. In other words, this procedure enables more centeredness on students' level of proficiency and progress in view of providing the necessary remedies to reach course effectiveness, and, hence, teaching quality which is one of the major objectives of the LMD system.

Moreover, formative assessment has always been acknowledged, by several writers such as Robinson (1991) and Dudley Evans and ST John (2009), as an important factor providing a wealth of information on the effectiveness and quality of both teaching and learning, and contributing to the improvement of ESP teachers' practice and students' performance.

In an ESP context, formative assessment has to rely on grading the students on their performance of the different tasks required in the target situation, through inside and out-of-classroom assignments like written and oral tests, reports, short presentations and homework. However, in order to carry out properly their role as ESP practitioners and ensure teaching quality, ESP teachers need to be given the necessary training in formative assessment to acquire the essential skills in the effective implementation and monitoring of this newly applied process to students' assessment.

5.6. Use of ICT in ESP Instruction

Nowadays, the use of Information and Communication Technology (ICT) has become a natural and integrated part in all aspects of peoples' daily life. In general terms, this trend refers to the use of "computing devices such as desktop computers, laptops, software, or Internet for instructional purposes" (Hew and Brush 2007: 225). More specifically, ICT refers to the teachers' use of technology as a learning tool for students (Inan and Lowther 2010).

Within the era of globalisation and the new emerging educational systems and reforms, people have initiated themselves to the use of the new facilities brought by such an age of innovation. These cover Internet browsing, online interaction with peers and people of similar interest using Computer Mediated Communication, chat, whiteboard, video teleconferencing, discussion forums, social networking sites, emails

and other forms of technology including blogs, wikis, IPod and MP3's (Murray 2005). As a result of these new trends, the extensive use of Web components covering the Internet, blogs, e-groups, e-mails, socializing portals, e-dictionaries, e-encyclopaedias, Power Point presentations, webcasting and audio-video documents have emerged as teaching tools in the classrooms (Dogoriti and Pange, 2012). These innovative teaching devices are claimed to increase learners' active participation in the learning process and create authentic learning environments that allow the combination of the four language skills in one single activity (Warschauer, 1996).

Lee (2000) and (Jorge et al., 2003) claim that the main benefits of using ICT in teaching English as a Foreign Language are displayed in a high level of motivation for both language learning and linguistic proficiency and increased learning competencies. In the same line of thought, Schetzer and Warschauer (2000) maintain that ICT brings to EFL learners an enhanced sense of achievement and increase in self-directed learning with the ability to communicate, conduct research and present ideas effectively beyond the confines of the class. For Dogoriti and Pange (2012), "the use of ICT tools in teaching and learning has positive effects on learning and gives pupils greater enjoyment and interest, enhanced self-esteem and an increased commitment to the learning task". Hence, the usefulness of these new devices to language classrooms has nowadays become indisputable regarding the numerous profits they bring and their significant contributions to reach learner-centeredness, on the one hand, and teaching quality, on the other.

Moreover, the LMD system favours the use of modern technologies to facilitate the process of teaching and learning at higher education level. For this and all the aforementioned reasons, the researcher recommends the inclusion of ICT facilities to ESP teaching in the present, and other Algerian ESP teaching/ learning situations. This will bring change, and give ESP courses a different status and consideration from the part of both teachers and learners. The use of ICT in ESP classes will create wider opportunities to enhance the teaching and learning of the target language and provide authentic environments for English learning; this will motivate students, sustain their interest, develop their communicative competence and encourage their critical thinking

as well as collaboration. These facts are highly stressed by Marco and Pueyo (2012) who claim:

> In order to evaluate the usefulness of the Internet for ESP instruction, we should consider...use of authentic and up-to-date materials; real-world challenging tasks which motivate, interest and stimulate students; integration of different skills; activities and materials which meet the students' learning objectives and needs and which are appropriate for the students' level; development of critical thinking skills, and collaborative learning.

As far as the present study is concerned, the researcher suggests the use of two ICT devices, namely: online resources and virtual platforms to promote effective learning.

5.6.1. Online Resources

ESP teachers are always faced with the challenge of how to bring authentic materials to ESP classrooms in order to enhance learners' motivation and interest and cope with their target needs. However, with the advantage of the Internet, ESP teachers have at their disposal an unlimited and varied set of authentic resources, ranging from subject-specific texts, reports, summaries, magazines, newspapers, visual as well as audio-visual materials. All these resources may be exploited to practice and develop the four language skills as required in the target situation. In this sense, Vaiciunienė and Uzpalienė (2010) argue:

> The variety of internet-based text types means that it is easier to find something that will interest the learner and may even encourage for further reading, listening, or watching. It can also promote other skills such as skimming/ scanning, extensive/ intensive reading, summary, essay, email writing, outlining, mapping, sorting, adding information and may result in oral

> performance , such as newscasts, conversations, interviews, presentations, lectures, reports, etc.

The internet has also the advantage of providing up-to-date materials that cope with students' constantly changing target needs, because of the globalisation process and the new horizons it provides both academically and professionally speaking. This changes from the use of textbooks which provide a content that becomes rapidly out-dated.

5.6.2. Moodles

Moodles are virtual platforms through which ESP teachers can nowadays design and deliver their courses, or assess their students, through what is commonly known as virtual platforms. Such a device enables the ESP teachers to be in constant contact with their learners even after ESP sessions. When being online, ESP teachers can provide further instruction, advice and help to their learners. However, when these teachers are offline, their learners may still have access to extra ESP instruction and target language practice through the various materials and tasks put on the web by their ESP teacher. This practice may be time consuming but it is more beneficial than the other out-of- classroom services Algerian ESP students used to rely on to cater for their needs the target language,since it provides more adequate ESP instruction and support. Moodles, however, can also be used by Algerian ESP teachers to keep in contact with other national or international peers in order to discuss, review and up-date the different teaching materials and methods used.

However, ESP teachers have to be made aware of the benefits of the integration of ICT tools to their classes, first, and to be properly trained to use such devices before introducing them as an integral part of their teaching practice. In this sense, Virkus (2008: 272) states:

> Employment of new technology based learning in foreign instruction is slow and faced with reticence by many ESP teachers due to lack of awareness, more comfort with text

environments, deficient computer literacy and contentedness that technology alone does not deliver educational success.

Therefore, ICT can be effective in ESP, or any other teaching context, only if teachers are properly trained to master the use of technology as a teaching tool and to handle properly this use in order to help the learners attain the required competence to fulfil their target needs. Besides, Brandle (2002) and Canado (2010) assert that for an effective integration of ICT, the teacher has to function as a counsellor, tutor, motivator, facilitator and observer, at the same time.

5.7. Enhancing Learners' Autonomy

ESP aims primarily at helping the learners become effective users of the English language in the target situation. For this reason, all of the researcher's presented suggestions in this chapter aim at providing the necessary administrative, pedagogical, teaching and technological adjustments that pave the way for effective ESP instruction and, as targeted by the LMD system, develop the learners' capacity for autonomous learning. In other words, reconsidering the place of ESP courses in the curriculum, ESP teachers' attributes, the teaching syllabus, teaching materials, teaching aids and assessment measures seek essentially to develop in the learners the required communicative competence, but also to render them more responsible of their own learning by promoting their autonomy. In this sense, Miliani (1991: 103) posits: ***"A great deal of importance is given to the learner in directed individualized instruction, self access learning, self-learning, autonomous learning. These have become today's slogans".***

Therefore, autonomy should be an integral part of the expected outcomes of all courses and ESP is no exception. It is particularly important for ESP learners whose time in the ESP classroom is particularly limited. Besides, when this relatively short course finishes, students' self-reliance is highly required to cope with the requirements of the target situation. For this reason, ESP teachers should set their students on the path to full independence in the target situation through the design of effective ESP courses, and the use of effective teaching materials.

5.8. Further Reforms

In the present section of this chapter, the researcher will provide some further recommendations that may be introduced to promote ESP instruction, at the national level. These initiatives go hand in hand with the LMD system's pursue of enhanced cooperation, mobility and competitiveness between different parts of the world in view of achieving teaching quality and responding to the new world's demands. However, they imply further and continuous involvement from the part of the Government and the Ministry of Higher Education.

5.8.1. Creating ESP Centers

Regarding the multiple objectives of the LMD system and the different changes required to bring ESP instruction in Algeria to international standards, the researcher suggests the creation of an ESP center in each Algerian University to be exclusively devoted to ESP teaching. Such an institution would alleviate all the existing shortcomings facing ESP instruction, in Algeria, by providing the necessary staff, and all the suggested training, teaching practice, evaluation procedures and required facilities to assure the success and effectiveness of the different ESP teaching/learning situations. This seems to be realisable especially that the Algerian university is, nowadays, witnessing great expansion, on the one hand, and forming plenty of ESP specialists at the level of its universities, on the other hand. This is the case of the universities of Tlemcen, Oran, Algiers and Annaba, to cite some.

To fulfil the aforementioned requirements, the researcher suggests the division of the ESP center's staff into three units, namely:

- A Research Unit
- A Training Unit
- A Teaching Unit

The research unit's task would be exclusively devoted to examining, as closely as possible, the requirements of each ESP teaching learning situation in terms of

learners' target needs, lacks, wants and to suggest the relevant syllabuses and teaching materials relevant to each subject and each speciality.

The training unit's role would be to constantly train prospective ESP practitioners and to prepare them to fulfil adequately their roles as such. This training should strengthen their different competences as language teachers and to help them gradually move from being General English teachers to specific English teachers. In other words, training teachers have to initiate their trainees to the various tasks involved in ESP teaching namely needs identification and analysis, syllabus design, materials production, and assessment procedures, in addition to taking an interest in and acquiring knowledge of the students' specialist world and using ICT as a teaching tool.

As far as the teaching unit is concerned, it should gather all the well trained ESP practitioners who have to take in charge the different ESP groups. These groups have to be divided according to students' field of study, specialisation and level of competence in the English language.

However, the researcher considers that one of the necessary prerequisites to ensure the success of such an initiative is subject specialists' integration. In other words, it would be worthwhile to have recourse to some subject teachers from the different fields and specialities, containing ESP instruction in their curricula, in order to have the necessary advice and help concerning the teaching programmes, materials and methods. Hence, the collaboration of subject specialists is strongly recommended in order to match ESP instruction with the target requirements.

In addition to providing the necessary qualified staff to take in charge the different ESP groups, these ESP centers have to supply the adequate resources, technological equipments and up-to-date facilities required to offer the necessary support to ESP teachers and learners and guarantee the success of ESP instruction under the LMD system and within the era of globalization. These cover the different teaching materials for teachers and learners, libraries, teaching aids, language labs and their necessary equipments to allow the effective use of ICT's as learning instruments.

These institutions can also invite foreign ESP teachers to come and deliver ESP courses and offer short-term ESP trainings abroad, for the brilliant ESP students or those who intend to carry on specialisation in a foreign country, in order to enhance their motivation towards ESP instruction and promote their cultural awareness. Moreover, these centers can establish collaborations with foreign institutions specialized in ESP teaching and invite foreign ESP practitioners to offer ESP courses to Algerian ESP students. This collaboration will also allow to better train Algerian ESP practioners, either in Algeria or abroad and to exchange and update the different teaching syllabuses and materials to provide teaching quality and raise ESP teaching in Algeria to international standards.

In order to create such ESP centers, certify their proper running and guarantee the quality of the services they would offer, the government and Ministry of Higher education have to deliver the necessary financial support, on the one hand and keep an eye open on each institution, to intervene and bring the necessary adjustments when needed in order to sustain teaching quality. This could be achieved by imposing further evaluation procedures aiming at assessing the quality of the different services delivered at the level of each institution. This new type of evaluation covers internal and external evaluations.

5.8.2. Internal and External Evaluations

In order to raise ESP instruction, or any other teaching/learning situation, to international standards in Algeria, some sound measures have to be applied by the Ministry of Higher education to ascertain a better follow-up of the new measures and reforms introduced to higher education within the LMD system, on the one hand, and allow the adoption of any necessary adjustments in case such a system fails to reach its objectives, on the other. To do this, the researcher suggests the adoption and implementation of two further interrelated and complementary evaluation procedures, the first of which is called Internal Evaluation and the second External Evaluation.

5.8.2.1. Internal Evaluation

This process is to be carried out by the responsible(s) of the ESP center and focuses on the realization or not of each course's objectives. To reach this aim, each institution has to put in practice an internal evaluation grid .This will make it possible to constantly proceed to the necessary adjustments. However, it should be noted that evaluating the internal efficiency takes into account the outcomes of the system itself without considering the impact, be it positive or negative, of such results outside the institution in question.

Internal evaluation covers both the evaluation of the course and that of the teacher (s). It is essentially based on the learners' appreciation of the course in general and points at two major objectives. It enables, at the one hand, each teacher to be aware of his students' opinion about the pedagogic and educational elements of his/her teaching. On the other hand, it assesses the organization of the studies according to the principle modalities fixed by the responsible(s) of the institution concerned.

In other words, teaching' evaluation makes it possible to check if that teaching is responsive to efficiency objectives and if the teachers have the knowledge and competencies required to provide students with the best possible training in their respective disciplines.

To support this process of Internal Evaluation also referred to as Teaching Evaluation, the present grid can be suggested:

Teacher	.....	***Student's Level***	.....	***Course***	.....

		Poor	***Average***	***Good***	***Very good***
Form of the course	A	Tick the appropriate boxes			
• *Structure*	A1				
• *Presentation*	A2				
Content of the course	B	Tick the appropriate boxes			
• *Interest*	B1				
• *Level*	B2				
Teachers' performance	C	Tick the appropriate boxes			
• Punctuality	C1				
• Presentation of the course	C2				
• Mastery of the content	C3				
• Teaching methods	C4				
Other remarks or observations					

Table 5.1: Internal Evaluation Grid

(Idiata, 2006: 107)

This internal evaluation grid focuses on three main variables namely:

- ***The Form of the Course***: that is, how is it structured and presented to the students or audience.
- ***The Content of the Course***: i.e. is the content provided interesting and does it cope with students' needs and level.
- ***The Teachers' Performance***: here, the teachers are judged in terms of their punctuality, presentation of the course, mastery of the content provided and pedagogy, i.e., the teaching methods used.

To each of these variables, and at the end of each teaching, students are asked to give their opinions in a totally anonymous way. For the sake of having objective results, each teacher should be evaluated by at least two classes of different levels and from two distinct cycles, if possible, i.e., License and Master.

This type of evaluation, which may be difficult to accept by the teachers gives a broad view about the state of the institution concerned at the pedagogic or educational level and enables to bring solutions for the drawbacks identified. Moreover, it is a necessary condition to attain teaching quality and join the objectives of institution development with international standards.

5.8.2.2. External Evaluation

At the national level, external evaluation is to be carried out by the Ministry of Higher Education and judges the institution as a whole. This revolves around some specific aspects such as training services, teaching quality, and students' life inside the institution. Besides, external evaluation covers research and notably the adequacy between the quality and responsibility of such a research and the priority objectives of the country in terms of the socio-economic development. External evaluation encloses mainly:

- ***Assessing Institutions' Projects***

  Each institution should undertake a clearly defined and purposeful project under the guidance, monitoring and funding of the Ministry of Higher Education. Such a project should be based on a sound contract insisting on its total respect, the transparency of the data,i.e.facts and results, reported and the promise to search for and suggest new practices and perspectives.

- ***Assessing Training Offers***

  This process is highly necessary since it gives an idea about the amount and qualifications of the teachers trained to be ready to take in charge teaching

sessions. Such information will make it easier to allocate the different institutions in terms of their staff's competencies.

- ***Assessing Teaching***

  As previously mentioned, evaluating teaching is an approach which seeks to improve the institution's level. As such, it contributes to the reinforcement and promotion of the institution's credibility vis à vis the outside world (i.e., the other departments, universities and the Ministry of Higher Education). At the same time as internal evaluation is put to use, it is as necessary to evaluate teachers at an external level.

- ***Assessing Services' Quality***

  Each institution which implements the LMD system has to cope with the issues of this important reform and to adapt its services to direct students efficiently at different levels, such as education and mobility, and provide the required facilities such as information technology, i.e., like the Internet and virtual classrooms), libraries for studies and research and computing labs.

On the whole, one of the most prominent conditions to bring the LMD reform to success and maintain its running at an international level, is the adoption of the principle of permanent evaluation, be it internal or external. Such a process will fix the objectives, clarify the organization, formalize the practices and sensitize all the partners concerned being the responsibles, administrators, teachers, students and service staff about the question of the efficiency of the institution to bring it to an optimum quality level ,provided that the necessary tools required to reach such an objective are developed and implemented. Moreover, such a process may be applied to any teaching learning situation, not just ESP ones in order to assure teaching quality and positive outcomes.

5.9. Conclusion

In this concluding chapter, the researcher has attempted to out a set of suggestions that may help to improve the prevailing ESP teaching learning conditions

identified in the previous chapter and to bring some reconsiderations that may give ESP instruction its due status under the LMD system. Therefore, some administrative reforms were first recommended in order to reconsider the status of ESP in the curriculum and to better prepare Physics students' to undertake specialisation in this field of expertise. After that, focus was put on the ESP practitioner. Accordingly, the main qualifications, training processes and practices allowing ESP teachers to become fully-fledged ESP practitioners have been set. After that, the researcher has put some recommendations on the type of syllabus ESP practitioners should devise to cope with the requirements of the situation under concern. Moreover, she has suggested an ESP course planning process, relevant teaching aids and subsequent assessment measures.

The researcher has closed this chapter by putting forward some further initiatives that could be undertaken by the Algerian Ministry of Higher Education, embodied in the creation of officially renowned ESP institutions and the application of regular evaluation measures in order to properly take in charge ESP instruction in Algeria and assure its success and rise to international standards.

GENERAL CONCLUSION

Within the era of globalisation, a new reform has been introduced at the level of higher education worldwide, namely the LMD system. The objective of this work was to evaluate the state-of-the-art of ESP instruction in Algeria under this newly applied reform which has been introduced, a decade ago, as a higher education reorganization in worldwide universities. It seeks essentially to harmonize the structure of higher education degrees and curricula, with the aim to assure teaching quality and enable students to build better academic and professional profiles in order to prepare them adequately for subsequent careers. For these reasons, the LMD system has brought a set of measures and transparency tools to facilitate its implementation and enhance exchange and cooperation between the different universities which have adopted it, for a full centeredness on students' target needs in the different teaching processes, including the ESP one.

Previous research undertaken by the researcher, as far as ESP teaching in Algerian universities under the classical system is concerned, (Hemche, 2006), revealed that such an approach to language teaching was not appropriately applied and failed to cater for students' target needs. ESP instruction was provided by inexperienced and untrained ESP teachers who received no support from their departments. Therefore, they designed unsuitable teaching materials and used inadequate teaching methods which failed to fulfil students' target needs. For this reason, the researcher decided to investigate into the current ESP teaching/ learning situation under the newly applied LMD structure, in Algeria. Her main purpose is to highlight the main changes that have been brought to ESP instruction, under this reform, at the national level and check if these changes better cope with Algerian ESP students' target needs.

In order to do this, the researcher has undertaken a comparative study between Algeria and France focussing on teaching ESP in the LMD system. The main reason behind this process was to describe the ESP teaching/ learning situations in these two countries, then contrast the two situations with the aim to highlight any shortcomings that affect negatively such a process in Algeria and suggest adequate remedial measures.

To fulfil the present research, focus has been put on one ESP teaching/ learning situation, that of third year Licence students in the Departments of Physics at the level of the Faculties of Sciences, in the Universities of Tlemcen and Paris-Sud. The researcher has chosen to focus on this level because third year students start specialization in the field of Physics. Thus, they have clearly stated needs from the English language and require tailor-made ESP courses. The researcher seeks to check, hence, if these needs are appropriately considered and responded to under the realm of the LMD system.

The main issues of the present study revolve around four research questions, sequenced as follows:

1- Which changes has the LMD system brought to ESP instruction in Algeria and France?

2- Do these changes cope with students' academic and professional needs?

3- Is ESP instruction provided within the LMD system in Algerian and French universities similar or different?

4- How can ESP instruction be improved in Algeria to reach international standards?

In order to answer the above research questions, the following hypotheses have been put forward:

1- The LMD system has reviewed the place of ESP instruction and introduced it at the level of the Licence. This initiative brings reconsiderations to ESP instruction especially in terms of teaching load, materials, training, evaluation as well as other facilities, such as language laboratories and multimedia tools. The fact is that the LMD system offers two different directions, to students: academic and professional, leading to design tailor-made courses.

2- The changes introduced to ESP teaching within the LMD reform will probably better cater for students' target needs, in both Algerian and French settings. Such a system targets teaching quality, enables students to define and build their academic profiles through personal initiatives, and prepares them for subsequent vocational and professional careers, through a more learner-centred approach to teaching.

3- The LMD aims at harmonizing higher education systems worldwide. Thus, Algeria and France are supposed to have paved the way for the same re-adjustments and changes imposed by this reform and thus providing the same type of instruction in the various domains including the ESP and, hence, EST ones.

4- ESP instruction can reach international standards in Algeria only if it is appropriately and adequately implemented within the institutions concerned. This requires the introduction and application of modern concepts and procedures that must not only be accompanied by corresponding re-adjustments but infrastructural development as well. This implies the provision of material resources, human resources, and up-to-date facilities, in addition to a permanent follow-up and evaluation of the dynamics of ESP instruction, in Algeria, which has to be initiated in order to be constantly at the level of the quality and proficiency expected.

The research questions and hypotheses of the present work have been discussed through the use of five research instruments, in both settings. Two of them, namely Master students' interview and observation of the target use of the language, were used to have a clear picture of the target uses of the English language. Three other research tools were used to highlight the ESP teaching/ learning situations in both settings under concern. These included a structured interview held with ESP teachers, a questionnaire distributed to third year Licence students and classroom observation.

- In order to fulfil the present study, the researcher has divided her work into five interrelated chapters. The first chapter started by providing some broad generalities about the sphere of ESP. It has, then, focussed on one of its branches, namely English for Science and Technology. Accordingly, this subdivision has been defined and classified. Moreover, its main discourse patterns and rhetorical functions have been displayed before moving to the presentation of the main parameters involved in any ESP/ EST teaching/ learning process. The second chapter has outlined the emergence of the LMD system and the major reasons behind its appearance and implementation mainly globalisation and the Bologna Process. After that, the consecutive Bologna ministerial meetings were presented as well as the main LMD reform's transparency tools. Following, the researcher stressed on the implementation of the LMD system in Algeria and France, as these were the main settings under concern in the present research. In the third chapter, the researcher started by providing an overall description of the ESP teaching/learning situations in Algeria and France. After that, these situations were investigated in the Departments of Physics at the level of the Faculties of Sciences, in the Universities of Tlemcen (Algeria) and Paris-Sud (France). The investigator has, then, moved to collect the necessary data to conduct her research, relying on the use of various research instruments covering interviews, questionnaires and observations, in both settings. The main concern of the fourth chapter was to analyse the data gathered from the different research instruments used, in each setting, so as to be able to compare between Algeria and France as far as ESP/ EST teaching under the LMD system is concerned. The purpose behind such a process was to evaluate the prevailing Algerian ESP teaching/ learning situation in order to highlight the major drawbacks affecting such a process in view of suggesting

appropriate remedies, based on a French parallel situation, which has been taken as a model. This comparison gave the researcher an idea about the type of re-adjustments that should be brought to ESP teaching in Algeria in order to remedy the detected inconsistencies with the aim to improve ESP instruction's outcomes at the national level. In the fifth chapter, the researcher focussed on providing some suggestions and remedial actions so as to reconsider the status of ESP instruction under the LMD system, in Algeria. These covered, first, a set of administrative and managerial changes. Besides, some recommendations have been put as far as ESP teachers' training and development are concerned as well as the ESP course design process and the mode of assessment. By the end of this chapter, further reforms implying the full implication and commitment of the Ministry of Higher Education have been advanced. These concern the creation of specialised ESP institutions to take completely in charge ESP teaching/ learning processes and assure their total success in coping with students' target needs.

The analysis, interpretation and comparison of the data gathered, in both settings, through the research instruments used in the present study enabled to check the validity of the hypotheses set. As regards the first hypothesis, it was found that the LMD system has brought important reconsiderations to ESP instruction in French universities concerning teaching materials, aids, methods and training. However, the situation is different in Algerian universities. In the French context, ESP teaching starts by a Placement test, for which students sit to determine their English background and divide them into groups to receive ESP instruction. This process aims at the design of adequate teaching materials. Moreover, in French universities, ESP courses are offered by experienced ESP teachers who emphasise on the type of skills and tasks needed by the learners to fulfil their target needs. These courses are supplied in the Department of Languages which makes at ESP teachers' and students' disposal a set of teaching materials and facilities that favour ESP teaching and learning. Moreover, learners' evaluation in such an institution is based on continuous assessment, a process which plays a great role in learners' regular attendance and constant progress. In the Algerian context, however, ESP instruction is not yet witnessing enough attention under the newly applied LMD reform. Firstly, there is no prior consideration of

students' target needs before ESP instruction; secondly, ESP courses are provided by inexperienced teachers who deliver irrelevant ESP courses since they receive neither guidance nor support from their departments. As a result, most Algerian ESP students under concern were disinterested and frequently absent during ESP sessions; especially that the latter were assessed just twice a year, at the end of each semester.

Concerning the second hypothesis, it has been infirmed by the results obtained from the research instruments used. In fact, they revealed that whereas ESP instruction in France coped with students' target needs, the situation was not the same in the Algerian context. French ESP instruction was based on a prior thorough consideration of learners' target needs through the Placement Test all ESP students sit for at the beginning of each academic year in order to determine their English proficiency level and the type of content suitable to cope with their lacks in the target language. In addition to that, the Department of Languages supplies ESP teachers with the general course objectives and the main aspects to focus on during their lectures in order to reach course effectiveness and assure a good coverage and full centeredness on students' target needs. Nevertheless, and as previously mentioned, the situation is far from being similar in the Algerian context as ESP teaching failed to cope with students' target needs under the LMD reform. The results obtained from the research tools used revealed that Algerian students had a low level in English and were unable to fulfil their target needs. This derived from the teacher who was in charge of teaching ESP since as subject specialist in Physics, he had received no previous training before teaching ESP and was given no guidance or support from the administration to design ESP courses. As a result, he used to work out inadequate teaching materials that failed to cater for students' lacks and pushed a great number of them to have recourse to out-of- classroom services to fulfil their target needs.

As far as the third hypothesis is concerned, the data gathered through the research instruments used in the present research revealed that ESP instruction provided in Algeria and France was different. In the French setting, ESP instruction was provided at the level of the Department of Languages and by qualified ESP teachers. This teaching was done in small groups according to students' English

proficiency level determined by the Placement Test students sit for at the beginning of each academic year. Moreover, ESP teachers were provided the general course objectives and the necessary aids to design appropriate teaching materials and cope with students' target needs. In the Algerian context, however, ESP instruction was under the charge of a subject specialist who had never been trained to teach ESP. Moreover, he did not receive any support from his department in terms of teaching materials and aids. Besides, there was no consideration of students' target needs, lacks and wants prior to ESP instruction. Therefore, the teacher under concern designed inadequate ESP courses and this had a negative impact on ESP students' proficiency level, attendance and motivation.

As regards the last hypothesis, it was confirmed through the triangulation of the results obtained from the different research instruments. Accordingly, a proper consideration of the main bases of any ESP instruction in terms of needs identification and analysis, syllabus design, materials' production, assessment as well as teacher training has to become an integral part of any ESP teaching/ learning process nationwide, first. Second, the current Algerian ESP situation necessitates a review of the principles of the LMD system in terms of financial as well as human resources to ensure teaching quality, qualifications' recognition and staff mobility.

In sum, more financial help has to be provided by the Algerian Ministry of Higher Education and Scientific Research to review the teaching of ESP under the LMD system and introduce the necessary changes and reforms that pave the way for effective instruction. Besides, it is essential to provide the required help and implication from the part of the heads of the different departments offering ESP courses as well as ESP teachers and learners in order to put into practice the needed administrative, managerial and pedagogical reforms. This would insure a proper implementation of the LMD systems' principles and objectives for a better consideration of ESP instruction in Algeria and a full consideration and response to students' target needs and careers' prosper.

It should be mentioned, at this level, that the results obtained from this comparative study are not generalizable, and are open to challenge and verification

because the study suffers from certain limitations such as the small number of participants. The researcher focussed on 3rd year Physics students in the Universities of Tlemcen and Paris-Sud, which are not representative of all Algerian and French ESP students. In addition to that, the number of observation sessions was limited because of the researcher's relatively short stay in France, that is why she had decided to triangulate this research instrument with the teachers' interview and students' questionnaire in order to complete the necessary date for the study.

The researcher has suggested some remedial actions based on the data obtained from the present study. Further research may be undertaken, and other comparisons may be done with other countries which have succeeded in implementing the LMD reform and its principles at the level of their universities. More research would enable to collect complementary information and provide further suggestions that may be taken into account and combined to the ones supplied in this study for a full success of the process of ESP instruction under the LMD system at the level of Algerian universities.

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APPENDICES

Appendix A

Master Students' Interview

Dear student,
I am presently conducting a comparative study between Algeria and France as far as the teaching of ESP in the LMD system is concerned. The purpose of this interview is to investigate into the areas of English use after the L3 level, for students undertaking Master studies, in Algeria and France; and to evaluate, at the same time, the quality of ESP instruction provided at the level of the licence in Algerian Physics Departments; as compared to the French ones.

I would be very grateful if you could answer these questions. Your answers will be treated with the strictest confidence.

1-Do you have any English/ ESP instruction at the level of Master studies?

-During which semester (s)

- What is its teaching load?

2-Do you find this teaching load enough?

- Justify your answer, please

3-What do you suggest as far as ESP teaching load at the level of Master studies is concerned?

4-Do you need English at the level of Master studies?

5-When does the need for English language arise at the level of Master studies?

-Justify your answer, please

6-What do you need English for/ what are the areas in which you need the English language during Master Studies?

7-Do you have any difficulties to use the English language during your Master studies?

8-What are the reasons of such difficulties?

9-What do you suggest to avoid having such a type of problems when being confronted to the target uses of the English language during Master studies?

Appendix B

Teachers' Interview

Dear colleague
I am presently conducting a research aiming at comparing between Algeria and France as far as teaching ESP in the LMD system is concerned.
I would be very grateful if you could answer these questions. Your answers will be treated with the strictest confidence.

1-Your degree:

- Licence ☐
- Magister ☐
- Others, please specify

.....
.....
.....
.....

2- Your experience in English language teaching

- Secondary level ..... year(s)
- Tertiary level ..... year (s)
- Other levels/ institutions, please specify and give the number of years spent in each one

.....
.....
.....

3- Your experience in ESP teaching
(Please specify the department (s) and the number of years spent in each one)
.....
.....
.....
.....

4- Did you receive any ESP teacher training?

- Yes ☐
- No ☐

- If yes, please specify the field (s) and the number of years of training .....
  .....
  .....

5- Have you been teaching ESP in the department of Physics in the classical system?

- Yes ☐
- No ☐
- If yes, for how many years? .....year (s)

6- How long have you been teaching ESP in the department of physics in the LMD system?

..... year (s)

7- Which changes has the LMD system brought to ESP instruction as far as Physics studies are concerned?

.....
.....
.....
.....

8- How large are your L3 Physics classes?

..... students

-To which extent does this affect your teaching?

.....
.....
.....

9- What is the level of your L3 Physics students?

- Beginner ☐
- Intermediate ☐
- Advanced ☐

10- Are you L3 students motivated during their ESP course?

- Yes ☐
- No ☐

- Justify your answer, please.

.....
.....
.....
.....

11- Have you carried out any Needs Identification and Analysis before starting to teach ESP to your L3 physics students?

- Yes ☐
- No ☐
- Why?

.....
.....
.....
.....

12- Is there any syllabus provided by your department to teach ESP?

Yes ☐
No ☐
If no, who designs the syllabus?

.....
.....
.....

13- Is there any material provided by your department?

Yes ☐
No ☐
If no, from where do you have your teaching materials?

.....
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.....
.....

14- What is the content of your syllabus?

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.....
.....
.....

15- What teaching materials do you use in your course?

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.....
.....

16- Generally speaking, what kind of language activities do you plan for a given unit?

Listening Comprehension ☐
Reading Comprehension ☐
Word study ☐
Structure study ☐
Language Use ☐
Language Output ☐
Free Reading ☐

17- Can you classify the four language skills (*Reading, Writing, Listening, Speaking*) in terms of the importance devoted to each during an ESP course?

1-
2-
3-
4-

18- Do you think that this weekly teaching time sufficient at this level?

Yes ☐
No ☐

Justify your answer, please.

.....
.....
.....

19- If you find this weekly teaching time insufficient, what do you suggest?

.....
.....
.....

20- Is there any collaboration between you and subject specialists (i.e. subject teachers) in your ESP teaching?

- Yes ☐
- No ☐
- Justify your answer, please.

.....
.....
.....

21- Do you have any remarks or suggestions to add or to remedy the various problems and improve the ESP teaching/ learning situation?

.....
.....
.....
.....
.....

Thank you

Appendix C

Students' Questionnaire

Dear student
I am presently conducting a research aiming at comparing between France and Algeria as far as teaching ESP in the LMD system is concerned.
I would be very grateful if you could answer these questions. Your answers will be treated with the strictest confidence.

1- Sex

- Male ☐
- Female ☐

2- Age

..... years

3- How long have you been learning English before university?

..... years

4- What is your level in English?

- Beginner ☐
- Intermediate ☐
- Advanced ☐

5- Are you motivated to learn English?

- Yes ☐
- No ☐
- Justify your answer, please

.....
.....
.....
.....

6- What is the total number of students in your group?

..... students

7- What is the total number of students attending ESP sessions?

..... students

8- What do you need English for in your studies and further career?

- Getting/ Extracting information ☐
- Undertaking a research ☐
- Reporting a research ☐
- Publishing a research in international journals ☐
- Working in collaboration with foreign researchers ☐
- Taking part in scientific meetings/ conferences ☐
- Pursuing one's career abroad (further studies and/ or research) ☐
- Others, please mention them.

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.....

9- What was the content of ESP courses provided at the level of 2nd year Licence?

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.....
.....
.....

10- What is the content of the English courses provided at the level of L3?

.....
.....

.....
.....
.....

11- Does the English course you have at the level of L3 satisfy your study and further career needs?

- Yes ☐
- No ☐
- Justify your answer, please

.....
.....
.....
.....

12- Would you classify these skills according to their degree of importance to fulfil your target needs?

-Listening - 1
-Reading - 2
-Speaking - 3
-Writing -4

13- Would you classify the four skills in terms of difficulty as far as you are concerned?

-Listening - 1
-Reading - 2
-Speaking - 3
-Writing -4

14- Which other difficulties do you encounter in English?

-Grammar ☐
-Vocabulary ☐
-Word formation ☐
-Pronunciation ☐
-Sentence construction ☐
-Others, please specify

.....
.....
.....
.....

15- According to you, what are the causes of your difficulties in English?

-Your poor level in English

- The insufficient time allocated to the English course ☐

-The inexperience of the ESP teacher ☐

-The lack of an appropriate syllabus to guide the ESP teacher ☐

-The inadequacy of the materials provided (i.e. the content of courses) ☐

-The non-exposure to and practice of the target uses of the English language ☐

-Others, please specify

.....
.....
.....
.....

16- The time allocated to the English course per week at the level of L3 is

- Sufficient ☐
- Insufficient ☐ ☐
- If insufficient, how many hours a week do you suggest?
  ..... hours

17- Apart from university ESP courses, do you have recourse to other means to cater for your lacks and meet your target needs in English?

- Yes ☐
- No ☐
- If yes, please mention them

.....
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.....

18- Do you have any other remarks or suggestions to add in order to improve ESP course effectiveness and remedy your lacks?

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.....

Thank you

ملخص

الهدف من هده الأطروحة هو تقويم الوضع الحالي لتدريس اللغة الانجليزية لأغراض خاصة تحت نظام ل-م-دي على مستوى الجامعات الجزائرية. لهدا السبب أجرت الباحثة دراسة مقارنة بين الجزائر و فرنسا حول تدريس اللغة الانجليزية لأغراض علمية تحت نظلم ل-م-دي و سلطت الضوء حول طلبة السنة الثالثة ليسانس بمعاهد الفيزياء بكليات العلوم على مستوى جامعتي تلمسان (الجزائر) و باريس-سود (فرنسا). تم اختيار فرنسا بعمد بحيث هي من بين أول البلدان الدين اعتمدوا نظام ل-م-دي و نجحوا في تبني و تطبيق مختلف قوانينه و وسائله على مستوى جامعاتهم. الهدف الرئيسي من هده المقارنة هو جمع معلومات حول الوضع الحالي لتدريس اللغة الانجليزية لأغراض خاصة بالجزائر و فرنسا بداية و المقارنة بين الحالتين بعد دلك بغاية اكتشاف ما يؤثر سلبيا على الوضع الجزائري و اقتراح الحلول اللازمة.

الكلمات المفتاحية : دراسة مقارنة - اللغة الانجليزية لأغراض خاصة- اللغة الانجليزية لأغراض علمية- نظام ل-م-دي- الجزائر- فرنسا.

Résumé

L'objectif de la présente étude est d'évaluer l'enseignement de l'Anglais de spécialité en Algérie dans le cadre de la réforme du LMD. Par conséquent, une étude comparative a été entreprise concernant l'enseignement de l'Anglais de spécialité dans le système LMD entre l'Algérie et la France, plus précisément celui de l'enseignement de l'Anglais scientifique pour les étudiants de la troisième année Physique, au niveau des Facultés des Sciences, aux Universités de Tlemcen (Algérie) et Paris-Sud (France). La France a été choisie car c'est l'un des premiers pays à avoir adopté cette réforme et à avoir réussi a implanté ses différents principes et moyens au niveau de ses universités. Le but de cette comparaison est de collecter des faits concernant l'enseignement de l'Anglais de spécialité en Algérie et en France et de comparer, par la suite, les deux situations, dans le but de souligner les difficultés majeures dont souffre l'enseignement de l'Anglais de spécialité en Algérie et de proposer des solutions adéquates.

Mots clés : Etude comparative, Anglais à but spécifique, Anglais scientifique, le système LMD, l'Algérie- la France.

Abstract

The aim of the present research work is to evaluate the state of the art of ESP instruction in Algerian universities under the newly implemented LMD reform. To do this, a comparative study has been undertaken concerning ESP teaching in the LMD system in Algeria and France and focused on one EST teaching/ learning situation namely that of third year Licence students in Physics in the Faculties of Sciences at the level of the Universities of Tlemcen (Algeria) and Paris Sud (France). The choice of France was done on purpose since it is one of the first countries which have adopted this reform and succeeded in the implementation of its different principles and tools in its universities. The purpose behind this comparison is to collect facts about how ESP instruction is undertaken in Algeria and France, then contrast the two situations with the aim to highlight any drawbacks affecting negatively ESP instruction in Algeria and provide adequate remedies.

Key words: Comparative study, ESP, EST, the LMD system, Algeria, France.

SUMMARY

The 21st Century is increasingly characterized by the tremendous interdependence between the different parts of the world in different fields. This is occurring under the pressure of globalization: a process of international relationships and interdependence in the various economic, political, scientific, technological, social, as well as cultural activities and movements worldwide.

Such a global interconnectivity has generated an urgent need for an international means of communication which has been attributed to the English language. The latter has, thus, shifted from its previous status of colonial language, in some countries, to the position of vehicle of communication between the different nations under the label of "lingua franca". As a result, English has become the world's prime international language assuring access to scientific exchanges, technological development and business negotiations. In short, it has become a key issue for growth in general. This world-wide recognition of the English language and of its importance, favoured the promotion of English language teaching (ELT) in many parts of the world, and our country is no exception.

Since the early 1960's, ELT has gone through several methods and approaches. However, today's motto seems to be teaching English as a means of communication. Therefore, English teaching is seen as having a wider role to play than merely the familiarization with the civilization and culture of the target language. Rather, it is the utilitarian and practical aspect of English at the international scale, be it economic, scientific, political or even social, which allows such a language to enjoy the place it occupies, and which is most focussed in today's English Language Teaching (ELT) policies. This resulted in the expansion of one particular aspect of ELT namely English for Specific

Purposes (ESP). As with any development in human activity, ESP was not a planned movement but rather the result of a number of converging trends specifically: the enormous expansion in scientific, technical and economic activities, the advent of modern linguistics and the attention given to language functions and, finally, the emphasis on the central importance of the learners and the consideration of their different needs and interests. Consequently, ELT saw the development of English courses for specific groups of learners according to the linguistic demands of their required area of work and/or study. Courses were to be designed in accordance with the different learners' requirements in order to sustain motivation and promote effective learning.

Therefore, ESP has become an important, if not the most important, part of English language teaching, today. Still, it is not considered as any particular language product but as an approach to language teaching in which all decisions about content and method are based on the learners' reasons for learning.

With the recognition of the diversity of learners' needs, aspirations, learning styles, levels of proficiency, expectations and motivation, a need for designing teaching materials adapted to particular learners' needs was generated in many schools, universities and higher institutions worldwide. Such a need was strongly felt in the technological, scientific and economic fields where English is used as a means for access to up-to-date documents and discoveries, international meetings and conferences as well as a key for further studies and future professional careers. As a matter of fact, at the tertiary level, many departments have responded to this increasing demand for specific academic and occupational courses.

However, just as globalisation promoted English as the world's prime international language and favoured its necessity and specific use in various fields, it has also influenced the different educational systems throughout the

world and mainly the tertiary one. Such an impact resulted in the birth of a new higher education reform embodied in what is nowadays known as the LMD system. This system, originally initiated by European countries, is a new way of organising higher education aiming at harmonising its different degrees, providing better academic opportunities to the whole university staff, entailing cooperation as well as competition between the different universities nationwide and enhancing their role as important contributors to the building of knowledge-based societies.

Like many young nations willing to extend her commercial and scientific exchanges with various countries in the world, Algeria officially introduced the English language as a second foreign language from the middle school to the university. At university level, English is taught as the main subject in the Departments of Foreign Languages. In the remaining departments, such as those of Economics, Law, Physics, Engineering and Computer Sciences, it is taught as a compulsory module to equip students with the specific register and vocabulary needed in their fields of specialisation, through ESP courses. Moreover, as a country following the flow of globalisation, Algeria also introduced and implemented the LMD system at the level of her higher education institutions. This reform was, firstly, put into practice as a pilot process during the academic year 2004- 2005 before being generalised at the national level of the following years. Through this reform, Algerian authorities seek an opening to global developments, especially those of science and technology. The LMD system, as an international higher education reform has reviewed the place of ESP courses in the different curricula and introduced its teaching at previous stages than before. In Algeria, ESP courses are nowadays provided in different institutions nationwide beginning from the Licence degree, whereas they used to be introduced at the level of post- graduate studies under the formerly applied classical system.

A previous research undertaken by the researcher revealed that ESP teaching was not adequately performed within the classical system and did not cater for students' actual necessities, lacks and wants, both in terms of content and methodology. The needed skills and language knowledge required in the target situations were completely neglected in the syllabus and the teaching was offered by untrained and inexperienced teachers for whom delivering an ESP course was really a struggle (Hemche, 2006). The aim of the present work is to investigate the teaching of ESP in Algeria under the relatively newly applied LMD reform. Such a reform aims primarily at ensuring quality teaching through rendering worldwide universities more responsive to the challenges posed by globalisation. Therefore, the researcher aims to investigate whether ESP instruction has appropriately been reviewed, under this system, at the level of Algerian universities and if it copes with students' target needs and, hence, entails better outcomes than its teaching under the classical system.

France is considered as one of the leading countries regarding the implementation of the LMD system, its architecture and principles are concerned. Therefore, in order to evaluate ESP instruction under the LMD system in Algeria, a comparative study will be undertaken, throughout this work, between Algerian and French universities as far as ESP teaching in the LMD system is concerned. The purpose behind this process is to collect facts about how such a process is undertaken in Algerian and French universities, then, contrast the two situations with the aim of depicting any drawbacks or difficulties and providing therefore some adequate solutions.

For the sake of fulfilling the intended comparative study, focus will be put on an English for Science and Technology (EST) situation, more precisely, that of third year Licence students in the Departments of Physics at the level of the Faculties of Sciences, in the Universities of Tlemcen and Paris. These students have been chosen on purpose since during their third year

Licence, Physics students start specialization in the domain of Physics. Therefore, their target needs from the English language are well defined, and the researcher wants to check if these are well responded to through the changes brought by the LMD system to ESP instruction, in both settings.

Accordingly, the main issues of the present study revolve around the following research questions:

5- Which changes has the LMD system brought to ESP instruction in Algeria and France?

6- Do these changes cope with students' academic and professional needs?

7- Is ESP instruction provided within the LMD system in Algerian and French universities similar or different?

8- How can ESP instruction be improved in Algeria to reach international standards?

The above mentioned questions led to put forward the following hypotheses:

5- The LMD system has reviewed the place of ESP instruction and introduced it at the level of the Licence. This initiative brings reconsiderations to ESP instruction especially in terms of teaching load, materials, training, evaluation as well as other facilities, such as language laboratories and multimedia tools. The fact is that the LMD system offers two different directions to students: academic and professional, leading to design tailor-made courses.

6- The changes introduced to ESP teaching within the LMD reform will probably better cater for students' target needs, in both Algerian and French settings. Such a system targets teaching quality, enables students to define and build their academic profiles through personal initiatives, and prepares them for subsequent vocational and professional careers, through a more learner-centred approach to teaching.

7- The LMD aims at harmonizing higher education systems worldwide. Thus, Algeria and France are supposed to have paved the way for the same re-adjustments and changes imposed by this reform and thus providing the same type of instruction in the various domains including the ESP and, hence, EST ones.

8- ESP instruction can reach international standards in Algeria only if it is appropriately and adequately implemented within the institutions concerned. This requires the introduction and application of modern concepts and procedures that must not only be accompanied by corresponding re-adjustments but infrastructural development as well. This implies the provision of material resources, human resources and up-to-date facilities, in addition to a permanent follow-up and evaluation of the dynamics of ESP instruction, in Algeria, which has to be initiated in order to be constantly at the level of the quality and proficiency expected.

In order to check the validity of the hypotheses put forward, the researcher will make use of five research instruments, in both settings. Two of them will be used to have a clear picture of the requirements of the target situation, namely, Master students' interview and an observation of the target uses of the language. The three remaining research instruments, which are a structured interview with ESP teachers, a questionnaire with ESP students and classroom observation, will be used to highlight the current ESP teaching/learning situations in Algerian and French universities.

The present work consists of five chapters. The first chapter provides a broad overview of English for specific purposes covering its appearance, definitions and classifications. After that, the researcher focuses on one of its most important subdivisions, used by the scientific community, EST. This category of ESP is, then, defined, classified and contrasted to General English. Moreover, its main discourse patterns are displayed as well as the main parameters involved in its teaching and learning.

The second chapter revolves around an introduction to the LMD system as a world higher education reform. The main factors favouring the appearance of such a reform are discussed, especially globalization and the Bologna Process. Accordingly, the different Bologna Ministerial meetings, which established this system's principles, are presented. Besides, the different Bologna transparency tools and their functioning, as well as the LMD related vocabulary are explained. At the end of this chapter, the researcher focuses on the implementation of the LMD system in Algeria and France and the different incentives and processes lying behind its adoption, in each setting.

The third chapter is divided into two parts. The first one focuses on the situation analysis and provides the EFL and ESP situations in each setting. After that, the ESP situation at the level of the Departments of Physics in the

Universities of Tlemcen and Paris-Sud are presented, covering the status of ESP courses in these departments as well as their teaching load. The second part of this chapter deals with the research methodology. It presents the research design, the informants and research tools used to carry out this research.

In the fourth chapter, the data collected, in each setting, through the aforementioned research instruments are analysed. After that, they are discussed then contrasted. The aim behind this process is to evaluate ESP instruction under the LMD system in Algeria, as opposed to the one provided in France, one of the leading countries in terms of the LMD system. This comparison will give the researcher an idea about the type of re-adjustment that should be brought to ESP teaching in Algeria in order to remedy the detected drawbacks.

In the fifth and last chapter, some suggestions and recommendations based on the results obtained from the comparison undertaken are presented. These remedial actions are hoped to overcome the difficulties identified and adjust EST teaching in particular and ESP teaching in general under the LMD system and make them reach international standards in Algeria.

The analysis, interpretation and comparison of the data gathered, in both settings, through the research instruments used in the present study enabled to check the validity of the hypotheses set. As regards the first hypothesis, it was found that the LMD system has brought important reconsiderations to ESP instruction in French universities concerning teaching materials, aids, methods and training. However, the situation is different in Algerian universities. In the French context, ESP teaching starts by a Placement test, for which students sit to determine their English background and divide them into groups to receive ESP

instruction. This process aims at the design of adequate teaching materials. Moreover, in French universities, ESP courses are offered by experienced ESP teachers who emphasise on the type of skills and tasks needed by the learners to fulfil their target needs. These courses are supplied in the Department of Languages which makes at ESP teachers' and students' disposal a set of teaching materials and facilities that favour ESP teaching and learning. Moreover, learners' evaluation in such an institution is based on continuous assessment, a process which plays a great role in learners' regular attendance and constant progress. In the Algerian context, however, ESP instruction is not yet witnessing enough attention under the newly applied LMD reform. Firstly, there is no prior consideration of students' target needs before ESP instruction; secondly, ESP courses are provided by inexperienced teachers who deliver irrelevant ESP courses since they receive neither guidance nor support from their departments. As a result, most Algerian ESP students under concern were disinterested and frequently absent during ESP sessions; especially that the latter were assessed just twice a year, at the end of each semester.

Concerning the second hypothesis, it has been infirmed by the results obtained from the research instruments used. In fact, they revealed that whereas ESP instruction in France coped with students' target needs, the situation was not the same in the Algerian context. French ESP instruction was based on a prior thorough consideration of learners' target needs through the Placement Test all ESP students sit for at the beginning of each academic year in order to determine their English proficiency level and the type of content suitable to cope with their lacks in the target language. In addition to that, the Department of Languages supplies ESP teachers with the general course objectives and the main aspects to focus on during their lectures in order to reach course effectiveness and assure a good coverage and full centeredness on students' target needs. Nevertheless, and as previously mentioned, the situation is far from

being similar in the Algerian context as ESP teaching failed to cope with students' target needs under the LMD reform. The results obtained from the research tools used revealed that Algerian students had a low level in English and were unable to fulfil their target needs. This derived from the teacher who was in charge of teaching ESP since as subject specialist in Physics, he had received no previous training before teaching ESP and was given no guidance or support from the administration to design ESP courses. As a result, he used to work out inadequate teaching materials that failed to cater for students' lacks and pushed a great number of them to have recourse to out-of- classroom services to fulfil their target needs.

As far as the third hypothesis is concerned, the data gathered through the research instruments used in the present research revealed that ESP instruction provided in Algeria and France was different. In the French setting, ESP instruction was provided at the level of the Department of Languages and by qualified ESP teachers. This teaching was done in small groups according to students' English proficiency level determined by the Placement Test students sit for at the beginning of each academic year. Moreover, ESP teachers were provided the general course objectives and the necessary aids to design appropriate teaching materials and cope with students' target needs. In the Algerian context, however, ESP instruction was under the charge of a subject specialist who had never been trained to teach ESP. Moreover, he did not receive any support from his department in terms of teaching materials and aids. Besides, there was no consideration of students' target needs, lacks and wants prior to ESP instruction. Therefore, the teacher under concern designed inadequate ESP courses and this had a negative impact on ESP students' proficiency level, attendance and motivation.

As regards the last hypothesis, it was confirmed through the triangulation of the results obtained from the different research instruments. Accordingly, a

proper consideration of the main bases of any ESP instruction in terms of needs identification and analysis, syllabus design, materials' production, assessment as well as teacher training has to become an integral part of any ESP teaching/ learning process nationwide, first. Second, the current Algerian ESP situation necessitates a review of the principles of the LMD system in terms of financial as well as human resources to ensure teaching quality, qualifications' recognition and staff mobility.

In sum, more financial help has to be provided by the Algerian Ministry of Higher Education and Scientific Research to review the teaching of ESP under the LMD system and introduce the necessary changes and reforms that pave the way for effective instruction. Besides, it is essential to provide the required help and implication from the part of the heads of the different departments offering ESP courses as well as ESP teachers and learners in order to put into practice the needed administrative, managerial and pedagogical reforms. This would insure a proper implementation of the LMD systems' principles and objectives for a better consideration of ESP instruction in Algeria and a full consideration and response to students' target needs and careers' prosper.

It should be mentioned, at this level, that the results obtained from this comparative study are not generalizable, and are open to challenge and verification because the study suffers from certain limitations such as the small number of participants. The researcher focussed on 3rd year Physics students in the Universities of Tlemcen and Paris-Sud, which are not representative of all Algerian and French ESP students. In addition to that, the number of observation sessions was limited because of the researcher's relatively short stay in France, that is why she had decided to triangulate this research instrument with the teachers' interview and students' questionnaire in order to complete the necessary date for the study.

The researcher has suggested some remedial actions based on the data obtained from the present study. Further research may be undertaken, and other comparisons may be done with other countries which have succeeded in implementing the LMD reform and its principles at the level of their universities. More research would enable to collect complementary information and provide further suggestions that may be taken into account and combined to the ones supplied in this study for a full success of the process of ESP instruction under the LMD system at the level of Algerian universities.

Internal and External Evaluations in the LMD System

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Abstract

Pour rendre les universités Algériennes plus responsives aux multiples challenges imposés par la mondialisation, l'Algérie a pris la ferme décision d'adopter et implémenter le système LMD comme part de la nouvelle réforme au niveau de l'enseignement supérieur.

Ce système apporte de nouveaux concepts ainsi que des procédures inédites qui ne doivent pas être accompagnés de réajustements académiques seulement, mais aussi d'un développement infra-structurel. De plus, la logique de cette réforme impose une évaluation permanente de la dynamique de l'établissement qui l'adopte pour être au niveau de qualité et compétence attendu. Ce type d'évaluation porte sur l'offre de formation, la qualité des services, l'animation pédagogique ainsi que la vie étudiante.

Cependant, le présent article va essayer d'introduire quelques nouvelles orientations et perspectives qui doivent être adoptées pour implanter ce nouveau type d'évaluation qui va de pair avec le système LMD. Il s'articule principalement autour de deux processus interdépendants et complémentaires qui sont l'évaluation interne et l'évaluation externe.

L'évaluation interne est généralement réalisée par le(s) responsable(s) de l'institution concernée(s) et met l'accent sur la réalisation ou non des objectifs de cours. En d'autre terme, elle couvre à la fois l'évaluation du cours et celle de l'enseignant.

Quand à l'évaluation externe, elle est normalement conduite par le Ministère de l'Enseignement Supérieur et porte sur le projet d'établissement dans son ensemble .Elle insiste aussi sur des aspects spécifiques tels que l'offre de formation, les enseignements, les services, la recherche et, notamment, sur l'adéquation entre la qualité et la responsabilité de cette recherche et les défis prioritaires du pays en termes de développement socio- économique.

En résumé, le but de cette nouvelle perspective est de constamment maintenir toute institution appliquant le système LMD à un niveau de qualité optimale.

1-Introduction

Out of a desire to be totally involved in the present and for the sake of rendering Algerian universities more responsive to the challenges posed by globalization, Algeria has take a firm decision to adopt and implement the LMD system as part of the educational reform at the level of higher education. This Anglo- Saxon program has proved its success and has more or less been adopted by most not only European countries but also most countries of the world.

2-A Glance at the LMD System

Such a system makes provision for three years of study at the undergraduate level to obtain a Bachelor's Degree, two years of study to obtain a Master's Degree and three years for a PhD.

In a nutshell, the LMD system has been conceived to ensure greater spatial, social and professional mobility on the one hand, and diversification on the other. Two indispensable requirements that are unfortunately lacking within the higher education world in Algeria, at the moment.

This system has also the advantage of enabling students to build and define their academic profiles better through personal initiatives, prepares them for subsequent vocational and professional careers, favors a greater mobility of students within their own institutions and the external world and encourages training or studies for those who desire it.

The aim behind changing the system of teaching in our educational structure at university level is to create an overall innovation within the Algerian universities to permit them follow the flow of real foundations adequate with the evolution of not just scientific research and educational techniques, but the world as well.

Such a system brings modern concepts and procedures that must not only be accompanied by corresponding academic re-adjustments, but infra-structural development as well in terms of fund and human resources (ie.information technology, libraries for the research, computing labs, etc). Besides, it imposes a permanent evaluation of the dynamics of the institutions which have adopted it to be constantly at the level of quality and proficiency expected. Such an evaluation turns broadly around the type of training provided to the teachers, the quality of teaching, the educational activities and students' evolution within the institution.

3-Evaluation Defined

Evaluation is a process of enquiry in which data are gathered through different instruments and from different sources. These records are interpreted to make important decisions based on the research results. It will also help us to make a judgment about a given situation.

Generally, any evaluation process requires information about the situation in question. A situation is an umbrella term that takes into account such ideas as objectives, goals, standards, procedures and so on. In an educational setting, evaluations are usually done in the context of comparisons between what was intended (learning objectives) and what was obtained (learning outcomes).

This should be done to stimulate growth, change and improvement in teaching.

4- Types of Evaluation in the LMD Context

The present paper tries to shed light on some new orientations and perspectives that should be adopted to implement a particular type of evaluation that goes hand in hand with the LMD system. It revolves mainly around two interrelated and complementary processes; the first of which is called Internal Evaluation and the second External Evaluation.

4-1-INTERNAL EVALUATION

It is generally carried out by the responsible(s) of the institution in question and focuses on the realization or not of course objectives. To reach this aim, each institution has to put in practice an internal evaluation grid .This will make it possible to constantly proceed to the necessary adjustments.

It should be noted that evaluating the internal efficiency takes into account the outcomes of the system itself without considering the impact (be it positive or negative) of such results outside the institution in question. In other words, internal evaluation seeks only to check if the course objectives fixed are reached.

Internal evaluation covers both the evaluation of the course and that of the teachers. It is essentially based on the learners' appreciation of the course in general and points at two major objectives. It enables; at the one hand; each teacher to be aware of his students' opinion about the pedagogic and educational elements of his/her teaching. On the other hand, it assesses the organization

of the studies according to the principle modalities fixed by the responsible(s) of the institution concerned.
In other words, teaching evaluation makes it possible to check if that teaching is responsive to efficiency objectives and if the teachers have the knowledge and competencies required to provide students with the best possible training /formation in their respective disciplines.

To support this process of Internal Evaluation also referred to as Teaching Evaluation, the present grid can be suggested.

Teacher	*Student's Level*	*Course* .....

		Poor	*Average*	*Good*	*Very good*
Form of the course	A	Tick the appropriate boxes			
• *Structure*	A1				
• *Presentation*	A2				
Content of the course	B	Tick the appropriate boxes			
• *Interest*	B1				
• *Level*	B2				
Teachers' performance	C	Tick the appropriate boxes			

• Punctuality	C1				
• Presentation of the course	C2				
• Mastery of the content	C3				
• Teaching methods	C4				
Other remarks or observations					

Internal Evaluation Grid

This latter focuses on three main variables namely:
A/The form of the course: that is, how is it structured and presented to the students or audience.
B/The content of the course: i.e. is the content provided interesting and does it cope with students' needs and level.
C/ The teachers' performance: here, the teachers are judged in terms of their punctuality, presentation of the course, mastery of the content provided and pedagogy (the teaching methods used).
To each of these variables and at the end of each teaching, students are asked to give their opinions in a totally anonymous way. For the sake of having objective results, each teacher should be evaluated by at least two classes of different levels and from two distinct cycles, if possible. (License and master; or master and doctorate).
This type of evaluation, which may be difficult to accept by the teachers gives a broad view about the state of the institution concerned at the pedagogic or educational level and enables to bring solutions for the drawbacks identified.

To end with this section of Internal Evaluation, the importance of such a process should be highlighted as a necessary condition to join the objectives of institution development with international standards.

4-2-EXTERNAL EVALUATION

At the national level, external evaluation is to be normally carried out by the Ministry of Higher Education and judges the institution as a whole. This revolves around some specific aspects such as training services, teaching quality, and students' life inside the institution. Besides, external evaluation covers research and notably the adequacy between the quality and responsibility of such a research and the priority objectives of the country in terms of the socio-economic development. External evaluation encloses mainly:

A / Assessing Institutions' projects:

Each institution should undertake a clearly defined and purposeful project under the guidance, monitoring and funding of the Ministry of Higher Education. Such a project should be based on a sound contract insisting on its total respect, the transparency of the data (i.e.facts and results) reported and the promise to search for/or suggest new practices and perspectives.

B / Assessing training offers:

This process is highly necessary since it gives an idea about the amount and qualifications of the teachers trained to be ready to take in charge teaching sessions. Such information will make it easier to allocate the

different institutions in terms of their staff's competencies.
For instance: to create an ESP department because we have teachers who have been trained to teach ESP

C / Teaching assessment:
As previously mentioned, evaluating teaching is an approach which seeks to improve the institution's level. As such, it contributes to the reinforcement and promotion of the institution's credibility vis à vis the outside world (i.e.the other departments, universities and the Ministry of Higher Education).
At the same time as internal evaluation is put to use, it is as necessary to evaluate teachers at an external level.

D / Services' quality Assessment:
Each institution which implements the LMD system has to cope with the issues of this important reform and to adapt its services to direct students efficiently at different levels (such as education and mobility) and provide the required facilities such as information technology (like the Internet and virtual classrooms), libraries for studies and research and computing labs.

E / Assessing the Quality and Responsibility of University Research:
Speaking about research is to make reference to the scientific system, a dynamics which comprises research laboratories, and higher education institutions. Such a structure has a great importance in the promotion of knowledge since it contributes to accomplish three major functions, namely:

➢ ***Knowledge Production***: to develop and provide new knowledge.

➢ ***Knowledge Transmission***: to teach and develop human resources.

➢ ***Knowledge Transfer***: to spread knowledge and provide the required elements to solve problems.

5-Conclusion

In what has preceded, we have shown that one of the most prominent conditions to bring the LMD reform to success and maintain its running at an international level, is the adoption of the principle of permanent evaluation, be it internal or external. Such a process will fix the objectives, clarify the organization, formalize the practices and sensitize all the partners concerned being the responsibles, administrators, teachers, students and service staff about the question of the efficiency of the institution to bring it to an optimum quality level ,provided that the necessary tools required to reach such an objective are developed and implemented.

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_AN EST COURSE GESTATION PROCESS:

THE CASE OF FIRST YEAR MASTER STUDENTS OF PHYSICS ABOU BAKR BELKAID UNIVERSITY TLEMCEN

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Abstract

Once dived into the deep waters of ESP teaching, ESP practitioners in general; encounter serious problems, one of which is the shortage of teaching materials. To help overcome such a difficulty, the present work suggests an EST course gestation process upon which the design of teaching units can be based.

Key words: English for specific purposes (ESP); English for Science and Technology (EST); Needs Identification and Analysis (NIA); Course Design.

I- Introduction

The present work investigates into a particular ESP teaching / learning situation, namely that of first year Master students of Physics at Abou Bakr Belkaid University,Tlemcen (Algeria).

With close reference to the aforementioned students, it has been noticed that after seven years of English learning experience before embarking upon their post-graduate studies; (i.e. five years before entering university and two years at the tertiary level); and despite the prominent importance of the English language to carry out further academic and/ or professional careers, the teaching/ learning situation in this department still remains unsuccessful, and the learners are still unable to cope with the requirements of the target situation. In other words, they are faced with a number of difficulties and linguistic weaknesses which hinder their English learning and practice from being effective.

II- Objectives of the Study

The study was conducted with the following two objectives in view:

1/ highlighting the main reasons behind such unsatisfactory results through the process of Needs identification and Analysis (NIA), based on:

a-*Target Situation Analysis*; in order to:

- Identify the situations in which the target language will be put.
- Determine the discourse components and linguistic features required to pursue further academic and/ or professional careers in the field of Physics.

b- *Present Situation Analysis*; with the aim to:

- Estimate students' strengths and weaknesses in language; skills and learning experiences (Jordan 1997).
- Identify students' purposes and perceived needs.
- Investigate into what is actually happening in the teaching/ learning situation.

c- Contrast students' present knowledge of the English language to the one required in the target situation to determine their lacks.

2/ Suggest a remedy to the detected drawbacks.

III- Research Tools and Methodology

The main concern of this research is to identify the problems facing first year master students of Physics; at Tlemcen University; as far as English learning is concerned. It seeks to search for a more

adequate framework for teaching and learning such a language, to get rid of the difficulties and inconsistencies encountered by both teachers and learners and, thus, help students to behave adequately in the target situation.

To meet these ends, the researcher had recourse to several data collection methods. These instruments have been selected according to the type of information sought for as well as the sources of data used (such as the learners or EST teachers).

1/ Interview with Former Post- Graduate Students of Physics:

In order to have a clear picture of students' target needs, an interview was held with ten former post- graduates in Physics, who are nowadays pursuing either academic or professional careers. The interviews were conducted over a period of two weeks. Some of their questions were structured and others semi- structured to allow the interviewees to talk freely about the area under study.

2/ Classroom Observation:

In addition to determining the target uses the language was put to, the researcher needed to seek information about what was actually happening in the teaching/ learning situation itself. To achieve this aim, the investigator relied on class observation, since it is regarded as "*the only way to get direct information on the classroom behaviour of teachers and learners*" (Weir and Roberts 1993:136).The other purpose of this enquiry was to determine the gap existing between the knowledge provided to the students and the one required in the target situation, through assessing:

- The course content provided.
- The way the course is conducted.
- Learners' actual language proficiency.
- Learners' lacks.

The number of the students in the group was thirty- eight but only twenty- two were under observation, since they were those who were always present during the twelve- week experiment. To collect the necessary data, the researcher had recourse to note- taking and audio-recordings. The latter means was used to record learners' linguistic behaviour.

3/ First Year Master Students Questionnaire:

Since the learners are the centre of the concept of ESP, they were considered; in this research; as an integral part of data collection. Thus, in order to elicit more information necessary to the present situation analysis (PSA), a questionnaire survey was distributed to first- year post- graduate students. The questionnaire was addressed to all of the thirty- eight learners making up the group under study. It comprised twenty- one questions of four different types, namely open, closed, mixed and graded questions.

The primary objectives of this research tool were to collect data about:

- Students' attitudes towards the EST course.
- Students 'linguistic background.
- Students' opinions about the teaching load.
- Students' opinions about the content provided.
- Students' difficulty as far as the English language is concerned.
- The type of content they would like to learn.

4/ EST Teachers' Interview:

It was intended; at the beginning of the research; to administer a questionnaire to the EST teachers, too. However, due to their limited number of such teachers in the department of Physics, the researcher resorted to using the interview guided by the questions prepared for the questionnaire. Teachers' interview may, then, be said to be a structured interview.

Since there was only one EST teacher involved in the situation under study, the investigator was compelled to have recourse to three language teachers who have been previously working in the same department for periods varying from one to four years.

The interview had been conducted with those specialists within a period of a week. Its primary objectives were to have an idea about:

- Teachers' background and qualifications.
- The available teaching aids and materials.
- The course design process.
- Students' perceived needs and lacks, and difficulties.

IV- Data Analysis and Interpretation

This part will focus on a thorough analysis and interpretation of the different data collected through the aforementioned research instruments.

Former post- graduates' interview enabled; on the one hand; to determine students' target needs, that is the different uses of the target language required either during academic or professional careers. On the other hand, classroom observation, students' questionnaires and teachers' interviews helped to give a thorough and overall understanding of what was actually happening in the teaching/ learning situation under concern and to detect the different elements affecting such a situation either positively or negatively. The results obtained are summarized in what follows:

1- Areas of Language Use

The students may be confronted to various uses of the target language during as well as after post- graduation. These uses are either academically or occupationally oriented, but whichever the situation is, the English language is highly required, mainly for:

- Getting information, as a post-graduate, subject teacher or researcher.
- Undertaking a research.
- Being in permanent contact with foreign researchers.
- Work in collaboration with foreign researchers.
- Reporting the research activity.
- Publishing research reports, scientific articles, comments and summaries.
- Taking part in scientific meetings.

2- *Settings of Language Use*

The target language may be used in different physical environments to fulfil either academic or professional purposes. In the situation under concern, these settings are; in both cases; nearly the same and involve the following:

– **The classroom**, i.e. during the teaching or learning processes.

- **The library**, i.e. where the physicist finds the needed literature for his studies, research or teaching. This activity can also occur at home, in a personal home study or work.
- **The research laboratory**, at this level, the student or researcher carries out theoretically and practically. In a laboratory, too, one is likely to work alone or collaboratively with other Algerian or foreign fellows, on a given research project.
- **The conference room**, the English language is also put to use during international meetings for various purposes. It may be used to present scientific achievements, results and findings; to argument and take part in debates; and to interact and exchange ideas with visiting experts, lecturers and researchers.
- **The cyberspace**, where it is possible to search for the information needed, publish findings, reports and articles, and communicate with other subject specialists through the Internet.

It is worth mentioning that the Algerian physicist can find himself in the aforementioned settings either **in his country** or **abroad** where he may spend a short or relatively long period depending on his target objective(s).

3-The Language Skills Required

Students' grading of the four skills in terms of importance is represented in the table below:

Number of the students / *The skills*	*Absolute Frequency*	*Relative Frequency*
Listening	8	21,05 %
Writing	10	26,31 %
Reading	11	28,94 %
Speaking	9	23,68 %
Total	38	100 %

Table 1: Importance of the Four Skills

Needs analysis revealed that the four skills have nearly the same degree of importance to fulfill students' target needs. Hence, language receptive skills are as important as the productive ones to meet learners' needs.

As far as students' difficulties in the four skills are concerned, the results are summarized in the table below:

Number of the students / *The skills*	*Absolute Frequency*	*Relative Frequency*
Listening	8	21,05 %
Writing	11	28,94 %
Reading	7	18,42 %
Speaking	12	31,57 %
Total	38	100 %

Table 2: Classification of the Four Skills in Terms of Difficulty

The results show that the majority of the learners seem to have weaknesses with the productive skills of the language; i.e. speaking and writing. Nevertheless, a considerable number of the learners have problems with the receptive skills; i.e. listening and reading, as well.

In view of their importance in the target situation, appropriate training on language skills represents an urgent need to cater for learners' difficulties. Such a practice should be integrated in the design and production of teaching materials.

4-Course Content and Conduct

The study revealed also considerable drawbacks as far as the preparation, content and conduct of the course are concerned. These could be summarized in the following points:

- EST teachers feel completely at a loss, without any previous training to teach ESP/ EST.

- The choice of teaching materials is generally done at random; thus, uninteresting themes and activities are selected.
- Nearly the same type of content provided throughout the different units.
- The choice of topics/ activities is neither gradual nor challenging.
- No consideration of students' actual needs, lacks and wants.
- Great absenteeism from the part of both EST teachers and students

5-Students' Linguistic Problems

The learners are on the whole poor manipulators of the English language both in its written and spoken forms. The relatively few utterances produced by the students revealed important shortcomings in the following areas:

- ***Phonology:***

The majority of the students tend to mispronounce some English speech sounds. However, such a problem occurs more frequently with vowels than consonants, especially English diphthongs which are often shifted into Arabic or French vowels. The same difficulty is noticed with stress and intonation. Examples of some mispronunciations are given in the following table:

Areas of difficulty	*Examples of words expressions*	*The wrong pronunciation*	*The right pronunciation*
Consonants	Gas	/gæz/	/gæs/
Vowels	Ionisation	/ionizæʃn/	/aɪənaɪzeɪʃn/
Stress	Temperature	Temperàture	'temperature
Intonation	Steam may be liquified	Steam may— be—liquified	Steam— may be liquified

Table 3: Students' Phonological Problems

- ***Vocabulary:***

Students' vocabulary is very limited, be it in general science or in Physics. Although they have, sometimes, too much to say or write, they do not have enough vocabulary to do so. Therefore, they make too much use of French and/or Arabic words or full sentences, as a final resort, to express themselves and make themselves understood. Moreover, nearly all the English words used are mispronounced.

- ***Grammar:***

Interference of Arabic and French is also noticed at thislevel. In other words, the target learners tend to transfer the grammatical structures of their first and second languages to the English language. Besides, they encounter serious grammatical problems displayed in different areas such as word order, tenses, the passive voice, auxiliaries and articles, among others. Some incorrect grammatical sequences are illustrated in what follows:

Word Order ⟶ example: The results **twice** have been checked

Auxiliaries ⟶ example: **Is** the generator create energy?

Negatives ⟶ example: The temperature **increases not**

Pronouns ⟶ example: Heat **it** is not a source but a form of energy

Tenses ⟶ example: The experiment **beginned** at 10:00 a.m.

Passive Voice ⟶ example: It is confirmed ~~(by)~~ the results obtained

Articles ⟶ ~~exa~~mple: **(the)** system studied comprises many sub- systems

Adjectives and Adverbs ⟶ example: An earthquake **general** lasts a few seconds

V- Results

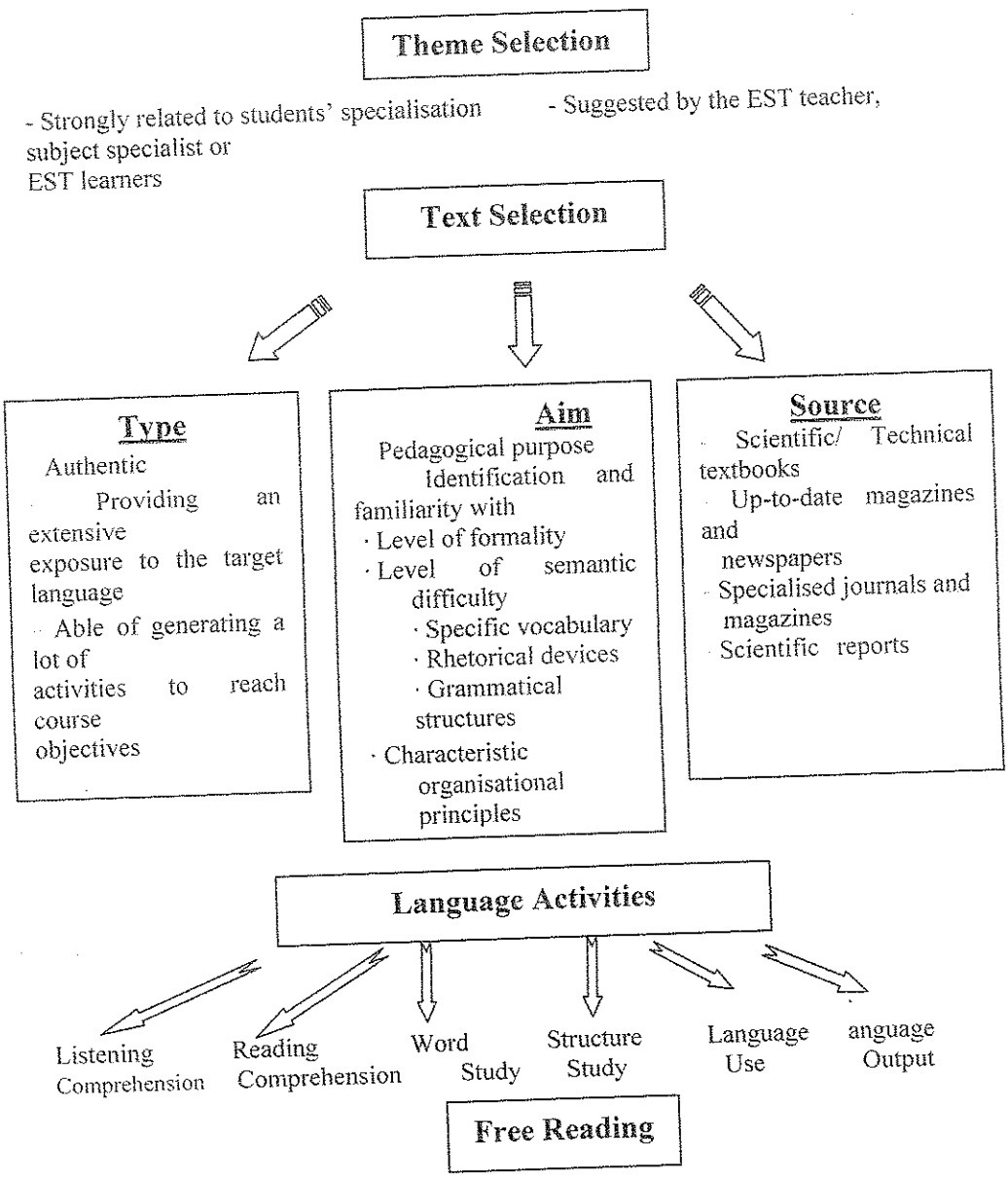
Data analysis enabled to shed light on the essential causes of the problems encountered by EST students and which could be summarized in what follows:

- Students' poor level in English
- The insufficient time allocated to the English course
- The inexperience of the ESP teacher
- The lack of an appropriate syllabus to guide the teacher
- The inadequacy of the materials provided, i.e. the content of courses
- The non-exposure to and practice of the target uses of the language

Suggestions

To help overcome the difficulties identified, the present work suggests an EST course gestation process upon which the design of teaching units can be based. It adopts a synthetic and eclectic approach of materials design, which provides training in the authentic uses required in English such as language skills, study skills, language structures, functions and real situations. Its aim is to guide the EST teachers concerned and enable students to develop the required competence rapidly and effectively.

An EST Course Gestation Process



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