

DECLARATION

I, Wassila GRAIA BOUKLIKHA, declare that my doctorate thesis entitled, “Practice of the Reading Skill in an ESP Context Using Web-retrieved Materials: The Case of Engineering Students at Tlemcen University”, contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

May 15th, 2016

Mrs. Wassila GRAIA BOUKLIKHA

DEDICATION

I dedicate this work to Mr. Abderezzak BENZIANE, who passed away in February, 2016. Mr. BENZIANE was an exceptional and generous father and friend who helped me a lot in my thesis with his continuous support and encouragement. His death is a great loss for me and all those who knew him.

ACKNOWLEDGEMENTS

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I wish to extend my deep gratefulness to my supervisor Prof. Hafida Hamzaoui for her inestimable guidance, insightful suggestions, continuous support and patience throughout the preparation of this thesis. She always gave me invaluable advice and comments, and provided me with useful resources. Having worked with her was a fruitful experience.

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I would like to express my thankfulness to all my friends and colleagues in the English Department who helped me in a way or another in the accomplishment of this work. My sincere thanks go also to EIE students who patiently answered the questionnaire which helped me in collecting a great deal of data and participated in the investigation without forgetting Dr. Melliani, the head of the Department of Electrical and Electronic Engineering for his understanding and support.

ABSTRACT

As we come in a new millennium, the need to understand and communicate with each other has become essential. Increasingly, specialists tend to have highly academic and professional requirements to fulfill specific communicative needs targeting improving language skills; as for students, courses under the name of English for Specific Purposes (ESP) have a great contribution to their fields of research. Nowadays, computers have become indispensable and are considered as the most powerful means of communication and education. In addition, the vast amount and great variety of current and readily available materials on Internet can be exploited to integrate the different skills in ESP teaching. This research explored the integration of web-based materials into a content-based ESP course. It examined the opportunity offered by Internet to design significant activities related to the course objectives and to help learners take more control of their learning and promote attitudes which lead to autonomous learning and motivating teaching. The present research work was an experimental case study of 2nd year EIE Master's Students. First, data were collected through a students' questionnaire and a teachers' interview to identify engineering students' needs and attitudes towards the integration of web-retrieved materials in the reading instruction. The analysis revealed that EIE Master's students needed to develop particular reading sub-skills and strategies, to reinforce their linguistic background in English and to raise their reading abilities. In addition, the integration of web-retrieved materials in teaching the reading skill was positively viewed by informants. Accordingly, a course was designed to those students and it was revealed the feasibility of implementing web-based materials in the practice of the reading skill in an ESP context. The results revealed their progress at the end of the course according to the findings obtained from the pre-test and post-test and the positive impact of an ESP course supplemented by web-retrieved materials on the development of the reading skill with a progress in their content knowledge and improvement in their reading competence.

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LIST OF ABBREVIATION AND ACRONYMS

- AF: Absolute Frequency
- CALL: Computer Assisted Language Learning
- CD: Compact Disc
- CMC: Computer Mediated Communication
- DVD: Digital Video Disc
- EAP: English for Academic Purposes
- EBE: English for Business and Economics
- EBP: English for Business Purposes
- EEE: Electrical and Electronic Engineering
- EFL: English for Foreign Languages
- EGAP: English for General Academic Purposes
- EGP: English for General Purposes
- EIE: Electronic Instrumentation Engineering
- ELP: English for Law Purposes
- ELT: English Language Teaching
- EMP: English for Medical Purposes
- EOP: English for Occupational Purposes
- EPTB: English Proficiency Test Battery
- ESP: English for Specific Purposes
- ESS: English for Social Studies
- EST: English for Science and Technology
- HBI: Hypermedia Based Instruction
- HTML: Hypertext Markup Language
- ICT: Information Communication Technology
- IMM: Interactive Multimedia

ISP: Internet Service Provider

LMD: Licence Master Doctorate

NA: Needs Analysis

PC: Personal Computer

PhD: Doctor of Philosophy

PSA: Present Situation Analysis

RF: Relative Frequency

TEFL: Teaching English as a Foreign Language

TOEFL: Test of English as a Foreign Language

TOEIC: Test of English for International Communication

TSA: Target Situation Analysis

UFC: Université de Formation Continue

URL: Uniform Resource Locator

VIS: Visual Information Store

WAP: Wireless Application Protocol

WBI: Web-Based Instruction

WBL: Web Based Learning

WBT: Web-Based Training

GENERAL INTRODUCTION

English is an important and significant language in international, social, cultural and political activities, considered as a vehicle that is used everywhere and leads to various opportunities. Previous research in the field of engineering showed that the English language is important academically and professionally for engineering students. For this purpose, the researcher seeks first to know if Electronic Instrumentation Engineering students in the Faculty of Technology (University of Tlemcen) are really aware and conscious of this importance.

In today's language teaching, Internet is used for different purposes but how it really concerns content-based ESP course. It is rather related to Internet assisted learning which is shown in students' searches seeking for various authentic materials in many English websites. In fact, Internet is a continuously updated source of materials which are useful for ESP learners in their studies. This autonomy of students in searching for particular information to carry specific needs or purposes and the widening role of online technologies have lately become the major property of language teaching at the tertiary level. Additionally, speedy technology necessitates many science oriented engineers for whom English is mainly a library language which should be well understood by students to have access to knowledge contained in textbooks, journals and magazines and thus they can extract information and keep in touch with the latest technologies. Moreover, they need to be able to understand specialized English language which is dealt with in international conferences, symposia and seminars.

In fact, ESP emphasizes the reading skill since it is an essential skill in many teaching and learning situations including ESP (chapter 2). This emphasis lies on the fact that ESP learners need to be able to read, well understand, learn about something specific, gather information and thus achieve academic and professional success. That is why; the researcher focuses on the reading skill because proficiency in different language skills is very important to university students who have to cover a significant

amount of reading materials as engineering students in the Faculty of Technology (University of Tlemcen). Indeed, the reading skill tends to be the priority in ESP teaching.

To develop reading, one of the most useful resources is the Internet with its large amount of varied and accessible authentic materials since English has become the established language of science and technology. The significance of Information Communication Technology (ICT) in all aspects of language teaching and learning process can hardly be ignored. For this reason, educators in general and ESP teachers in particular always tend to keep up with new developments since they belong to this era of information where the use of computers and Internet is becoming more and more frequent to facilitate teaching and improve learning involvement. Also, since Internet is blooming into a huge source of information accessed easily and freely by both teachers and students, the investigator attempts to investigate ways in which Internet and web-retrieved materials can be used to help engineering students to develop their reading skill in English. Thus, she emphasizes the development of some reading skills which depends on students' needs to develop their reading abilities as well. Yet the question remains on how to teach the reading skill to engineering students using web-based materials keeping in mind that emphasis in ESP lies on language in context and authentic and up-to-date materials. As a whole, ESP students should be able to practice their reading skill within an engineering context using Internet as a tool that increases the global access to engineering knowledge.

In the light of the problems stated above, the most important part of this research study is the practice of web-based activities to facilitate learning and make ESP students reading efficiently and more importantly motivated to learn. To do so, the researcher tackled some approaches dealt with in the literature to show the effect of integrating technology in ESP teaching. For this, she implemented a course design supplemented by some experiment instruments to verify the feasibility and result of such a course. She goes through her own experience where transition from designing traditional text-based materials to web-based materials occurred.

This study explores the integration of Internet in ESP teaching in general and teaching the reading skill in particular. It examines how Internet offers opportunities for the students to develop their creativity and autonomy and determine the topics, read materials, and explore the readings themselves. It is proposed that Internet should be used to help students take more control of their learning and to encourage attitudes which lead to autonomous learning. It aims also at investigating the impact of Internet on ESP learning as well as the benefits of new technologies on both students and teachers.

First, the importance of needs analysis as a necessary step of course and material design has been discussed. Afterward, considering the significance of Internet and new technologies in language teaching and learning, the process and results of some related research have been examined to find appropriate ways for implementing useful teaching strategies with the help of ICT for ESP education.

In fact, this study is composed of two phases: The first phase considers the needs of ESP learners while the second phase of this thesis attempts to test the use of web-retrieved materials in teaching the reading skill. In sum, this research is set out to answer the following research questions:

1. What are engineering students' English language needs specifically to develop the reading skill?
2. How do teachers develop the reading skill by integrating web-retrieved materials in the engineering English course?
3. What are the teaching and learning difficulties encountered when using web-retrieved materials to develop the reading skill?
4. What is the impact of an ESP course supplemented by web-retrieved materials on the development of the reading skill?

These questions led to the formulation of the following hypotheses:

1. Engineering students may need English to develop particular reading sub-skills and strategies and reinforce their linguistic background which help in improving their reading abilities to comprehend and understand texts related to their field of study.
2. ESP teachers may develop the reading skill using Internet sources by offering a diversity of activities and tasks related to comprehension as well as to evolution in students' field of study.
3. The difficulties encountered by both teachers and students when using web-based materials to develop the reading skill may be the unavailability of Internet access in the University or the low Internet speed, in addition to lack of ICT tools and time allocated to the English course in ESP classes.
4. An ESP course supplemented by web-retrieved materials may have a positive impact on the development of the reading skill helping students to develop their abilities to understand and comprehend texts and acquire knowledge on specialized vocabulary and grammatical structures useful in their field of study.

In order to check the validity of these hypotheses, a case study of 2nd year Master's students in Electronic Instrumentation Engineering in the Faculty of Technology (the University of Tlemcen) is designed. First, the researcher identifies their language needs using: a students' questionnaire and a teachers' interview. Second, she designs and implements an ESP course of one semester during the academic year of 2015/2016 using web-retrieved materials. Then, relying on experiment tests(pre-test and post-test), she examines the feasibility of such implementation of new technologies in teaching the reading skill for ESP students.

The results of the present work aim to guide ESP teachers when designing their courses informing teachers and institutions on how to make English language learning more effective and up dated through ICTs. The study is divided into six chapters:

The first chapter provides a review of the field of English for specific purposes covering its appearance, definitions and classifications distinguishing between ESP and EGP and highlighting the historical events that gave rise to this kind of English language teaching (ELT). ESP course design is also dealt with: its definition, characteristics, objectives, teaching methodology, needs analysis and assessment. The different roles of ESP teachers are presented emphasizing the different aspects that characterize EST and the various parameters that are taken into consideration by either teachers or learners.

The second chapter is composed of two main parts. The first part consists of an overview of the reading theory including definitions, models dealt with in the literature, types, purposes as well as skills and strategies of reading without forgetting the way of assessing them. The second part concerns technology in language learning in general and in reading development using web-based tasks in particular.

The third chapter is divided into two parts. The first one focuses on the analysis of the situation under investigation including the implementation of the LMD system as well as the role of ESP in the Department of Electrical and Electronic Engineering. The second part deals with the research methodology taking into consideration the research design and methods used in this study. An account about the sampling, research instruments and materials is presented.

The fourth chapter concerns the analysis of the data collected from two research instruments used in the research: the students' questionnaire and the teachers' interview. Both qualitative and quantitative analyses are undertaken.

The fifth chapter copes with the experimentation, i.e., aims, objectives, description, presentation of the course and the skills involved, the materials used, the testing and evaluation methods implemented as well as the problems confronted in that course. The analysis of the data collected from the experiment instruments (pre-test and post-test) is also dealt with.

The sixth and last chapter exhibits some suggestions and recommendations to ESP teachers and students based on the results obtained, regarding how to teach and learn the reading skill using web-based materials and thus how to overcome the problems met in the current study.

CHAPTER ONE

CHAPTER ONE
English for Specific Purposes: A Holistic Review

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- 1.7. Conclusion

1.1. Introduction

English has become the internationally accepted language of almost all the fields of knowledge. ESP has emerged as one of the major areas of EFL teaching today. This study is a response to the growing need of ESP illustrating an approach to teach a course in one of the main sub-branches of ESP, known as English for Science and Technology.

The aim of this chapter is to shed light on some of the major aspects of ESP discussed in the literature in order to reach a better understanding of this kind of English teaching. The first part deals with a general review related to ESP, in which the first part draws a distinction between ESP and EGP in terms of theory and practice. It is followed by a discussion on what is meant by ESP and what are researchers' views regarding its absolute and variable characteristics. Then, the chapter explains the reasons that led to the emergence of ESP highlighting the historical events that gave rise to this kind of English language teaching (ELT). This is followed by clarifying the three main types of this branch of study. Additionally, a relation between ESP and the different language skills is underlined as well as the factors that make ESP motivating. Another part was dealt with in this chapter, concerning the ESP course design as a whole; with its definition, characteristics, objectives, teaching methodology, needs analysis, assessment and the different roles of ESP teachers are also presented. Finally, since the main concern of the present research focuses on ESP learners studying English for Science and Technology, this branch is seen in details in order to have a clear picture of the different aspects that characterize EST and the various parameters that are taken into consideration by either teachers or learners.

1.2. ESP Defined

The main purpose of this part of research is to shed light on some of the major aspects of ESP discussed in the literature to reach a better understanding of this kind of English teaching. To further appreciate the place of ESP in the world, the following is an attempt to explain the reasons of its emergence.

1.2.1. Emergence of ESP

From early 1960's, ESP has emerged as one of the major areas of EFL teaching today. Hutchinson and Waters (1987: 6) identified three reasons for the emergence of ESP: The demands of a New Brave World, a revolution in linguistics, and focus on the learner.

First, they (Hutchinson and Waters, 1987: 6) argued that the end of the Second World War in 1945 was an era in which English has become the key to international currencies of technology and commerce and thus the need of a common language of exchange. This created at that time a new generation of learners who knew specifically why they were learning a language

The second reason that led to the emergence of ESP according to them (Hutchinson and Waters, 1987: 7) was a revolution in linguistics. Whereas traditional linguists set out to describe the features of language, revolutionary pioneers in linguistics began to focus on the ways in which language is used in real communication. If language in different situations varies from one situation in use to another, it should be possible to determine the features of specific situations which became then the basis of language instruction, and thus to meet the needs of learners in specific contexts.

The final reason Hutchinson and Waters, (1987: 8) cite as having influenced the emergence of ESP has less to do with linguistics and everything to do with psychology. The main attention was given to the ways in which learners acquire language and the differences in the ways language is acquired. Learners were seen to employ different learning strategies, use different skills, enter with different learning

schemata, and be motivated by different needs and interests. Therefore, focus on the learners' needs in the development of specific courses became paramount.

In fact, ESP is still a prominent part in EFL teaching. Johns & Dudley-Evans (2001: 115) state that “the demand for English for Specific Purposes ... continues to increase and expand throughout the world.” Moreover, Cook (2001: 164) confirmed that “internationalism of English seems to be increasing.”

All in all, Brunton (2009: 2) states that “ESP has increased over the decades as a result of market forces and a greater awareness amongst the academic and business community that learners’ needs and wants should be met wherever possible.”

To produce a simple definition of ESP is not quite an easy thing to do. Instead, the following will illustrate the different views among language experts on what ESP is.

1.2.2. Definition of ESP

From the beginning of research on ESP, the term ESP was a source of debate to what exactly ESP is, and even today the debate continues to clearly define what ESP is (Belcher, 2006; Dudley-Evans and St. Johns, 1998; Anthony, 1997; Hutchinson and Waters, 1987).

There are different definitions of ESP found in the literature. One of them was that of Hutchinson and Waters (1987: 19) who define ESP as an “approach” rather than a “product” which means that ESP does not involve a particular kind of language, teaching materials or methodology but it is an approach to language learning, which is based on learner need.. However, Anthony (1997) notes that there has been considerable recent debate about what ESP means despite the fact that it is an approach which has been widely used over the last three decades. Chen (1994: 80) views it as “a major specialization within the discipline of English language teaching”.

Hyland (2002:385) defines ESP as follows: “ESP’s distinctive approach to language teaching is based on identification of the specific language features, discourse practices and communicative skills of target situation, and also on teaching

practices that recognize the particular subject-matter needs and expertise of the learner.” That is to say, language is used to accomplish purposes, and what language concerns is communication rather than the language itself. Similarly, Munby (1978: 2) states that “ESP courses are those where the syllabus and materials are determined in all essentials by the prior analysis of the communication needs of the learners, rather than by non-learner centered criteria such as the teachers’ or institution’s pre-determined preference for General English or for treating English as part of a general education .” Other experts in ESP define it emphasizing on its characteristics.

1.2.3. Characteristics of ESP

Strevens (1988: 1-2) makes a distinction between four absolute characteristics and two variable characteristics. The absolute characteristics are that ESP consists of English language teaching which is:

- designed to meet specified needs of the learner;
- related in content (i.e. in its themes and topics) to particular disciplines, occupations and activities;
- centered on the language appropriate to those activities in syntax, lexis, discourse, semantics, etc., and analysis of this discourse;
- in contrast with General English.

The variable characteristics are that ESP:

- may be restricted as to the language skills to be learned (e.g. reading only);
- may not be taught according to any pre-ordained methodology (1988, 1-2).

In the same vein, Robinson (1991: 3) also accepts the primacy of needs analysis in defining ESP emphasizing on two criteria:

- ESP is normally ‘goal-directed’, and
- ESP courses develop from a needs analysis which aims to specify what exactly it is that students have to do through the medium of English.

According to her, ESP courses are generally constrained by a limited period of time in which their objectives have to be achieved and are taught to adults in homogenous classes in terms of the work or specialist studies that the students are involved in.

Additionally, Dudley-Evans and St. Johns (1998: 4-5) state that ESP may not always focus on the language for one specific discipline or occupation and modify Strevens' definition of ESP by an attempt to apply a series of characteristics:

1. Absolute Characteristics

- ESP is defined to meet specific needs of the learner;
- ESP makes use of the underlying methodology and activities of the discipline it serves;
- ESP is centered on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities.

2. Variable Characteristics

- ESP may be related to 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 a tertiary level institution or in a professional work situation. It could, however, be for learners at secondary school level;
- ESP is generally designed for intermediate or advanced students;
- Most ESP courses assume some basic knowledge of the language system, but it can be used with beginners.

In fact, the definition of Dudley-Evans and St. Johns (1998) is clearly influenced by that of Strevens (1988) although it has improved considerably by omitting the absolute characteristic that ESP is "in contrast with General English" and has included more variable characteristics than in connection with absolute criteria help with a great deal in determining on what is or is not ESP.

To better understand the definition of ESP, it is important to state the difference between ESP and EGP (English for General Purposes). Recognizing this difference participated in a great deal in the development of ESP.

1.2.4. The Difference between EGP and ESP

The question of the difference between EGP and ESP has been largely discussed in the literature. Despite the definitions suggested above, one may still, ask 'What is the difference between the ESP and EGP approach', Hutchinson and Waters (1987:53) answer this quite simply: "in theory nothing, in practice a great deal". They maintain that what distinguishes ESP from EGP is an awareness of the need. They explain that the difference lies on the fact that all the words of sentences used in ESP belong to a particular field or discipline, and its course relies principally on the needs of learners according to their field of study.

In fact, ESP learners in general are adults who already have acquired certain knowledge of English and their learning of the language was to perform particular job-related functions and to acquire a set of professional skills. That is why, Robinson (1991: 2-4) suggests that in an ESP class, language is as a “service” rather than a “subject” in its own sake. In addition, EGP learners studied the four language skills equally whereas ESP learners studied the skill they need more according to the needs analysis established to design the ESP course.

In order to, set a clear distinction of the way the learning purpose is defined and implemented, Widdowson (1983: 163) attributed some distinctive features to both ESP and EGP.

The most important EGP features are:

1. the focus is often on education;
2. as the learners' future needs are impossible to predict, the course content is more difficult to select;
3. due to the above point it is important for the content in the syllabus to have a high surrender value.

The most relevant ESP features are:

1. the focus is on training;
2. as English is intended to be used in specific vocational contexts, the selection of the appropriate content is easier;
3. it is important for the content in the syllabus to have a high surrender value, most relevant to the vocational context;
4. the aim may be to create a restricted English competence.

ESP, as a whole, focuses on the purposes of performing a task in English, selecting the skills needed (reading, speaking, listening, writing), the text involved, as well as the vocabulary and grammar necessary for this.

Concerning the ESP teacher, Robinson (1991: 79) states that there is no single, ideal role description for an ESP teacher because there is a huge variety of ESP courses and contexts. It is, then, a personal quality which transforms an EGP teacher into an ESP practitioner and helps him/her to instruct successfully various groups of students (Robinson, 1991: 80).

In general, ESP is assumed to be more focused, practical and object-oriented (Dudley-Evans and St Johns: 1998) as compared to EGP. ESP starts with identifying the learners' needs, preparing teaching materials, and using appropriate teaching methodologies. Owing these roles, an ESP teacher is named a 'practitioner' (ibid) and has different roles from an EGP teacher. Day and Krzanowski (2011: 6) add that ESP contrasts with EGP, which is aimed at a very wide range of learners.

In fact, from the early beginning of ESP in the 1960s, this domain of theory and practice in the teaching of English has undergone five phases.

1.3. Development of ESP

From the 1960s, scholars became aware that general English did not meet learners or employees' needs. That is why ESP arose. It contributed in many developments in language teaching and applied linguistics. The ways in which that rising up happened,

have changed over time and passed through a number of approaches and movements in language teaching. Let us consider then the different phases in the evolution of ESP/EST.

1.3.1. Register Analysis

The first approach to ESP took place between the 1960s and early 1970s, when a reaction against the dominant literary tradition in language teaching gradually set in. It was related to register analysis which was first used to design ESP courses based on scientific English, and *A Course in Basic Scientific English* by Ewer and Latorre (1969) was a typical example where linguistic features were taken as teaching materials in their syllabus. In fact, the significant outcomes of their analysis were the establishment of the frequency and range (across subjects) of (a) sentence patterns and (b) lexis within the corpus according to Johnsons (1998: 106). This was then taken to constitute the ‘register’ of scientific and technological English (EST). However, Kennedy and Bolitho (1984:8) argue that although the aim behind this approach was to enable students to read scientific texts, the definition of reading was narrow.

The register analysis phase has been criticized for being only descriptive, not explanatory and has not dealt with communication as Widdowson (1979:55-56) state:

The fact that scientific English exhibits a relatively high proportion of certain syntactic features and a relatively low proportion of others may be useful for identifying scientific English texts should we ever want to do such a thing. [...] But this approach cannot reveal the communicative character of what was written. It cannot of its nature deal with discourse.

This approach was very much sentence-based and form- focused and did little to encourage students to view their specialist English as a vehicle for communication. This is why came the second phase of development which shifted attention to the level above the sentence named Rhetorical Analysis.

1.3.2. Rhetorical Analysis

Because of the development in the world of linguistics, register analysis which focused on the language at the sentence level (Hutchinson and Waters, 1987: 10), was rapidly over taken and a stage where the focus was on the language above the sentence level came into existence since ESP became closely involved with the emerging field of discourse or rhetorical analysis. Therefore, the attention shifted to understanding how sentences were combined in discourse to produce meaning. The focus was “on the sentence, and on the writer's purpose rather than on form” (Robinson 1991:24). This reaction against the register analysis approach concentrated on the communicative values of discourse rather than the lexical and grammatical properties of register, as it is clearly illustrated by Alien and Widdowson (1974:2):

The first [ability] is 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 passages of prose. We might say that the first has to do with coherence of discourse, the second with the grammatical cohesion of text.

The focus of the following stage changes completely dealing with language analysis that corresponds to learners' needs.

1.3.3. Target Situation Analysis

The next approach to ESP, i.e., the target situation analysis did not really add anything new to the range of knowledge about ESP but aimed to take the existing knowledge and set it on a more scientific basis by establishing procedures relating language analysis more closely to learners' reasons of learning according to Hutchinson and Waters (1987: 12). It became a dominant approach to design ESP courses in order to better meet the needs of learners as well as employees. The textbook of Picket and Laster (1980), named technical English, was the best example of using this approach.

In fact, the concern of ESP course was to enable learners to function adequately in the target situation in which the learners will use the language they are learning. It was then, to perform an analysis of the linguistic features of that situation and this is what was called needs analysis. However, Chamber (1980:29) explains the target situation analysis (TSA) by describing the process concerned by saying that:

By the language I mean the language of the target situation. Thus needs analysis should be concerned with the establishment of communicative needs and their realizations, resulting from an analysis of the communication in the target situation — what I will refer to as target situation analysis (TSA).

Then, other concepts came to emerge from the development of ESP which was that of authenticity. As West (1995) mentions, the first generation of ESP materials that appeared in the mid-1960s took skills as their principal means of selection.

1.3.4. Skills and Strategies

The rapid expansion in scientific, technical and economic activity associating with English speaking countries lead to the rise of ESP in addition to the analysis of language for authentic communication (Hymes, 1972) that language varies by situation and context. Analysing language in terms of register, communicative context of use, text, discourse, rhetoric and genre seemed insufficient and the need to focus on the text as a product to be understood became so important. In other words, designing an ESP course aimed at making learners read a number of English specialized texts, emphasizing on reading strategies. This has led to a concern with study skills and language skills according to Johnsons (1998: 108). Thus, in this stage, a great work in the undertaken area of skills and strategies was achieved.

All the stages mentioned so far were basically related to 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.

1.3.5. A Learning-centered Approach

In the previous stages of ESP development, the focus was to describe what individuals do with the language. Then, the concern came to language learning afterwards. Hutchinson and Waters (1987, 14) state that “We cannot simply assume that describing and exemplifying what people do with language will enable someone to learn it.” This means that such approach considered the learner as a key element in the teaching/ learning process. Thus, the teacher’s task was 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)” Tudor (1997: 24). Dudley-Evans and St. Johns (1997: 27) added that learning-centered approach also took into account the fact that different students learn in different ways.

Indeed, this development of ESP led to its subdivision into many sub-branches. In fact many abbreviations have been used in describing ESP, terms such as EAP, EOP, EST and EBP.

1.4. Types of ESP

Under the umbrella term of ESP, there are a number of sub-divisions. For example, English for Academic Purposes (EAP), English for Business Purposes (EBP), English for Occupational Purposes (EOP), English for Medical Purposes (EMP) and many other divisions being added progressively to the list according to the purpose of learning or the purpose of working later on. And Anthony (1997: 1) stated that there was a growth in English courses at Universities aiming at specific disciplines. The figure bellow shows some sub-divisions under the umbrella term of ESP.

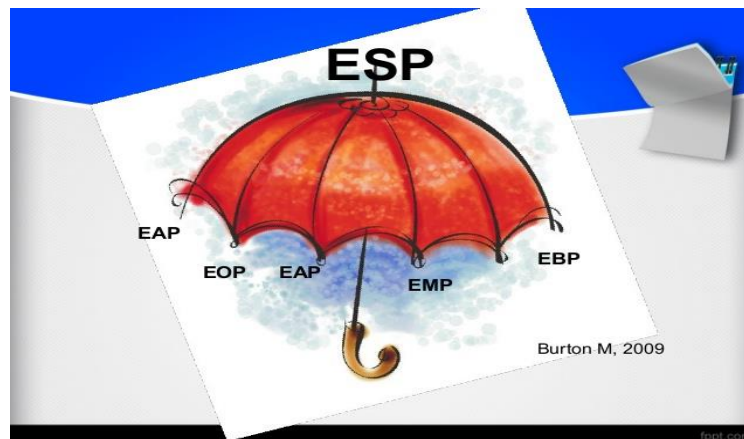


Figure1.1. Sub-divisions of ESP (Burton, 2009)

Among the first typologies of ESP put forward, Carter's (1983, quoted in Gatehouse, 2001) who identifies three types of ESP: English as a Restricted Language, English for Academic and Occupational Purposes and English with specific topics. This figure shows clearly the different types of ESP described by Carter (1983):

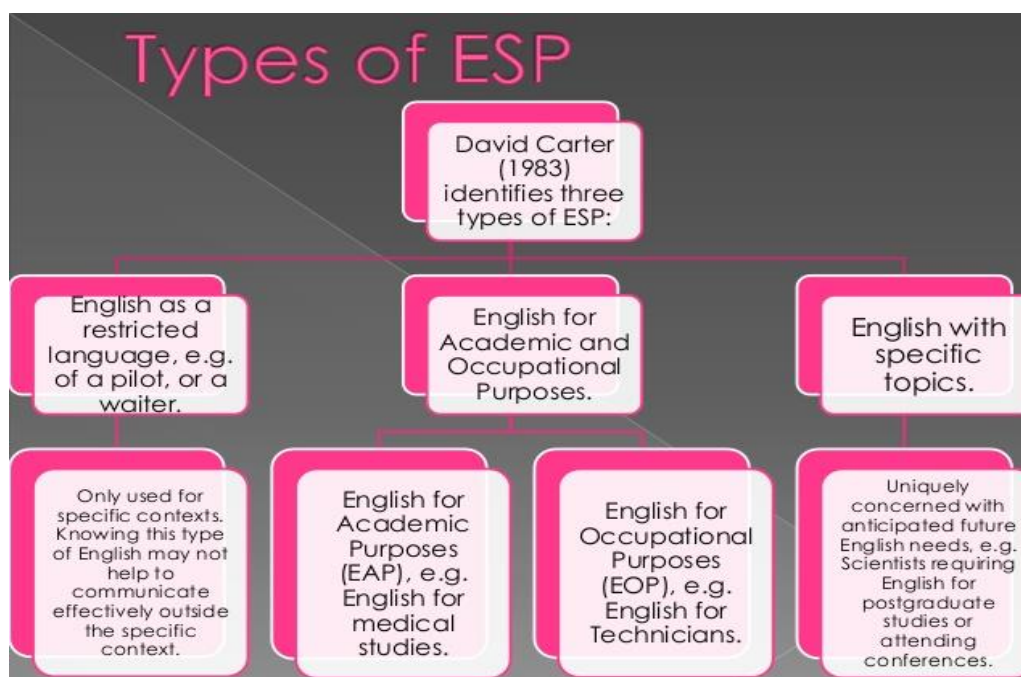


Figure1.2. Types of ESP

(<http://fr.slideshare.net/brmirza/esp-english-for-specific-purposes?related=1>)

First, English as a Restricted Language is presented by Mackay and Mountford (1978: 4) as:

...the language of international air-traffic control could be regarded as 'special', in the sense that the repertoire required by the controller is strictly limited and can be accurately determined situationally, as might be the linguistic needs of a dining-room waiter or air-hostess. However, such restricted repertoires are not languages, just as a tourist phrase book is not grammar. Knowing a restricted 'language' would not allow the speaker to communicate effectively in novel situation, or in contexts outside the vocational environment.

The second type of ESP identified by Carter (1983) is English for Academic and Professional Purposes, which was later on developed by Hutchinson and Waters (1987: 16) in his Tree of ELT (Figure 1.3) where ESP is broken down into three branches: a) English for Science and Technology (EST), b) English for Business and Economics (EBE), and c) English for Social Studies (ESS). Each of these subject areas is further divided into two branches: English for Academic Purposes (EAP) and English for Occupational Purposes (EOP). An example of EOP for the EST branch is 'English for Technicians' whereas an example of EAP for the EST branch is 'English for Medical Studies'. They note that there is not a clear distinction between EAP and EOP: " people can work and study simultaneously; it is also likely that in many cases the language learnt for immediate use in a study environment will be used later when the student takes up, or returns to, a job".

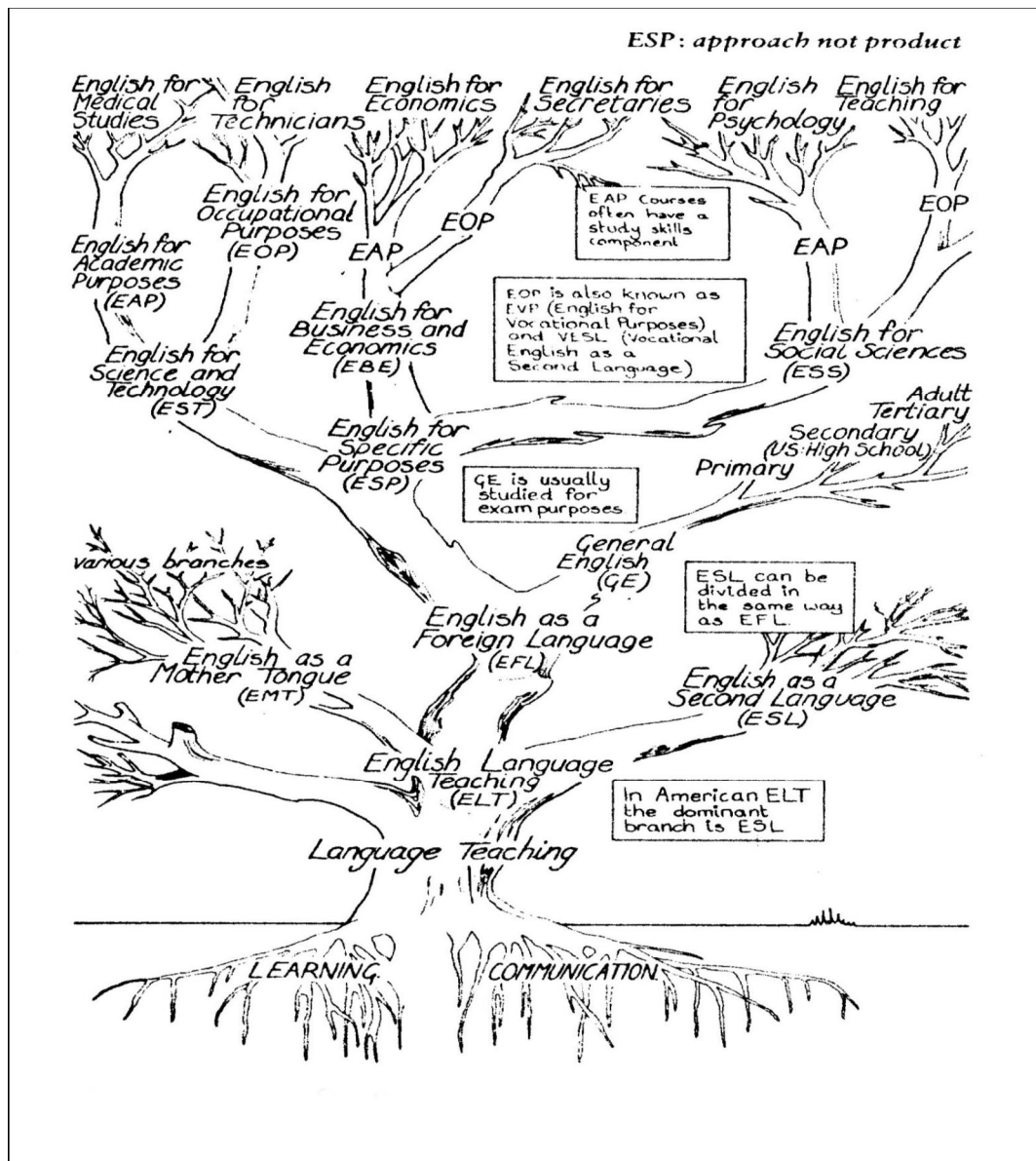


Figure 1.3. The Tree of ELT (Hutchinson and Waters, 1987: 17)

In fact, ESP was often divided up into two main sub-branches: English for Academic Purposes (EAP), dealing with the use of English in study settings where the main goal of language learning is the ability to cope in the student’s chosen academic specialism; and English for Occupational Purposes (EOP), where the language is needed in the workplace environment of a job or profession (Johnsons, 1998: 106).

The third type of ESP identified by Carter (1983) is English for Specific Topics where the emphasis shifts from purpose to topic. However, this type was not later taken into emphasis in the literature.

In general, each type, either EST, EBE or ELP, is concerned with specific field of scientific knowledge as technology, business and economy or the social fields in general; with its various and large amount of human sciences studies (Lamri, 2011: 25). Other classifications and distinctions, as far as types of ESP are concerned, are put afterwards. As Belcher (2006:134) said that ESP now encompasses an ‘ever-diversifying and expanding range of purposes.’ Whatever name it is given, ESP is now a term that means a promise for more effective and more useful English language teaching.

Since the main concern of the present research focuses on ESP learners studying English for Science and Technology, this branch will be dealt with in details in order to have a clear idea of the different aspects that characterize EST.

1.5. English for Science and Technology (EST)

In the late 1960s and early 1970s, there were many attempts to describe English for Science and Technology (EST). Ewer and Laborer, Swales, Selinker and Trimble are considered by Hutchinson and Waters (1987) as a few of the prominent descriptive EST pioneers. The area of EST “is known to have been developed especially rapidly. English for Science and Technology has always set and continues to set the trend in theoretical discussion, in ways analysing language and the variety of actual teaching materials” (Swales, 1985).

1.5.1. Definition of EST

Earlier, the term ESP was used interchangeably with EST as if they were synonyms. However, EST is an important part of ESP since there are other branches which have no relation with Science. Thus, it can be defined as the area of study of English for Science. Additionally, English for Engineering is an example of English for Science and Technology and its history is the one of EST which on the other hand is closely related to English for Specific Purposes (ESP).

In general, ESP and its branch EST are the approaches to language learning/teaching in which the choice of the content and techniques are based on the learner's reasons to study. Kennedy and Bolitho (1984: 6) state that "Much of the demand for ESP has come from scientists and technologists who need to learn English for a number of purposes connected with their specialisms. It is natural; therefore, that English for Science and Technology (EST) should be an important aspect of ESP programmes" (Kennedy and Bolitho, 1984: 6).

Any scientific knowledge is nowadays conveyed through 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 and so important.

1.5.2. Importance and Sub-divisions of EST

EST is a branch of ESP that satisfies scientific and technological demands as Widdowson (1979: 45) says: "knowledge of EST can derive from what a student knows of science and the functioning of his language in association with what he has learnt of English usage." That is to say, what is learnt by the learner as general English at an earlier stage is important to be joined to his knowledge of science. In addition, "EST is simply a subdivision of ESP dealing with scientific content. It covers General Science, Physics, Chemistry, Biology, Mathematics, Environmental Education and various technologies.", as clarified by Dudley- Evans et. al (2009 quoted in Hemche 2014: 39) who add 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.

What makes EST particular as a branch of ESP is that it can be introduced within EAP and EOP, sub-branches derived from ESP since it intersects for both occupational and academic purposes as clarified in this figure:

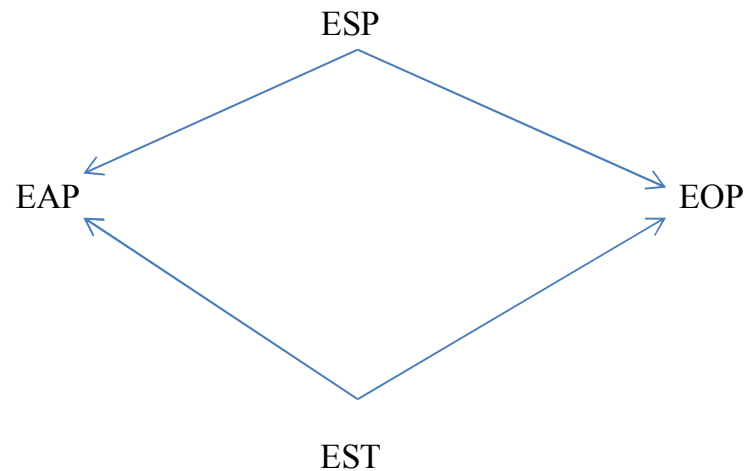


Figure1. 4. Subdivisions of ESP, (Benyelles, 2009: 13)

However, Mc Donough (1984:6) considers EST as a sub-branch of EAP emphasizing that EST has an academic orientation, as illustrated in the following diagram:

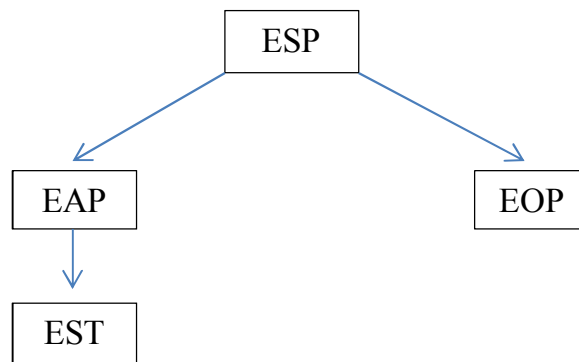


Figure1.5. Subdivisions of ESP (Mc Donough, 1984: 6)

In fact, EST both academically and professionally oriented depends on the target and present needs of scientists and technologists. The current students under investigation belong to the branch of EST as academically and professionally oriented since they need English to satisfy their present academic purposes and further professional purposes after being graduated and entering the professional domain. EST in this case can also be seen as a sub-branch of EAP because it has an academic orientation in the moment of undertaking the investigation. Thus, both classifications of EST mentioned above concern the researcher. Nowadays, EST has established itself as a major branch of ESP.

At its outset, EST notion led to teaching materials with scientific emphasis. Unfortunately, those materials did not serve the learners' needs at that time. As a result, a focus on different language skills and a number of communicative abilities was put forward. When taking into account the different needs of EST learners, the notion of EST becomes too general since it deals with each group of learners in their particular field of study.

1.6. ESP Course Design

Course design refers to the planning and structuring of a course to achieve the needed goals. It is the outcome of number of elements: the result of the needs analysis, the course designer's approach to syllabus and methodology, and existing materials (Robinson: 1991). Hutchinson and Waters (1987:65) define a course as “An integrated series of teaching-learning experiences, whose ultimate aim is to lead the learners to a particular state of knowledge.” Munby continues saying (1978:2) that ESP courses are: “Those where the syllabus and the materials are determined by the prior analysis of the communication needs of the learner.” That is to say, the identification of learners' needs is the first step of designing the ESP course. Additionally, Belcher (2006:135) states that ‘ESP assumes that the problems are unique to specific learners in specific contexts and thus must be carefully delineated and addressed with tailors to fit instruction.’”

In fact, designing a course is basically: “a matter of asking questions in order to provide a reasoned basis for the subsequent processes of syllabus design, materials writing, classroom teaching and evaluation” (Hutchinson and Waters, 1987: 21). They add that an ESP teacher should be able to find an answer to “language description” which involves questions, like: What topic areas will need to be covered? What does the student need to learn? What aspects of language will be needed and how will they be described? (Hutchinson and Waters, 1992:19- 22). They also deal with the “learning theory” which provides the theoretical basis for the methodology, by understanding how people learn. It is clear that learning strategies vary. The way adults acquire language differs from that of children; teaching a group of advanced learners expects different attitude from that of beginners and so on.

Hutchinson and Waters (1992: 22) point out another aspect affecting the ESP course as well. It is related to needs analysis which discusses the questions of “who”, “why”, “where” and “when” associated with the nature of a particular target and learning situation. To organize the ESP course effectively and thus achieve a satisfactory goal, having respect for all these three factors is evident and these factors are clearly shown in the following figure:

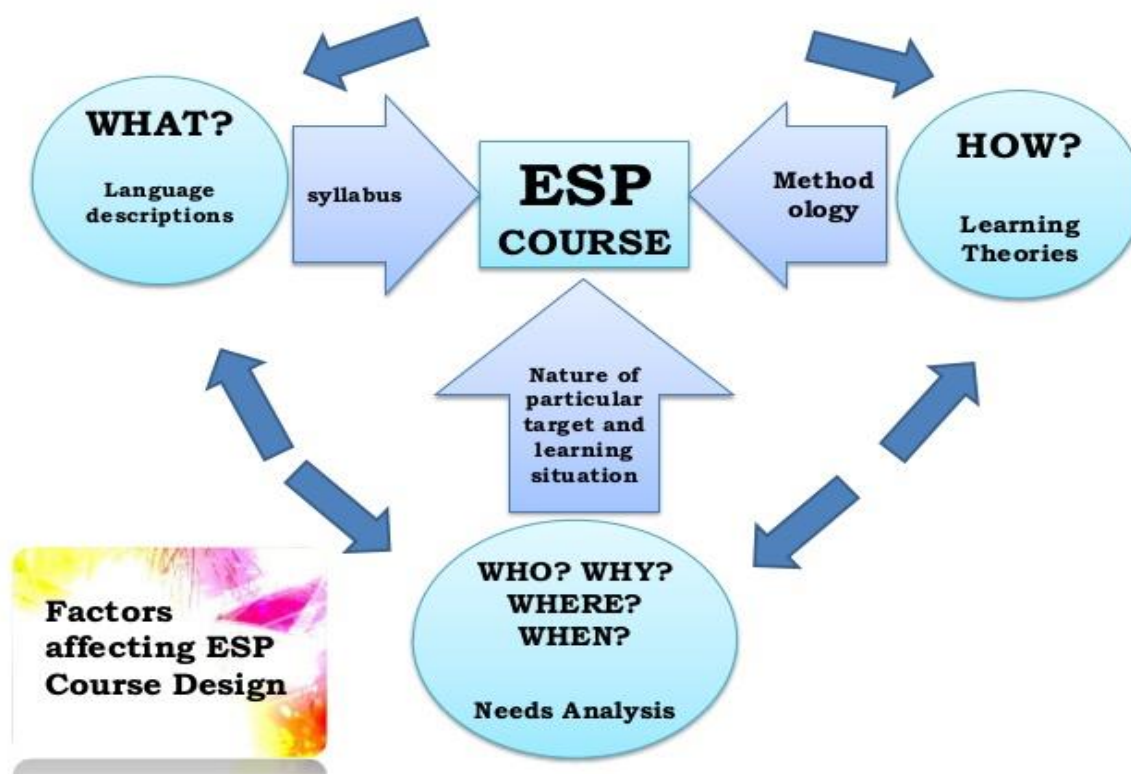


Figure1.6. Factors affecting ESP Course Design
(Hutchinson and Waters, 1992: 22)

In general, ESP course design is that component by which the information about learning needs of the students is understood and interpreted in order to produce teaching materials depending on syllabus, then to develop methodology for teaching and not ultimately to establish certain evaluation procedures. Finally, it aims at leading the learner to reach the required competence and knowledge in a field. For Basturkmen (2010: 4), ESP courses are narrower in focus than EGP courses because they centre on analysis of learners’ needs. ESP views learners in terms of their work or study roles

and its courses focus on work- or study-related needs, not personal needs or general interests.

To sum up, designing and implementing an ESP course is not an easy task and this figure (Brunton, 2009) illustrates the complex interaction of factors involved in ESP courses.

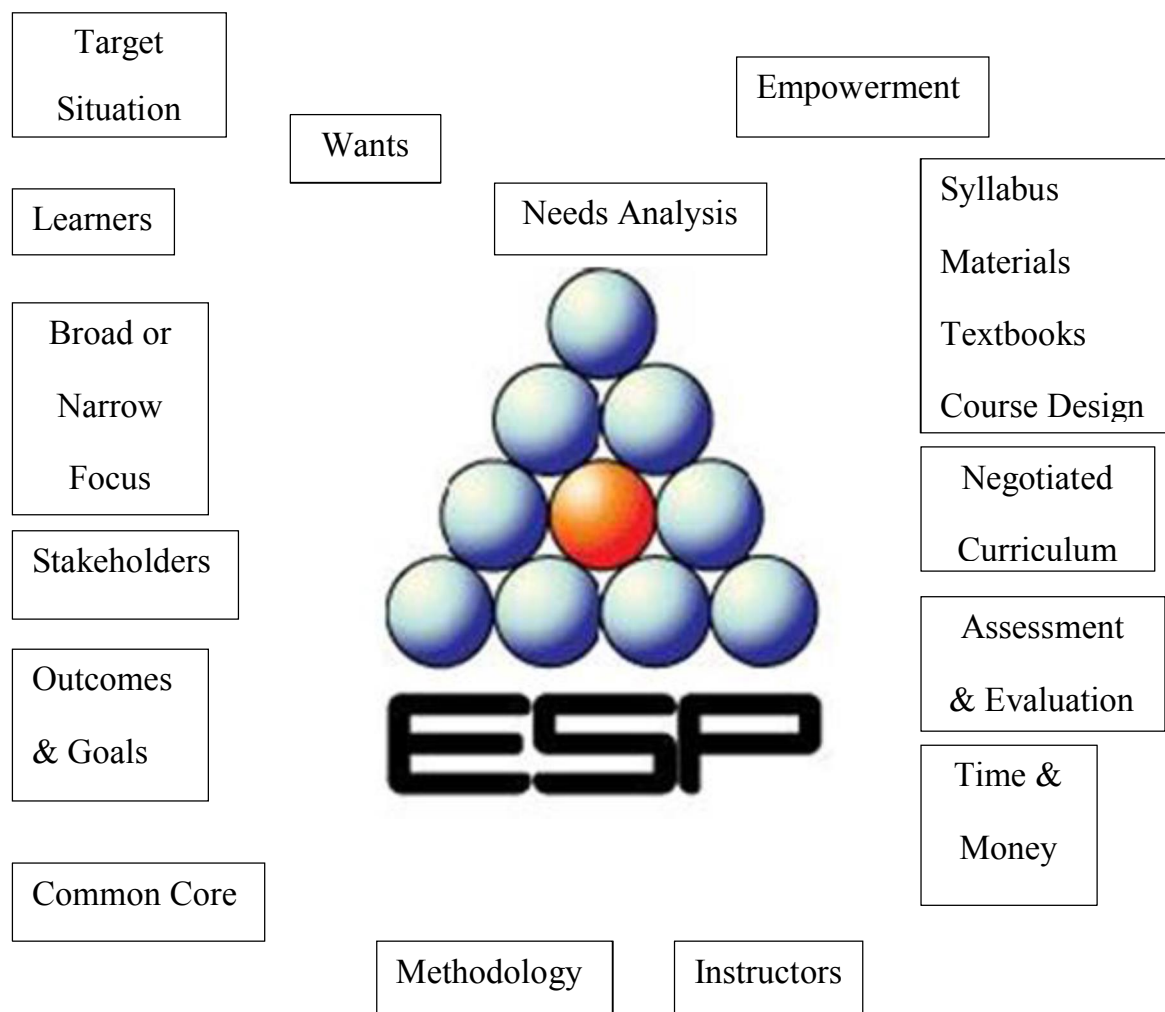


Figure 1.7. Juggling ESP Balls
(Brunton, 2009: 9)

In fact, this particular kind of language teaching courses has followed some approaches discussed in the literature of ESP. The approaches adopted by ESP course designers differ according to the needs of learners and the aims set for the course.

1.6.1. Approaches to ESP Course Design

There are probably as many different approaches to ESP course design, as there are course designers. However, Hutchinson and Waters (1987:65) identify three main approaches: language-centred, learning-centred and skills-centred.

1.6.1.1. Language-centred Course Design

The language-centred course is the simplest one, characterized by a direct connection between the target situation and the content of the ESP course. It usually starts from the identification of the linguistic features of the target situation in order to describe the learners' needs and to create a syllabus and evaluation procedures after the course materials are designed. This procedure is explained as follow:

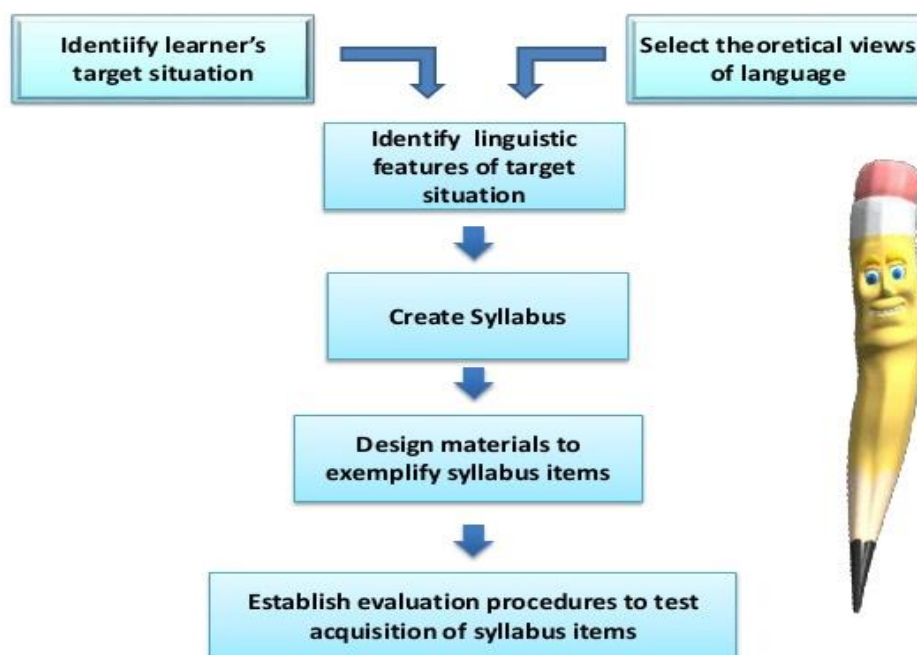


Figure1.8. A Language-centred Approach to Course Design (Hutchinson and Waters, 1987: 66)

However, this approach to ESP course design has important shortcomings:

- It starts from the learners and their needs but the only aspect in relationship to which the learner is taken into consideration is the identification of the target situation;

- The assumption that the systematic analysis and presentation of linguistic data characterizing a certain type of specialized discourse will produce systematic learning in the learner. (Bastrurkmen, 2010:59)
- The language centred analysis of target situation data reveals very little about the competence that underlies the performance.

In short, it fails to recognize learning as a straightforward and logical process. It does not reveal clearly the competence that lies behind the performance. For this reason came another approach to course design named skill-centred approach.

1.6.1.2. Skills-centred Course Design

As a response to the needs of some students in some universities where English is not the medium of instruction, a number of ESP projects have been set up aiming at making students able to read in English.

In fact, there are two fundamental principles of this approach to course design:

- The theoretical hypothesis that underling any language behaviour, there are certain skills and strategies, which the learner uses in order to produce or comprehend discourse (Creswell, 2003:124).
- The pragmatic basis for the skills-centred approach derived from an important distinction made by Widdowson (1981: 257) between goal-oriented courses and process-oriented courses.

Its aim is to make the learners into better processors of information and the model of this approach is shown below:

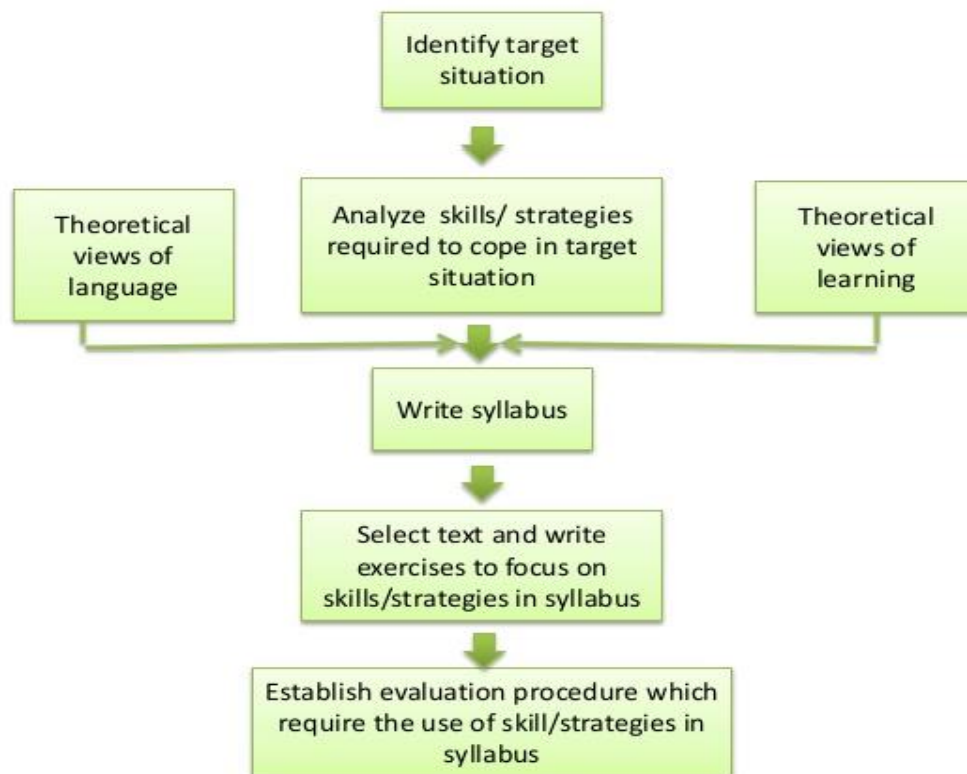


Figure1.9. A Skills-centred Approach to Course Design
(Hutchinson and Waters, 1987: 71)

Yet, the skills-centred approach still considers the learner as a user of language rather than a learner of language. That is why; it comes into existence the third approach to ESP course design, called a learning-centred approach. In other words, it considers the learner as a user of language rather than as a learner of language.

1.6.1.3. Learning-centred Course Design

The learning-centred approach starts from the fact that the learner is supposed to be the most important factor in the learning process and that learning is totally determined by the learner who uses his knowledge and skills to add and grasp new information. In addition to the learner, the principle that “learning is not just a mental process, but a process of negotiation between individuals and society” (Hutchinson and Waters, 1987: 72) is taken into account. In other words, a negotiation process in which both the target situation and the learner’s level of linguistic competence influences the features of the syllabus. And here is the model of this approach:

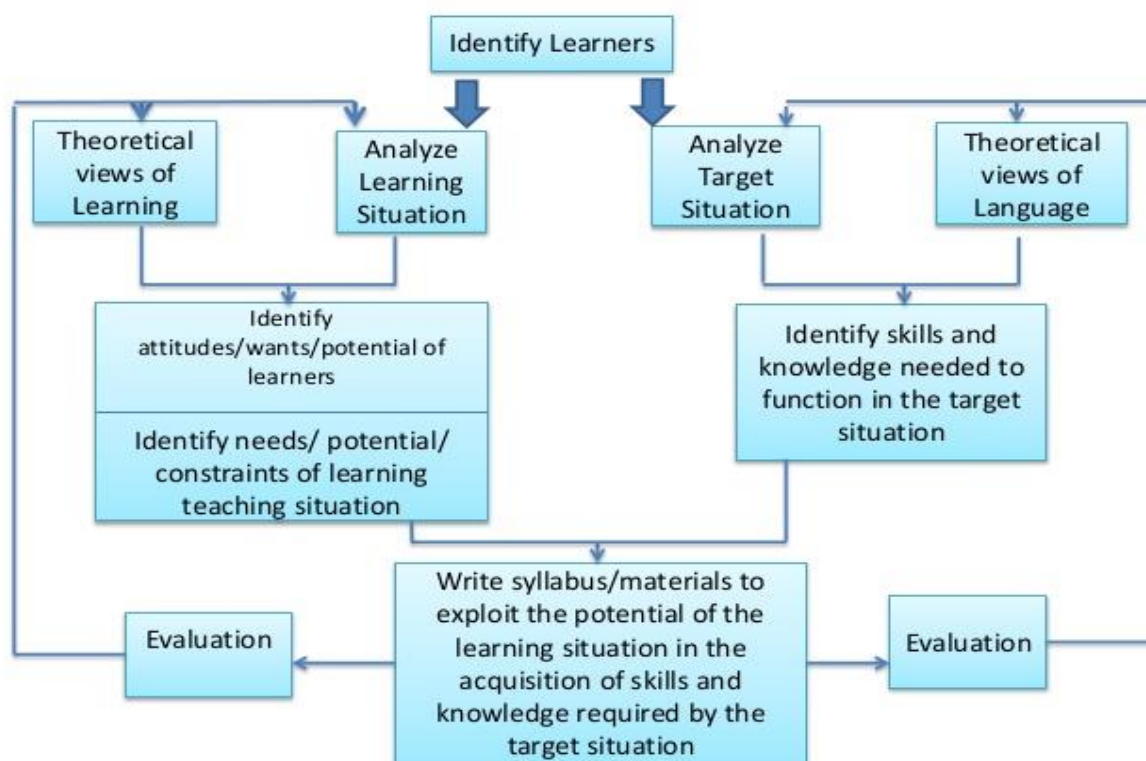


Figure 1.10. A Learning-centred Approach to Course Design (Hutchinson and Waters, 1987: 74)

In their distinction between the learning-centred and learner-centred approaches, Hutchinson and Waters (1987:72) prefer the concept of learning-centred course design because they think that the concern of this type of approach is to make the best use of learning, while the learner-centred course design starts from the idea that the learning experience is entirely determined by the learner, based on his or her motivation and previous knowledge.

ESP course design has indeed a number of approaches. For the success of a course design, one should rely on a compound approach, i.e. an approach which employs various approaches according to the situation and the importance relies on their relevance and effectiveness.

From the above definitions and approaches, one may say that the aims of the ESP courses are to prepare the learners for specific skills and vocabulary needed in their own field in order to be able to communicate effectively in the target situation. To achieve these aims, a number of characteristics have to be taken into consideration.

1.6.2. Characteristics of ESP Courses

Carter (1983, qtd in Gatehouse, 2001) states three features of ESP courses: Authentic material, purpose-related orientation and self-direction. The characteristics of ESP courses are discussed in the following sub-sections.

1.6.2.1. Authentic Materials

Authenticity of materials in ESP is a question of debates nowadays though the fact of using them in ESP context was mentioned long ago. It has been pointed to by various authors as a relevant feature in ESP methodology (Safont and Esteve 2004: 261-274) and this makes authentic materials highly considered in the ESP literature.

In fact, the meaning of authenticity as a term varies from one scholar to another. This variation was seen in Dudley-Evans & St. Johns (1998:27) definition, stating that the exact meaning of authenticity has often been unclear, from simplified or ‘genuine’ texts that were used in ESP materials written for purposes rather than language teaching, to the fact that genuineness does not guarantee relevance. Next, Hutchinson and Waters (1987) argued that it is more important to ensure that the activities based on the text reflect the learning process than to use genuine texts from the target situation. In addition, Long (2007: 121) remarks that, unfortunately, “texts in language teaching materials bear little resemblance to the genuine target discourse samples learners encounter in the world outside classrooms”, and that “every study in which language teaching materials – even supposedly LSP materials – and genuine texts have been compared has found the former to be unrepresentative in important ways”. Thus, using genuine (authentic) texts is crucial in ESP teaching. Similarly, authenticity may be defined as McDonough and Shaw (2003:40) define it: a term which loosely implies as close an approximation as possible to the world outside the classroom, in the

selection of both language material and of the activities and methods used for practice in the classroom.

Moreover, dealing with authentic materials is closely related to reading. For example, Sznajder (2001:390) further suggests that authenticity “refers not only to the form, contents and the communicative goal of a text, but also and most importantly, to the purpose of reading.” In this context, many scholars agreed that there are a set of functions of authentic texts as Wegner (2008: 137) sees three functions of authentic texts in ESP courses: “First, inviting authentic materials from the learners’ work environment to the classroom the teacher offers assistance (...) Second, the ESP teacher always looks for texts that are as close to the learners’ target situations in their jobs as possible (...) Third, authentic texts serve as sources of information for the teacher and may already be collected during the needs analysis period.”

Authentic texts, on the other hands, should be chosen according to three criteria, proposed by Fei and Yu-feng (2008). The first criterion is readability which means “a combination of structural and lexical difficulty” so as not to demotivate learners since the learning process may be hindered. For the second criterion they explain that learners’ needs must be taken into account particularly when the reading materials are provided for learners who learn English in academic settings. The third criterion is considering learners’ interests.

Besides, Berardo (2006) refers to the variety of authentic texts which makes the reading course more interesting. He explains that the use of pictures, charts, photographs to build a context of the text in question is so beneficial, attractive and thus motivating. As well, he refers to internet as a stimulating and interactive source which promotes a more active approach towards reading. Similarly, Bell (2005:7) confirmed that since “the authenticity, immediacy, and scope of materials now available via the web are unprecedented in history”. Moreover, internet is a wonderful and very much up to date source of authentic materials for LSP learners, “providing ESP practitioners with a diversity of ‘takeaway formats’ (video, audio, pictures and

texts)” (Bocanegra-Valle 2010:150). Those materials should be relevant to the students’ field of study. Indeed, authentic materials can be obtained from many different sources but there is a growing tendency to take them from the internet as teachers need to renew their materials constantly and to adapt them to the changing needs of students.

Additionally, authentic materials can increase students’ motivation and expose them to real language and culture as well as to the different genres of the professional community. Gulikers et al. (2005: 520) quotes from Huang (2002) who introduces two principles in describing adults’ motivation in learning. The first principle is that adults prefer a problem-solving orientation in learning. In particular, adults express that they learn best when the problem is presented in a real life context. The second principle is that adults are highly motivated to learn when they can gain new knowledge in such a way that this knowledge helps them to solve important problems in their professional lives.

To sum up, Harding (2007:10) provides some guidelines for ESP teachers in their use of authentic materials as follows:

- Think about what is needed.
- Understand the nature of your students’ subject area or vocation.
- Spend time working out their language needs in relation to the subject.
- Use contexts, texts, and situations from the students’ subject area.
- Exploit authentic materials that the students use in their specialism or vocation
- Make the tasks authentic as wells as the texts.
- Motivate the students with variety, relevance, and fun.
- Try to take the classroom into the real world that the students inhabit, and bring their real world into the classroom.

Finally, although authentic materials are rich, the selection to fit them into the learning/teaching context is not easily accomplished.

1.6.2.2. Purpose-related Orientation

Purpose-related orientation refers to the simulation of communicative tasks required of the target setting. Carter (1983) cites student simulation of a conference, involving the preparation of papers, reading, notetaking, and writing. In other words, the purpose-related orientation is concerned with presenting and practising particular communicative tasks in the classroom which are required in the target situations.

Learners in the ESP classes are generally aware of the purposes for which they will need to use English since they are generally adults. Having already oriented their education toward a specific field, they see their English learning as a way to complete this orientation. Knowledge of the subject area enables the students to identify a real context for the vocabulary and structures of the ESP classroom. Therefore, the learners can take advantage of what they already know about the subject matter to learn English. Gatehouse (2001:10) believes that ‘there is a value in all texts, but curricular materials will unavoidably be pieced together, some borrowed and others specially designed. ... purpose-related orientation is an essential component of any material designed for specific purposes.

1.6.2.3. Self-direction

Self-direction is a characteristic of ESP course in that the “... point of including self-direction ... is that ESP is concerned with turning learners into users” (Carter, 1983:134). It means that the learner must have a certain degree of freedom to decide when, what and how they will study and with this, they will achieve this characteristic of ESP course. In other words, it is important to teach the learners the learning strategies adequate to access knowledge in the new culture. As stated by Carter (1983) who also adds that there must be a systematic attempt by teachers to teach the learners how to learn by teaching them about learning strategies. In fact, what is essential for these learners is learning how to access information in a new culture. The learners were required to investigate and present an area of interest. For instance, they were encouraged to conduct research using a variety of different resources, including the Internet.

However, the basis of all those characteristics is that ESP teachers should be aware of the ESP course objectives.

1.6.3. Objectives of ESP Courses

From the early reasons of the emergence of ESP, it was commonly agreed that ESP originated from the need of non-native speakers of English with the objective of coping with language demands in their target environments.

Stern (1989, 1992) distinguishes four types of objectives: proficiency, knowledge, affective, and transfer. *Proficiency objectives* concern mastery of skills such as reading, writing, listening, and speaking. *Knowledge objectives* concern the acquisition of linguistic and cultural information. *Affective objectives* concern the development of positive feelings toward the subject of study. *Transfer objectives* concern the ability to generalize from what has been learnt in one situation to other situations. Referring to Stern, Basturkmen (2006: 133) describes five objectives in ESP teaching:

1. To reveal subject-specific language use:

Concerning this objective, Helen Basturkmen (2006: 134) states that historically, the objective of teaching content about subject-specific language use has dominated ESP. Related to linguistic knowledge objective and cultural knowledge objective in Stern's (1992) categorization, it aims to show how English is used in the target environment. Basturkmen (2006: 134) argues that there is a direct link between research and pedagogy, with teaching primarily focused on demonstrating the forms and features that descriptive linguistic research has brought to light.

2. To develop target performance competencies:

Since Basturkmen refers to Stern's set of objectives, she relies on the proficiency objective which concerns the mastery of skills when learning. Similarly, Basturkmen (2006: 135) adds, "teaching oriented toward this objective presents language operationally in terms of what people do with language and the skills they need to do it. Courses are organized around core skills and competencies that are also subdivided into micro-skills and more specific competencies."

3. To teach underlying knowledge:

It is discussed that teaching ESP relying on linguistic proficiency and knowledge is not sufficient but also relying on knowledge and understanding of work-related and disciplinary concepts. Additionally, Hutchinson and Waters (1985, quoted in Swales, 1988) used the term underlying competencies in ESP to refer to disciplinary concepts from the students' field of study. They argue that ESP should focus on developing students' knowledge of these disciplinary concepts as well as their language skills. Through ESP teaching, they provide the students with background knowledge, termed underlying competency. This means teaching general conceptual subject content alongside language (Basturkmen, 2006: 138).

4. To develop strategic competence:

Douglas (2000: 38) argues that strategic competence acts as a 'mediator' between the external situational context and the internal language and background knowledge that is needed to respond to the communicative situation. The ESP teacher in this situation plays the role of a 'mediator' between the language and the subject knowledge. Thus, Strategic competence is the link between context of situation and language knowledge and can be defined as the means that enables language knowledge and content knowledge to be used in communication (Basturkmen, 2006: 139).

5. To foster critical awareness:

Referring to knowledge and affective objectives stated by Stern (1992), Basturkmen (2006: 140) in this final point says that the role of ESP has been constructed in terms of helping English language learners meet the demands and expectations of the target environment, and then making them aware of the target situation.

In order to achieve these ESP course objectives, ESP teacher should decide for the approach to follow as well as the methods and strategies to adopt.

1.6.4. ESP Methodology

It is important to produce course content and a methodology of teaching that emphasise the needs of learners and that provide opportunities to use language in meaningful situations.

Another area of debate within ESP concerns the role of methodology. Widdowson (1983: 87) argues that ‘methodology has generally been neglected in ESP.’ However, today there are so many various courses under the ESP umbrella with clearly different methodologies used according to the course design as well as the goals and outcomes of those courses. In the same vein, Wright (1992: 5) believes that ‘Methodology is also of crucial importance. Since ESP courses aim to develop linguistic skills relating to particular spheres of activity, not only the nature of the linguistic items introduced, but the ways in which they are introduced and how they are practiced, are highly significant.’

Additionally, Basturkmen (2006: 114) marks it as debatable whether ESP has a distinctive methodology. For example, Robinson (1991, quoted in Basturkmen 2006: 114) identifies two characteristic features of ESP methodology: ESP can base activities on students’ specialism (but need not do so), and ESP activities can (but may not) have a truly authentic purpose derived from students’ target needs. Dudley-Evans and St. John (1998: 190) maintain that what characterizes ESP methodology is the use of tasks and activities reflecting the students’ specialist areas.

Basturkmen’s (2006: 114) presentation of ESP methodology is organized around the concepts of input and output. She mentioned two strategies: the input-based strategies and the output-based strategies. The first one is also divided into two macro strategies, predominantly input and input to output; the second one into predominantly output and output to input.

1. Input-based Strategies

Basturkmen (2006: 114) states that Input based strategies rest on the idea that learning occurs primarily through exposure to language input in the form of written or spoken texts and language descriptions.

a- Predominantly input

This subcategory assumes the idea that input is sufficient for learning (Basturkmen 2006:115). Learning occurs through students being exposed to samples of language use (ibid: 131) as being engaged to comprehension activities related to some authentic texts, or furthermore to awareness-raising activities where students have to recognize some specific language features and forms in those texts and thus developing explicit knowledge of the targeted forms being exposed to, and the use of reading and listening texts are one way to achieve this.

b- Input to Output

Basturkmen (2006: 117) shows that in this strategy, students are provided with input as the basis for production (output). In other words, that input needs to be followed by student output for learning to occur. The focus is on students acquiring explicit knowledge of preselected language items. The input can take various forms such as a language description, analysis of a genre, or teacher-led discussion of features in a text. At this stage, the students are required to produce the targeted item(s), i.e. the output. Therefore, this strategy (input to output) is linked to the idea that learners need first to notice language forms and features and then use them in their own production (ibid: 131). It is a proposal for genre-based instruction for an English for Engineering studies class (Basturkmen, 2006: 122).

In fact, Basturkmen (2006: 116) gives two examples that can be linked to input-based teaching. One example illustrates a teaching strategy based on the idea of implicit knowledge acquisition through exposure alone and the second illustrates consciousness-raising activities.

2. Output-based Strategies

The output-base instruction is based on the students' efforts to communicate in the target language, Basturkmen (2006: 123). Here, two sub-strategies are identified: The first is based on the premise that using the language (producing output) is sufficient for learning and the second on the premise that it is only when students' production or

output is followed by some form of input (discussion or highlighting of language) that learning occurs.

a- Predominantly output

In this strategy, students are placed in situations that require them to first perform production tasks (to produce output) in order to identify where their interlanguage (developing language system) is sufficient for the performance or production task and where it is not. They could so develop the necessary grammatical resources, comprehend a message without any syntactic analysis of the input it contains, and pay attention to the means of expression (Ellis,1990:117 quoted in Basturkmen, 2006: 124).

Indeed, the idea of students being required to produce language in advancing levels of grammatical language accuracy is reflected in many task-based activities for the classroom. Task-based teaching has featured strongly in ESP in recent years. Dudley Evans and St. John, 1998 quoted in Basturkmen, 2006: 125) argue that a benefit of this strategy is that it reflects the students' target or professional, academic, or workplace world where performance is the point of departure rather than preparation.

Therefore, predominantly output is linked to the idea that learning occurs through students struggling to communicate and being pushed to reach their linguistic ceilings (Basturkmen, 2006: 131).

b- Output to Input

Basturkmen (2006: 126) shows that students' production (output) in instruction based on an output-to-input strategy are followed by feedbacks. That is to say, a feedback is provided to show students' performance after performing a task previously. By performing a task at an early stage, students recognize some deficiencies in their linguistic repertoire and then try to raise these deficiencies through feedback.

To sum up, this strategy is associated with the idea that learners are ready to acquire new language when they have experienced a hole in their linguistic repertoire and are offered a solution to that problem in a form of feedback (Basturkmen, 2006: 131).

In fact, Stevens (1988) stated methodologies of ESP teaching as:

They conform to the same model of the language teaching process as does any other form of language teaching. That is to say, the basic teaching activities are these; shaping the input; encouraging the learners' intention to learn; managing the learning strategies and promoting practice and use.

(Stevens, 1988: 44, qtd in Lamri, 2015: 20)

As far as teaching is concerned, there is no specific methodology related to ESP. It is simply a matter of methodologies that have been applied in ESP courses with emphasis on the principles of effective and efficient learning. Hutchinson and Waters (1992: 19) state that "ESP should properly be seen not as any particular language product but as an approach to language teaching which is directed by specific and apparent reasons for learning."

What is an undisputed fact is that any ESP course should be needs driven (Wright, 1992), and has an 'emphasis on practical outcomes.' (Dudley-Evan and St. John, 1998: 1). Therefore, needs analysis is and will always be an important and fundamental part of ESP (Wright, 1992; Ellis and Johnson, 1994; Gatehouse, 2001; Graves, 2000; Scrivener, 2005).

1.6.5. Needs Analysis

It is 'the corner stone of ESP and leads to a very focused course.' (Dudley-Evan and St. John, 1998: 12). Indeed, needs analysis might have once been the corner stone of ESP but is now increasingly common for many EFL situations.

1.6.5.1. Definition of needs

Generally speaking, the term ‘needs’ can be defined as a condition or a situation in which something is required or wanted. In the field of teaching, it is explained by Brown (1995: 36) that needs are the requirements of students within the context of particular institutions that influence the learning and teaching situation.

Overall, needs denote 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 efficiently in the target situation. Needs in this sense are perhaps more appropriately described as “objectives” (Robinson, 1991; West, 1995).

In fact, when dealing with ‘needs’ as a term, a number of terms come into existence: They are described as objective and subjective (Brindley, 1989:65), perceived and felt (Berwick, 1989: 55), process-oriented and product-oriented (Brindley, 1989: 63), necessities, lacks and wants (Hutchinson & Waters, 1987: 55). All these terms help to understand the factors that lead the concept of ‘needs’ to grow and develop (Dudley-Evans and St. Johns, 1998: 123).

1.6.5.2. Classification of Needs

A basic distinction is made between the target needs and the learning needs (Hutchinson and Waters, 1987: 54).

1. Target needs: They are defined as the ability to comprehend and or to produce the linguistic features of target situation. In other words, what the learners need to do in the target situation. They are divided into necessities, lacks and wants.

- a- Necessities:

This kind of needs refers to what the learner has to know in order to function effectively in the target situation (Hutchinson & Waters, 1987: 55). In this case, it is important to study the situations, identify parts, and relate to language. However, to identify necessities alone is not sufficient to understand ‘needs’.

b- Lacks:

Since the concern in ESP is with the needs of particular learners, the authors (1987: 56) state that it is important to identify what the learners already know in order to decide which of the necessities they lack. Thus, the gap between the target proficiency and the existing proficiency of learners can determine their lacks, .i.e. the difference between the learners' present competence and the desired competence. It is important both to consider the courses they have taken and the actual contact with them.

c- Wants:

It is also important to determine the wants and desires of the learners to learn ESP. This kind of needs, according to them, refers to what the learners want to be done in ESP courses in order to understand the target situation. In other words, to understand what the learner feels as need and what he wants to know.

2. Learning needs:

One of the most important aspects that have often been spoken about in ESP literature is the learning needs. What is clear and obvious is that each specific field or domain would impose its own needs. Evidently, the needs and the methodology of serving these needs differ from one specific field to another. That is why Mackay and Mountford (1978: 6) say that the language teaching should follow 'specific learning and language use purposes of identified group of students.'

According to Hutchinson and Waters (1987: 60), it is always inadequate to base a course design simply on the target needs. They consider learning needs concern the route between the starting point (lacks) and the destination (necessities). For examples, learners may be greatly motivated in the subject or work, but may completely lose interests with the long, dull, and old teaching material. The learning process should be enjoyable, fulfilling, manageable, and generative. It is, indeed, not a matter of knowledge but a matter of learning and methodologies of learning. The concept of "learning needs" put forward by Hutchinson and Waters and their analysis of "learning needs" have been proved to be fairly useful in practice. As a result, in the process of leaning, learner's needs should always be taken into consideration. Course designers

need to analyze the learner's learning needs according to their motivation, the conditions of the learning situation, and their existing knowledge and skills.

1.6.5.3. Needs Analysis Process

In general, needs analysis as a term is the procedures for collecting information about learners' needs. In the same vein, it is seen as "... a family of procedures for gathering information about learners and about communication tasks ...," Nunan (1987: 75). It is considered by Brown (1995: 36) as a "... systematic collection and analysis of all subjective and objective information necessary to define and validate defensive curriculum processes that satisfy the language learning requirements of students within the context of particular institutions that influence the learning and teaching situation."

The term needs analysis (also known as assessment analysis), according to Iwai et al. (1999), generally 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. Broadly speaking, Hyland (2006: 73) provides a multi-faceted definition of needs analysis:

Needs analysis refers to the techniques for collecting and assessing information relevant to course design: it is the means of establishing the how and what of a course. It is a continuous process, since we modify our teaching as we come to learn more about our students, and in this way it actually shades into evaluation – the means of establishing the effectiveness of a course. Needs is actually an umbrella term that embraces many aspects, incorporating learners' goals and backgrounds, their language proficiencies, their reasons for taking the course, their teaching and learning preferences, and the situations they will need to communicate in. Needs can involve what learners know, don't know or want to know, and can be collected and analyzed in a variety of ways.

(Qtd in Paltridge and Starfield, 2013: 325)

Additionally, needs analysis (Day and Krzanowski, 2011) also known as a skills audit is similar to the pre-course questionnaire. Several terms have also been introduced to NA through different approaches: Target situation analysis, present situation analysis, pedagogic needs analysis, deficiency analysis, strategy analysis or learning needs analysis, means analysis, register analysis, discourse analysis, and genre Analysis. Thus, all these different approaches to needs analysis try to meet the needs of the learners and the language to be taught in the process of learning a second/foreign language.

What is undiscussable is that any ESP course should be needs driven and has an ‘emphasis on practical outcomes’ (Dudley-Evans and St. Johns, 1998: 1).

1.6.5.4. Importance of Needs Analysis in ESP Course Design

The importance of needs analysis has been acknowledged by a number of researchers and authors (Munby, 1978; Richterich and Chancerel, 1987; Hutchinson and Waters, 1987; Berwick, 1989; Brindley, 1989;; Robinson, 1991; Johns, 1991; West, 1994;; Jordan, 1997; Dudley- Evans and St. John, 1998; Iwai et al. 1999; Finney, 2002).

Needs analysis is and will be of a predominant importance in the field of ESP (Gatehouse, 2001and Graves, 2000). It is, in fact, the first stage in ESP course development followed by course design, materials selection, assessment, and evaluation. These stages are seen by Dudley-Evans and St. Johns (1998: 121) as interdependent overlapping activities in a cyclical process as shown in the following figure:

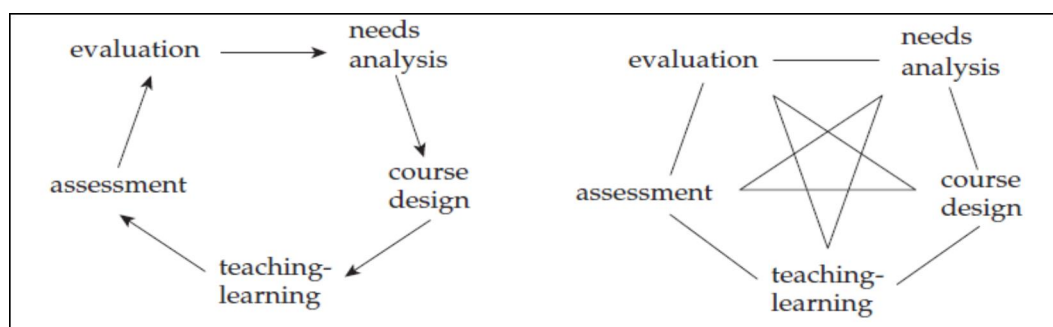


Figure1.11. Linear vs. Cyclical Processes of Needs

Because of its importance, it has many purposes as Richards (2001: 52) states:

- “To find out what language skills a learner needs in order to perform a particular role, such as sales manager, tour guide or university student
- To help determine if an existing course adequately addresses the needs of potential students
- To determine which students from a group are most in need of training in particular language skills
- To identify a change of direction that people in a reference group feel is important
- To identify a gap between what students are able to do and what they need to be able to do
- To collect information about a particular problem learners are experiencing”

Nowadays, according to Belcher (2006: 136), there is an increasing focus on subjective need of learners, in mentioning their self-knowledge, awareness of target situations, life goals, and instructional expectations. There is also an increasing focus on ‘appropriate perspectives on language learning and language skills,’ Far (2008: 2)

To sum up, needs analysis has a paramount importance in the field of ESP course design process with assessment as an involved element in the process. Assessment is one of the most important parts of the educational system in general, and ESP/ EST teaching and learning processes in particular.

1.6.6. Assessment in ESP

The teachers’ task of assessment in English for specific purposes (ESP) is not necessarily different from other areas of language assessment. Language assessment practitioners must take into consideration the test purpose, test taker characteristics, and the target language use situation (Patridge and Starfield, 2013: 367). All language assessment specialists follow accepted principles of measurement, including providing evidence for test reliability, validity, and impact (2013: 367) and ESP assessment is also guided by these same principles. Since ESP assessment instruments aimed to

reflect a specific area of language, they are based on the understanding of three qualities of specific purpose language: first, that language use varies with context, second, that specific purpose language is precise, and third that there is an interaction between specific purpose language and specific purpose background knowledge (2013: 368). Accordingly, assessment aims to measure the learners' progress or regress and to be sure whether the learners' needs were reached or not.

In fact, there is not only one way to assess in English for Specific Purposes language courses. For example, classroom tests, called and seen as traditional, have a negative implication. They are sometimes seen by learners with "obsessive and fearful attitudes engendered by viewing tests exclusively as determiners of grades" (Hutchinson and Waters, 1987: 152). Students often believe that test scores reveal effective or ineffective teaching and learning of course content. Indeed, Hutchinson and Waters (1987: 145) claimed that "evaluation of learners reflects not just the learners' performance but, to some extent, the effectiveness or otherwise of the course [itself]". In addition to a continuous assessment through activities accomplished over a period of time and has a flexible and formative role.

In reality, ESP courses are intended to be successful because a needs analysis of target learners' needs and expectations was performed earlier in order to follow a particular objective and use appropriate methodology.

1.6.7. Motivation in ESP Course

Science and Technology are global disciplines in which English is the medium of communication in international conferences, publications and international project teams. Therefore, to be competent in scientific and technical English seems to be essential for success. In fact, teachers of students related to this area of study and research know this fact and continually search for better ways to improve the English skills of their students. However, as stated by Bouklikha (2012: 33), "there are only

few ESP teachers who possess the appropriate knowledge, skills, and interests to contribute significantly to this work.” One of the key factors for achieving success among students is motivation as identified by Ellis (2004: 11):

Not surprisingly teachers recognize the importance of motivation, both with regard to the motivation that students bring to the language classroom (extrinsic motivation) and the motivation that is generated inside the classroom through the choice of instructional activities (intrinsic motivation). Similarly, motivation has attracted increasing attention from researchers, reflected in a growing number of theoretical models of L2 motivation and in consequent research studies.

In fact learners’ motivation is a key factor in language learning success. Krashen and Terrell (1983: 17) assert that “All human beings can acquire additional languages, but they must have the desire or the need to acquire the language, and the opportunity to use the language they study for real communicative purposes.” Motivation can be described as intrinsic, extrinsic, integrative, and/or instrumental. Intrinsic motivation of a learner is seen in his own reward and his behavior comes from internal needs, wants, or desires; it is what the learner brings to the classroom. Extrinsic motivation is derived from the anticipation of an external reward, and part of that reward is what the classroom offers (Brown, 2001: 58-59). Echevarria and Graves (2003) present Baker’s (1992: 45) definition of integrative motivation as coming from a desire to identify with or integrate into a particular language group. In contrast, “instrumental motivation describes a situation in which individuals learn another language for a practical reason, such as getting a job, enhancing their career possibilities, or passing an exam.”

Academically speaking, Hutchinson and Waters (1992: 8) state that “the assumption underlying this approach (ESP) was that the clear relevance of the English course to their needs would improve the learner’s motivation and thereby make learning better and faster.” Similarly, specificity and motivation in ESP are linked in the sense that the more specific the course is, the more motivated the students will be. As stated in: “...; the focused nature of the teaching, its relevance and cost-

effectiveness ensure that its aims are widely accepted by learners” (Dudley-Evans and St. John, 1998: 10).

As Berardo (2006) mentions, authentic materials can be used to promote motivation and give learners a “sense of achievement” and encourage them for further reading. When learners get out of the “safe” situation of the classroom they need to face the real world and need to have learned skills which can help them in coping with real situations outside the class, so the teacher has to prepare the learners for the actual use of the language which can be accomplished by using authentic materials. (Berardo, 2006: 60).

Gulikers et al. (2005: 520) quotes from Huang (2002) who introduces two principles in describing adults’ motivation in learning. The first principle is that adults prefer a problem solving orientation in learning. In particular, adults express that they learn best when the problem is presented in a real life context. The second principle is that adults are highly motivated to learn when they can gain new knowledge in such a way that this knowledge helps them to solve important problems in their professional lives. And ESP learners need to improve their English for a specific reason related to a specific setting. Providing an authentic learning environment can build up such a connection with reality proposed by Herrington and Oliver (2000) that according to Huang is an important factor in adults’ motivation.

Thus, it is agreed that motivation in ESP learning is very important. Hutchinson and Waters (1987: 53) explain that when ESP course answers the learner’s needs, it may be more motivating, yet “... there is more to motivation than simple relevance to perceived needs...The medicine of relevance may still need to be sweetened with the sugar of enjoyment, fun, creativity and a sense of achievement.”. They (1987: 8) add that: “Learners were seen to have different needs and interests, which would have an important influence on their motivation to learn and therefore on the effectiveness of their learning.”

Additionally, if the students' needs are satisfied and the students are involved in the learning process, they will be certainly motivated as explained by Donna (2000: 3): "Even students who are tired and preoccupied and apparently uninterested in English can become highly motivated if the need for English in their works is made clear to them and if they are treated as partners in the business of learning."

ESP combines subject matter and English language teaching. Such a combination is highly motivating because students are able to apply what they learn in their English classes to their main field of study and vice versa. For this reason, Bouklikha (2012: 35) states that "being able to use the vocabulary and structures that they learn in English in a meaningful context, reinforces what is taught and increases their motivation.

Therefore, content is motivating for ESP students. They focus on the subject matter and the topics they are interested in, and develop important skills they can use (Brown, 2001). However, if the students do not wish to learn the material given, success cannot be achieved though this material contains interesting themes based on content in ESP. The fact that "learners know specifically why they are learning a language" (Hutchinson and Waters, 1992: 6) is a great advantage on both sides of the process. ESP learners' motivation enables teachers to meet learners' needs and expectations easier. Thus, a well-established ESP course is an important factor in increasing students' learning motivation.

In fact, motivation can be also raised thanks to ESP teachers in different roles. Most authors agree that the ESP teachers' works involve much more than teaching and since perform different tasks; they should play different roles as stated below.

1.6.8. Roles of ESP Practitioner

ESP teacher's role is hard and complex since the ESP teacher does not only teach but also provides materials, designs a syllabus, collaborates with subject specialists, conducts research and finally evaluates the course as well as the students. He is seen as a curriculum developer and course designer by Nunan (1987: 75) in saying that:

It seems fairly obvious that if teachers are to be the ones responsible for developing the curriculum, they need the time, the skills and the support to do so. Support may include curriculum models and guidelines · and may include support from individuals acting in a curriculum advisory position. The provision of such support cannot be removed and must not be seen in isolation, from the curriculum.

Robinson states that 'There is no single, ideal role description' (Robinson, 1991: 79) for an ESP teacher because there is a huge variety of ESP courses and contexts. However, Dudley-Evans and St. John (1998: 13) identify some specific roles of an ESP practitioner as a teacher, a course designer and material provider, a collaborator, a researcher and an evaluator.

1. As a Teacher :

The ESP practitioner is a teacher first, so he must possess the qualities of a good general language teacher along with the specific qualities desired for his own field (Robinson, 1991). Similarly, Dudley-Evans and St. John, (1998: 13) argue that 'The methodology of ESP teaching may not differ radically from that of General English.' However, because of the specificity of ESP, it is assumed that the role and methodology of a practitioner varies from that of EGP teacher. An ESP teacher is not the 'primary knower' of the carrier content of the material since ESP includes the specific knowledge of the target situation, field of knowledge or profession but a teacher is, usually, trained in language skills only. The teacher in these situations becomes a 'consultant' (Robinson, 1991) who prepares a classroom strategy with the help of students to meet their desired learning goals.

2. As a Course designer and materials Provider:

ESP practitioners are expected to design courses and provide materials to their students. These courses and materials should be related to the different needs of the learners. Since it is very hard to find appropriate textbooks that respond to most of linguistic and communicative needs of students in a certain context (Dudley-Evans and St. John, 1998: 14), ESP teachers find themselves obliged to prepare their own teaching materials, either by collecting materials from various sources or writing their own when needed (Kennedy and Bolitho, 1984: 11). Moreover, they have to assess the effectiveness of those materials.

3. As a Collaborator:

The variety of academic and professional genres in teaching ESP makes the ESP practitioners obliged to have knowledge of their students' specialism to design their courses and teaching materials. In order to do so, the collaboration with the subject specialists of the specific disciplines is strongly advised (Dudley-Evans and St. John, 1998: 16). This helps the ESP practitioners to have access to the actual content of the subject course which can be used in classroom activities. A subject specialist may assess the teaching materials prepared by the ESP teacher in certain situations (Dudley-Evans and St. John, 1998: 16). Generally speaking, the subject specialist and ESP practitioner teach the class together. This is known as 'team-teaching' by Robinson (1991: 88).

4. As a Researcher:

ESP practitioners are also regarded as researchers since they should search for methods and perform tasks that suit the need analysis in their course designing and material selection. This role is much needed in the field of EAP where volumes of research have already been published (Swales, 1990 qtd in Dudley-Evans and St. John, 1998: 15), and ESP teachers should be aware of. ESP practitioners must go beyond the identification of events, skills and texts of the target situation and this means to be able

to carry a research in order to understand the discourse of the texts used by students (Dudley-Evans and St. John, 1998: 15).

5. As an Evaluator

Finally, ESP practitioners have to evaluate the linguistic knowledge and skills of students as well as the courses and materials they have designed (ibid: 16). Through discussion with students and their on-going needs analysis, they should match the course and materials taught with students' identified learning priorities. Evaluating materials for ESP is a vital skill as Anthony (1997: 3) states that evaluating materials for ESP 'is perhaps the role that ESP practitioners have neglected most to date'.

The ESP practitioners mentioned above can be summarised in the following diagram:

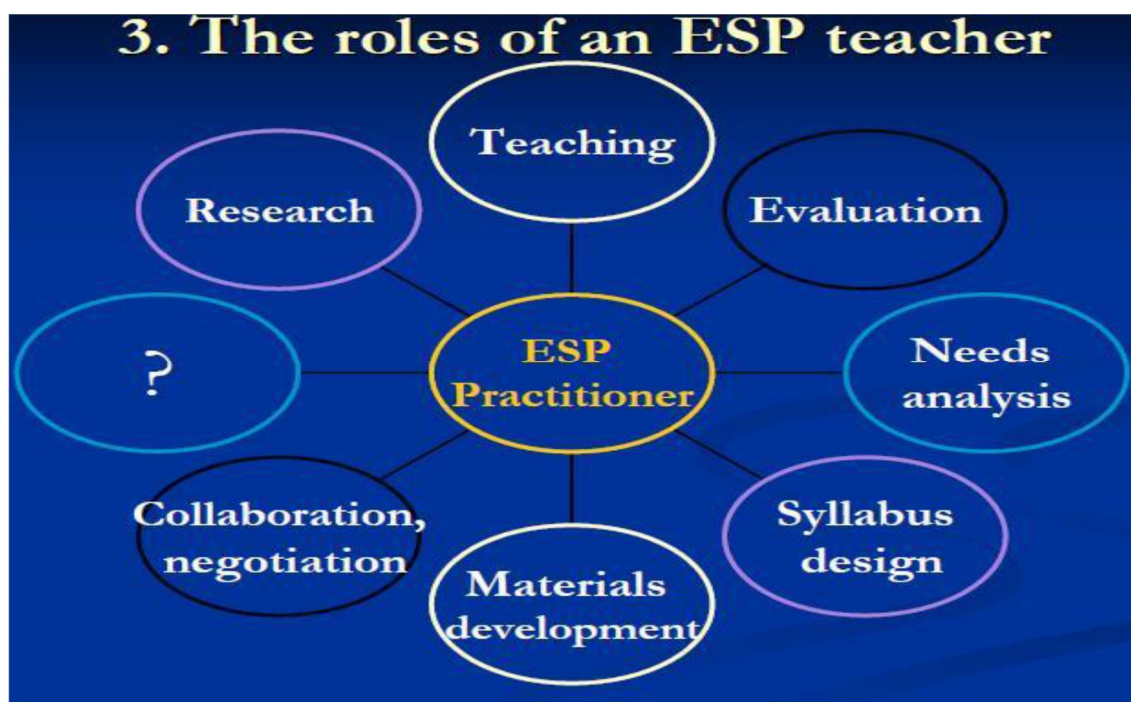


Figure1.12. The Roles of ESP Practitioner

In addition to those roles of ESP practitioner, named differently, he is considered as "... a knowledge provider and a facilitator of students' learning and no more as a resourceful authority" (Kashani et al 2007, qtd in Lamri, 2015: 20).

In general, whatever name is given, the ESP teacher or course developer needs to find out what the language-based objectives of the students are in the target occupation

or academic discipline and ensure that the content of the ESP course works towards them (Basturkmen, 2010: 8).

Another area of debate within ESP concerns the role of methodology which is discussed next.

1.7. Conclusion

Since the end of WWII, ESP has received much attention among educational and applied linguistics. This attention is justified due to the dominance of English in the field of economics, politics, media, technology and medicine. Each of these fields, as well as others requires its unique way of teaching based on the needs of their learners.

This chapter highlights a review of literature which illustrates the complex task of dealing with a definition of ESP, its emergence and thus its development through history, its different types as well as its relation with the language skills and finally how it could be motivating. Since the researcher has designed an ESP course for engineering students, a global understanding of ESP (EST) course design process was undertaken concerning the different stages that should be undergone. This chapter has set out to show the necessary features that characterize the sphere of ESP (EST), displaying the main approaches and characteristics of a course design and the role of ESP teachers in accomplishing their task of ESP teaching perfectly. Besides, it emphasized on the main elements of designing an ESP course, from deciding for objectives, to the methodology undertaken, the needs analysis as well as the assessment and evaluation of the course. All in all, the researcher hopes this overview study could supply a global knowledge in the domain of ESP in general and EST in particular.

In the next chapter, the researcher will shift focus on the benefits of using web-retrieved resources especially Internet to facilitate ESP learning and teaching emphasizing on a particular skill among the four language skills which is reading.

CHAPTER TWO

CHAPTER TWO

ESP Reading and Technology

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2.5. Conclusion

2.1. Introduction

The reading skill is characterized as an essential and necessary skill in any teaching and learning situation and ESP is of course included. This importance is based on the fact that ESP learners need to be able to read, understand well, learn about something particular, gather information and thus achieve academic and professional success because “reading is an extraordinary achievement when one considers the number of levels and components that must be mastered” (Mc Namara, 2007: 3).

Reading is seen as “...an enjoyable, intense, private activity, from which much pleasure can be derived, and in which one can become totally absorbed” (Alderson,2000:28). Nevertheless, as we are in the outlet of the new millennium, the ability and the need to communicate becomes so important. To do so, students need to improve this reading skill with a focus on Internet. The question indeed relies on how to use this vast web of information for academic and later on professional purposes.

That is why this chapter is composed of two main parts. The first part consists of an overview of reading theory which deals with a definition of reading, followed by its different models which are deeply discussed in the literature and which are so important to distinguish the one to follow. Then, a description of the different types and purposes of reading is tackled, followed by a discussion on its different skills and strategies as well as the way of assessing them. Finally, a discussion on the criteria charted to select the suitable text is added. The second part concerns technology and language learning in general and reading using web-based tasks in particular. ESP is a specialized English language course to develop specific skills according to the needs of the learner. From this fact, things should be said about skills in ESP first.

2.2. ESP and Skill Development

In the outset, the focus in ESP was on the reading skill as stated by Johnsons (1998:108): “an initial and continuing focus in ESP has been the skill of reading, for the practical and international reason that, in a great number of study contexts throughout the world, English is primarily required as the ‘library language’ of text books and research reporting.” Afterward, ESP research and practice has been concerned with the remaining skills, listening, speaking and writing required both in academic and professional contexts.

In fact, it is widely believed that language skills (reading, writing, listening and speaking) are very important in teaching ESP courses but it often depends upon the learners’ needs and interests. For this reason, Dudley-Evans and St. John (1998: 41) point out that English for General Academic Purposes “isolates the skills associated with study activities such as listening to lectures; participating in supervisions; carrying out practicals; reading textbooks, articles, writing essays, and examination answers; [etc.]”

In the same vein, a needs analysis performed by an ESP course developer shows the skills which should be emphasized. Thus, Day and Krzanowski (2011: 6) say that ESP involves teaching and learning the specific skills and language needed by particular learners for particular purpose. Additionally, Paltridge and Starfield (2013: 31) state that “ ESP pedagogies have tended to focus on identifying sets of transferable generic language and literacy skills that are seen to be applicable in the majority of academic and workplace settings.”

As more and more academic institutions in different countries where English is the medium instruction, there is a renewed interest in teaching all language skills within an academic context. In reality, in the course of English for Specific Purposes all four language skills – reading, writing, listening and speaking – are developed. However, no skill should be taught in isolation. Reading is not an easy task which should be dealt with properly. For the current study, a broad knowledge of reading seems to be necessary in order to decide about the appropriate model to undertake and apply.

2.3. Reading in ESP

Most scholars would agree that reading is one of the most important skills for educational and professional success (Alderson, 1984). In particular, reading occupies a place of focus in English for specific purposes (ESP) since it is at the heart of many tasks done by ESP learners; either in acquiring knowledge of target community discourse or in combination with the use of another skill, such as writing. In fact, reading is a complex, purposeful, interactive, comprehending and flexible activity which is not easy to define.

2.3.1. Definition of Reading

Reading is one of the four language skills which is considered as a receptive skill since it involves responding to text, rather than producing it. It involves also making sense of a written text at a word level, a sentence level or a whole text level. In fact, reading reinforces the learner's other language skills. Krashen (1981) confirms that those who read more, have larger vocabularies, do better on test of grammar and write better. Chastian (1988:218) claims that all reading activities serve to facilitate communication fluency in each of the other language skills.

The theories of reading are numerous and varied among scholars and the debate over defining it goes from the purpose of each scholar set for his theory. In this respect, Urquhart and Weir (1993: 13) explain that no one has been able to clearly define reading. Thus, they say:

We all know what reading is. And many of us have suffered, at some time or the other, from the type of bore who stops any argument or discussion with 'Ah, it depends on what you mean by...'. So it is with some reluctance that we begin this part with an attempt to define reading, to say what we mean by the term. Our excuse is that people do use the term in different ways, and that while this may be permissible when everybody is conscious of the differences, on occasions it can cause real confusion and difficulty.

From this diversity in defining reading, some scholars believe that it is primarily a process of decoding like Taylor and Taylor (1983) whereas others like Spink (1989) insist on the fact that the process of reading involves the perception of words, the comprehension of text, a reaction to what is read and a fusion between what is read and previous knowledge.

Accordingly, this vision of decoding mentioned above is developed by saying that reading “requires also the construction of meaning by the reader” (Tesser, 2005: 5). This important emphasis means that the reader “interacts with the text and tries to interpret the meaning using a range of linguistic or systematic and schematic knowledge” (Lamri, 2015: 34). This idea of systematic and schematic knowledge will be dealt with later on in models of reading.

What is explained above means that focus in reading turns to comprehension, i.e. comprehension of structure and organization. It is important according to Belmeki (2009: 13) that learners perform continued practice of reading to improve their comprehension. He states that “the appropriate structure of a given passage is often signaled by expressions which link ideas together ... to help the reader find the way through the passage” (2009: 14).

In this vein, reading is largely seen as an interaction of processes and the notion of reading and comprehension have developed through three stages (Dubois, 1991 qtd. in Lamri, 2015: 34):

- 1- Reading as transference of information.
- 2- Reading as an interaction between thought and language.
- 3- Reading as an interaction between thought, language, reader, text and context of each of these elements.

Similarly, Grabe (2004: 14) notes that “Reading for general comprehension requires rapid and automatic processing of words and efficient coordination of many processes under very limited time constraint.”

Accordingly, and concerning this chronological evolution in the process of reading, Grabe (1991:385) states that the notion of reading as an interactive process refers to “a kind of a dialogue between the reader and the text.”

Moreover, what readers do when they read and what can be done to improve their reading comprehension is the principle task in order to teach the reading skill. In this vein, Rivers (1981:147) states that “reading is the most important activity in any language class, not only as a source of information and a pleasurable activity, but also as a means of consolidating and extending ones which are knowledge of the language”.

Goodman (1972) also views reading as an interaction between thought and language and later Hudson (1998) says that scrupulous perception and identification of all the items in a text do not lead to efficient and successful readers; however, successful readers are those who are adept at selecting the fewest, most productive cues necessary to produce correct guesses the first time.

Concerning reading in an ESP context, interest in reading began to shift in the 1970s. As Strevens (1977 : 109) comments: “ the pendulum may have swung too far in the direction of speech, and many teachers are now seeking to increase the effort applied to learning and teaching a command of the written language, and especially to the learning and teaching of reading. ” Another view of reading is that of McDonough (1984: 70) who points out that “English is the language of textbooks and journals.”

Reading in ESP offers students the main source of knowledge and also facilitates discussion of the topics within their own field of study. Anthony (1997) argues that reading is relevant because it provides learners with the vocabulary and the knowledge that will be used in their professions; accordingly, many educational institutions have adopted ESP reading materials as the basis of their curricula. In addition, reading is at the center of much of what ESP students do, both in acquiring knowledge of target community discourse and in conjunction with the use of another skill, such as writing. Thus, says McDonough (1984: 70), “It will come as no surprise to most people to

discover that, in ESP terms, by far the most significant skill is that of reading.” More particularly, English for science and technology (EST) “was in the primary place for the creation of the foundations of ESP reading instruction and research that continue to exert a heavy influence today” (Paltridge and Starfield, 2013: 78).

In fact, the goal of reading either in ESP or in EGP is to obtain information that one needs for specific or personal purposes; thus, reading comprehension involves understanding, decoding, and constructing meaning from a text and reading through a process. In addition, one description with fuller details is provided by the concepts of top-down, bottom-up, and interactive processing.

2.3.2. Models of Reading

The term ‘model’ refers to a formalized, visually represented theory of “what goes on in the eyes and mind when readers are comprehending (or miscomprehending) a text” (Davies, 1995: 57). Thus, a model can be characterized by a systematic set of predictions about a hidden process, which are then exposed to ‘testing’ through experimental studies.

2.3.2.1. The Bottom-up Model

In this type of model, the reader begins with the written text (the bottom) and builds meaning from letters, words, phrases, clauses and sentences. The model explains that reading is "a process in which small chunks of text are absorbed, analyzed and gradually added to the next chunks until they become meaningful" (Barnett, 1989: 13), that is to say, reading follows a series of stages that lead to comprehension. More precisely, bottom-up model is based

... on issues of rapid processing of text and word identification and on the reader's ability to recognize words in isolation by mapping the input directly on some independent representational form in the mental lexicon. This mapping is seen to be independent of context (Hudson, 1998: 47).

In fact, the process of the Bottom-up model happens when the reader pays attention to details, trying to decode individual words which seem unfamiliar for him and other types of linguistic indications in order to reach understanding of a text. In other words, Bottom-up model occurs when the reader builds up meaning by reading word for word, letter for letter, emphasizing on both vocabulary and syntax.

Accordingly, Davies (1995: 58) defines the reading process in this model as “eyes look, letters are identified and sounded out, words are recognized, words are allocated to grammatical class and sentence structure, sentences provide meaning, and meaning leads to thinking.” However, Top- Down processing is the opposite which takes into consideration the fact of word errors which may affect the whole comprehension of the text.

2.3.2.2. The Top-down Model

Unlike Bottom-up model, Top-down model describes reading as a linear process which moves from the top, the higher mental stages, down to the text itself. Top-down model emphasizes on meaning at a first stage. It occurs when the reader makes guesses on existing background knowledge and then goes to search in the text the expected data of a particular situation. This type of processing is considered to be meaning driven, as opposed to text driven in the previous model. In brief, the reader approaches a text with previous knowledge and conceptualizations, which are considered as “background knowledge,” and through the text builds meaning by working on. A reader’s background knowledge may include topic-specific knowledge, general knowledge of the world, abstract conceptual knowledge, or a combination thereof (Barnett, 1989; Bernhardt, 2000; Chun and Plass, 1997; Goodman, 1972; Laufer, 1997).

In other words, Top- Down processing is related to a global meaning of the text obtained, through signs in the text from the reader’s good schema knowledge. Likewise, Davies (1995: 58) describes this model as:

- eyes look;
- thinking-prediction about meaning;
- sample sentence as a whole to check meaning;
- check further, look at words;
- if still uncertain, study letters;
- back to meaning prediction.

This figure of Murtagh (1989: 102) recapitulates both models of reading:

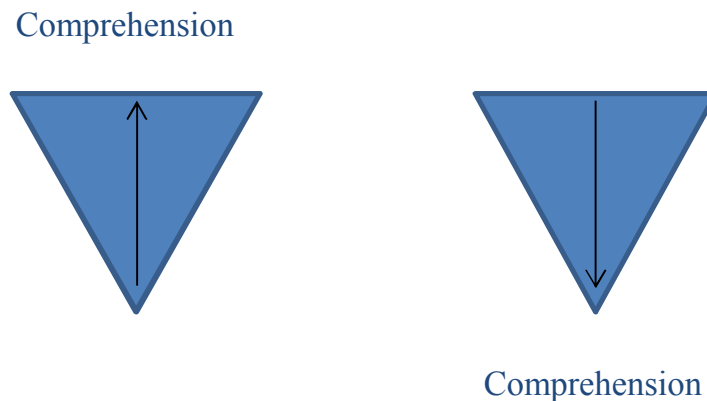


Figure 2.1. Bottom-up Model

Top-down Model

The most comprehensive description of the reading process is linked to interactive models, "...in which every component in the reading process can interact with any other component..." (Alderson 2000:18), combining elements of both bottom-up and top-down models.

2.3.2.3. The Interactive Model

Reading is considered to be an interactive process, that is to say a conversation between the writer and the reader, even though the writer is not present and for this to occur both processes are necessary, top-down to predict the meaning and bottom-up to check it. The two are therefore complementary in dealing with a text.

In the same vein, Grabe (1991) points out that the term "interactive processing" has developed two distinct meanings. The first meaning refers to the construction of a new description of the text as a result of the interaction between the reader and the written page. The second meaning refers to the interaction of lower-level processing skills

(i.e., word identification and decoding) and higher-level comprehension skills (i.e., interpretation, inferencing, and general knowledge associations) through background knowledge because both of them occur at the same time to construct the reader's understanding of the text. His interactive model of reading usually refers to an interaction between bottom-up and top-down reading strategies.

Thus, the reader when reading is supposed to use lexical, orthographic, schematic, semantic, syntactical, and visual sources in order to understand a text as Davies (1995: 64) clarifies when describing the interactive model in the following figure:

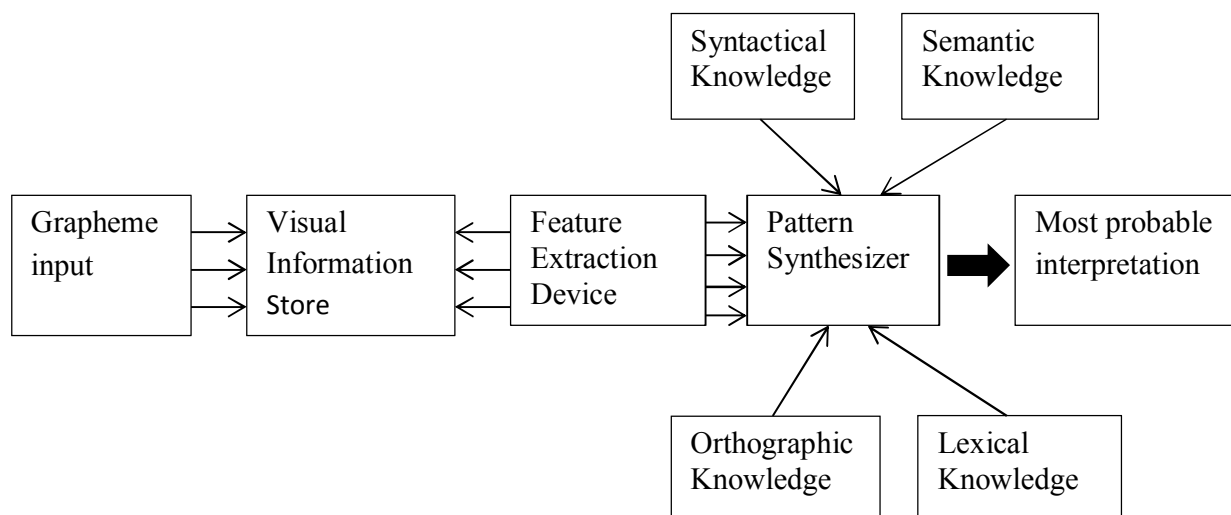


Figure 2.2. Interactive Model
(Davies, 1995: 64)

This figure explains that the reading process follows different stages: First, the grapheme input, i.e. all what is visual, is recorded in a Visual Information Store (VIS), and then it is retrieved by a feature extraction device. After that, the features pass to a pattern synthesizer which receives input from orthographic, syntactic, lexical and semantic knowledge. Therefore, "all sources of knowledge come together to one place and the reading process is the product of the simultaneous joint application of all knowledge sources" (Davies, 1995: 64-65). To sum up, the different sources of information available in the reading process interact with each other.

2.3.2.4. Schema Theory

The schema theory is known as “Our knowledge and experiences of the world around us also influence how a text is read or processed” (Bartlett 1932)

. It operates with the reader’s knowledge of the world always maintaining new received information based on previous knowledge. Good readers have a general linguistic and conceptual idea of the text and of how the world works, therefore when reading they make use of existing schemata and then modify them with any new information. They also have expectations or make predictions before reading that are reinforced, challenged or modified after reading. In other words, such knowledge needs to be available but also "needs to be activated by the reader or text, if it is to be used in accurate understanding" according to Alderson (2000: 43). He added that "The activation of such knowledge is fast and automatic, and without such processes, language comprehension would be slow and laborious, if it could take place at all" (2000: 45).

Schemata have been described as “...cognitive constructs which allow for the organization of information in the long term memory...” (Widdowson, 1983: 34). It is often believed that the target reader has to take the relevant schemata only to read the text. The reader and the writer should share the same schema. Those who support this theory view reading as "an interactive process in which the author's perspective, point of view, allusions or arguments are all interpreted through the reader's experiences, perspectives, cultural orientation and bases" (Barnett, 1989: 42).

Accordingly, in the context of ESP, for example, approaches argued that in order to read texts in their subject disciplines, readers need to know the language of that discipline starting by lexical knowledge before they pass to syntactic and rhetorical features of the text. That is why courses are designed with the objective to teach the language of the discipline in order to ensure that readers have the necessary formal linguistic schemata.

In addition, Grabe (1991) notices that the ESP reader most probably has more limited content and formal schemata as well as less knowledge of language used in the text than the author has. That is why ESP reading courses usually emphasize on building up student's knowledge of rhetorical structures and improving their knowledge of the target language.

As a whole, both of top-down and bottom-up processing models are important in processing written information. However, the priority depends on the reader's needs as well as the reading situation. Thus, the two processes 'are in constant interplay' (Hedge, 2000: 190) and they 'complement each other' (Nuttal, 2005: 17). This interplay, interactive reading, is the ability to switch from one processing to another in order to achieve effective reading. Consequently, the reader adopts the model that suits his competence in storing visual information, or in lexical or semantic data. That is why Davies (1995: 65) states that 'the model provides a basis for investigations of performance and processing strategies of different groups of readers under different conditions.' For example, the reader adopts the bottom-up processing in intensive reading, but gives priority to top-down processing in extensive reading. To explain the difference between intensive and extensive reading, the next part will give further information about these two types of reading.

2.3.3. Types of Reading

The two types of reading are intensive and extensive reading. They are two major approaches that have been used to develop reading skill. Since in the present research, web materials are used to teach reading, which involves intensive reading and extensive reading, an overview of both types of reading is thus required.

2.3.3.1. Extensive Reading

Extensive reading is considered as rapid reading focusing on the meaning of the text itself not the language. In addition, Hafiz and Tudor (1989: 5) consider it as "the reading of large amounts of material in the second language over time for personal pleasure or interest, and without addition of productive tasks or follow up language work". This view relates the purpose of extensive reading to pleasure and information.

Then, they extend their view to the fact that extensive reading helps in the development of other language skills when they say that ‘the subjects’ progress in writing skills may be due in part to exposure to a range of lexical, syntactic, and textual features in the reading materials.’ (ibid: 8). That is why, it is also termed as “supplementary reading” since it has an extra impact on other skills.

In the same vein, Grabe and Stoller (2002: 259) defines extensive reading as an “approach to teaching and learning in which learners read large quantities of materials that are within their linguistic competence.” Besides, Long and Richards (1971: 216) describe it as "occurring when students read large amounts of high interest material, usually out of class, concentrating on meaning, "reading for gist" and skipping unknown words." For this reason, Broughton (1978: 92) suggests that "It is by pursuing the activity of extensive reading that the volume of practice necessary to achieve rapid and efficient reading can be achieved."

Additionally, Day and Bamford (1998: 6-8) list key characteristics of a successful extensive reading program:

- Students read large amounts of printed material
- Students read a variety of materials in terms of topic and genre
- The material students read is within their level of comprehension
- Students choose what they want to read
- Reading is its own reward
- Students read for pleasure, information and general understanding
- Students read their selection at a faster rate
- Reading is individual (students read on their own)
- Teachers read with their students, thus serving as role models of good readers
- Teachers guide and keep track of student progress

From the above characteristics of extensive reading, it can be said that this type of reading increases learners' autonomy, especially when they select their own texts according to the content, level of difficulty, and length (Carrell and Eisterhold, 1983: 567) without forgetting the role of learners' motivation in order to achieve their task perfectly. Following this view which seems common among many scholars, Harmer (2001: 204) also states that Extensive Reading occurs when reading lengthy texts with an appropriate level of difficulty and so gaining pleasure. That is why, selecting materials of reading which are understandable for learners should make them enjoying what they read. Likely, Harmer (1998: 68) argues that 'if the reading text is especially interesting and engaging, acquisition is likely to be even more successful.' Quoting the benefits of extensive reading, Scrivener (2005, 188) notices that this type of reading is beneficial for language acquisition purposes (lexical items) as well as new vocabulary. In addition to lexical items, extensive reading helps to 'raise learner's awareness of different features and types of texts' (Hedge, 2000: 194) and thus 'extend the command of language' (Nuttal, 2005: 30).

In order to see the advantageous side of extensive reading, Hedge (2003, qtd. in Lamri, 2015: 37) claims that learners can:

- build their language competence,
- progress in their reading ability,
- become more independent in their studies,
- acquire cultural knowledge,
- develop confidence and motivation to carry on learning

Particularly speaking, Reading is extensive in ESP where the learners are on their own reading for their own purposes. The next type of reading is intensive reading.

2.2.3.2. Intensive Reading

While extensive reading is reading for 'general understanding without such careful attention to the details' (Scrivener, 2005:188), intensive reading is defined by 'reading texts closely and carefully with the intention of gaining an understanding of as much

detail as possible [...] involving going back over the same (usually short) text a number of times to find more and more in it.’ (2005: 188)

Intensive reading is commonly considered as “text-based” and “skill-based” reading since it aims at reading a passage carefully, paying attention to each word and every idea and then developing specific skills. In fact, the teacher is closely involved in intensive reading. In this vein, Nuttall (1996: 38) claims that “intensive reading involves approaching the text under guidance of a teacher or a task which forces the student to focus on the text”. Likewise, materials involved in intensive reading are generally ‘teacher chosen and directed, and is designed to enable students to develop specific receptive skills.’ (Harmer, 2001: 210) For example, skills such as skimming a text for specific information as answering true or false statements or filling gaps in a summary, scanning a text to match headings to paragraphs, and scanning jumbled paragraphs to put them into the correct order as well as activities focusing on essential vocabulary, patterns of text organization and types of text processing needed to comprehend any text. For all these reasons of reading intensively, Paran (2003: 40) declares four main motives of intensive reading:

- to help learners comprehend written texts,
- to become more aware of text organization to better comprehend,
- to learn how to use and monitor effective reading strategies,
- to develop literacy skills necessary to generate productive expressions in L2.

In addition, training learning strategies through intensive reading is also important as pointed out by Hedge (2000: 202) that texts selected for this type of reading ‘are intended to train students in the strategies needed for successful reading,’ meaning by strategies; techniques, skills, and ways to learn how to read, and more importantly how to fully comprehend a text. Accordingly, ‘it is only through more intensive reading that learners can gain substantial practice in operating these strategies more independently on a range of materials;’ (2000: 202) for example, practicing skimming and scanning skills in order to find particular details.

As a whole, the aim of intensive reading is ‘to arrive at an understanding, not only of what the text means, but of how the meaning is produced’ (Nuttal, 2005:38).

Following the concept of Welch (1997: 51) to have a general idea about both types of reading as well as a distinction between them, she explains the concept of extensive reading in contrast to intensive reading using a table (Table 2.1):

Table 2.1. Characteristics of Intensive Reading and Extensive Reading (Welch, 1997: 51)

Reading approach	Intensive reading	Extensive reading
Purpose	language study and accuracy	general understanding and enjoyment and fluency
Level	Often difficult	easy (grade readers)
Amount	Not much	a lot
Speed	slow and accuracy	fast and fluency
Selection	teacher selects	learner selects
What material	all learners study the same material	all learners read different things which interest them
Where	In class	mostly at home
Comprehension	check by specific questions and exercises	checked by reports/summaries

To summarize, if the students rely only on extensive reading or intensive reading in their reading, they will not benefit as much as if both reading types are practiced. That is why, Harmer (2001: 204-210) confirms that ‘to get maximum benefit from their reading, students need to be involved in both extensive and intensive reading.’ In fact, both of them are necessary to achieve effective reading skills and develop reading comprehension. As a whole, they are both important for students’ language development.

Dealing with the different types of reading leads to understand the reading purposes of the students, a brief review on reading in an ESP/EST context is seen necessary to clarify the fact especially in ESP.

2.3.4. Reading Skills

Before dealing with the different skills and the role of each one to raise the reading level, it is important to describe what a reading skill is. To do so, one can refer for instance, to Urquhart and Weir (1998: 88) who define it as “a cognitive ability ... to interact with a written text.” Moreover, Paris et al. (1991:611) point out that “the reading skills refer to information processing techniques that are automatic.” That is to say, encompassing all the processes required unconsciously for the act of reading to take place.

The literature on reading tends to focus on how it should be taught. In that regard, Bruce (2011: 140) captures the current situation in the following terms:

Reading is sometimes taught on its own as a separate skill, sometimes in conjunction with writing, and sometimes as a component of a study skills programme. Whether a single skill or an integrated approach is taken, the main focus of reading instruction often tends to be the development of sub - skills related to extracting different types of information from texts, such as skimming for gist and scanning for specific details.

Reading is often taught as a skill in its own right including sub-skills and the use of those reading skills is important and useful to facilitate reading for students and thus to gain better understanding of a text. In one part, Greenall and Swan (1986:1) state that the lack of vocabulary knowledge among readers is not the only challenge that faces them but also ‘a deficiency in one or more of a number of specific reading techniques.’ Additionally, Scrivener (2005:184) asserts that trying to understand every word in a text in order to achieve a complete understanding of every detail does not necessarily mean better readers.

Because there are different purposes of reading, as mentioned in the previous part, there are also different ways to know how to read. For this reason, Harmer (2001: 201-202) identifies the following reading techniques or skills:

1. Topic identification: It is the ability to identify the general idea of a text and this allows the readers to process the text effectively as it progresses. In the same vein, Langan (1982:253) claims that ‘finding the main idea is a key to understanding.’ However, to identify the main idea of a text as well as to distinguish between what is important and what is not is not an easy task sometimes as mentioned by Greenall and Swan (1986: 1). Therefore, to raise the ambiguity that may occur when understanding what the text is about, Langan (1982: 253) suggests that ‘the reader should look carefully for supporting details to get full comprehension of the main points.’ As a result, the readers may be confused if they do not grasp the general idea of what the text is about.
2. Prediction and guessing: This skill allows the reader to predict what a text is about. Besides, while topic identification skill involves the reader schemata, related to the schema theory, to identify the general idea of the text, this skill allows the reader to apply these schemata in the written passage. In fact, predicting and guessing facilitate the reader’s distinction between what is new and what is already seen (Greenall and Swan, 1986: 2). In other words, this skill allows the readers to recall what they already know about the text, and what they would like to learn, especially in ESP. For example, the readers can preview a text by reading the title or any headings or even looking at photographs, illustrations or graphics to predict some ideas and information they expect to find in the text.
3. Skimming or reading for general understanding: This skill involves ‘glancing rapidly through a text to determine its gist’ (Nuttall, 1982: 34). This kind of processing is related to the top-down model mentioned previously. It has broadly an important role in reading since according to Langan (1982: 323) ‘not every word in a book must be read, nor must every detail be learned’. It is so a selective reading which allows readers to be more flexible (1982: 323).
4. Scanning or reading for specific information: This skill involves rapidly searching a text either ‘for specific piece of information or to get an impression of whether the text is suitable for a given purpose’ (Nuttal, 1982: 34). It is

indeed to read for specific details without paying attention to the remaining ideas as Greenall and Swan (1986: 2) state that ‘it is then not necessary to read the whole of a text, especially if one is looking for information which is needed for a specific purpose.’ As skimming, it is also related to the top-down processing of reading.

5. Reading for detailed information: In this skill, the reader is required to read all the details of a text, not just specific information (Harmer, 2001: 202).
6. Text interpretation: This skill involves using the reader’s schemata to understand what a text is about by interpreting the implied meaning in the text.

Skimming and scanning seen above are named strategies by other scholars interested in reading and they can be represented in the following figure:

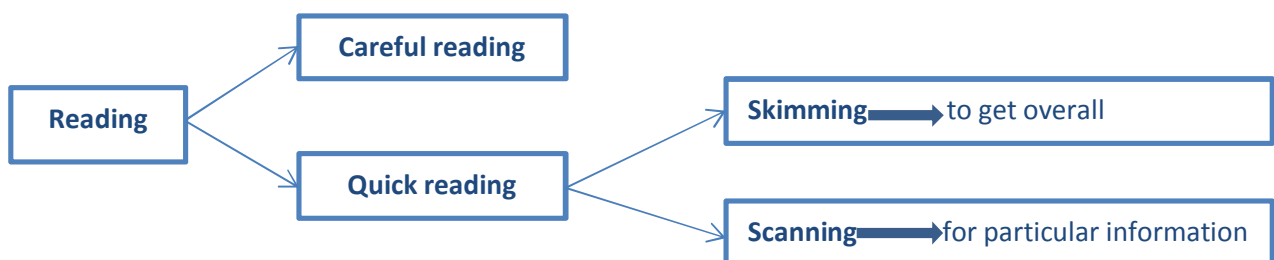


Figure2.3. Sills of Reading

Consequently, it is important to apply different skills in order to achieve comprehension and better understanding of a text. Likely, Harmer (2001:215) argues that ‘most reading sequences involve more than one reading skill.’

The skills of reading mentioned above are also related to ESP teaching since the purpose of reading and the balance between skills and language affect the teaching of reading in English for Specific Purposes too. According to Dudley-Evans and St. Johns (1998), from the most crucial skills that should be dealt with in ESP are: selecting what is relevant for the current purpose; using all the features of the text such as headings, layout; skimming for content and meaning; scanning for specifics; identifying organisational patterns; understanding relations within a sentence and between sentences; using cohesive and discourse markers; predicting, inferring and guessing; identifying main ideas, supporting ideas and examples; processing and

evaluating the information during reading; transferring or using the information while or after reading.

Urquhart and Weir (1998) also selected a list of skills useful in ESP teaching including some of the above ones as: search reading - locating information on predetermined topics; skimming - reading for gist; scanning - reading selectively to achieve very specific reading goals; careful reading - reader attempts to handle majority of information in the text and to build up a macrostructure. The reader may choose kind of reading according to the perceived demands of the learning task.

Concerning all those skills used in ESP teaching of the reading skill, there are some which are more important than others, depending on the field of study of learners. For instance, Moore (1983: 120) says that ‘the most necessary skill in EST is that of locating the relevant or desired information’ since ‘the students rarely comes “blind” to the business of reading’ (ibid.). That is to say, EST learners usually come with a previous knowledge. However, other scholars relate the comprehension building with core reading skills and discourse analytic skills.

However, using all these skills, either in ESP or in EGP, is linked to the appropriate time allocated to reading. That is to say, the best way to master these skills is simply to read as much as possible in order to improve their level (Nuttal, 2005: 40 and Grabe and Stoller, 2001: 21). Additionally, in order to achieve successful teaching of receptive skills, Harmer (2001: 207) suggests that ‘the best kind of comprehension tasks are those which raise students’ expectations, helps them tease out meaning.’ That is to say, reading in quantity does not necessarily achieve better comprehension but the use of varied and appropriate exercises is also important and beneficial.

In fact, dealing with those skills of reading in the researcher’s current course design seems necessary to raise her students’ English proficiency level as well as to develop their abilities in reading.

Though the previous sections dealt with reading in ESP, it seems necessary to emphasize what is the close relation between reading and ESP/EST providing some elements that are important and involved in such connection.

2.3.5. Reading and ESP/EST

Reading occupies what might be called a curious place in ESP. The importance of reading skill for ESP/EST students is undeniable because of the increased number of written materials in English which are related to the major academic study of students. However, those students have purposes for reading.

2.3.5.1. Purposes of Reading

Most students learning English want to read the language sooner or later. In the same course of reading, students may be reading at different levels of difficulty in English. Each student aims to be able to extract something specific or something of interest. For this reason, reading activities should exploit the natural desires of students in reading as well as their wishes. For instance, students may want information for some purpose or because they are curious about a particular topic, they may also read to perform a task in their studies even in their daily life; they may simply want to know what is happening around them.

First, ESP students may read to extract a certain kind of information, for example scientific information. They aim to decipher codes in texts for their purposes. These purposes are related to students at the tertiary level for whom the course is designed to fulfill their needs before or after graduation. The extracted information from different texts is linked to their knowledge of basic grammatical relations and function words that help in clarifying and understanding any text. The use of dictionaries is also beneficial when they try to decode texts in their field of study. For the purpose of reading for information, ESP students may be prepared to study specialized subjects in the medium of English, or they may wish to be able to understand and use textbooks, referring books, or even scholar journals. Therefore, the recommendations already made in reading for information, apply to English for Specific Purposes. For this purpose, ESP students should be required to draw out important points from larger passages, either in the form of note-taking or summarizing in order to provide answers to comprehension questions or other tasks related to a text. The readers engage with types of texts where they can understand how the world is and has been, and why

things work as they do. Some students more interested in English for social communication, may want to be able to read correspondence, notices, newspaper headings and advertisements. In this case, focus is on spoken English and reading is only a way to reinforce their speech patterns.

In fact, some ESP students aim using English flexibly and reading the content of any source of information fluently, either for pleasure or for academic purposes. Here, a balanced development of all the language skills is highly required. They want to read English directly with a complete understanding of a text without referring to the use of dictionaries or translation. Fluency is “the ability to read rapidly with ease and accuracy, and to read with appropriate expression and phrasing. It involves a long incremental process and text comprehension is the expected outcome” (Grabe, 2009).

Other students want to develop the skill of detailed analysis of literary material through reading. And this requires a refinement of perception of nuances in English and thus they need a special training to achieve their goals. The readers become involved in imagined events, settings, actions, consequences, characters, atmosphere, feelings, and ideas; they bring an appreciation of language and knowledge of literary forms to the text.

Knowing the students’ objectives of reading helps the teacher to know the specific purpose toward which the course and even the students’ particular interests are directed. In academic setting also, any course has to take into account how students learn to read for multiple purposes; including at least, reading to search for information, for general comprehension, to learn new information or to synthesize and evaluate information.

As a whole, each student has a purpose for reading as Jordan (1997: 143) states: “when students read, it is for a purpose.” Although these purposes might give the impression that there are very different ways to read a text, these differing purposes actually depend on a set of processes and skills as mentioned. In fact, reading is taught in connection with other skills, particularly with writing. This idea is clarified by Bruce (2011) who suggests two primary frameworks of teaching reading: “(1) as a

stand-alone skill, as in case of courses dedicated to teaching students how to read, and (2) in an integrated skills framework.” (Bruce, 2011 quoted in Paltridge and Starfield, 2013: 81)

2.3.5.2. Reading and Writing

In academic settings, it is highly agreed that reading is used to carry out further language skills, particularly writing. When students move to higher language proficiency levels, they should practice integrated-skills activities. ESP students, for example, use reading as the basis for integrated-skills tasks.

Many ESP specialists agree that an integrated skills approach considers reading as a skill which complements other ones. Taking reading and writing as a primary example, there are many ways in which these skills can be integrated and serve to the development of reading, writing and academic skills. On this concern and regarding EST, for instance, Jordan (1997: 143) explains:

Reading, as a skill, is normally linked with writing. This is a fundamental characteristic of the target academic situation in which students are typically reading books and journals, noting, summarizing, paraphrasing, and then writing essays, etc. In practice material for reading, the link with writing is normally included. Although the focus may be on various reading strategies and comprehension practice, the resultant exercises usually involve writing (apart from some multiple - choice questions and yes/no, true/false formats).

Reading serves writing since it plays an important role in what students write and how they write as noted by Hirvela (2004). Here emerges the influence of genre analysis on reading and ESP. What students learn about genres leads afterward to how they then reproduce those genres themselves.

In this vein, Hyland (2004: 5) observes that “Today, genre is one of the most important and influential concepts in language education.” That is to say, if one takes ESP as an example of language education, ESP readers are always exposed to texts

with particular genres according to their field of study and they should understand and then reproduce in order to integrate in the disciplinary community of each one. In other words, ESP readers should first read and analyze those genres and this leads them to write them. Reading and writing are closely linked and this clarifies by what Johns (1997: 15) says that: “students are constantly involved in research into texts, roles, and contexts and into the strategies they employ in completing literacy tasks within specific situations.

Accordingly, genre-based reading instruction provides a kind of framework that improves genre - based reading and is eventually transferred to writing. Tardy (2006: 90 – 91) confirms by saying that:

At a range of educational levels, at least some learners appear to be motivated by genre - based instruction and can develop a metalanguage for talking about texts through such instruction. Similarly, the rhetorical consciousness-raising of genre-based reading instruction may increase students’ ability to locate information in texts and develop a better understanding of texts’ rhetorical elements.

Consequently, reading is the starting point for students’ understanding of genres and serves as the foundation from which they draw the linguistic and rhetorical information they need to then produce genres as they transfer that information from reading to writing. Based on reading-writing connection related to genre analysis, teachers’ task then is to facilitate transfer of genre knowledge from reading to writing. Swales and Lindemann (2002: 117) developed a genre - based pedagogy which facilitated that kind of connection and say that “transforming those separate readings into a succinct and coherent account of a disciplinary or interdisciplinary line of research demands a particular kind of reading - writing connection.” They take here the example of using reading to write literature reviews. Overall, with this approach, both reading comprehension and written expression improve significantly (Parkinson et al., 2007: 459).

Though reading in conjunction with writing is useful in the development of ESP reading ability, it is also important to look for the significance of grammar, as a supporting skill, in teaching reading. Indeed, in the reading instruction, grammar is often ignored because of many misconceptions about the role of grammar. To better comprehend the role of grammar in reading, Dudley Evans & St. Johns (1998: 75) state that, “in reading, the learners’ grammatical weaknesses interfere with comprehension of meaning”. Moreover, Alderson (1995) shows that:

Poor reading in a foreign language is due to in part to poor reading in the L1, together with an inadequate knowledge of the foreign language. Learners need to reach a threshold level of language knowledge before they are able to transfer any L1 skills to their L2 reading tasks.

In order to understand the role of grammar in reading as well as in writing, Cook (2008: 41) points out that "grammatical explanation in the classroom has thus relied on the assumption that rules that are learnt consciously can be converted into unconscious process of comprehension and production." Particularly speaking, Atai (2003: 25) argues that “in English for Specific Purposes (ESP) context, providing readers with some knowledge about structural patterns and grammatical features of the corresponding academic or occupational discourse may enhance comprehension of ESP texts.” Accordingly, Benyelles (2009: 68) says that grammar teaching should not be considered as outside the concern of the ESP course. That is why she emphasizes on the role of grammar in the distinction between different types of texts in saying that: “it can help the learners build a repertoire of the organization and the relevant language forms of different genres” (2009: 69).

2.3.5.3. Skills and Strategies

It is proved by research on reading strategies that the latter depend on how readers process a text according to their purposes, attitudes, interests and background knowledge. There has been considerable debate among scholars concerning what reading strategies are since “...there is no complete agreement on exactly what

strategies are; how many exists; how they should be defined, demarcated, and categorized; and whether it is possible to create a real, scientifically validated hierarchy of strategies” (Oxford, 1990:17).

In fact, it is commonly agreed that a reading strategy is related to how the readers proceed in front of the difficulties faced in reading a text and so facilitate comprehension. For instance, Urquhart and Weir (1998: 95) define strategies as “ways of getting round difficulties encountered while reading”. Another view as that of Pritchard (1990: 275) sees a strategy as “a deliberate action that readers take voluntarily to develop an understanding of what they read”. In addition to Davies (1995: 50) who refers to strategy as “a physical or mental action used consciously or unconsciously with the intention of facilitating text comprehension and or /learning”. Accordingly, Singhal (2001: 1) defines reading strategies as "processes used by learners to enhance reading and overcome comprehension failure". They are also defined as “ways of accessing text meaning which are employed flexibly and selectively” by the reader “to draw effectively on existing linguistic and background knowledge” (Carter and Nunan, 2001: 225). As a whole, Barnett (1989: 66) states that:

The word strategy refers to the mental operations involved when readers purposefully approach a text to make sense of what they read. They may be either conscious techniques controlled by the reader or unconscious processes applied automatically. Both 'good' successful and poor (unsuccessful) strategies exist, yet the term strategy as used in pedagogical material often implies those which are successful.

As seen in the above definitions, there are different views of reading strategies used for reading achievement. There are strategies that show how readers achieve the task of reading, how they understand what they read, how they acquire, store, and retrieve new information. Reading strategies are not simply reading difficult pieces of writing and guessing the meaning of an unknown word from context but also summarizing and

relating what is being read to the reader's background knowledge for more effective and efficient learning as well as better comprehension.

Along the literature of reading, there is a lack of consistency in the use of the terms skill and strategy, reflecting an underlying confusion about how these terms are conceptualized. Some researchers make a distinction between skills and strategies whereas others use them interchangeably as if they were synonyms. For instance, Carrell (1998: 4) uses the term skill to explain that readers actively select and control to achieve desired goals or objectives. For her:

Skills refer to information-processing techniques that are automatic, whether at the level of recognizing grapheme-phoneme correspondence or summarizing a story. Skills are applied to a text unconsciously for many reasons including, expertise, and reported practice, compliance with directions, lick, and naïve use. In contrast strategies are actions more deliberately selected to achieve particular goals. Strategies are more efficient and developmentally advanced when they become generated and applied automatically as skills. Thus strategies are skills under consideration.

Some researchers use both terms interchangeably as synonyms as (Nuttall, 1996 and Grabe, 2000). Others fail in distinguishing between them since “inferencing” is seen as a skill by Davies (1968) and as a strategy by Olshavsky (1977). Besides, “skimming and scanning” are referred to as strategies by Sarig (1987) and as skills by Munby (1978). Moreover, some scholars believe that a skill can become a strategy and vice versa as Paris, et al. (1991: 611) who state that strategies are more efficient and developmentally advanced when they are applied automatically as skills.

In order to clarify the difference between a skill and a strategy, one can consult the Literacy Dictionary (Harris and Hodges, 1995), a commonly used reading reference where the following definitions are stated:

Skill n. 1. An acquired ability to perform well; proficiency. Note: The term often refers to finely coordinated, complex motor acts that are the result of perceptual-motor learning, such as handwriting, golf, or pottery. However, skill is also used to refer to parts of acts that are primarily intellectual, as those involved in comprehension or thinking. (p. 235)

Strategy n. In education, a systematic plan, consciously adapted and monitored, to improve one's performance in learning. (p. 244)

These definitions are helpful, but they do not explain thoroughly the distinctions between skills and strategies or the relations between them. What should be understood is that skill is associated with the proficiency of a complex act, and strategy is associated with a conscious and systematic plan. These features may help differentiate the terms.

In addition, some researchers agree on the fact that skills and strategies are different, Williams and Moran (1989), Paris, Wasik and Turner (1991) and Uquhart and Weir (1998). They believe that skills are distinguished from strategies on the following points:

- (1) Strategies are reader-oriented, skills are text-oriented.
- (2) Strategies represent conscious decisions taken by the reader. They are selected deliberately to achieve particular goals. Skills are regarded as an acquired ability which has been atomised and applied to text largely subconsciously. Examples of such automaticity are lexical recognition and syntactic parsing.
- (3) Strategies, unlike skills, are carried out in order solve a problem, e.g. failure to understand a word or the significance of a proposition, failure to find the information one was looking for.

Although researchers and educators think that skills and strategies are at the heart of the development and success of reading, it is shown that researchers and educators that the terms are used imprecisely and inconsistently.

In addition, the present researcher takes into account the effect of pre-reading, while-reading, and post-reading strategies on the reading ability of readers in general and ESP readers in particular. These strategies are used as procedures in teaching reading through which students perform an efficient task.

- Pre-reading strategy prepares students to read efficiently, it facilitates comprehension since it is related to students' background. In this vein, Lebauer (1998: 5) notes: "Pre-reading activities can improve students' cognitive burden while reading because prior discussions will have been incorporated." That is why, teachers have to provide some activities such as brainstorming, differencing, guessing, and analyzing titles and pictures, among other activities and adopt a range of reading styles like predicting, word association, discussions and text surveys.
- While-reading strategy allows students to be involved in the reading task with activities such as arguing, summarizing, questioning, evaluating, comparing the text with their own personal experience, scanning and skimming activities, working out the meaning of unfamiliar words, pattern study guides, clarifying, predicting, etc. As stated by Ur (1996) and Vaezi (2001) who suggest such strategies in this second stage of the reading process, as making predictions, integrating prior knowledge, re-reading, making use of context or guessing, breaking words into their component parts, reading in chunks and monitoring one's reading.
- Post-reading strategy involves different and varied activities according to the purpose of reading and the type of information that the reader aims to reach. In fact, the reader is more involved in the reading task in this stage. That is why, Barnett (1988: 5) notes: "Post-reading exercises first check students' comprehension and then lead students to a deeper analysis of the text." This final step of the process uses activities such as group discussion, summarizing, questioning, filling out charts, completing a text, listening to or reading other related materials, review of the content, work on grammar, vocabulary in context or word roots, discourse features, consolidation of what has been read by relating the new information to the students' knowledge, interests, and opinions through a writing assignment, discussions, debates, role-plays and project work.

Adopting this range of reading activities during the three stages of the reading process in second language classroom is necessary for successful interaction with the authentic texts, both in English for Specific Purposes and General Purpose English. All what was clarified above about reading skills and strategies is related to regarding and teaching reading as a separate skill with numerous sub-skills and strategies. What seems of a paramount importance is how to select the appropriate texts for ESP/EST students.

2.3.5.4. Text Selection

Teaching reading is not an easy task and the most challenging task for the teacher is the selection of texts. Text aspects such as type organization, structure, lexis, type and genre and many other aspects might either facilitate the process of reading or on the contrary make it more difficult. Before developing these text aspects, let us first define what a text is. One of the most influential definitions of text is that which Halliday and Hasan (1976: 1-2, qtd in Belmeki, 2009: 20) provides:

A text is a unit of language in use... and is not defined by its size... A text is best regarded as a semantic unit: a unit not of form but of meaning. A text has a texture and that is what distinguishes it from something not a text. It derives this texture from the fact that it functions as a unity with respect to its environment.

By this idea of unit, they refer to a text being cohesive and coherent. It works as a vehicle which conveys events and information in an explicit way and cohesion and coherence are the two fundamental units that set relations between its parts.

Nevertheless, reading a text does not stop solely at understanding words and sentences it contains, but attempts also to reveal the message to be conveyed, whereby interaction takes place between the reader and the writer via the text. In this domain, Hoey (2001: 11) claims that: The text is visible evidence of reasonable self-contained purposeful interaction between one or more writers and one or more readers in which the writer (s) control the interaction and most of (characteristically all) the language.

As far as the selection of materials is concerned, Wallace (2010) talked about text as material, claiming that a text:

- Should be a vehicle for teaching specific language structure and vocabulary.
- Should be offering the opportunity to promote key reading strategies.
- Should present content which is familiar and of interest to the learners.
- Should be at appropriate language level.
- Should be authentic, that is naturally occurring text, not specially written for pedagogic purposes.
- Should be exploitable in the classroom, that is, it should lead to a range of activities.

(Wallace 2010:71)

In fact, the main concern is that materials should fulfill what is intended to achieve in facilitating, supporting and motivating the learning process.

Going deeply in the criterion of content, Belmeki (2009: 24) states that “In all teaching contexts, selection of content is clearly a basic consideration” because for some readers, the purpose of reading is to comprehend a text in a particular subject matter. In addition, “the types of content and vocabulary that are brought onto the text, the way in which the text is organized, the assumptions about prior knowledge of readers and about appropriate use of details are all essential to sophisticated knowledge of a genre within a discipline.”(2009:24)

In the same vein of content and genre and since the present research deals with English for Science and Technology, it is important to clarify what is and should be an EST text. EST text is not thematically non-specific, personally informal, temporally and spatially immediate, and subjective. On the contrary, it is specific, formal, objective and goes towards independence of the immediate moment and place. The text “is essentially used as a vehicle for information, rather than a linguistic object.” (Johns and Davies, 1983: 03).

There are indeed different types of EST texts for instance:

- The memo demands a response of some sort; its realizations are administrative (minutes, business letters, invoices, contracts) or journalistic (advertisements), but includes textbooks, manuals and handbooks.
- Reports are records of acts or processes produced at someone's request, for example, the laboratory report.
- Schedules order and classify material and include bibliographies, indexes, tables of contents, glossaries, the table of the elements, or the linear system of biological nomenclature.
- Essays are central to EST in the form of dissertations, journal articles and university theses. (Sager et al. 1980: 104-23).

In fact, it was advised by many scholars that to achieve better competences in reading, readers should read a lot. However, reading in quantity does not necessarily achieve better comprehension but the use of varied and appropriate exercises is also important and beneficial. For this reason, Dubin et al. (1986: 193) argue that reading suggests:

... a need to test the skills at many levels since these are assumed to play a significant role in the reading process. They include everything from rapid identification of vocabulary and syntactic structures, to the interpretation of larger discourse patterns, the making of inferences, etc.

2.3.5.5. Assessment

Assessing the reading skills means the practice of these skills through exercises and tests in order to test achievement in reading. In this vein, Nuttall (2002: 212) suggests that: “the design of exercises or classroom activities does not in principle differ from the design of test items. [...] the difference is not so much the materials themselves as the way they are used and the purpose for which they are used.” This means that when learners are performing activities in the classroom, they are supported and guided by the teacher whereas when they are doing a test, they are neither supported nor guided

by the teacher since the aim of the test is to assign their language proficiency, achievement and progress.

There are in fact various and effective items for both exercises and test tasks. The following items which are adopted by various scholars such as Grellet (1990), Heaton (1990) and Nuttall (2002), can be used for assessing reading comprehension with the use of different skills:

1. Multiple choice items: These items are composed of a question, a statement or an incomplete sentence to which several possible endings are proposed, generally three or four and only one of them is correct. This kind of activities test students' detailed understanding of a text, including its purpose and organization. So, the students should be able to deduce meaning from context.
2. Identification of writer's view: The items selected for this kind of activities are in the form of statements or questions where students have to answer by "true" if the statement is correct, "false" if the statement is incorrect, and "not mentioned" if the statement is not given in the reading passage. Heaton (1990:86) insists on the use of the third variant "not mentioned", or "not given" in addition to "true" and "false" variants in order to avoid students' guessing. The focus here lies on understanding details, opinion, attitudes, purpose, main idea, text organization features ... etc.
3. Cloze and gap-filling tasks: Gap-filling tasks test students on specificity and details, requiring filling words in blanks. They also assess their understanding of the text structure and their ability to follow the text development. The focus here lies on their understanding of cohesion, coherence, text structure and global meaning since by filling the gaps; they should reach an accurate meaning of the passage or even of individual sentences. Cloze items, on the other hand, are different from gap-filling tasks because they consist of short passages in which words have been removed systematically.

4. Comprehension or short answer tasks: Students in these tasks should complete sentences so as to be tested on the general understanding of a text. This kind of testing is usually considered as subjective since the answers could be varied and not always accurate.
5. Multiple matching tasks (Weir and Milanovic, 2003: 125): This kind of activities requires matching together separate items. For example, headings with corresponding phrases; beginning of a sentence with its appropriate ending or even words with synonyms or opposites. They involve reader's ability to skim or scan a text as well as to locate specific information.
6. Information transfer items: These items require students to transfer information into charts, tables, boxes or pictures from a global understanding of a text. They test both skimming and scanning skills.

All the above items are proved to be effective and useful to achieve effective teaching and testing purposes. They are, indeed, used for finding out a student's language knowledge through controlled items as stated by Harmer (2001: 322).

In fact, two approaches can be distinguished considering testing reading ability, analytic and integrative approaches (Alderson, 2000). In analytic approaches, the focus lies on testing one aspect of reading ability whereas in integrative approaches, the focus lies on testing a global overview of a reader's ability to handle a text.

Moreover, these forms of assessment which test the reading ability of readers can be formal or informal as distinguished in the following table by Alderson (2000):

Table 2.2. Reading testing techniques (Alderson, 2000 quoted in Bojovic, 2010)
 (<http://fl.uni-mb.si/wp-content/uploads/2010/12/BOJOVIC.pdf>)

Formal	Informal
<ul style="list-style-type: none"> - Cloze test - Gap-filling test - Multiple-choice techniques - Matching - Ordering tasks - Editing tests - Integrated approaches (cloze elide test, short-answer test, free-recall test, summary test) - Information transfer techniques (tables, diagrams, flow-charts, maps) 	<ul style="list-style-type: none"> - Interviewing readers about their habits, problems - Self-report techniques (think-aloud, diaries, reader report) - Cloze techniques - These techniques more appropriate in assessing extensive reading

It is then clear that there is not a single way or technique to test the reading abilities of students and measure comprehension of a text, i.e. readers respond to texts in different ways.

As seen above, successful reading comprehension is related to the readers' ability equipped with adequate content and schemata. However, successful reading comprehension also requires their ability of monitoring what they understand and taking appropriate strategic action (Casanave, 1988).

As a whole, designing appropriate materials is and will be the most important element for reading instruction. However, these materials should be varied, motivating and up-dated. To do so, relying on Internet and web-based materials in teaching reading in an ESP context could be beneficial.

2.4. Integration of Technology in ESP Reading Instruction

Innovation and technology applied in language learning has gradually taken form. The rapid development of computer technology was widely introduced in everyday life around the world and particularly in academic settings. For instance, faculty members and researchers communicate by e-mails, share their ideas and conceptions in web-based journals and online forums, create web pages, search for computer databases, and present and teach using computer based slide shows.

In fact, the purpose of the current study is to give an instruction to ESP students aiming to equip them with the language and skills they need in order to follow their academic course of English and to make the latter beneficial. For this reason and to accomplish this purpose, technology is used in performing this course to master this language as well as the study skills needed since computers are frequently used academically.

In the same vein, the combination between Computer Mediated Communication (CMC) and Computer Assisted Language Learning (CALL) offers an environment where learners share different ideas and exchange different messages. This combination includes communication by e-mails, bulletin boards, chat lines ... etc. Consequently, researchers need to explore how to integrate web-based learning into English courses, which is the focus of this research.

2.4.1. From Computer Assisted Language Learning (CALL) to Web Based Learning (WBL)

Computer Assisted Language Learning (CALL) is playing an important role in the pedagogical field of English as a Second Language (ESL) or English as a Foreign Language (EFL) or even English for Specific Purposes (ESP). Chaka (2009: 539) defines CALL as “an approach to language learning and teaching that uses the computer as an aid to presenting, reinforcing, and assessing the material to be used”. In fact, CALL resources provide the teaching of English with authentic materials, a way to master language skills as well as to communicate with others via Internet. As a result, these resources encourage autonomy and motivation of learners.

Earlier, the computer was viewed as a tutor that presents programs which “were designed to provide immediate positive or negative feedback to learners on the formal accuracy of their responses” (Warschauer and Kern, 2005: 8). This view of CALL, thus, did not stimulate teachers and learners so much since only one response was accepted in those programs which were based on repeated drilling on the same material. However, the conception of CALL developed to the focus on using forms and structures of English rather than repeated drills within the same structure.

Later on, the computer became a tool rather than a tutor. Emphasis became on the use of computers for communication in the field of education as stated by Warschauer and Kern (2005:11) who explain this new approach of CALL as: “Theoretically, there has been the broader emphasis on meaningful interaction in authentic discourse communities. Technologically, there has been the development of computer-networking, which allows the computer to be used as a vehicle for interactive human communication.” This shift of conception of computers as being tools rather than tutors of communication comes into surface from the appearance of the social interaction within different stages of learning. These stages are facilitated by CALL through computer networking.

There are in fact different means of networking communication. First, individuals usually used to send and receive messages through e-mails and more particularly, learners, via e-mails too, can share information such as word-process documents, sound files and pictures without necessarily being present during communication. In fact, electronic mail is defined as “a method of transmitting data, text files, digital photos, or audio-visual files from one computer to another over an intranet or the Internet” (Microsoft Encarta Encyclopedia, 2009). However, there are other means of networking communication where individuals send and receive messages instantly online. Another sphere of networking communication is linked to hypertexts, that is to say, the World Wide Web (WWW). At this range, learners can search through millions of files around the world in a few minutes in order to access authentic materials. They can search for an unlimited number of resources which seems so advantageous for their learning.

That is why, Web Based Learning (WBL) is becoming a powerful source that increases the knowledge of learners and leads to a well-established input and output. This occurs following some features.

2.4.2. Features of WBL

It is highly agreed that Internet is providing a new, powerful, flexible and efficient tool for learning, as described by Kerry and Isakson (2000: 1) as “perhaps the most transformative technology in history, reshaping business, media, entertainment, and society in astonishing ways. But for all its power, it is just now tapped to transform education”. Duggleby (2001: 19) also defines Internet as: “The biggest library that has ever existed and also one that you can pop into with a few mouse clicks or keyboard strokes. It is a library that you can reach from your workplace, from your home, from the place where you study and possibly from your local library”. In addition, "Computers have become indispensable in the contemporary world as the powerful means for communication and education. Learners' interest to learning languages has been reinforced by the availability of the Internet, which provides easy access to every possible kind of information and serves as an effective tool to facilitate learning" (Kavaliauskiene, 2003: 1)., In fact, WBL is seen as the easiest and most popular approach to higher education, defined as “a hypermedia-based educational program which utilizes the attributes and resources of the World Wide Web to create a meaningful learning environment where learning is fostered and supported” (Khan, 1997: 6 qtd in Pacheco 2005: 5).

In fact, Microsoft Encarta encyclopedia (2009) defines WWW as:

A library of resources available to computer users through the global Internet [...] users generally navigate through information in the WWW with the aid of a programme known as www browser. The browser presents text, image, sound, or other information objects on the user's computer screen in the form of a page, which is obtained from www server.

Web-based teaching began with the arrival of the Internet and developed with the growth of WWW. It takes the advantage of the web development to deliver information (Zhao 2003: 9). Correspondingly, Maeroff (2003: 2) believes that the implementation of Internet in education will enormously spread as the technology develops.

The use of WWW in learning is seen as an instruction that brings a support to the teaching process but it is important to choose appropriate web materials for this process as Richie and Hoffman (1997: 138) state that designing web materials comes after a “thoughtful analysis and investigation of how to use the web’s potential ...” Indeed, the design of web materials should be based on simplicity and consistency and should also be attractive and motivating to the learners. Thus, “the rule of thumb is to keep a web-site design simple, consistent, but leave some space for flexibility and creativity” (Kristof and Satran, 1995: 63). For this reason, educators will realize successful applications of new technology in education only if they know how to deal with technology in order to create a meaningful environment and not only attractive presentations. In fact, there are some elements that should be taken into consideration for using Internet-based projects in the classroom as clarified below:

1. There are structured ways for teachers to incorporate the Internet into the language classroom, on both a short-term and a long-term basis. No specialist technical knowledge is needed either to produce or to use Internet-based projects. However, it is certainly looking around on the Internet to see if something appropriate already exists before sitting down to create your own project.
2. More often than not, Internet-based projects are group activities and, as a result, they lead students to communication and the sharing of knowledge, two principal goals of language teaching itself. The use of projects encourages cooperative learning and therefore stimulates interaction.
3. They can be used simply for language learning purposes, but can also be interdisciplinary, allowing for cross-over into other departments and subject

areas. This can often give them a more “real-world” look and feel, and provide greater motivation for the learner.

4. They encourage critical thinking skills. Learners are not required to simply regurgitate information they find, but have to transform that information in order to achieve a given task. (Dudeny and Hockly, 2007: 44)

Therefore, one can say that WBL can be advantageous providing that the teacher uses web materials adequately. As it has advantages and benefits, it has also disadvantages as stated below.

2.4.2.1. Advantages of WBL

From the benefits of WBL is that the students in this environment of learning start to be autonomous when communicating with the teacher whose role is a facilitator who submits assignments. According to Berge (2000), teacher-learner hierarchy is broken nowadays since teacher’s role turns from a lecturer and instructor to a consultant, a guide, a coach and a source provider. As a consequence, students become intrinsically motivated through access to Internet sources which provide authentic use of the English language. Additionally and concerning the learning environment using web-based materials, Moore (1998: 4) says that:

Our aim as faculty should be to focus our attention on making courses and other learning experiences that will best empower our students to learn, to learn fully, effectively, efficiently, and with rewarding satisfaction. It is the responsibility of our profession to study ways of maximizing the potential of our environments to support their learning and to minimize those elements in their environments that may impede it.

Moreover, teaching materials can be constantly reviewed, updated, modified, and improved considering learners’ feedback. Duggleby (2001: 10) states in this concern that:

As the technology becomes faster, more stable and more sophisticated then sound, video and animation can be exchanged with ease...Web materials can be amended, added to and uploaded in minutes ensuring that the content is always accurate, up to date and relevant. There is no need for the providing institution to reproduce and distribute learning materials.

Furthermore, innovation in WBL using projects based on Information Communication Technology (ICT) is the most important element in the teaching process as clarified by Dooly (2005: 8) that “innovative uses of the Internet and other ICT tools provide opportunities for collaborative projects which focus on using the language to learn the language.” Alexander and Elena (2005: 129) add that “Internet helps to make English lessons more rewarding and encourages opening the new ways to bring about creativity and enthusiasm for learning.” Apart of all the benefits of WBL in language teaching, it has some disadvantages.

2.4.2.2. Disadvantages of WBL

Despite the fact that WBL has various advantages, it is proved that it has also disadvantages as indicated by Krendl and Boihier (1992: 225): “as the technology gains a stronger foothold on our educational institutions and becomes a standard educational tool in the classroom, as well as a fundamental component of cultural literacy, it is critical that we understand students’ response to this medium.”

Some researchers argue that web-based teaching is not always the solution for every learning problem and considered as “the salvation of education” (Maeroff, 2003: 18). Another concern is that new users might be discouraged because of technical difficulties. Lack of training and familiarity with computers and Internet can lead to frustration instead of motivation. In this concern, Hannum (2001: 17) declares that the web uses many features, such as e-mails, conferencing, chat and unexperienced users need training before starting the web-based course. In addition, Students and teachers might still have serious problems to maintain or even get access to the Internet so “slow connections have a bottleneck” (Hannum, 2001: 17) that limits enthusiasm among teachers to build web-courses and students to learn using a web-based

materials. Another problem is the inadequate use of the huge amounts of WWW resources. Moreover, to confirm the authenticity of students' assignments is not an easy task for the teacher with the learners' use of "copy-paste" technique which makes cheating easier. Hannum (2001: 17) wonders how can teachers certify that the examinations or work submitted are the effort of the learner not a plagiarized work from Internet resources.

2.4.3. WBL: Authenticity and Autonomy

Internet is viewed as a tool that develops authentic communication. The WWW reinforces and expands a greater potential which meets the students' needs and interests as well as provides chances to increase multicultural contact and awareness. It also develops a kind of flexibility in performing activities that develop students' autonomy and independence. The teacher's role in this case is to provide techniques which "are related, in part, to the condition of autonomy, in that the more choices (autonomy) the students have, the more they need to interact, consult, or negotiate with their team members and class" (Egbert, 2005:55). This brings authenticity to WBL.

Authenticity through WBL is also fulfilled in creativity and production as explained by Egbert (2005: 74) that:

Creativity implies doing something original, updating or changing ... Working with others often facilitates creativity ... productivity tools maximize and extend students' ability to create products and to problem-solve; they also expand opportunities for expression which is an important principle in language learning.

To conclude, authenticity and autonomy are dominant in WBL and there is no doubt that Internet plays a prominent role in the foreign language classroom since it has transformed communication around the world.

2.4.4. Preparing Students to Search on the Net for Learning

Electronic text is becoming more and more important complement to library store; the Internet is far bigger resource than even the largest library, and it is accessible, and more up to date.

It is clear that the majority of students already know to search on the net; by using search engines as Google or Yahoo. However, when students have to formulate their request in English, they sometimes find themselves lost in front of the variety of meanings of the key word as well as the resulting that may occur. That is why working on vocabulary may help in distinguishing the real meaning of the key word and more importantly in this case the English web browser. In order to develop awareness that “a search engine hit does not indicate the quality of a source, and that a numerical ordering of hits does not indicate importance” (Jarvis, 2004), the ESP classroom seems the best place.

One of the purposes of reading mentioned previously in this chapter is to read critically and evaluate what is read. The ability here to read critically and evaluate sources on the net is important since the WWW makes access to a large range of materials. “Technology alone does not deliver educational success”(Virkus, 2008:272).

The web-based texts are not beneficial only because they are written by famous publishers, the ability of readers to distinguish if they are valid sources or not and if they are useful for their needs or not is the most important step to follow. The analysis of the structure of the Uniform Resource Locator (URL) may be useful to make the students search for valid sources as Slaouti (2002: 115) says that they should be aware of ‘working back through the nodes of the address will take us to progressively higher levels of contextual structure.’ For instance, the British National Corpus page (<http://info.ox.ac.uk/bnc/corpora.html>) is validated by Oxford University in the UK, while a web page for a radio program (<http://www.bbc.co.uk/home/today/index.html>) is presented by the BBC (Mansour et al., 2009: 246).

Besides, finding the relevant websites is necessary to evaluate information, in particular 'source accuracy (i.e. authority, objectivity, and coverage), appropriateness (follow learners' needs), and appeal (easy to use, interesting to read)' (Opalka, 2002). So some teachers think that access to Internet materials needs to be controlled in order to prevent students downloading undesirable materials.

Moreover, an ESP practitioner for instance, should make the students aware of what constitutes a 'scholarly' publication, based on the principles of trustworthiness, publicity and accessibility (Halliday, 2001) and also teach them if the website information is correct or not.

2.4.4. Integrating Reading through WBL

Technology provides a new dimension of reading. Nowadays, screen pages have dominated the way of learning as stated by Kress (2003: 166-167) when she gives details about the real environments of computer-mediated language learning:

The screen is now the dominant site of texts; it is the site which shapes the imagination of the current generation around communication. The screen is the site of the visual, of the image. This does not mean that writing cannot appear on the screen, but when it does, it will be appearing there subordinated to the logic of the visual. This will have many consequences: reading will increasingly proceed in terms of the application of the logic of the image to writing.

Therefore, integrating the reading skill through WBL is always related to the writing skill and to achieve those language skills include the mastery of some specific skills linked content, organization or even developing some writing skills through a text reading. To acquire the abilities of summarizing, understanding the main point, identifying organization, evaluating support arguments, WBL is proved to be of a big support as far as the mastery of those skills is concerned and this is explained by Egbert (2005: 22) when he says that skills "are media-rich examples and integrate effective scaffolding to help learners understand and retain skills."

Reading is considered as one of the easiest skills to practice on the net. There are many and varied sources offered and presented on the screen and with the development of the web, reading a computer screen has become a more realistic assignment (Harmer, 2003). That is to say, learners used to print out online texts or save them to be read offline afterwards. In addition to the interactive links found in electronic texts can help learners not to read in a linear way as usual but to stop and return back to their reading as much as those links can support the text itself. And to distinguish between a paper-based text and an online text, Mansour et al. (2009: 247) explain that ‘paper-based text is linear whereas online text can be followed through different routes, according to the reader’s choice of hypertext links.’ It is, thus, important for an efficient reading to decide when to follow hypertext links.

EFL readers and ESP readers in particular use written dictionaries in order to explain words as soon as they encounter difficulties in understanding a text. However, the particularity nowadays turns to the use of online dictionaries which facilitate for them checking for difficult words speedily, reading and overall comprehension. This speed of checking also motivates the learners to read. Besides, the fact that electronic dictionaries contain graphics, icons or colors helps a lot in making their reading easier and more comprehensible.

Computers and networks, indeed, lead to a massive amount of information available on any topic without forgetting that learners can interact with each other via the WWW. These computer-based technologies can support reading since they offer the students opportunities to enhance their English reading skill within a communicative and authentic environment in real-world settings.

Moreover, a computer in connection with the web can help readers to acquire different reading strategies and skills which are generally neglected by offering those cues as scrambling and rearranging a text and guiding them in skimming and scanning, making inferences and locating specific information. Likewise, the computer and the web provide language learners with huge amounts of resources that are necessary for reading and motivation and help in the design of appropriate web-based reading tasks as well.

- Web-based Reading Tasks

Integrating the reading skill comes also through the design of particular web-based activities and Alkahtani (1999 qtd. in Egbert, 2005: 1) has also exemplified the necessity of using computers to support reading and writing skills as well as grammar involved in those skills in saying that: “Students can check exercises after they are done, move gradually from easier to more difficult exercises according to their abilities and levels. When students fail to answer correctly or perform activities, the computer can simulate, drill or explain the phenomenon.”

In the same vein, there are useful websites which integrate the reading skill following a process. First, students should contextualize the new content through clear objectives. Second, new structures are presented. Third, students are engaged in reading through pre-reading/ while-reading/ post-reading activities. Fourth, students can practice next structures guided by cues provided to them. They can also email their writing products to their teacher or classmates to gain support. Finally, they are tested through a test which is self-corrected.

In addition, Alessi and Trollip (2001) point out eight methodologies of Interactive Multimedia (IMM) to facilitate learning which are tutorials, drills, games, tests, hypermedia, simulations, tools and open-ended learning environments, and web-based learning and say that “web-based learning can be combined with any of these methodologies (for the web is essentially a delivery medium)” (2001: 12). Those methodologies may be divided into three categories: practice, resources and communication.

- **Practice:**

Since the aim of this research is the practice of the reading skill through web-retrieved materials’, going deep inside the content of this category seems necessary. It provides activities designed for practice including tutorials, drills, games and tests. Tutorials, for example, are computer programs designed to provide practice using exercises and assignments. Tutorial activities on the web provide an introduction to the lesson with detailed information, followed by a series of questions which are evaluated progressively. For Alessi and Trollip (2001: 17), “they are effective for presenting

factual information, for learning rules and principles, or for learning problem-solving strategies.”

Drills, in the other hand, focus on mastering basic skills or reviewing material that has been previously learned. They can be in a form of questions, followed by answers and then followed by evaluation of questions and feedback.

Games are goal-oriented activities that provide a multimedia simplification of reality. The artificial environment provided by software, thus, motivates learners through amusing activities that indirectly provide pedagogical benefits. They are, however, generally designed for children who find drills boring. Tests are included both as tutorial activities or drill activities.

- **Resources:**

The content of this category provides tools for language learning in addition to tools and open ended learning environments or electronic processes that assist learners in carrying out tasks such as planning, calculating, writing, comparing ... etc. These are, in fact, various resources available on the web through these tools to search for information. These resources can offer data to users, either to be used or downloaded or to be processed, for instance, users key in a word, a phrase and then want to search for; the answer provides feedback in no time. This explains the meaning of Hypermedia in which Hypermedia-based Instruction (HBI) organizes information through a node and link structure and this is what we call a hypertext. According to Salmeron et al. (2004: 5), hypertext reading strategy is “the decision rule that a reader follows to navigate through the different nodes of a hypertext”.

Many language skills can be done by drawing on resources offered on the web. The best example of this kind of tasks is the web-quest which is a recent enquiry-based activity which is highly used in the present study in the form of home works since the connection to Internet is not offered in University. They facilitate cooperative learning and they include a variety of ways to access and create knowledge. They focus on using information (not looking for it) and supporting learners' thinking at the level of analysis, synthesis and evaluation. They also support thinking and problem-solving

skills on the web and promote learning through analysis of complex concepts. This is why Web-quests can be effectively used for a content-based approach to English for Specific Purposes (ESP) instruction (Marco, 2002). In fact, the advantages of Web-quests are numerous: fostering cooperative learning, engaging students in performing real world tasks, using authentic online materials, promoting learner motivation, developing reading skills such as scanning, skimming, paraphrasing, summarizing, organizing, analyzing as well as problem solving skills (Marco, 2002). Since teaching English for ESP students is based on content, Web-quests can meet the four criteria for content-based activities below:

1. Learning activities should provide more than one perspective on the content area. This is met by Web-quests, which offer a large number of Web pages with information on different aspects of a topic (Marco, 2002).
2. Activities should present authentic content without oversimplifying it (Spiro and Jehng, 1990).
3. Activities should incorporate visuals and other aids for making associations, since that facilitates deeper thinking (Craik and Lockhart, 1972). The Web pages used in Web-quests contain not only text, but also pictures, sound, and even animation.
4. Activities should encourage the SQ3R formula: surveying, questioning, reading, recalling, and reviewing materials under study (Schmeck, 1986).

- **Communication:**

Communication on the web is largely seen nowadays. Individuals communicate with each other through web communication tools called Computer-mediated Communication (CMC). These tools include e-mail, voice-mail, discussion groups and forums. Since the current researcher uses e-mails to communicate with her students and send home works to be accomplished by them in order to gain time and since connection is generally offered at homes, focus is put on e-mail means of communication. Students may be very used to chatting to their friends via e-mails, but may still have difficulty selecting the right level of formality for an e-mail exchange in an academic context. Nevertheless, students need to be aware of the power-distance

relations affecting the choice of language, and should learn how to use appropriate politeness strategies when making requests. In terms of language practice, these tools provide reading and writing practice represented in reading quickly and responding immediately. The importance of these communication tasks online is seen by Felix (2003: 16):

The trend toward task-based learning, engaging students in Web-quests and problem-solving activities, and collaborative project-based ventures ... perhaps gains the greatest momentum. It is most likely that there will be increased communication.

2.5. Conclusion

Reading for specific purposes is considered as a necessary skill required by ESP learners for academic success, social interaction and transmission of ideas. Teaching reading, in fact, embedded not only comprehension questions but also emphasis on content-based topics in order to acquire knowledge about a particular field and a set of terminology to function effectively in the target environment. Besides, teaching a reading course requires a good and appropriate selection of texts as well as effective reading tasks.

In addition, the use of technology in teaching reading is also important because in spite of the fact that the reading course depends on the students' needs, the needs of current students with laptops and Internet connection seems also vital. That is why, it seems necessary to adopt an ESP course in accordance with students in the information age.

For these reasons and because of the high demands of the use of technology in the field of education, this chapter encompasses significant ideas about the reading process with an overall discussion on the reading strategies in accordance with the use of technology and WBL in the teaching of reading for ESP student. Now comes the moment to discuss the methodology used by the researcher in order to practice the reading skill with ESP students using new technologies.

CHAPTER THREE

CHAPTER THREE**Situation Analysis and Research Methodology**

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3.1. Introduction

This chapter seeks to explore the teaching of ESP at the Department of Electrical and Electronic Engineering (Electronic Instrumentation Engineering), the Faculty of Technology of Tlemcen University before dealing with the methodological part of the study. In fact, an overall explanation of the LMD System was first introduced. Then, a global description of the University of Tlemcen, the Faculty of Technology and the Department of EEE is given. After that, an understanding of the status and importance of English were added in order to explore the situation analysis of the investigation.

The second part of this chapter deals with the research methodology and procedure, i.e. how the current study is carried out. This study is conducted to identify the students' needs for learning English language, particularly reading, to explore their attitudes towards the integration of web- retrieved materials in the reading instruction and to know the impact of such implementation on the development of the reading skill. To achieve these objectives, three data collection instruments are used. This type of design that uses different research methods (questionnaire, structured interview and pre and post-tests) to investigate the same issue, is called triangulation. This latter is used to confirm the validity and reliability of the process. Furthermore, using multiple methods in a research design would also help to deal with many different aspects of phenomena. In addition to the data collection procedure used in this chapter, data analysis procedure is explained and the justification for the choice of those procedures is provided.

As a whole, this chapter gives details about the design of the research study undertaken with these goals and questions in mind. The researcher will describe the setting of the study including the participants and materials involved. Then, she will give details about the methodology of the study, which will include the design, instruments, general and analytical procedures used.

3.2. Situation Analysis

From August, 1989, the University Abou Bekr Belkaid of Tlemcen is the result of a long evolution. Higher education was initially insured in Exact Sciences and Biology (1974- 1980). This teaching was gradually extended to new streams, covering from year to year, a set of training cycles and allowing students to continue their graduation until the end of their curriculum. In June 1984, The University helped to graduate the first students in Social Sciences and humanities. By August 1984, new fields were opened. (1)

3.2.1. The LMD System

To unify the Algerian University system with the world Universities, the Algerian government has invested a lot of money in recent years on the new system of LMD (Licence- Master- Doctorate) in order to ensure “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” as stated by Hemche (2014: 123).

Since the introduction of the three-cycle degree system in 2004, universities have been awarding a Licence degree for the accumulation of 180 credits (first cycle), a Master’s degree for the accumulation of 120 additional credits (second cycle) and, following a postgraduate course of study upon a competitive exam, a doctorate (third cycle). This three-cycle degree system comprises (Hemche, 2015: 93):

- The Licence: 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 nonprofessional degree aimed solely at preparing the students for the next diploma, namely the Master.

(1) (<http://www.univ-tlemcen.dz/historique.html>)

- The Master: it covers an additional two-years course after the Licence 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: 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 following figure shows clearly this three-cycle degree system:



Figure 3.1. Studies Architecture in 3 Degrees (LMD)

As shown in the figure above, the LMD system divides the academic training into semesters rather than years of formation as in the classical system. In fact, the semester is a period of time to perform an academic course, generally 15 weeks between studies and assessment. The Licence degree is accomplished after a training of six semesters during three years measured with an achievement of 180 credits. On the other hand, the Master degree is given after a formation of two semesters during two years including study and research, measured with an accomplishment of 120 credits. These credits are gained only when the course has been completed and all required examinations have been successfully taken.

In addition to the credit system, there are in the LMD system, teaching units, i.e. a group of subjects divided into:

- The Fundamental Unit: It groups the basic and core subjects.
- The Methodological Unit: It is designed to prepare learners to acquire skills in methodology in order to accomplish their research after a formation.
- The Discovery Unit: It is disconnected from the main field of study aiming at acquiring knowledge through 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: It comprises compulsory language and ICT courses. The teaching of these units varies from one semester to the other.

Tlemcen University is one of the first Algerian universities that have opted for this new educational system. The LMD system has restructured the architecture of higher education and created new tools to facilitate its implementation and increase collaboration, flexibility and competitiveness between different parts of the world so as to reach teaching quality and be up-to-date with the new world's demands. The LMD is a set of elements which relate training to working for a common goal. It offers a higher flexibility in training, either for the learner or for the teacher. The teacher has the opportunity to offer training courses adapted to the available resources and skills based on a pedagogical team and the student has the opportunity to choose the path that suits him.

The Algerian Ministry of Higher Education and Scientific Research posted, in January 2004, a guideline summarising the main new tasks of the university through the LMD system which is a new reform in the tertiary education in Algeria. It is so put forward to gain some objectives (2). The main ones are:

(2) Guide de l'étudiant: <http://www.univ.dz>

- improving the quality of university education,
- the adequacy between university education and the needs of the working world,
- development of academic training vocationally.

The LMD system is used in nearly all faculties in Tlemcen University. From those faculties that apply this system of education, the faculty of technology.

3.2.2. The University of Tlemcen

Tlemcen University includes the Rector's office, seven faculties and common services. The faculty is a unit of teaching and research in the field of science and knowledge. It provides courses for graduation and post- graduation. It consists of departments and ensures coordination. It also contains a library with services and sections. It is headed by a dean, administered by a Board of faculty and a scientific Board. The department is the mono disciplinary pedagogy and research unit which composes the faculty. It is headed by a head of Department and a scientific committee.

(2) The following figure presents the different faculties in Tlemcen University:

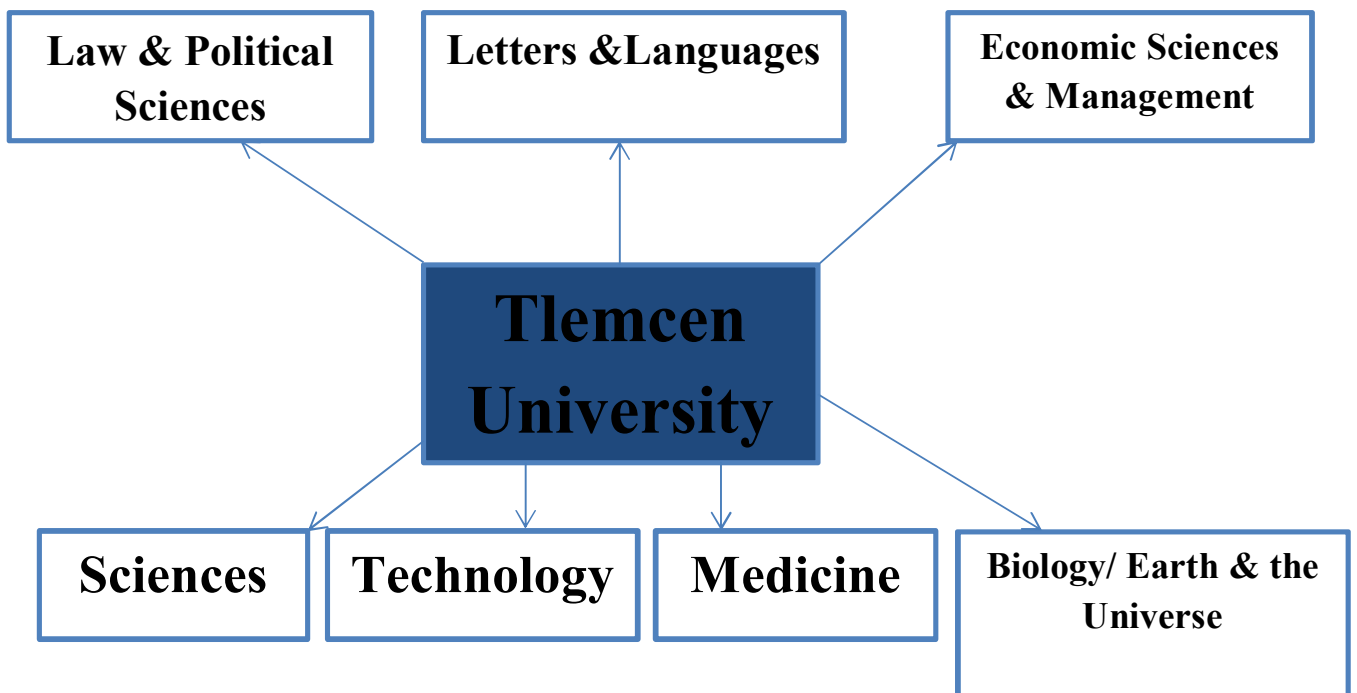


Figure 3.2. Faculties in Tlemcen University

3.2.3. The Faculty of Technology

The faculty of Technology is one of the seven faculties of Tlemcen University. It was established in 1999. It currently includes seven departments: Electrical and Electronic Engineering, Biomedical Engineering, Civil Engineering, Hydraulic, Mechanical Engineering, Telecommunication and Architecture. (3) It has received the first LMD students in the academic year of 2005- 2006 and comprises the departments mentioned above and shown in (figure 3.1). Each department has its own branches and sub-specialties.

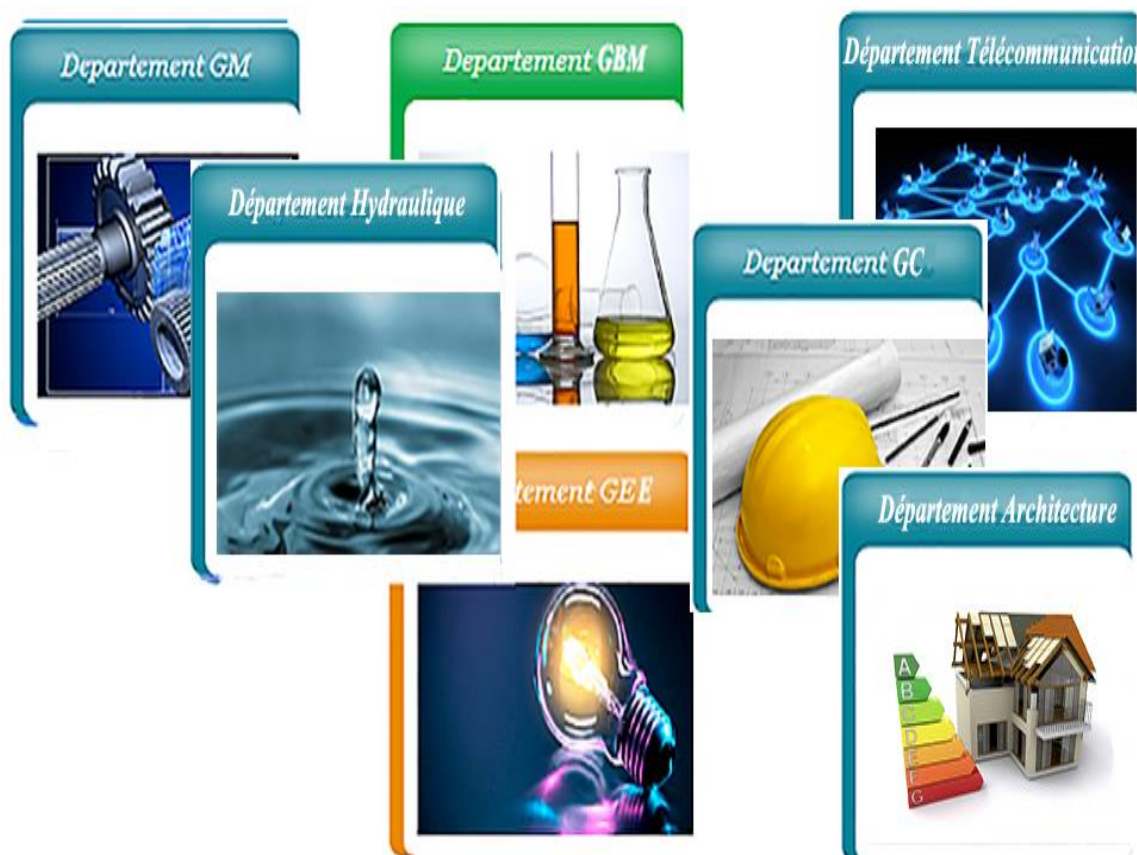


Figure: 3.3. Departments in the Faculty of Technology

(3) (<http://fsi.univ-tlemcen.dz/present.html>)

3.2.4. The Department of Electrical and Electronic Engineering

3.2.4.1. General Description

The Electrical and Electronic Engineering Department is considered among the first departments in Tlemcen University, created in the beginning of 1987 which includes a number of multidisciplinary teachers with an average experience of 15 years in the technical field. This department offers learning in two branches:

- Fields of Science and Technical domain: automatics, electronic and electro technical. (Figure 3.4)
- National field of Industrial Engineering with Productive specialism as seen in (Figure 3.5)

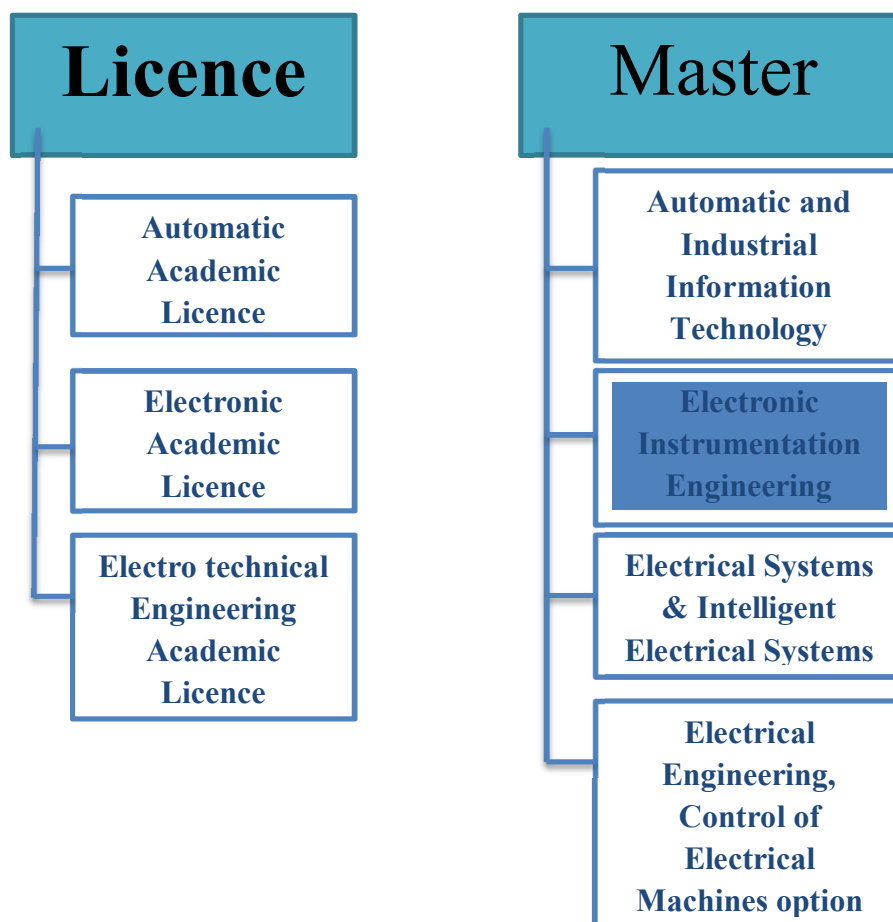


Figure 3.4. Department of Electrical and Electronic Engineering (EEE)

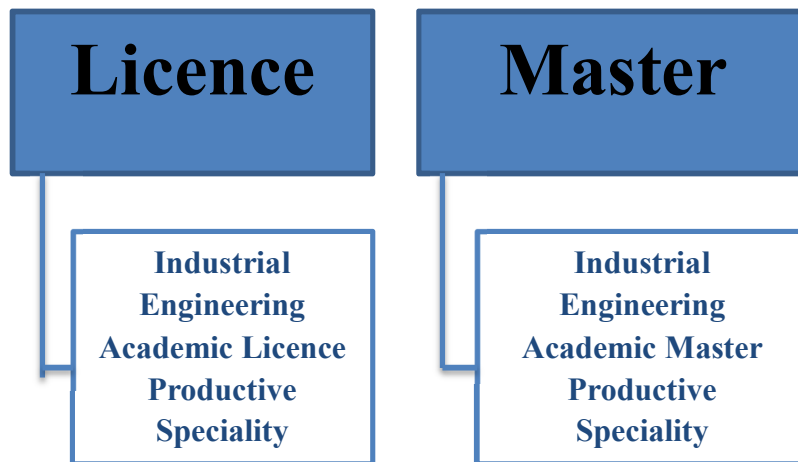


Figure 3.5. Department of EEE, National Industrial Engineering Field

Electrical and Electronic Engineering Department provides learning during the Licence and Master degrees. However, for the Doctorate degree, education follows a special procedure and not all students are allowed to be involved.

3.2.4.2. Access Conditions for EEE ‘licence’

Science and Technical fields accept students who have acquired their first year L1, considered as a common core year. The subjects taught in that year are Mathematics, Physics and Chemistry. One of the three sub-fields mentioned above is chosen at the end of that year. Therefore, specialism and studies in EEE Department start from the second year Licence. On the other hand, the second field of Industrial Engineering accepts students from the first year in the Productive speciality with the same subjects taught in the previous field (Mathematics, Physics, Chemistry and Productive Speciality).

3.2.4.3. Electrical and Electronic Engineering Field

Electrical engineering is a field of engineering that generally deals with the study and application of electricity, electronics, and electromagnetism. This field first became an identifiable occupation in the latter half of the 19th century after commercialization of the electric telegraph, the telephone, and electric power distribution and use. Afterward, broadcasting and recording media made electronics part of daily life. The invention of the transistor, and later the integrated circuit, brought down the cost of electronics to the point they can be used in almost any household object. Electrical engineering is divided into a wide range of subfields including electronics, digital computers, power engineering, telecommunications, control systems, radio-frequency engineering, signal processing, instrumentation, and microelectronics. The subject of electronic engineering is often treated as its own subfield but it intersects with all the other subfields, including the power electronics of power engineering. (4)

Electronic engineering is an engineering discipline which utilizes non-linear and active electrical components (such as semiconductor devices, especially transistors, diodes and integrated circuits) to design electronic circuits, devices, Microprocessors/Microcontrollers and systems including VHDL Modelling for Programmable logic devices and FPGAs. The discipline typically also designs passive electrical components, usually based on printed circuit boards. Electronic engineering covers a number of subfields such as analogue electronics, digital electronics, consumer electronics, embedded systems and power electronics. It deals with implementation of applications, principles and algorithms developed within many related fields, for example solid-state physics, radio engineering, telecommunications, control systems, signal processing, systems engineering, computer engineering, instrumentation engineering, electric power control, robotics, and many others. (5)

(4) Electrical Engineering (https://en.wikipedia.org/wiki/Electrical_engineering)

(5) Electronic Engineering (https://en.wikipedia.org/wiki/Electronic_engineering)

Electrical and Electronic Engineering, in fact, is a combination of both fields, Electrical Engineering and Electronic Engineering. That is why, academically speaking, it is divided into many sub-specialities in the same department. It is a branch of engineering where students acquire knowledge and skills which can be applied to tackle complex problems related to electricity in general. The Electrical and Electronic engineer herein strives towards a solution in balance with technological, economic and ethical constraints.

The graduate students should master the fundamental elements of current EEE branch and have a thorough knowledge of the basic concepts and an overview of the main applications in various fields related to their field of study. They should also acquire the necessary research skills which allow them to independently analyse and solve a problem, and recognize the importance of permanent learning in a continuously evolving domain. With the great advance in technology, EEE students need to master the English language which is of paramount importance for their studies.

3.2.4.4. The Status of English in EEE Department

The English Course named Technical English is considered as a transversal unit in the LMD System. It is a compulsory language course and its teaching varies from one semester to the other and from one speciality to the other. It takes one hour and half per week.

What is common for all EEE Licence students is that they follow an English course during the third semester, i.e., the first semester of the second year. They specialize in three different specialities during their Licence stage of study: Automatic, Electronic and Electro technical Engineering. Concerning Automatic Licence students, they learn English in the 5th semester, i.e., during one semester in two years of speciality only whereas the students of the two remaining fields of Licence studies, they do not study English at all in the four semesters of speciality. Regarding the EEE Master students and the occurrence of the English course in their curriculum, Industrial Information Automatic and Electronic Instrumentation Engineering Master's students attend English courses during all the semesters of their Master studies except the last one

where they are concerned only by their research project. Besides, the two other Master specialities, students have English during one semester only. Concerning the Industrial Engineering field in the Productive speciality where students start their training from the first year in the Faculty of Technology without passing by a common core year, students study English during their whole training. As a whole, it seems that EEE students do not study as much English as it is needed for their studies. The occurrence of English courses in EEE Department curriculum is explained in table 3.1 below:

Table 3.1. Occurrence of English Courses in EEE Department

EEE	Specialities	English Course
Licence	Automatic Engineering	3 rd Semester: English 4 th Semester: No English 5 th Semester: English 6 th Semester: No English
	Electronic Engineering	3 rd Semester: English 4 th Semester: No English 5 th Semester: No English 6 th Semester: No English
	Electro-technical Engineering	3 rd Semester: English 4 th Semester: No English 5 th Semester: No English 6 th Semester: No English
Master	Automatic & Industrial Information Technology	1 st Semester: English 2 nd Semester: English 3 th Semester: English 4 th Semester: No English
	Electronic Instrumentation Technology	1 st Semester: English 2 nd Semester: English 3 th Semester: English 4 th Semester: No English
	Electrical Systems & Intelligent Electrical Systems	1 st Semester: English 2 nd Semester: No English 3 th Semester: No English 4 th Semester: No English
	Electrical Engineering, Control of Electrical Machines Option	1 st Semester: English 2 nd Semester: No English 3 th Semester: No English 4 th Semester: No English
Licence	Industrial Engineering: Productive	1 st Semester: English 2 nd Semester: English 3 rd Semester: English 4 th Semester: English 5 th Semester: English 6 th Semester: English
Master	Industrial Engineering: Productive	1 st Semester: English 2 nd Semester: English 3 rd Semester: English 4 th Semester: No English

Since the current applicants belong to the Electronic Instrumentation Engineering field, it is important to know the number of English courses they take during their whole curriculum. In fact, they have English course during three semesters of their Master studies without knowing the exact number of those courses during their licence studies since they belonged to different specialities. Table 3.2 shows their curriculum during the semester of the experiment.

Table 3.2: Curriculum of the 3rd Semester

Branch of Electronic Instrumentation Engineering

Semester 03 teaching unit	VHH	Coefficient	Credits
	15 weeks		
TU Fundamental			18
TUF1 EI Tools	3	4	8
Microsystems	1.5	1	4
Actioners	1.5	1	4
UEF2 Industrial Instrumentation	3	5	10
Acquisition systems in Instrumentation	1.5	1	5
Programmable Automates	1.5	1	5
TU Methodology			10
TUM1 Laboratory 3	3	3	6
TP Examples of Instrumentation Range	3	1	6
TUM2 Initiation to Research		2	4
Biographic Research for the Synthesis Project		1	4
TU Transversal			2
Technical English 3	1.5	1	1
General Training	1	2	1
Total Semester 3	20.5	15	30

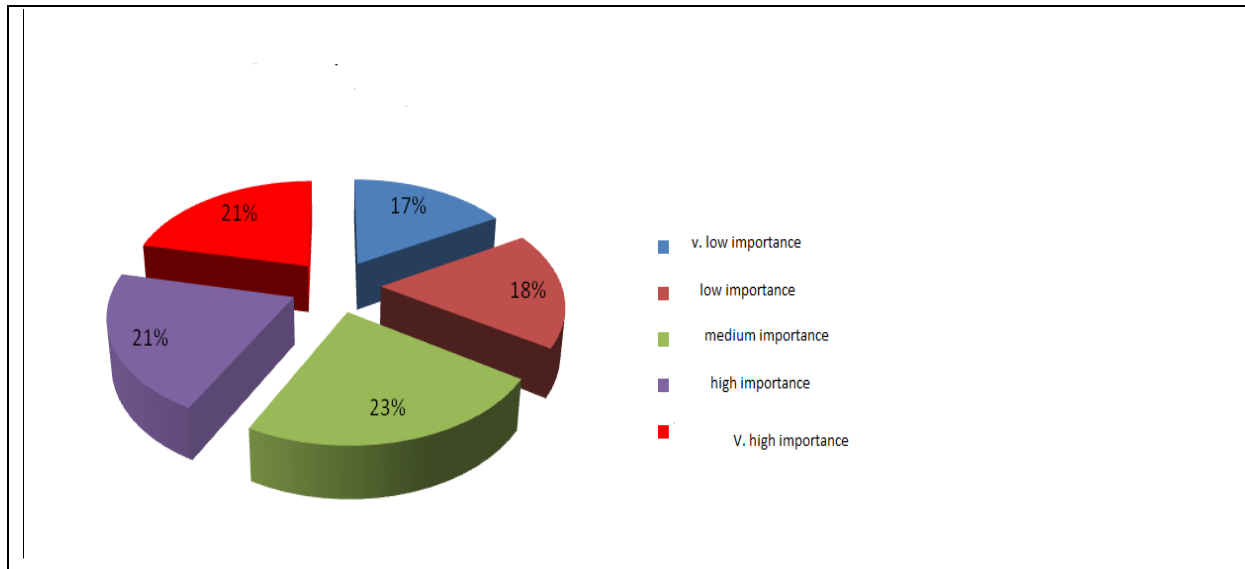
The above table shows that Electronic Instrumentation Engineering students (sample population) takes their one hour and half English course under the name of Technical English 3 as a transversal teaching unit. After this overall analysis of the occurrence of the English course in engineering studies, it is necessary to know its importance for such fields.

3.2.4.5. The Importance of English for Engineering Students

In the scientific community, English is slowly becoming the dominant language of choice. The majority of scientific reports and journals are now available in English. Many international conventions and meetings are spoken and presented in English. With this in mind, it stands to reason that to become an active and functional member of this community, knowledge of the English language is essential as it is a convenient tool for sharing scientific knowledge. In fact, having one language to share information can allow discoveries and new technologies to be distributed practically and more efficiently.

As far as English Language Teaching is concerned, it is important to determine the position of English as an academic language and its role in engineering studies. Students in general have clear reasons for learning English and why it is necessary. For example, engineers need to stay in touch with the new developments in their respective fields and most importantly students need to use books and journals available only in English and need English in order to advance and succeed in their careers. (Hutchinson and Waters, 1987)

According to a study submitted by Megnounif (2007), responses to a students' questionnaire proved that students felt that foreign languages learning can be beneficial and reinforces the philosophy of the LMD system based on the need to introduce general culture. Responses are grouped into 05 categories: Very high, high, medium, low and very low importance. Thus the percentages of different responses are represented in the following figure:



**Figure 3.6. The Importance of Foreign Languages
(Magnounif, 2007)**

The teaching of ESP in the Faculty of Technology relies on the methodology adopted by the researcher to collect data from the teaching of ESP for engineering students.

3.3. Research Design and Procedure

The first thing the investigator needs to do is to decide on the research methodology that she will undertake. That is to say the philosophy or the general principle which guides researchers. In other words, it is the overall approach to the study including issues needed to be investigated such as constraints, and choices within research. Burns and Grove (2003:195) define a research design as “a blueprint for conducting a study with maximum control over factors that may interfere with the validity of the findings”. In fact, any research design is closely related to the research questions of the study. That is why, Polit et al (2001:167) define a research design as “the researcher’s overall for answering the research question or testing the research hypothesis”.

In order to conduct a research, it is of a paramount importance to decide on the appropriate method that suits the objectives of the study in question. In order to be precise and concise as well as accurate in any investigation, the investigator has to select the appropriate research model to follow and to make her work strategic and methodological. From the different types of research in applied linguistics stated in the literature, the ones listed by Nunan (1992) which are experimental, ethnography, case study, classroom observation, introspective, elicitation, interaction analysis and programme evaluation. To choose the most appropriate method for the study under investigation, the researcher should know its purposes, foci and characteristics.

Since the research questions should be answered and clarified after analyzing the results of an experiment undertaken by the researcher on a case of variables, this leads her to combine two research methods, case study and experimental research. As clarified by Gorard and Taylor (2004: 7), “combined methods research, and the combination of data derived through the use of different methods, has been identified by a variety of authorities as a key element in the improvement of social science, including education research”. By combining methods in one study the researcher can confirm and explain, verify and generate theory, all at the same time. Concerning the current study, it falls into two phases: NA through a case study method and Implementation of the course through an experimental research.

3.3.1. Case Study

The present study is a case study of second year Master Electronic Instrumentation Engineering students, in the department of Electrical and Electronic Engineering, at the faculty of Technology, University of Tlemcen. The purpose of this study is to explore the integration of web-retrieved materials in teaching reading for ESP students and try to find solutions to the difficulties encountered during this integration. For this purpose, the study first aims at identifying the English Reading needs of Electronic Instrumentation Engineering (EIE) students in order to design an experimental course. In order to reach these objectives, the researcher chooses a case study in addition to an experimental design as research methods.

The case study is, in fact, chosen to specify what is general as stated by Nisbet and Watt (1984: 72): “A case study is a specific instance that is frequently designed to illustrate a more general principle”. Accordingly, Anderson (1993: 152) states that a case study is “concerned with how and why things happen, allowing the investigation of contextual realities and the differences between what was planned and what actually occurred”. Moreover, the great value of the case study approach is that it is intended to focus on a particular issue, feature or unit of analysis since “it provides a more detailed, qualitative and exploratory approach to research”(Dyer, 1995).

Social scientists, in particular, have made wide use of case study research method to examine contemporary real-life situations as defined by Yin (1984:23) that it is “an empirical inquiry that investigates a contemporary phenomenon within real-situation context, in which multiple sources of evidence are used.” However, “a case study cannot provide reliable information about the broader class, but it may be useful in the preliminary stages of an investigation since it provides hypotheses, which may be tested systematically with a larger number of cases (Abercrombie et al. 1984:34).

Like any scientific method, the case study has advantages and disadvantages. It is seen as appropriate in some instances and inappropriate in others. Table 3.3 shows some advantages and disadvantages of this research method:

**Table 3.3. Advantages and Disadvantages of a Case Study
Hopkins (2014: 147)**

Advantages	Disadvantages
<ul style="list-style-type: none"> - a relatively simple way of plotting the progress of a course or group's reaction to teaching methods. Unusual cases can shed light on situations and problems that are impractical to study in other ways - tends to give more accurate and representative picture than will any one of the research methods: cases studies draw on data gathered by many methods. 	<ul style="list-style-type: none"> - In order for a case study to be of value, it must be fairly exhaustive: this means that it will be time-consuming in its preparation and in its writing. - Feedback available to teacher only after considerable lapse of time.

This explains that the case study is mainly used in the classroom to “provide a relatively formal and fairly definitive analysis of a specific aspect of teaching behaviour” (Hopkins, 2014: 147).

Despite the disadvantages of this method of research, it seems appropriate for the researcher since she is interested in acquiring details about the current situation of ESP students looking for their needs to well perform the reading skill through web-based activities. The researcher, indeed, wants to scheme the progress of the implemented course as well as her sample group's attitudes towards the current teaching method which is the integration of web-retrieved materials in teaching the reading skill for ESP students as argued by Hopkins in his distinction between the advantages and disadvantages of a case study.

However, in order to know the feasibility of the current investigation in suiting the needs of the population in question, the researcher recognizes that findings can be obtained using an experimental research since she links her research with the results achieved after experimentation.

3.3.2. Experimental Research

Generally speaking, the experimental method is usually considered as the most scientific of all methods since it is widely used in scientific research on the basis of an experiment. Moore and McCabe (1993: 202) state that the experimental method is “The best method — indeed the only fully compelling method — of establishing causation is to conduct a carefully designed experiment in which the effects of possible lurking variables are controlled. To experiment means to actively change x and to observe the response in y .” For instance, the researcher states difficulties that face students and by undertaking an experiment research, she tried to find the causes of those problems and so arrives to some results that may solve them. It is, in fact, used to examine the validity of a hypothesis as clarified by Gay (1992: 298) that “The experimental method is the only method of research that can truly test hypotheses concerning cause-and-effect relationships. It represents the most valid approach to the solution of educational problems, both practical and theoretical, and to the advancement of education as a science.” Accordingly, Lamri (2015: 98) states that in education, “experimental designs are especially practical to address questions about the efficiency and impact of specific courses because they provide a systematic and logical method to resolve the problem.”

The main objective of an experiment is to produce an intervention in the form of a workable design resulting on a general solution that can be applied in any working environment where others might determine the final product within their particular context and can then be readily modified in different settings or it can even be further developed by other practitioners, policy-makers, researchers or designers.

The experimental method of research, indeed, helps the investigator to deliberately control and manipulate the conditions which determine the situation in which she is interested. It is very often used when the researcher wants to report the benefits of a new teaching method as the current investigation in integrating web-retrieved materials in teaching the reading skill, measuring the ESP students' attitudes toward such experiment by an experimental manipulation of 14 weeks. This manipulation was in the form of an established course design aiming at increasing their proficiency level, particularly in reading. Following the experimental treatment, the researcher tends also to measure their attitudes by proceeding to an account of differences between pre-test and post-test scores by reference to the effects of the experiment in question (the course). This way of proceeding can be explained in the following figure:



Figure 3.7. Phases of the Present Experimental Research

Following an experimental method of research, the investigator could justify the findings gained through the scores of the pre-test and post-test in attributing the causes of such differences and this is what characterizes this kind of research, i.e. causality. In this context, Smith (1991: 177) states that “the issue of causality and, hence, predictability has exercised the minds of researchers considerably.” One response to this issue is the process of control during the investigation and it finds its achievement and success in the experimental design.

In fact, the current research work followed a combination of two methods of research: a case study of engineering students (sample population) in order to undertake a needs analysis and an experiment method to test the feasibility of the investigation.

3.3.3. Sampling

The quality of a piece of research stands not only on the appropriateness of methodology and instrumentation, but also on the suitability of the sampling strategy adopted. That is why to locate the appropriate sampling, there is the problem of the most appropriate setting for the investigation which precisely will provide data. Thus, “Sampling’ implies an acknowledgement that it is not possible to investigate absolutely everything of interest at the same time, and therefore we have to choose a ‘sample’ (Johnsons, 1998: 275).

Decisions and problems such as these face researchers in deciding the sampling strategy to be used. Judgements have to be made about four key factors in sampling:

- the sample size
- representativeness and parameters of the sample
- access to the sample
- the sampling strategy to be used.

Regarding the sample size and to have significant results, Cohen and Manion believe (1994, qtd in Wallace, 1998) that for the sample to be statistically significant a minimum sample size of 30 is usually thought to be desirable. Though this idea is not widely agreed, the researcher believes that taking a sample of 30 students is sufficient to undertake the needs analysis and to implement the present course with. In addition, 30 is the number of the whole class studying the speciality of Electronic Instrumentation Engineering in the second year Master level. The current investigator also saw the sample as representing adult students who will soon graduate and to whom the importance of English is huge. Moreover, since she was the teacher of those students during the semester of experimentation, she had the possibility to undertake the needs analysis by herself, taught the implemented course and more importantly test them from the beginning of the investigation to the end.

3.3.3.1. Students' Profile

The target students' population in this study was the 2nd year Master's students, specialised in Electronic Instrumentation Engineering (EIE), during the academic year 2015 /2016 in the Department of Electrical and Electronic Engineering at the Faculty of Technology, University of Tlemcen. The students were thirty, of the two genders (21 males and 9 females) of different ages (from 22 to 27 years old) and with different levels of proficiency in English since all the class linked to the speciality of Electronic Instrumentation Engineering was dealt with. They study English one hour and half per week.

In addition, the researcher chose such a sample because at this level of study (Master 2) in the Department of Electrical and Electronic Engineering, the coefficient of the English course is similar to that of the other subjects taught and there is no way to compensate one subject by another in order to graduate. Therefore, this sample is supposed to be interested in the current experiment. Because of their age (22-27), students are supposed to be aware of the importance of English for their studies, especially as the Doctorate stage is forthcoming. In this concern of age, Kennedy and Bolitho (1984: 13-14) say that "The older a learner is, the more likely he is to have his own definite ideas on why he is learning English. ... the utility of learning English is likely to be more apparent."

All the participants had been learning English for seven years before starting their university education, three to four semesters during their Licence training and three semesters during their Master studies. These students were chosen because of the great importance of the English language in their field of study, according to their subject teachers. As they will soon graduate and face the doctorate stage, they are more motivated. This motivation helped the investigator in the implementation of her course by integrating a new teaching method using Internet. Those applicants answered the questions dealt with in the students' questionnaire and also attended the present course.

3.3.3.2. Teachers' Profile

The second group of informants is a group of teachers who answered a structured interview. They are eleven teachers with different qualifications; 5 of them have a doctorate degree whereas the remaining 6 teachers have a magister degree. They have also different teaching experience at university; only one of them has less than 5 years of experience; 5 of them have between 5 and 10 years of teaching English at University; while the other 5 have more than 10 years of teaching practice. Accordingly, they belong to different age groups since 4 of them are between 20 and 30, 3 between 30 and 40, 3 between 40 and 50 and the professor is more than 50 years old. They are all language teachers who taught ESP in different faculties of the University of Tlemcen.

3.3.4. Instrumentation

The researcher chose for her study four instruments of research which would lead her to answer her research questions and test her hypotheses. The tools used to gather data are a students' questionnaire submitted to the target group, i.e. Second year Master Electronic Instrumentation Engineering (EIE) students, a structured interview addressed to ESP teachers and a pre-test administered to the informants before starting the course under investigation to know their English proficiency level followed by a post-test performed by the same sample population at the end of the course to know if the objectives of the course are achieved or not.

Additionally, each of these instruments was used at different phases of the study for different purposes. The questionnaire was designed before the course, for one part to investigate the students' attitudes towards the use of web-based materials and for the other part to know their particular needs through a needs analysis survey in order to take them into account when designing the course. For the teachers' interview, it takes the same time and purposes as the students' questionnaire with different participants. The pre-test and post-test were taken by the 30 students involved in the study right before and after the web-based course in order to measure the improvement in their language proficiency in reading.

3.3.4.1. Students' Questionnaire

Generally speaking, questionnaires involve predetermined questions set out in a written form and presented in a very systematic way. These questions are answered by ticking responses or writing in short answers. The primary method of inquiry used in this study was a questionnaire (Appendix A) completed by second year Master's Electronic Instrumentation Engineering students. This instrument of research helps the researcher to check the validity of the research hypotheses in the study via questions asked to the sample population under investigation. It is also a means of research which permits to gather data from a large number of respondents in a form of written responses to a series of selected questions. Accordingly, Richards (2005: 60) explains that: "Questionnaires are one of the most common instruments used. They are relatively easy to prepare, they can be used with a large number of subjects, and they obtain information that is easy to tabulate and analyse."

In the same line of thought, Ellis (2004) asserts that the questionnaire is a useful method that remains the favoured one: "consisting of liker scale items that require learners to self-report on some aspects of their language learning." Therefore, the researcher has chosen this instrument of research for its convenience to gather data from the sample group of participants. It gives them a certain freedom to express themselves. It also offers security of anonymity.

When constructing a questionnaire, the researcher needs to take care about making the questions clear and ensuring that the way they are constructed will lead to the kind of information she is seeking for. However, to understand what makes a good questionnaire item, Johnson (1992: 113) proposes the following principles as general guidelines:

- (i) Items should be written in clear, non-technical language that is easy to understand.
- (ii) Items should not contain negative phrasing that is difficult to process (For example, *Which one of these is not a disadvantage?*).

- (iii) They should contain only one idea per item. For potentially confusing items, it is important to give the respondents an example that illustrates how they should answer the question.

As for types of questions used in questionnaires, there are generally two categories: closed including scale questions and open-ended ones. In closed questions, the respondents are required to select one form among a limited range of responses. The most common forms require a *Yes/No* or *Agree/ Disagree* response. In general, these questions are quick to complete and do not enable respondents to add any remarks, qualifications or explanations. They are also useful for gathering quantitative data and are easier to analyse (Johnson, 1992). Open-ended questions allow respondents to write a free response in their own terms, making the answers open-ended, and aims to search for their own perceptions, beliefs or opinions. Such type of questions does not “call in advance for readymade answers and therefore allow the person questioned more freedom of expression” (Richterich and Chancerel, 1980: 59). Unlike closed questions, they are rather easy to prepare but more difficult to analyse. "Open questions are good for exploratory research where you have difficulty in anticipating the range of responses" (Wallace, 1998: 135).

The present questionnaire is divided into two main parts in addition to the background and profile information. The latter concerns the applicants’ profile (age, gender, level of study, department and university). In fact, this information helped the researcher to know the sample population in order to analyse data afterwards.

The questionnaire is submitted to 30 students in the 2nd year Master in Electronic Instrumentation Engineering discipline. The first main part of the questionnaire is a needs analysis survey based on Hutchinson and Waters’ (1987) theory. It aims at identifying their English language in general and their reading needs in particular. This part is also divided into three kinds of needs: necessities, lacks and wants.

The questions related to necessities refer to what the learner has to learn in order to communicate effectively in the target situation. They are in fact seven close questions where the respondents have to answer by yes or no or rather to check the appropriate answer. The researcher first wanted to know their awareness of the importance of English describing their attitudes towards learning. Then, she asked them about their opinion on attendance of English courses, followed by an inquiry of their content area in the future linked with the immediate purpose and reasons for learning English.

Regarding the respondents' lacks, the researcher wanted to know what they already know and examine an evaluation of the quality of ESP instruction provided at their level and also to proceed objectively and accurately in the present experimentation. 11 close questions were asked to identify their lacks, answering by yes, no or grading. The first question inquired about whether they were satisfied or not with their previous ESP course. With this starting point in mind, the researcher started to think about remedies and changes. The next two questions aimed at revealing their opinions about the weekly time allocated for the English course. Then, a multiple choice items of the following questions sought information about some skills to be developed in previous courses, aiming to know the occurrence of the reading skill; pursued by a question inquired about whether some activities were previously done. The two remaining questions of this sub-part concerning applicants' lacks, aimed at rating their proficiency level in English in the different language skills and whether they were tested on assessing one or all those skills.

Paving the way to examining the respondents' wants to know exactly what their needs are and what they wanted to be really done in their current instruction and thus, helping the researcher to recognize what should be done afterwards (when designing the course). Multiple choice questions sought information about what they wanted to study English for, rating after on the usefulness of some types of class works. Related to the teaching of the reading skill which is a key element in the study, an inquiry about the skills they wanted their teacher to focus on during her teaching seems necessary. She looked for their strength and weaknesses in reading as well as the most favourite sub-skills of reading to be used.

The third part of the questionnaire dealt with the applicants' attitudes towards the integration of web-retrieved materials aiming to provide an answer to the second and third research questions. The objectives of each question are stated below.

Question 20: sought information about the way they wanted instructional materials to be delivered by selecting one or multiple choices.

Question 21: inquired about the types of materials that should be included in the instruction by selecting one or multiple choices too.

Question 22: graded their agreement or disagreement on integrating web-retrieved materials in the reading skill instruction and thus aimed to know clearly their attitudes and opinions on such an instruction.

Question 23: also graded their agreement or disagreement on some statements about the integration of such instruction.

Question 24: invited the informants to put forward some suggestions to make the English course more effective aiming to improve the ESP teaching/ learning situation.

To better understand the current situation, another instrument of research was designed which is the teachers' interview.

3.3.4.2. Teachers' Interview

The present research used a structured interview (Appendix B) and Mackay (qtd. in Jordan 2005: 34) strongly favours this method of gathering information, stating 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 allows the investigator to gain further precisions and clarifications from the respondents. Broadly speaking, interviews are often used "when we want to investigate people's views, attitudes, experience etc., in depth" (Wallace, 1998: 151). The advantageous side of interviews is their flexibility since if the respondents encounter problems with the questions; the latter can be explained to them. Moreover, Wallace claims that "if the structure of the interview is sufficiently loose, sometimes unexpected avenues of investigation can be explored."

Successful interviewing can be considered as an art to interview people efficiently. The interviewer needs "to establish and maintain good rapport to be able to control the pace and direction of the conversation as needed, and to know how to follow up important issues" (Johnson, 1992: 88). In addition, this instrument is a fixed format interview in which all questions are prepared in advance and are put in the same order to each interviewee.

In order to know the ESP teachers' points of view on the integration of web-retrieved materials in teaching the reading skill for ESP students, the researcher has chosen the structured interview because it ensures that participants have similar chances to provide information and are assessed accurately and consistently. It was conducted after a preliminary analysis of the students' questionnaire results since it was necessary for NA. There were areas in the questionnaire results which needed explanation, so the interview filled the gap by providing further explanation and allowing triangulation. The interview turns around the three research questions. All the participants teach ESP and each teacher has his own method of teaching and his own point of view about students' needs.

Eleven teachers were interviewed. They teach ESP to students of different specialities (Biology, Economics, Politics, Civil Engineering, Electrical engineering and so on). The researcher explained the purpose of the structured interview in identifying their use of ICT and web-retrieved materials in their teaching practice especially with ESP students as well as their strategies in teaching the reading skill. Then, she explained how it would be conducted. Teachers were reminded that their

responses would remain confidential. The language of the interview was English. The structured interview was composed of two rubrics in addition to the teachers' profile (Appendix B): Needs Analysis (necessities) and Present Teaching.

After examining the teachers' profile and background, the researcher divided the structured interview into three parts: The first one is concerned with a needs analysis. Though the researcher designed this instrument of research for teachers who have taught ESP, she confirmed by the first question about whether they taught it or not. The second question dealt with the time allocated for teaching English and its sufficiency to raise students' proficiency level in the language meanwhile the researcher wanted to inquire about this to know time adequacy for the current course design. It was followed by an inquiry about the implementation of a needs analysis survey in order to design their courses. Then came time to ask about Internet availability in their University with a good or bad connection if it was offered as well as what they used the Internet for at University giving them the choice between a group of items. This question is highly related to the purpose of the study on designing courses using Internet. In fact, all the questions of the first part are close ones since the respondents had to answer by yes or no.

The second rubric of the structured interview is related to the respondents' present teaching of reading. It is first composed of a key question about the focus on the reading skill in their teaching. The next question which is related to the reading strategies implemented as well as the frequency of using them. This question seems so important since the investigator used them in her experiment; followed by an open question about the materials used to adopt those strategies. The purpose after the questions of this rubric helped the researcher to investigate the methods and strategies that should be taken on as well as the materials needed to do so.

The third rubric which is considered as the key stone of the present study since it deals with an inquiry about the teachers' attitudes towards the integration of web-retrieved materials in teaching ESP in general and in designing their courses in particular. Because of the paramount importance of this rubric to provide answers to

the research questions, it contains the biggest amount of questions, both close and open so as to have a clear idea about the current situation. The researcher introduces this part of the survey by asking questions about the availability of personal computers and the time of their occurrence as well as rating their computer proficiency. These questions aim mainly to know the interest of the applicants for new technologies. An open-close question followed by ticking on the available ICT tools in their University and stated others if existed. The next question of whether they used the tools mentioned in the previous question was followed by a series of five other questions if the answer was positive, that is to say, they confirmed using all or some of them. To know about the tools (previously dealt with) used in their teaching and the frequency of using them, the researcher asked an open then a close question. In addition to the inquiry about their computer proficiency earlier, another question about their ability to use ICT tools and the manner they learned to use them seemed necessary. This leads to an attempt to generalize the investigation.

Keeping concerned with the third rubric which is the longest and the most important for the study under investigation, the researcher asked a question about what they used ICT for, providing a selection of choices and individual proposals. By this question, the investigator wanted, indeed, to know if ICT was used to design their course without needing a connection in the classroom, or rather used to be practiced in the classroom with access of Internet. After the five replies following the question asked previously about whether they used some listed tools or not came turn of the negative answer about not using those tools followed by a rely on Internet in the design of teaching materials. On the same line of a positive reply came three other questions to examine the frequency of using Internet in designing courses, selecting the criteria for choosing web-based materials or even proposing others not offered and finally to have an idea on the websites used which may help the researcher in her investigation.

Furthermore, relying on the frequent use of e-mails as a means of communication between teachers as well as between students and their instructors, the researcher wanted to confirm if they used e-mails in sending activities or texts to their students.

The adoption of platforms to design courses online on the University site was also asked for. The last two questions of this rubric of the structured interview with ESP teachers were open. One aiming at exploring the difficulties faced when using ICT at a tertiary level which seems of a key utility for the researcher to answer the third research question. The other one and also the last one aimed at collecting some opinions on the advantages of effective integration of ICT at University level.

As a whole, the purpose of this instrument of research within all the questions involved is to find answers to the research questions on which the current study is based. In addition, in order to know the feasibility of the current course, the researcher used another kind of instrumentation which is represented in the pre- and post- tests.

3.3.4.3. Tests

In order to test the fourth research hypothesis and the feasibility of the course designed, the researcher prepared and administered 2 tests (a pre-test before starting the course under investigation and a post-test after implementing the course). In fact, a test in general is “a measurement to sample behaviour in that a teacher tests a limited sample and then generalizes from the results; however, an assessment of linguistic competence should not be regarded as a precise instrument like a ruler or scale that measures weight or length, because it is very difficult to measure competence accurately” (Kilfoil and Van der Walt, 1997 qtd. in Mebarki, 2008: 102).

Using tests by researchers is considered as a powerful method of data collection and aimed at gathering data of a numerical rather than verbal kind. In considering testing for gathering research data, several issues need to be considered as stated by Cohen et al. (2007: 414):

- What are we testing?
- Are we dealing with parametric or nonparametric tests?
- Are they norm-referenced or criterion referenced?

- Are they available commercially for researchers to use or will researchers have to develop home produced tests?
- Do the test scores derive from a pretest and post-test in the experimental method?
- Are they group or individual tests?
- Do they involve self-reporting or are they administered tests?

Through the pre- and post-tests, the researcher wanted to assess her students' English proficiency level and their development particularly in the reading skill dealing with parametric tests, i.e., using parameters related to reading. The tests are also norm-referenced to TOEIC exams but adapted to the students under investigation. In addition, their scores derived from the pre-test and post-test used in the experimental method she used. In fact, the candidates are a group of 2nd year Master's students in EIE performing such tests which are self-reporting for the researcher.

All the questions mentioned by Cohen et al. (2007: 418) are asked by the researchers in order to undertake a test and then the researcher proceeds in planning a test as such:

- 1 Identify the purposes of the test.
- 2 Identify the test specifications.
- 3 Select the contents of the test.
- 4 Consider the form of the test.
- 5 Write the test item.
- 6 Consider the layout of the test.
- 7 Consider the timing of the test.
- 8 Plan the scoring of the test.

Concerning the tests designed by the current researcher, the purpose of the pre-test was to evaluate EIE students' English proficiency level particularly in reading and that of the post- test was to measure their progress or regress after the course

implementation. Indeed, those tests assess reading involving some grammatical activities that supported that skill. The content of the tests was based on TOEIC tests in structure including the students' area of study which is Electronic and Instrumentation Engineering. She considered the form, the layout and the timing of the tests and then planned the scoring on a scale of 20.

In fact, the three following kinds of tests are so important in language learning: proficiency, diagnostic and achievement tests. A proficiency test measures the level of a skill in language considered as necessary for entry in a particular class or level. A diagnosis test aims at measuring the learners' strengths and weaknesses which in order to remedy. As for an achievement test, it aims at assessing a specific knowledge which is assumed to have been learnt. It reveals weaknesses and tests underlying competence, so its results can lead to remedial work or be used to predict future performance.

The focus in this research is on a proficiency test as a pre-test and an achievement test as a post-test because they are the type of tests needed within the scope of this study, i.e. assessing the reading comprehension level of the students through the integration of web-based activities and relating test results with other results obtained from the other two other research methods used in the study, namely teachers' interview and students' questionnaire.

As explained in chapter 5, both tests are adapted from a TOEIC exam sample making them extremely related to the respondents' field of study, focusing on the reading skill, introducing a grammar activity since it is important for EST students as shown in the review of literature (chapter 1). These tests are nearly similar in terms of form as well as level of difficulty. However, the post-test is deeper in content since it was given to the respondents after the accomplishment of the course under question and the grammar dealt with in the post-test was already taught in that course. Both of them are divided into 4 parts:

- Incomplete sentence, i.e., filling the gaps in sentences related to the field of EEE.
- Text completion, concerned with completing texts taking into account the whole meaning of the text and so test comprehension.
- Reading Comprehension included comprehension questions to be answered following the meaning of the whole text.
- Grammatical activities tested some grammatical structures already taught in the current course (post-test)

Above all and following the way the TOEIC exams are designed, each answer in each part is selected from a choice between four different items, to test comprehension. In fact, the construction and administration of tests is an essential part of the experimental model of research, where a pre-test and a post-test have to be devised. It is also important to mention the procedure by which the data were collected.

3.3.5. Data Collection Procedure

The problem of collecting the relevant data is the central methodological question for any research. Given the description of the different elements of research, this part presents the procedure in the administration of instruments. Data collection is a term used to describe the process of gathering information. Both qualitative and quantitative data are drawn from the students' questionnaire, the teacher interview and the experiment tests. The Questionnaire and the experiment tests are used for mostly quantitative purposes. The structured interview, on the other hand, is used to elicit both qualitative and quantitative data. Then, triangulation is done by cross-checking information from the three instruments of research.

3.3.5.1. Piloting the study

The term “pilot study” refers to a mini version of a full-scale study, as well as the specific pre-testing of a particular instrument such as a questionnaire or an interview. It is often used to test the design of the full-scale study which, then, can be adjusted. Pilot studies are a crucial element of a good study design.

In fact, the term “pilot study” is used in two different ways in Social Science research. It can refer to the so-called feasibility studies which are “small scale version [s] done in preparation for the major study” (Polit et al., 2001: 467). A pilot study can also be the pre-testing or ‘trying out’ of a particular research instrument (Baker, 1994: 182-3).

Like any other data-gathering instrument, questionnaires should be piloted. Ideally, questionnaires should be tried out on groups who are similar to those who will form the population in the study. The aim behind piloting questionnaires is to check that all questions and instructions are clear, and to identify and detect any ambiguities and misunderstandings and then revise them and remove any items that do not correspond to data.

Before distributing the questionnaires to the target group, the researcher piloted the instrument with three students from the same department from a different speciality which is Industrial Automatic Computer Engineering. In order to investigate potential areas for further investigation, a preliminary questionnaire was administered to three students from 2nd year Master Industrial Automatic Computer Engineering one week before the administration of the survey questionnaire to check the usability of the questionnaire items. Confusing or misleading items were eliminated from the questionnaire.

The naming of some web materials in English seemed difficult to grasp. That is why, the researcher decided to assist and take a moment with the participants in class and clarify what should be done so as to have credible results.

3.3.5.2. The study Proper

After piloting the study, a planning was necessary to collect data rapidly. The researcher administered the three research instruments: The students' questionnaire, the teachers' interview and the experiment tests.

a- Administering the Questionnaire

The questionnaire was distributed to 30 second year Master's students enrolled in Electronic Instrumentation Engineering in order to identify the needs of those students in learning the English language in general and the reading skill in particular and more importantly to know their attitudes towards integrating web-retrieved materials in teaching reading.

The researcher explained and clarified the purpose of the research to the participants before questionnaire distribution. When needed, the questionnaire was worded in simple terms in French, to ensure comprehension. Respondents were reminded that their participation will be kept confidential and used for research purposes only. The researcher stayed with the participants until they finished completing the questionnaire since she implemented the experiment (the course) by herself. She was their teacher during the whole semester of experimentation. Thus, she intervened from time to time in order to be sure that everything is clear, considering any confusion or ambiguity.

b- Administering the experiment tests

Before administering the tests, the students were given several instructions as regard to how to sit during the tests. They were reminded to work independently. The students were also briefed on how to answer the questions. Approximately ten minutes were given to the students to go through the test paper and to raise any question pertaining to the tests.

During her process of teaching the target group of students, the researcher in the beginning of her experimentation administered the pre-test to the applicants explaining any misunderstanding and explained its purpose which is to assess their English proficiency level and made them feeling at ease clarifying that it will not be counted as an official exam, especially since it was the first time they met the investigator. She followed the progress of those students during the whole period of experimentation through activities and mainly Web-quests as home works. Finally, at the end of the investigation, she administered the post-test but with less explanation since they became familiar with such form of tests in addition to their self-confidence after dealing with the researcher when attending to lectures. However, the post-test was undertaken as their final exam. This was beneficial for dealing with the test more seriously without forgetting the problem of stress and anxiety among some students during exams.

c- Administering the teachers' Interview

The structured interview was conducted with English teachers separately. The researcher explained the purpose of the study as well as the interview. The first rubric of the interview was clear and needed no clarification. The second rubric was also completed with no difficulty since they were generally answering by yes, no or to select the appropriate item. The answers were noted.

3.3.6. Data Analysis Procedure

The data collected in the present study was of two types: quantitative and qualitative. The most obvious distinction between the two sorts of data is that the former deals with numbers and usually employs statistical techniques, whereas qualitative data do not, or only to some extent. For instance, if one is to count, calculate percentages and use statistical analysis, one must have data that are amenable to these procedures. As a result, quantitative research typically employs what are usually referred to as structured forms of data.

3.3.6.1. Quantitative Analysis

Quantitative research methods have been the most commonly employed methods in education research. Dörnyei (2001c: 192) defines quantitative research as follows:

[Quantitative research] employs categories, viewpoints and models as precisely defined by the researcher in advance as possible, and numerical or directly quantifiable data are collected to determine the relationship between these categories, to test research hypotheses and to enhance the aggregation of knowledge.

Quantitative analyses were highly used to analyse the students' questionnaire, when dealing with closed questions. Such as how many hours of English a week they were enough for them, or whether previous courses helped to develop particular skills. These quantitative methods were also employed to analyse the structured interview's questions, especially in the first rubric, concerning the teachers' profiles and the needs analysis. They were also needed to count differences in students' scores between the pre-test and post-test. The data were summarized in tables where the numerical data were transformed to percentages in order to compare numbers.

3.3.6.2 Qualitative Analysis

A main difference between quantitative and qualitative methods is that the latter focus on the participants' rather than the researcher's interpretations and priorities. Thus, qualitative methods can be more contextually sensitive than quantitative ones because researchers do not set out to test defined hypotheses; rather, they tend to define analytic categories only during the process of research. Qualitative methods exclude the collection of numerical data in favour of natural data in the form of researchers' field notes, participants' verbalization of their experience (e.g., interviews or answers to open-ended items in questionnaires).

The analysis of these data consists of discovering meaningful themes and patterns. Consequently, researchers can learn about students' attitudes towards the integration of web-based instruction and in giving suggestions about effective engineering English course. From such suggestions, it is possible to modify, and create activities to cater to their students' specific needs. With their potential for dealing with rich and varied data, qualitative research methods accompanied by interpretation can lead to uncovering the structure of events when the meanings and perspectives of individuals are important. In qualitative research, analysis often takes place at the same time and in relation with data collection. For analyzing the qualitative part of the data, a content analysis method was used. In analysis process, the interviewees' responses (teachers) and part of teachers' responses were analyzed in terms of themes related to the study objectives.

Neither qualitative nor quantitative research is better than the other, they are just different. Both have their strengths and weaknesses. Quantitative research methods were used when dealing with close questions in the students' questionnaires. When analysing the structured interviews, qualitative methods were partly employed.

In fact, quantitative analysis is used to analyze the three research instruments used by the researcher in this study whereas quantitative analysis is used to analyze parts in the students' questionnaire and teachers' interview.

3.3.6.3 Triangulation

The term 'triangulation' is used when a combination of qualitative and quantitative forms of inquiry is used. Triangulation of the data produced by different research methods is thought to be a simple and common form of combining methods. This combination of methods is clarified by Gorard and Taylor (2004: 47) and shown in this figure:

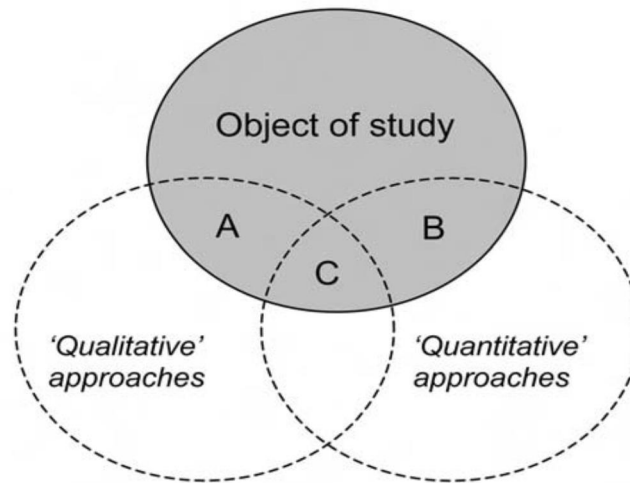


Figure 3.8. A complementary combination of approaches

Gorard and Taylor (2004: 47)

Accordingly, to Dawson (2002: 20) states that:

Various reasons have been advanced for the use of combined methods triangulation, including increasing the concurrent, convergent and construct validity of research, the ability to enhance the trustworthiness of an analysis by a fuller, more rounded account, reducing bias, compensating for the weakness of one method through the strength of another, and in testing hypotheses.

All instruments of research used in data collection involved in this study are generated within triangulation.

3.4. Conclusion

In this chapter, the researcher started by providing an overall description of the ESP teaching/ learning situation in the Department of Electrical and Electronic Engineering in the Faculty of Technology (University of Tlemcen). She dealt with an overall description of the principal ESP teaching/ learning situations in the LMD system.

The purpose of this chapter is to allow readers to evaluate both the appropriateness of the methods used in this study and the reliability and validity of the results and also to maximize valid answers to research questions. To achieve these aims, the researcher discussed some key methodological issues and considerations concerning the research design of this investigation before she presented the research design itself. Then, she introduced the methods that were used, described the participants and the research sites, explained the processes used to create the instruments specially designed for this research, and summarized the data collection procedures. Finally, she outlined the approaches used to analyze the data.

It is necessary for a researcher to design a methodology for the problem chosen. One should note that even if the method considered in two problems are the same the methodology may differ. It is important for the researcher to know not only the research methods necessary for the research undertaken but also the methodology.

CHAPTER FOUR

CHAPTER FOUR**Needs Analysis**

4.1. Introduction

4.2. Qualitative and Quantitative Data

4. 3. Students' Questionnaire

4.3.1. Students' Profile

4.3.2. Needs Analysis

4.3.2.1. Necessities

4.3.2.2. Lacks

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4.4. Teachers' Interview

4.4.1. Teachers' Profile

4.4.2. Needs Analysis

4.4.3. Present Teaching of ESP

4.4.4. Attitudes towards the Integration of web-retrieved materials in teaching ESP

4.5. Discussion and Interpretation of the Main Results

4.6. Conclusion

4.1. Introduction

An *English for Engineering* course designed using web-retrieved materials is likely to be more effective if a needs analysis questionnaire is undertaken to identify the students' needs and then to explore both teachers' and students' attitudes towards the integration of web-based materials in teaching reading. That is why; it seems necessary to analyze students' present and future needs reviewing the existing English for engineering courses and design courses based on the findings of the needs assessment.

In order to test the three first research hypotheses, two means of data collection were used, a students' questionnaire to tap into students' needs and expectations on the English course and a teachers' interview to explore the teachers' attitudes and perceptions towards the integration of web-retrieved materials in teaching reading. To do so, this chapter seeks to analyze the data resulting from two instruments of research which were undertaken qualitatively and quantitatively and finally discuss and interpret the findings that may be followed by suggesting answers to the three first research questions.

4.2. Qualitative and Quantitative Data

Research is a careful and detailed study in which a specific problem or issue is raised and it is best accomplished by turning the issue into questions. The main concern is on the research methodology adopted in order to undertake a research which means according to Leedy and Ormrod (2001: 14) “the general approach the researcher takes in carrying out the research project”. To do so, the researcher adopted a case study as well as an experimental one using in her analysis of data both qualitative and quantitative approaches.

Generally speaking, researchers use the qualitative approach to search for the behaviour, perspectives, experiences and feelings of people and highlight the understanding of these elements. Parahoo (1997:59) states that the qualitative approach focuses on the experiences of people stressing on the individuals as different. In the same vein, Holloway and Wheeler (2002:30) refer to it as “a form of social enquiry that focuses on the way people interpret and make sense of their experience and the world in which they live”. Similarly and indicating the point of subjectivity in this kind of research methodology, Burns and Grove (2003:19) describe it as “a systematic subjective approach used to describe life experiences and situations to give them meaning”. That is why, it is agreed that complete objectivity is impossible and qualitative methodology is not completely precise because human beings do not always act logically or predictably (Holloway and Wheeler 2002:3).

On the other side, a quantitative research can be used in response to relational questions of variables within the research. “Quantitative researchers seek explanations and predictions that will generate to other persons and places. The intent is to establish, confirm, or validate relationships and to develop generalizations that contribute to theory” (Leedy and Ormrod, 2001: 102). Quantitative research starts with a problem statement and involves the formation of a hypothesis, a literature review, and a quantitative data analysis. Creswell (2003: 18) states that quantitative research “employs strategies of inquiry such as experimental and surveys, and collects data on predetermined instruments that yield statistical data”. The findings from quantitative research can be analytical, descriptive, and confirming. In other words, quantitative

research includes the collection of data so that information can be quantified and subjected to statistical treatment in order to support or refute “alternate knowledge claims” (Creswell, 2003: 153).

As a whole, quantitative and qualitative research methods study the different claims to knowledge and both methods are designed to address a specific type of research question. While the quantitative method provides an amount of reality objectively, the qualitative method allows the researcher to explore the complexity of a phenomenon. Consequently data are analyzed both quantitatively and qualitatively through the students’ questionnaire and the teachers’ interview.

4. 3. Students’ Questionnaire

It is agreed that questionnaires help the researchers to gather reliable and valid data in a short time as stated by Anderson (1990: 207). That is why; the researcher opted for using such type of instrumentation to gather data related to the study in question. She aimed through this research instrument to investigate the engineering students’ needs in general and the sample population’s needs in particular as well as to identify their attitudes toward the integration of web-retrieved materials particularly in the reading instruction. She distributed 30 questionnaires to students in the 2nd year Master in Electronic Instrumentation Engineering in order to find answers to the research questions. In fact, she designed a survey composed of 24 questions: open, close and open-close. Apart from the students’ profile section of the questionnaire; she divided it into two other rubrics. She started by collecting data on the profile of target group of students, keeping in mind that they were the same group of students on which the researcher undertook her experiment.

4.3.1. Students’ Profile

This part aims to draw the students profile and so provide information on the target group in relation to their age, gender, level of study, as well as the department and university where they acquire instruction. They all belong to the Department of Electrical and Electronic Engineering in the University of Tlemcen. The group of students is composed of males and females. They are aged between 22 and 27 years

old and the majority are either 24 or 26 and this proves that they are adult students who are normally aware of the importance of English for their studies, especially since they will soon graduate and approach the doctorate stage. Their varied ages are represented in the following figure:

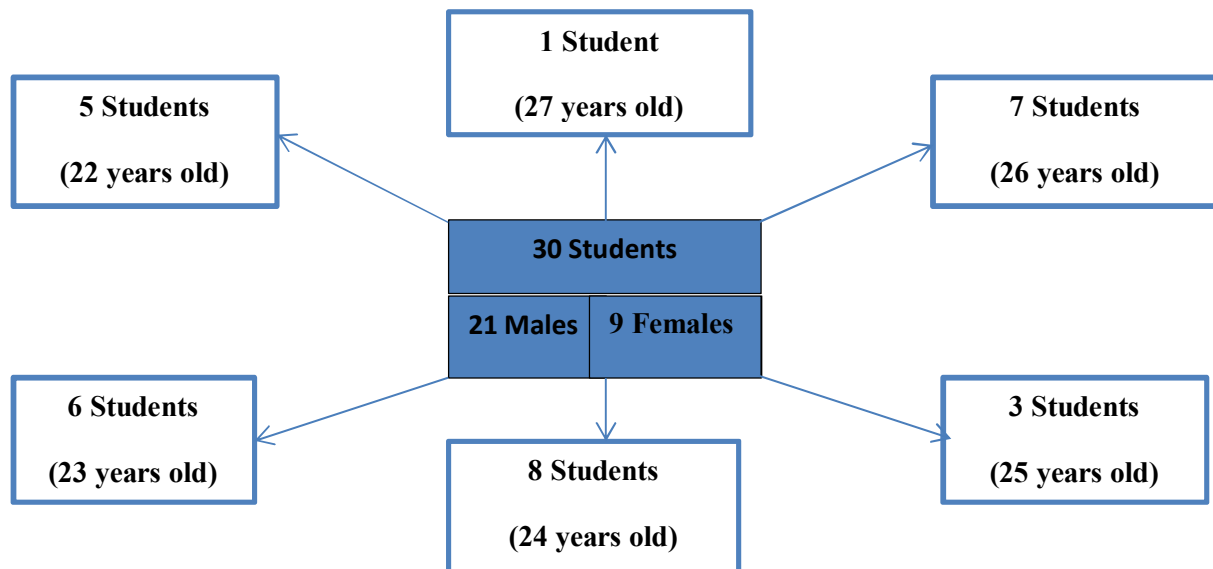


Figure 4.1. Students' Profile

The following rubric of the questionnaire is concerned with NA.

4.3.2. Needs Analysis

This rubric purpose is to recognize the needs of the sample so that the researcher would be able to design the appropriate course that suits their necessities, wants and lacks. More importantly, this part aims at showing the place and the importance as well as the necessity of the reading skill for those students since the investigation relies on the practice of this language skill. In fact, this model of needs analysis follows the one of Hutchinson and Waters (1987, see section 1.3.7.2). Therefore, the questionnaire contained 3 parts of NA: necessities, lacks and wants.

4.3.2.1. Necessities

This part of the questionnaire aims at identifying the necessities of EIE students, i.e., what seems necessary for them to be included in their English course.

Question 1: Importance of English for Students' Studies

The first question seeks to know whether English was important for EIE students or not. The researcher found that three of them were not aware of its importance because of their negative reply to the question.

Question 2: Attitudes towards Learning English

The aim of this question is to find out the attitudes of students towards English learning. This question is put to consolidate the first one because to identify the importance of English and the attitudes towards the language is too essential for the researcher to innovate the teaching of reading through web-based learning and on the basis of highly interested students, she could achieve effective results of the current investigation.

When analysing the results of this question, the researcher found that only 16.66% of students replied unfavourably whereas 83.34% of them were favourable to learn English.

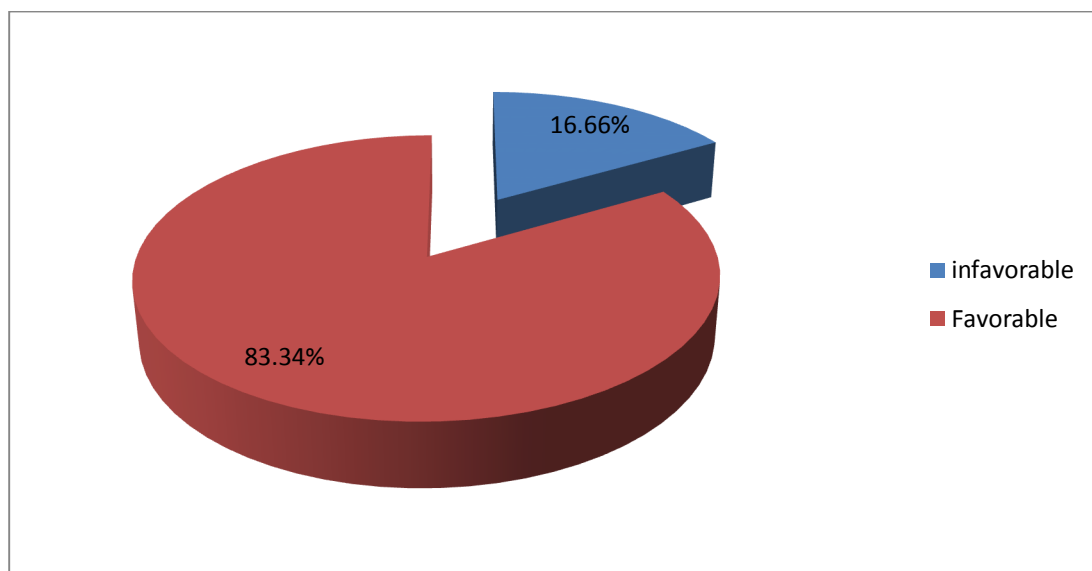


Figure 4. 2. Attitudes towards Learning English

Question 3: Attendance in the English Course

In order to understand the importance of the English course for these students, this question asks them to say whether the attendance in the English course should be obligatory or optional. Most of students (76.66%) answered that attendance in English course should be obligatory while only 23.33% of them said that the attendance should be optional. Stating that attendance should be obligatory raises indeed the importance of the English course as well as their awareness of this. The following figure illustrates the findings:

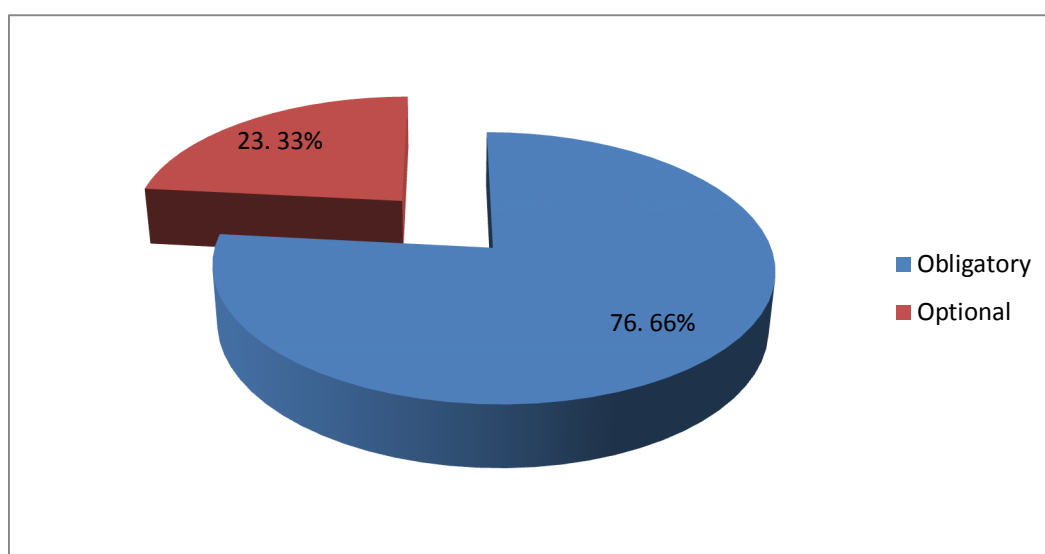


Figure 4.3. Attendance in the English Course

Question 4: Content Area

Though the researcher knows that the group under study belongs to the Electronic Instrumentation Engineering field and their content area would be engineering, she wants to be sure that there would be no other content areas. The results after analyses proved that all students agreed that the content area would be engineering. This means that English for engineering should be the focus of the investigator when designing the course since it is seen in the review of literature related to ESP that the course should be based on the content area of the learners.

Question 5: Immediate Purposes for Learning English

This question intends to know the immediate purposes of the sample population for learning English. Aiming at illustrating their immediate purposes means their instant purposes that are necessary for them to be achieved.

Table 4.1. Immediate Purpose for Learning English

Immediate Purposes	AF	RF
Study	19	63.33%
Study abroad	9	30%
Research	19	63.33%
Travelling	16	53.33%
Job	14	45.46%
Other	8	26.66%

- AF: Absolute Frequency
- RF: Relative Frequency

From the results presented in the table above, it is clear that the purposes for learning English were varied and different. The main purpose taken into account by students was to learn English for studies as well as research. The percentage of 63.33% illustrated this fact followed by 53.33% of students who stated that they needed to learn English for travelling; many of them recognized the importance of English when travelling. On the other side, 45.46% of them highlighted their immediate purpose of learning in acquiring a job later on or even when working. Learning English to study abroad was somewhat shown by 30% of students. At last, 26.66% of them which is the lowest percentage stated that learning English would help them for achieving other purposes but those purposes were not clarified.

Question 6: Instances of English Use

This question, indeed, consolidates the previous one inquiring about when they used English. The aim was to know their present use of English. The table below shows the finding of this question's analysis:

Table 4.2. Reasons after using English

Using English	AF	RF
Studying	24	80%
Socializing	19	63.33%
At home	4	13.33%
Other	9	30%

Though the questionnaire was piloted and enough time was taken to clarify ambiguities or misunderstanding, still some students did not grasp well the meaning of some questions, here the use of English for studying. In this case, students do not make the difference between using English to study and using English to bring information from different sources which is the real meaning of the inquiry. Some of them thought that the meaning of the question was using English as a medium of instruction for studying.

Only four students stated that they used English at home. Some of them (30%) specified that they used the language for other reasons. Though the researcher explained when administering the questionnaire that they should mention the reason, no student mentioned the reason except for one who said that he needs English when watching films. Since those students belong to this new generation of e-mails, skype and yahoo, a great amount of them tend to use English when socializing (63.33%), i.e. when chatting and connecting with population speaking English. What is of a key importance for the current study is the use of English for studying. Most of students (80%) agreed that they used English when studying.

As a whole, this sub-rubric of necessities for learning English identified that most of the students were aware of the importance of English for studying and agreed on the fact that attendance in the English course should be obligatory with a favourable attitude towards learning it.

4.3.2.2. Lacks

This part of the questionnaire aims at identifying the lacks of EIE students, i.e., through this sub-rubric of needs analysis part, the investigator aims to analyse the students' present background in order to be able to know what the language lacks are when compared to the needed background (necessities) as stated by Benyelles (2009: 29). Identifying students' lacks (particularly at making emphasis on the skills needed) helps the course designer to decide for the content of the course as well as the needs of engineering students. This part is composed of seven questions that should be answered either by yes or no or by a graded rating answer. They are all close question to be as much precise as possible in determining those lacks.

Question 7: Students' Attitudes towards previous English Courses

This question seeks to know EIE students' attitudes towards the English courses offered in order to initiate a better understanding of the present situation and then trying to ameliorate and change. When analysing the results of this question, the researcher found that the majority of students were satisfied with their previous year English course (70%). Thus, the few remaining (30%), i.e., one third of the sample were not satisfied with what was previously taught. In fact, when the researcher explained the items that were in the questionnaire in this part, she asked them orally about what kind of English course they attended. They replied that it was a course with translation as a main and unique activity. Though, she recognised that most of the students were satisfied of their previous English course, she stayed on the point to bring some changes and innovation to the English course and interpretation of those answers would come later on.

Question 8: The allocated time to the English course

This question aims to examine what EIE students' point of view was about the time allocated to the English course reassuring them that the researcher was not able to make any change in this case in order not to warp the real results by lazy ones. The results revealed that 26.66% of students claimed that they the time allocated to the English course was sufficient to use the language effectively while 73.33% stated their

disappointment. That is to say, most of them stated the time assigned to the English course was not enough to be effective in the language.

Question 9: Amount of hours of English teaching per week

In fact, this question is closely related to question 9 which inquires about the amount of time the students thought was sufficient. More importantly, the answers of both questions should be related. That is to say, if the students thought that time allocated to the English course was sufficient for them, this means that they would answer by stating the same amount of time offered by their university or even less. However, the researcher recognized that even those students who were satisfied with the time given by their institution, 5 of them needed more time to be allocated to the English course in order to be effective in English.

Time required for English effectiveness according to EIE students is shown in the figure below:

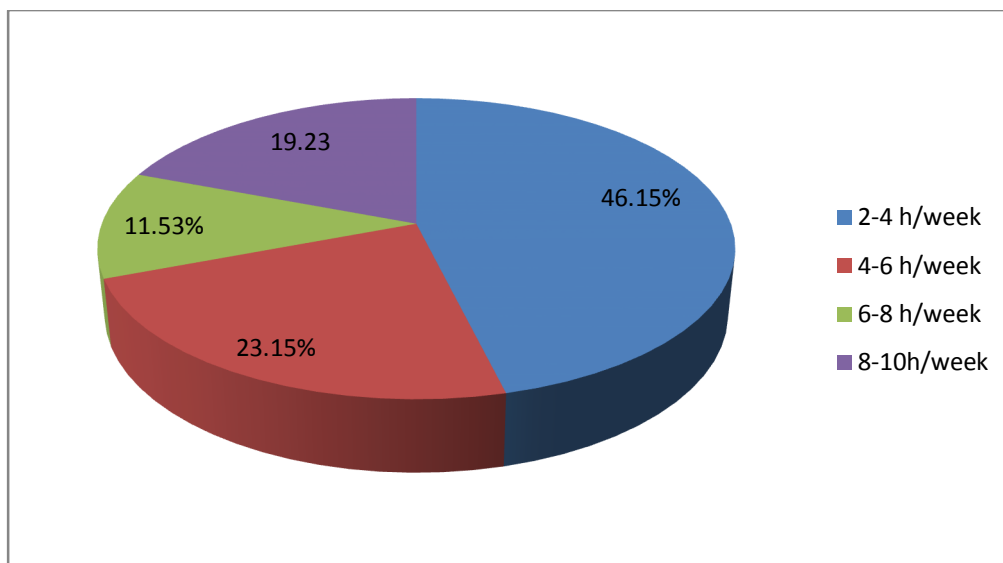


Figure 4.4. Teaching Time according to EIE Students

In fact, this figure shows the responses of 26 students from 30 because 1 of them did not answer the question, 2 maintained the timing administered to them and 1 wanted to study only half an hour of English per week. Most of EIE students (46.15%) claimed from 2 to 4 hours of English per week. 23.15% of them wanted from 4 to 6 hours, 19.23% of them requested from 8 to 10 hours and the remaining (11.53%)

demanded from 6 to 8 hours. Therefore, it is shown that most of students wanted to increase time assigned for the English course suggesting different number of hours per week.

Question 10: Skills Developed

This question seeks to gather information about the skills developed during the previous course of English to know which skills they lacked. The results obtained are shown in Table 4.3.

Table 4.3. Skills Developed

Skills	AF	RF
1 Understanding spoken English	24	80%
2 Developing reading strategies	15	50%
3 Developing writing skills	22	73.33%
4 Developing academic writing skills	4	13.33%
5 Developing study skills	20	66.66%
6 Developing fluency and accuracy	6	20%
7 Increasing English vocabulary	22	73.33%
8 Developing oral presentation skills	9	30%
9 Developing ability to take part in discussions / debates	8	26.66%

According to the results revealed in the table above, most of the students seemed to have abilities in understanding spoken English (80%). For developing reading strategies, half (50%) of the group arrived to develop them while the other half (50%) did not. As far as the writing skill is concerned, only 13.33% seemed to develop the academic writing skills. During the previous course, a great number of them (66.66%) developed study skills and their English vocabulary was increased (73.33%). However, a minority of them (20%) developed fluency and accuracy. What is clearly observed when analysing this question was the fact that most of them understood spoken English (80%) but few of them developed oral presentation skill (30%) and were able to take part in discussion or debates (26.66%). What really interested the

researcher was whether they previously developed their reading skill or not and the answer was that half of them did and this seemed insufficient for her.

Question 11: Learning Activities

In order to know what activities students did during their learning, this question was asked. In fact, this question is composed of 14 kinds of activities which were previously done by students or not as shown in table 4.4 below:

Table 4.4. Kinds of Activities

Activities	AF	RF
1 Reading for information	24	80%
2 Reading for specialist information	23	76.66%
3 Summarizing texts	5	16.66%
4 Writing compositions	8	26.66%
5 Writing reports, technical documents	8	26.66%
6 Listening for general information	14	46.66%
7 Listening for specific information	16	53.33%
8 Watching videos	4	13.33%
9 Discussions/debates	6	20%
10 Role-play	2	6.66%
11 Making presentations	4	13.33%
12 Fulfilling exercises	24	80%
13 Taking tests	30	100%

First, all the respondents claimed that they were taking tests during their previous English course. In addition, activities related to the reading skill were performed either reading for general information or reading for specialist information as stated by most of the students (80%/ 76. 66%) as well as fulfilling exercises (80%). Nearly half of them dealt with listening for general and specific information activities. Regarding writing activities, few of them (26.66%) confirmed that they wrote compositions,

reports and technical documents. Activities as watching videos, discussions and debates, role play or even making presentations were generally not performed previously as stated by the majority of students (table 4.4). Only few (16.66%) of them stated dealing with summarizing texts which is a sub-skill of the reading skill. A qualitative analysis was undertaken on the last item of the question, where students were asked to give other activities and tasks that were done before. Some of the students (40%) mentioned translation and correction of mistakes kinds of activities while only 1 of them revealed that they did grammatical exercises and the remaining (56.66%) added no activity.

Question 12: Assessment of Language skills in Tests and Examinations

As a continuation of the previous question, students were asked about which language skill was assessed during previous tests and examinations in order to know if there was a lack of assessment on particular language skills or not. The aim behind this was to know which skill was focused when evaluation and assessment were taking place.

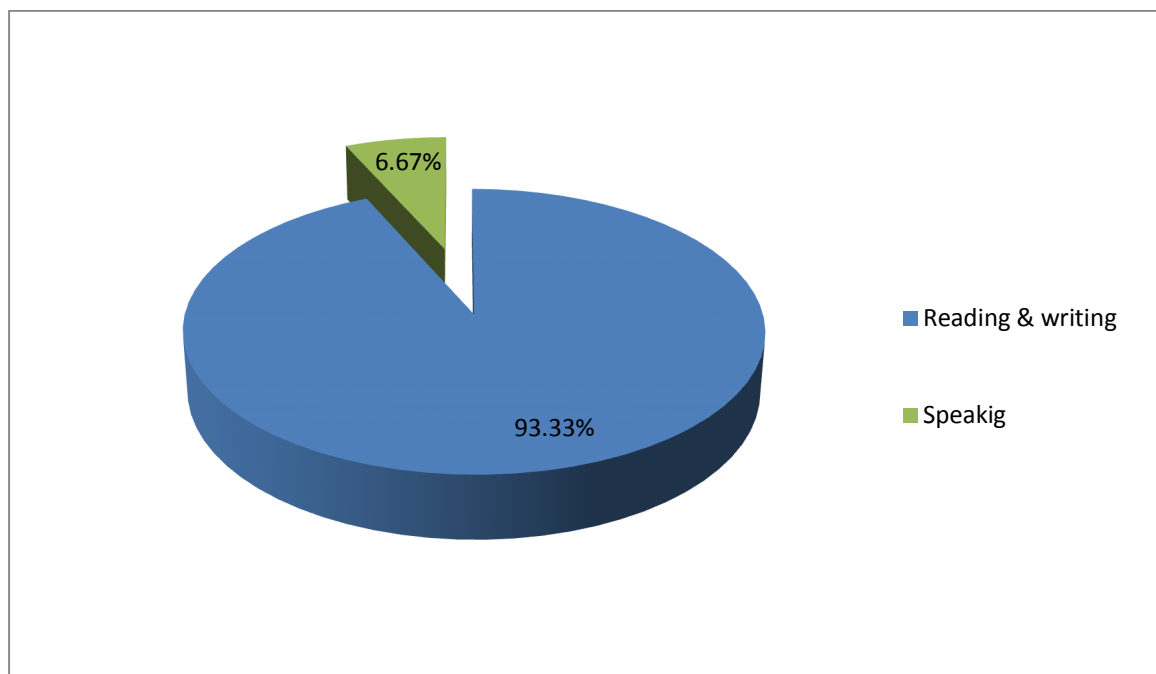


Figure 4.5. Assessment of Language skills in Tests and Examinations

After analysis, results revealed that the majority of students (93.33%) said that they were assessed on reading and writing skills as shown in the figure above (Figure 4.5), a minority (6.67%) stated that they were evaluated on the speaking skill and no one (0%) mentioned the existence of the listening skill in the tests and examinations previously done.

Question 13: Proficiency in Language Skills

This question aims at rating from weak to very good the students' proficiency level in the different language skills.

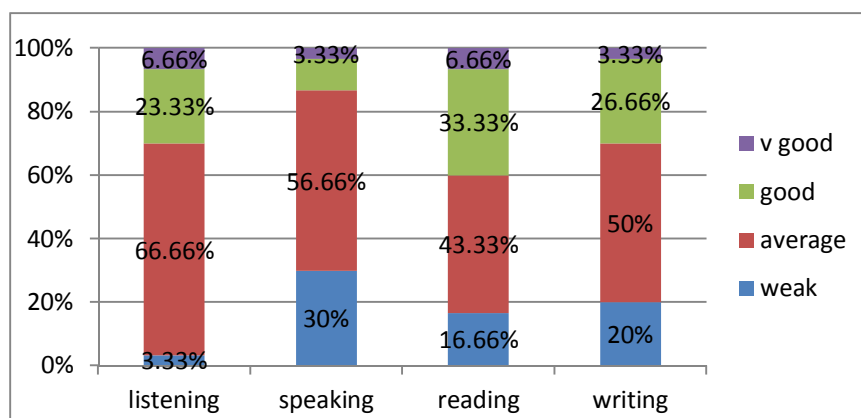


Figure 4.6. Proficiency in Language Skills

Following the bars graph above, it was shown that most of the respondents (66.66%) assessed themselves as average in the listening skill as well as in the speaking skill (56.66%) with a little weak rating (30%). In reading, most of them (76.66%) rated themselves as average and good. Concerning the writing skill, most of them (76.66%) considered themselves as average and good. In fact, the main concern of the researcher from the two preceding questions was to obtain the respondents lacks in reading; first by knowing that the reading skill is highly introduced in tests and exams and secondly that they were generally seen as average or sometimes good in this skill.

In general, the questions related to the identification of the respondents' lacks were a cue to help the researcher to have a clearer idea about her sample population needs to learn English.

4.3.2.3. Wants

“A need does not exist as independent of a person. They are people who build their images of their needs on the basis of data relating to themselves and their environment” (Richterich, 1984: 29). From this citation and from what was stated about wants in the literature review on ESP (chapter 1), the researcher decided to deal with this kind of needs in order to link them with necessities and lacks and to follow a complete needs analysis procedure. In fact, she wanted to know the respondents’ expectations for future English courses. In other words, she aimed to identify their suggestions about what should be dealt with in the English course and with those elements in mind; she would be able to have a clear idea on the course content.

This sub-rubric of the students’ questionnaire is composed of six close questions which will be analysed quantitatively since the respondents had to select the appropriate answer (s) from a list of items.

Question 14: Expectations from studying English

This question seeks to know what students expect to learn in the English course. In the table below, different expectations and wants are stated looking for which one was expected by the students to be dealt with.

Table 4.5. Expectations from studying English

Wants	AF	RF
1 have access to information via Internet	25	83.33%
2 get information from text books, journal	21	70%
3 make presentations at symposiums, conferences, etc.	16	53.33%
4 write projects, reports, proposals, etc.	23	76.66%
5 make summaries	12	40%
6 write business letters, notes, and messages	22	73.33%
7 use English for oral communication	25	83.33%
8 use English for further studies	21	70%
9 get a job abroad	20	66.66%

10 get personal satisfaction	21	70%
11 pass the exam	16	53.33%
12 know terminology in context	21	70%
13 comprehend and analyze texts in context	23	76.66%
14 write coherently in context	23	76.66%

After analysis of the results shown in table 4.5, the researcher found that all the students had different expectations for studying English in various degrees. Most of them (83.33%) wanted to study the language in order to communicate orally. It seemed important for them to be able to communicate fluently and easily. Moreover, a great number of them (76.66%) seemed interested in writing projects, reports, proposals in English. Many of them (76.66%) were also eager to write coherently in context as well as to comprehend and analyse texts in context. In addition, a great part of them (73.33%) aimed to be able to write business letters, notes and messages. Another thing that attracted attention was that 70% of them were satisfied when studying English which is a fact which would later help the investigator when implementing her experimentation. A majority of them (70%) also wanted to get information from textbooks and journals, know terminology in context and use English for further studies. As well, many of them (66.66%) required to study English so as to get a job abroad without forgetting its help to pass exams in English (53.33%). The least number of students (40%) claimed to learn the language to make summaries. It seems from their least interests. At different percentages of respondents, what is obvious is that all of them need to study English for a reason or another. What interested the researcher is her students' wants to have access to information via Internet since she wants to implement a reading course using web-based materials in addition to their desire to comprehend and analyze texts in context. What also attracts the researcher's attention was their want to know terminology in context from textbooks and journals.

Question 15: Type of Class Work

This question was devised to ask the respondents about the type of work introduced in class by rating from useful to not useful and from interesting and enjoyable to not. The results provided after analysis are seen in the following bar graphs:

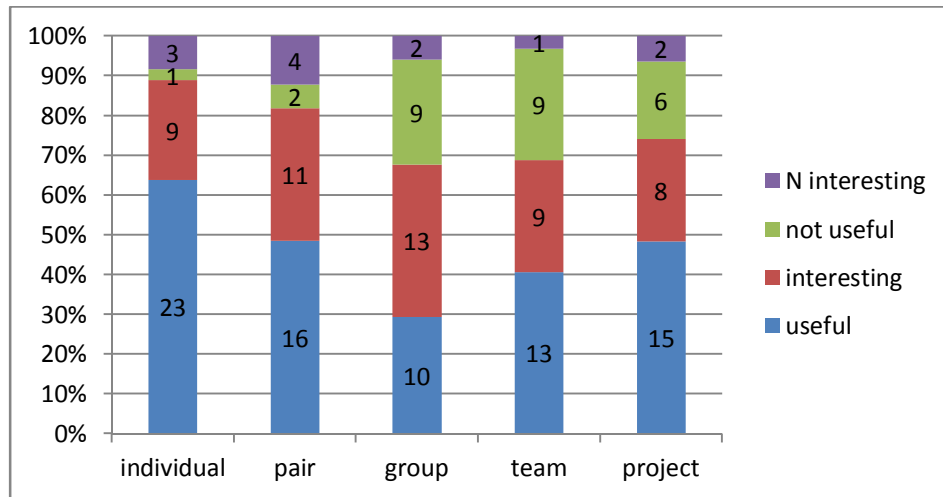


Figure 4.7. Type of Class Work

From the students’ answers, it appears that most of them (76.66%) preferred working individually in class while few of them (33.33%) found group work useful. Team, project and pair works seemed also useful for them (43.33/ 50/ 53.33%). Group work appeared interesting and enjoyable for them. In general, those students seemed preferring individual work with an amount of preference for pair and project works in class.

Question 16: Skills Focus

Regarding which skill they wanted to be focused on, the gathered information is shown in the bars graph below:

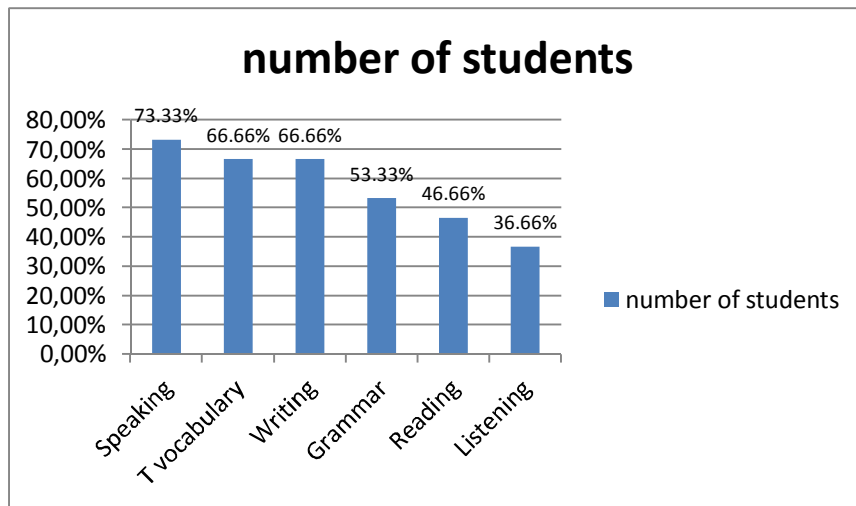


Figure 4.8. Skills Focus

By gradation, students wanted to focus on speaking, writing, technical vocabulary, grammar, reading then listening. What is noticed was that 14 students from 30 desired to focus on the reading skill.

Question 17/18: Strengths and Weaknesses in Reading

Questions 17 and 18 are related because the student who is weak in a particular sub-skill of reading cannot be strong in the same skill. Thus, each answer completes the other.

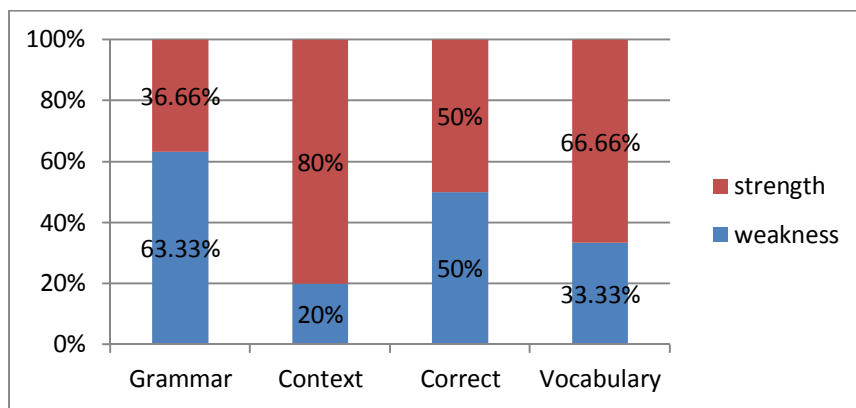


Figure 4.9. Strengths and Weaknesses in Reading

- Grammar stands for reading with grammatical correctness
- Context stands for reading in context
- Correct stands for reading correctly
- Vocabulary stands for understanding vocabulary in context

According to the results obtained from students' responses shown in the figure above, most students (80%) felt themselves strong in reading in context. 66.66% of students stated that they were strong in understanding vocabulary in context. In addition, half of them (50%) found themselves strong whereas the other half weak in reading correctly. However, the least amount of strength (36.66%) was on reading with grammatical correctness.

Question 19: Sub-skills of Reading

This question seeks to identify the sub-skills of reading which the respondents wanted to use in their English course.

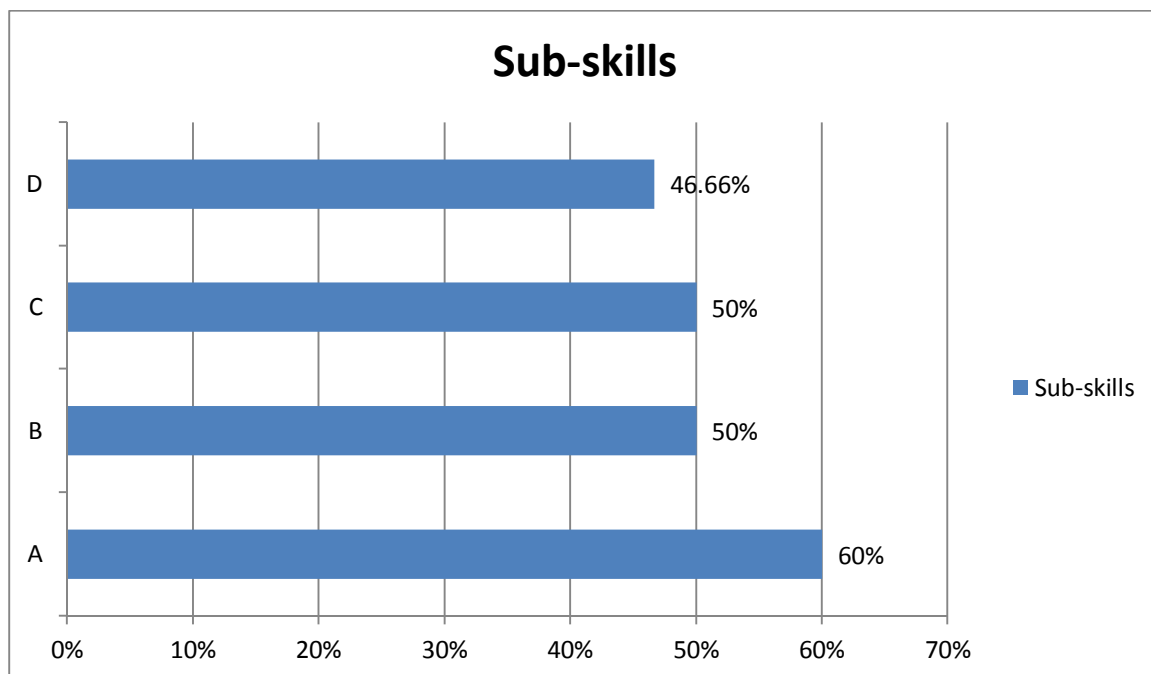


Figure 4.10. Sub-skills of Reading

- A stands for reading textbooks and course handouts
- B stands for reading technical articles in journals
- C stands for reading study notes and texts on Internet
- D stands for reading technical manuals

After analysis of their answers to this question, it seemed that they wanted to use all of the sub-skills mentioned since most of them (60%) wanted to perform abilities in reading textbooks and course handouts and half of them (50%) wanted to be skilful in reading technical articles in journals and study notes and texts on Internet. However, less than the half (46.66%) desired to read technical manuals.

Consequently, by analysing the necessities, lacks and wants of the sample population, the researcher could have a clear idea about the target situation and determine the students' English language needs especially in reading and thus provide an answer to the first research question.

4.3.3. Attitudes towards the Integration of Web-retrieved Materials

This rubric of the students' questionnaire is concerned with the informants' attitudes towards the integration of web-retrieved materials in their learning of English. The information gathered from this part will help the investigator to provide a basis for the design of the teaching materials that will be proposed and tested during the experimentation. This part is composed of five questions, four cloze and one open.

Question20: Delivery of Instructional Materials

This question aims to know how students perceive the instructional materials to be delivered. The findings are clearly illustrated in the figure below:

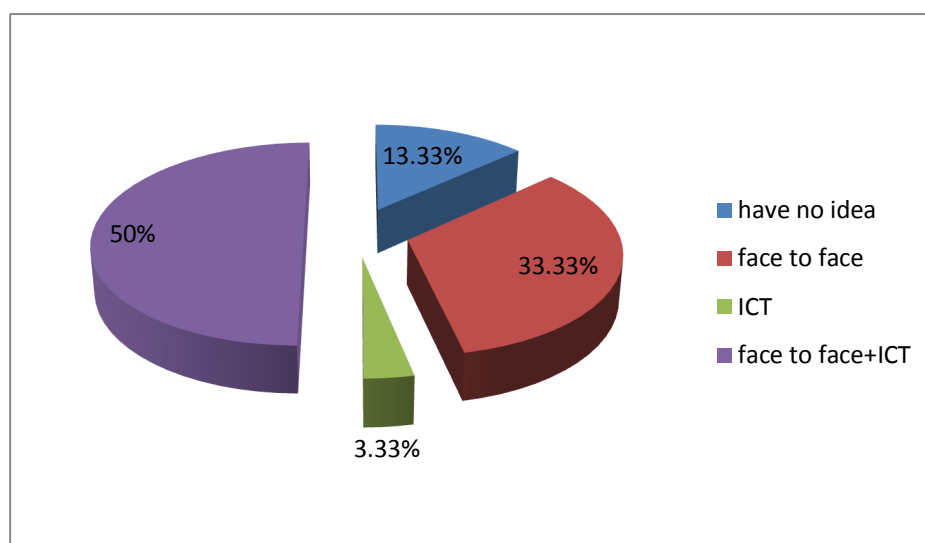


Figure 4.11. Instructional Materials Delivery

The results obtained showed that half of them (50%) wanted instructional materials to be delivered not only face to face but also using Internet and multimedia presentations. Some of them (33.33%) wanted the instruction to be traditionally face to face while few of them (13.33%) stated that they had no idea so they suggested no way of instructional materials delivery. The remaining student of the group claimed to have an on-line and multimedia based instruction.

Question 21: Types of Materials

This question deals with the types of materials that should be included in the English course. The figure below illustrates a better understanding of this question results.

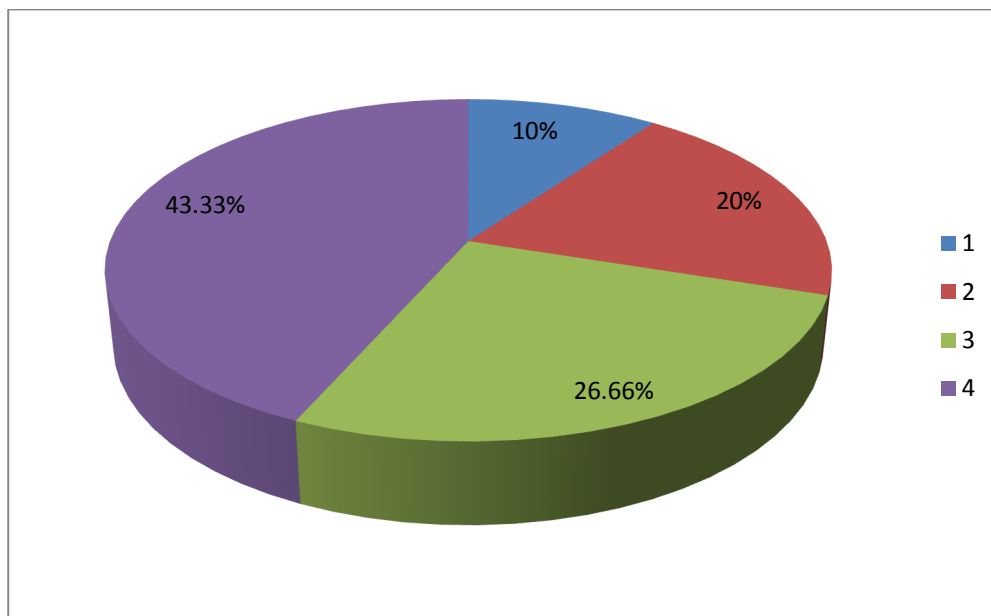


Figure 4.12. Types of Materials

- 1 stands for Textbooks, instruction/equipment manuals, CDs, DVDs, videotapes, and other materials used in content courses or to train people for a job.
- 2 stands for Materials used in the work place, such as work forms, charts and samples of relevant course assignments and student papers.
- 3 stands for Materials from websites like emails, reading sites, web-quests, etc.
- 4 stands for a combination of all of these.

The least number of them (10%) stated that their English course should include textbooks, instruction/equipment manuals, CDs, DVDs, videotapes, and other materials used in content courses or to train people for a job. A bigger number of students (20%) wanted materials used on a job, such as work forms, charts and samples of relevant course assignments and students papers. More students (26.66%) needed materials from websites like e-mails, reading sites and web-quests to be included in their course. However, the majority of them (43.33%) desired a combination of all of the materials mentioned. In fact, the third type of materials including materials from websites as e-mails, web-quests and reading sites are the main concern of the investigator since she aimed to use this kind of materials in her experiment. However, the results of this item can be added to the fourth one which included a combination of all the materials mentioned and thus the number of students requiring using web-retrieved materials could reach 21 students (70%).

Question 22: Students opinions on the integration of web-materials in teaching the reading skill

The analysis of the findings of this question is the key stone element of the current study since it aims to identify students' opinions on the integration of web-materials in teaching the reading skill. It is composed of a rating items graded from strongly disagree to strongly agree. The results are illustrated in the bars graph below:

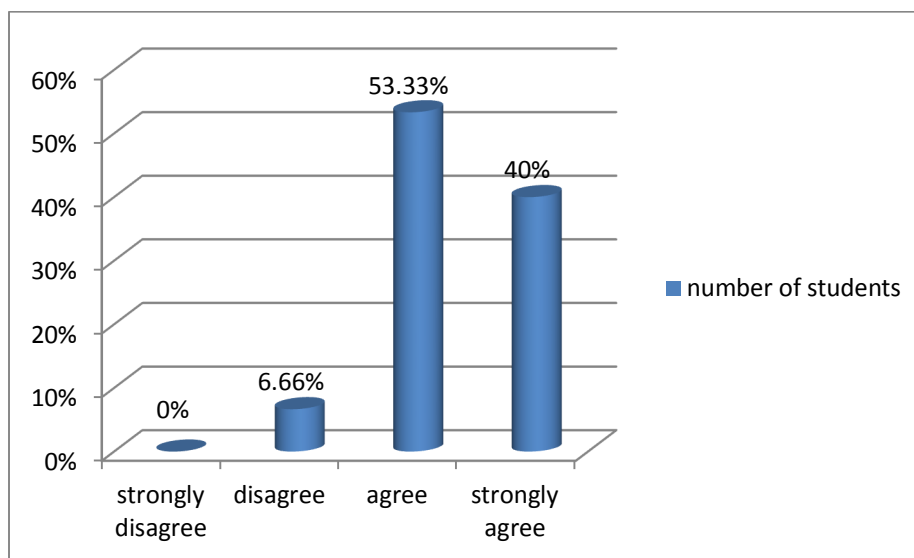


Figure 4.13. Students' Opinions

Regarding students' attitudes towards the integration of web-materials in teaching the reading skill, it is clearly demonstrated (Figure 4.12) that they had a positive attitude since the majority of them (53.33%) agreed and also 40% of them strongly agreed whereas only 6.66% of them disagreed and no one strongly disagreed. This positive attitude would help the researcher to implement web-retrieved materials in her experiment.

Question 23: Web-materials benefits

This question deals with web-materials benefits and the opinions of respondents towards those benefits. This question follows the same form of items as the previous one. More details shown in the following figure:

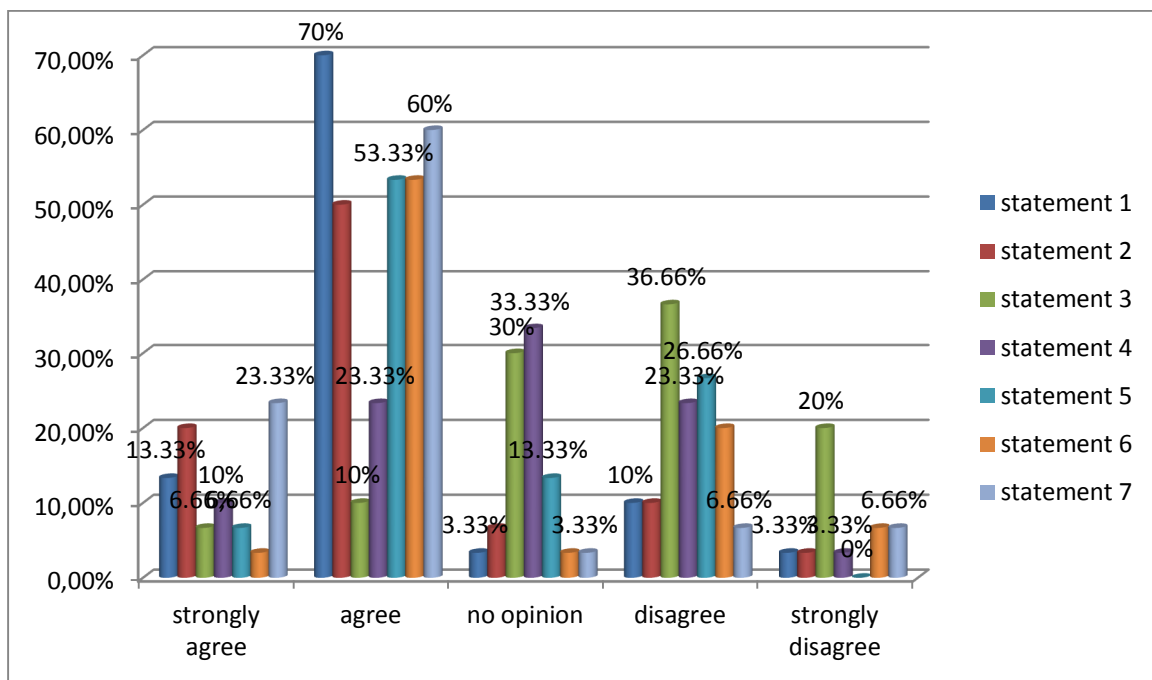


Figure 4.14. Web-materials Benefits

1. Learning with web materials will be useful and interesting
2. Web materials are rich in content with useful links.
3. I prefer learning Web-based reading course rather than the traditional paper-based reading course.
4. I prefer to choose my own topics and texts through interesting web sites
5. Through Web-based reading course, my reading skill will improve.
6. Through Web-based reading course, my vocabulary will be enriched considerably.
7. Web materials will motivate me to read

Regarding the findings revealed in the figure above, they show that:

1. The usefulness and interest of web materials: The majority of students (83.33%) agreed or strongly agreed on this fact.
2. Richness in content of web-materials with useful links: Agreement was noticed since half of the students (50%) agreed and 20% of them strongly agreed whereas disagreement was poorly stated (13.33%).
3. Their preference of web-based reading course instead of traditional paper-based reading course: Little agreement was shown since only 16.66% of students agreed or strongly agreed while most of them (56.66%) disagreed or strongly disagreed.
4. Students' autonomy in choosing their own topics and texts through interesting web sites: Some of them (33.33%) wanted to be autonomous and 26, 66% did not whereas 33.33% of students had no opinion on this statement.
5. The improvement of their reading skill through Web-based reading course: Agreement was highly seen because more than half of them (60%) agreed and strongly agreed while only 26.66% of them disagreed.
6. Considerable enrichment of vocabulary would be achieved through web-based reading course: Most students (56.66%) agreed on this fact. In contrast, only 26.66% of them disagreed.
7. Motivation in reading via web materials: Most of the informants (83.33%) highly agreed.

Generally speaking, all the statements were agreed by the majority of the respondents. This shows again their positive attitudes towards the integration of web-retrieved materials in teaching the reading skill.

Question 24: Suggestions for an effective engineering English course

This question was devised to allow students to give suggestions about an effective engineering English course. The answers were varied and the analysis was qualitative. In fact, more than the half (56.66%) gave no suggestion while the remaining answers varied from focus on speaking and communication skills, grammar and vocabulary, translation to writing. One of them stated that the English course focus should be on practical skills of speaking and communication on various topics and not only on electronic ones. Other suggestions concerned the teacher's role in making students interested, motivated and not frustrated to learn English as well as raising their proficiency level not only in scientific English, but also in general English. Another informant insisted on the fact that students themselves should be more serious and attend all the English lectures. In addition, one student wanted English as a medium of instruction used in all subjects taught while another one spoke about the desire to be taught by specialists in English for Specific Purposes and not always taught either by a subject specialist mastering the English language or by a language teacher ignoring the content of the field of study. As a whole, suggestions were different but the researcher took each one into consideration in order to make a course that meets their expectations.

NA requires the multiplication of data sources. Therefore, the researcher used another instrument of research which is the interview but this time addressed to teachers.

4.4. Teachers' Interview

The purpose of the interview is first to identify the needs of ESP students and then to recognize the teachers' use of ICT and web-retrieved materials in their teaching practices (ESP) especially in teaching the reading skill. This instrument of research revealed interesting information that would be used to design the course under study as well as to give answers to the research questions connected to the students' questionnaire results. Through its analysis, it will allow to define the most relevant findings and offer reasonable interpretations. The structured interview tackled 28 questions divided into three main rubrics apart from the teachers' profile. They are

analysed both qualitatively and quantitatively in order to be joined to the students' questionnaire findings.

4.4.1. Teachers' Profile

In this part of the interview, the teachers gave information about their degrees, ages, experience in teaching and modules taught. First of all, it should be mentioned that the interview was distributed to 11 language teachers who teach in the University of Tlemcen, the Faculty of Letters and Foreign Languages, the Department of English.

As mentioned before (see section 3.3.3.2), the degrees of the teachers under investigation varied from doctorate (5) to Magister (6) with also different teaching experience at university; only one of them has less than 6 years of experience; 5 of them have between 5 and 10 years of teaching English at University; while the others have more than 10 years of teaching practice. Accordingly, they differ in age since 4 of them are between 20 and 30; three between 30 and 40; three between 40 and 50 and finally, the professor is more than 50 years old.

Those teachers teach and taught ESP in different fields which they were asked about. The fields of ESP are illustrated in the figure below:

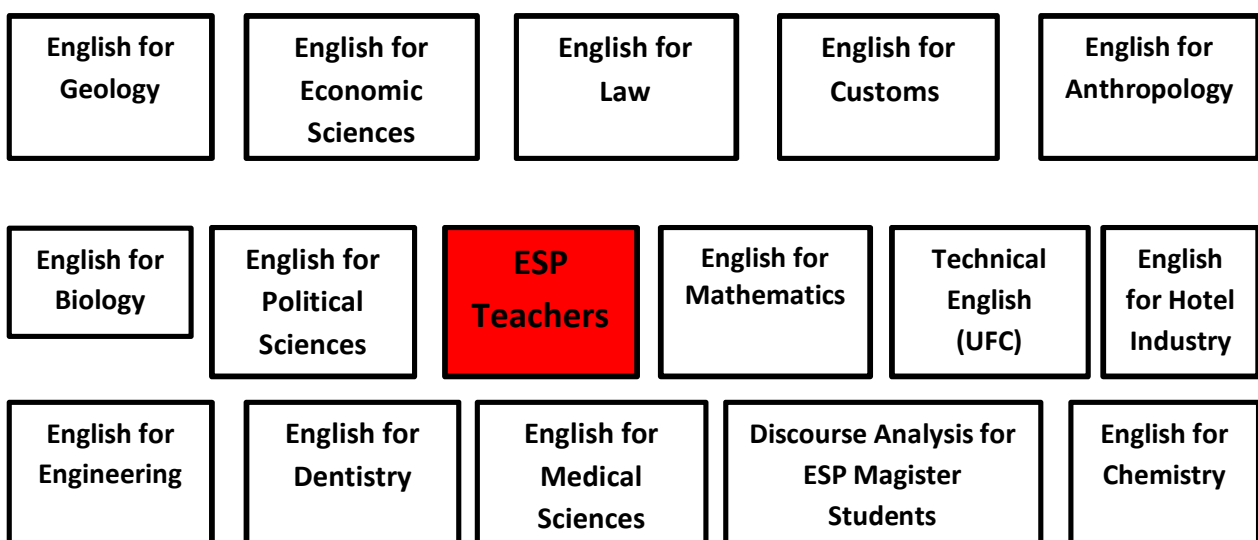


Figure 4.15. Fields of ESP

From the above ESP fields mentioned above, one teacher taught English for Economic Sciences, English for Political Sciences, English for Dentistry, English for Medical Sciences and English for customs. Another one dealt with English for Geology and English for Mathematics. One more was involved in English for Political Sciences. One taught English for Biology and English for Economic Sciences. A fifth one was concerned with teaching English for Biology, English for Chemistry, English for Anthropology and English for Economic Sciences. A sixth one dealt with English for Hotel Industry and Discourse Analysis for ESP Magister Students. Moreover, two others were concerned with English for Law. A ninth one dealt with English for Economic and Medical Sciences. Another one taught English for Economic Sciences without forgetting the last one who was concerned with teaching Technical English in UFC. To conclude, all the teachers under investigation taught ESP in many and varied fields.

4.4.2. Needs Analysis

This part of the interview is in fact a needs analysis undertaken to identify the needs and necessities of those teachers under study to do their task of teaching. It is composed of seven questions where the respondents had to answer by yes or no and thus obtain answers which will be analysed quantitatively except for the last one where they were asked to give other suggestions concerning the reason for using Internet.

Question 1: Teaching English for Specific Purposes

This question intends to know whether the informants taught ESP or not and the results showed that all of them did.

Question 2: Time Allocated for Teaching English

The answers concerning the time per week allocated to teaching English for Specific Purposes, either English for Medical Purposes or Political Sciences or other fields of ESP they were involved in, differed from one teacher to the other. The answers varied from 1h30 (5 teachers), to 3 hours (4 teachers), to 2 hours (1 teacher)

and finally 6 hours per week for one of them. It is clear from those answers that English was taught either 1 hour and half or twice this time.

Question 3: Time Sufficiency

This question asks about the sufficiency of time to raise students' proficiency level in English. The results proved that all the respondents (100%) confirmed the insufficiency of time.

Question 4: Needs Analysis Questionnaire Requirement for ESP Course Design

This question asks whether the teachers needed to make a needs analysis questionnaire to design their courses and seeks to know if this tool was necessary to design ESP courses. After analysis of the results obtained, it was seen that all of them stated that they administered NA questionnaire for their students in order to design their course except one who did not use this tool to build his ESP courses.

Question 5: Internet Access at University

In order to find answers to the second and third research questions, the investigator started his inquiry by asking whether Internet was accessible at University or not and from here incorporating the integration of web-retrieved materials in teaching the reading skill little by little. The findings obtained revealed that 8 of the informants affirmed that they had Internet access at University but they highlighted that the access was available only in some special rooms whereas the three remaining teachers stated the non-availability of Internet access in the classroom.

Those who confirmed the availability of Internet access in University gave negative answers to question 6 which inquires about the quality of the connection, i.e. that the connection was not good.

Question 7: The reasons for using Internet in the University

This question seeks to know why the interviewees needed Internet in the University, giving them the choice between preparing courses and teaching students in addition to free suggestions if any. In fact, the analysis of this question is qualitative

and quantitative since the respondents had to choose between two reasons given in advance and to state other reasons proper to each one.

The results showed that only one of the respondents replied using Internet for preparing courses only while 5 others said using it for preparing their courses and teaching their students without giving any other reason. The 5 remaining teachers confirmed using it for the two reasons mentioned adding other reasons like to make research (3 teachers), to retrieve books, articles and different sources published in English and finally to stimulate interaction between the teacher and the students and promote discussion in class. The results of this question cannot be generalized but at least can give an idea about the teachers' perception of the use of Internet in teaching. The following rubric related to the present teaching is closer to the teaching of reading.

4.4.3. Present Teaching of ESP

The collected data related to the teachers' present teaching revealed interesting findings that are shown below when analysing the questions that belong to this part.

Question 8: Focus on Reading

This question seeks to know whether the respondents focus on the reading skill or not in their teaching.

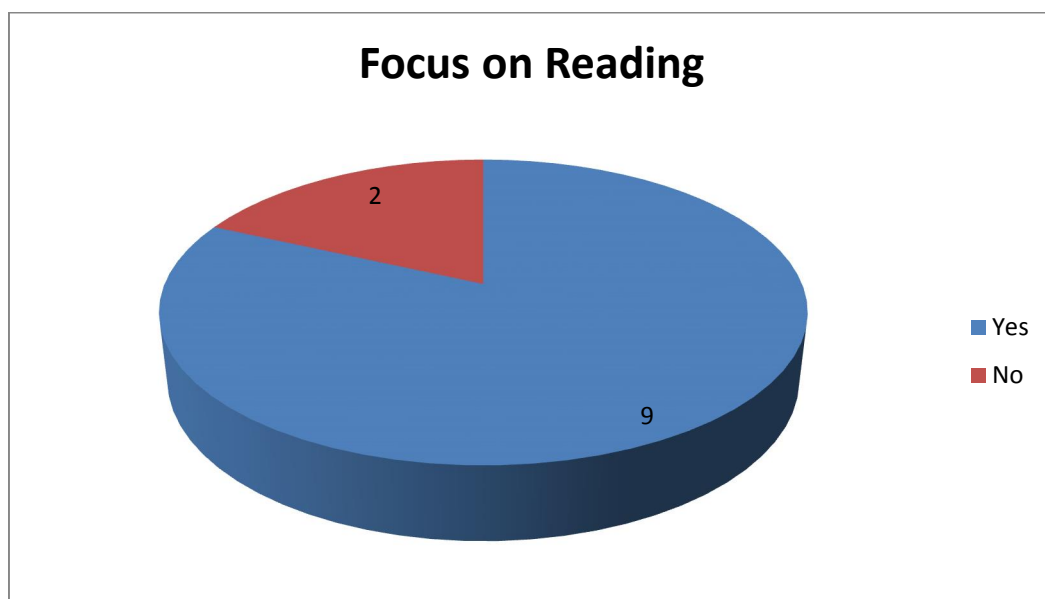


Figure 4.16. Focus on the Reading Skill

The results exposed in the figure above explain that most of the respondents focus on the reading skill in their teaching except two of them who replied negatively. After these answers, the researcher would have a larger idea concerning the reading skill, its strategies and materials used to adopt those strategies.

Question 9: Comprehension Strategies in Teaching Reading

The current question aims to know the frequency of using some comprehension reading strategies. In fact those reading strategies were also regrouped in pre-reading, while-reading and post-reading strategies. To better understand the results obtained, the researcher draws this table:

Table 4.6. Reading Strategies

Comprehension Strategies	always	sometimes	never
Pre-reading: Preview the material by thinking about: the text, the title, and the pictures.	10	1	0
Have a purpose for reading.	9	0	2
Activate prior knowledge and experiences about the topic.	9	2	0
Ask questions about the text before reading it.	7	3	1
Regulate mood to stimulate the reading process.	8	3	0
Use tables, figures, and pictures in text to increase understanding.	1	8	2
While-reading: Skim and scan the text for information.	8	3	0
Underline or circle information in the text to help student remember it.	9	2	0
Stop reading to check comprehension.	6	5	0
Use context clues to help students understand what is being read.	7	4	0
Paraphrase what students read.	4	6	1
Check understanding when coming across conflicting information.	7	3	1
Reread the problematic part.	8	2	1
Look up unknown words in a dictionary.	5	6	0
Guess the meaning of unknown words or phrases.	7	4	0
Discuss one's reading with others to check understanding.	4	7	0
Concentrate on the reading task.	5	6	0
Engage with the text.	9	2	0

Complete graphic organizers such as Venn diagram, KWL, etc.	0	6	5
Integrate the information in the text with what students already know.	8	2	1
Post-reading: Write summaries to reflect on key ideas in the text.	4	7	0
Provide one's own feedback on what one has read.	4	7	0
Make inferences and draw conclusions.	4	7	0
Compare and contrast information from one or more texts.	0	8	3
Analyze and evaluate the information presented in the text.	3	6	2

Regarding the results shown on table 4.6, the column “never” is rarely ticked by respondents and this explains that nearly all the reading strategies were used. All strategies proposed are generally always used. This shows the importance of such strategies for teaching reading and helps the investigator to decide for the best ones to be adopted in her experimentation. In fact, the strategies frequently used by most of the respondents were the pre-reading activities as previewing the material by thinking about the text, the title and the pictures (10 teachers), having a purpose of reading (9 teachers) and activating prior knowledge and experiences about the topic (9 teachers). While reading activities were also stated by the informants like skimming and scanning the text for information (8 teachers), underlining or circling information in the text to increase understanding (9 teachers), rereading the problematic parts (8 teachers), engaging with the text (9 teachers) and integrating the information in the text with what students already know (8 teachers). However, the post-reading activities stated were not frequently used by the informants. Such activities were sometimes dealt with by the respondents as comparing and contrasting information from one or more texts (8 teachers).

Question 10: Teaching Materials used

This question aims at proposing some materials used by the teachers under study to adopt reading strategies mentioned earlier.

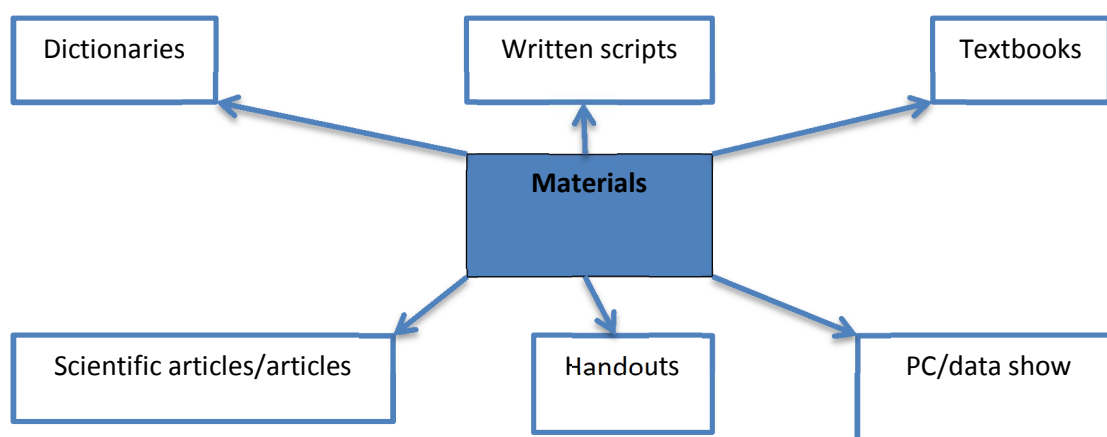


Figure 4.17. Teaching Materials used

After analysis of each answer, the materials used varied from dictionaries, written scripts, textbooks, scientific and non-scientific articles, handouts and PCs with data shows as illustrated in the figure above. However, the most used ones were PCs with data show (10 teachers) and Scientific articles (8 teachers). Some of them used more than one material. The results of this question help the researcher to enlarge her view on the materials used when adopting reading strategies.

As a whole, the collected data from this part of the interview highlighted the current situation of teaching the reading skill among the teachers in question.

4.4.4. Attitudes towards the integration of web-retrieved materials in teaching ESP

Data collected from the questions of this rubric associated with those from the students' questionnaire could help the researcher to find answer to the second and third research questions and investigate better in the experimentation. This part is the longest and the most important part of the interview since it aims to explore information about the key element of the study which is the integration of web-retrieved materials in teaching ESP. It is composed of 18 questions which will be analysed both qualitatively and quantitatively.

In order to know the availability of teachers' personal computers and the time from which they owned them, the researcher asked question 11 and 12 aiming to see if the respondents use their own materials or those of their University to teach and more importantly to the period of owning their PCs. By this in hand, the investigator would explore their habits of using such materials for teaching and from here come the following question (question 13) which makes them rating themselves on a scale (from 0 to 10) regarding their computer proficiency. In fact, the three questions are interrelated to achieve a unique result.

After analysing the respondents' answers of those questions, it seems that all of them possessed their own personal computers for more than 10 years (8 teachers) and between 5 to 10 years for the remaining teachers (3 teachers) since we are in the era of technology and information. Concerning the teachers' computer proficiency, it was proved that all of them rated themselves on a scale above the average. That is to say, they knew how to deal with such materials. Most of them (4 teachers) gave themselves the mark of 7/10, 3 of them on 6/10, three others on 8/10 and one on 9/10 which means that she/he is brilliant in using and manipulating computers.

Question 14: Availability of ICT tools in University

This question seeks to have information on the tools that were available in University and those that were not and particularly to identify some of the difficulties encountered in using such materials for teaching reading and thus to find an answer to the third research question. The results of the analysis revealed that all the respondents confirmed the availability of overhead projectors and students' computers in the Lab. 3 of them stated that classroom computer for teachers' use was accessible while 3 others claimed for the availability of CD and DVD player and two said that portable computer units were offered. Another item was added stating other ICT tools if available but only one of them mentioned the existence of an Internet room for students and another one spoke about loud speakers in labs. As a whole, only overhead projectors and students' computer for teachers' use were offered by University. More details about the results are illustrated in the figure below:

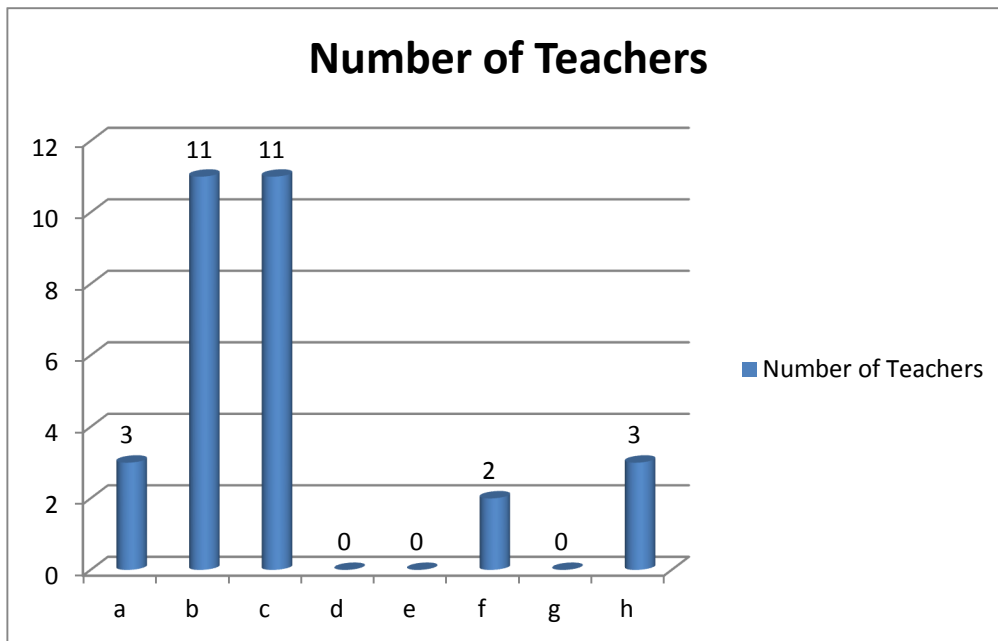


Figure 4.18. Availability of ICT Tools in University

- (a) stands for Classroom computer for teachers' use
- (b) stands for Overhead projector
- (c) stands for Students' computers in a lab
- (d) stands for Students' computers in a classroom
- (e) stands for Digital camera
- (f) stands for Portable computer units
- (g) stands for TV
- (h) stands for CD/ DVD Player

Question 15: The respondents had to answer if they used any of the ICT tools mentioned in the question above. The results showed that most of them (10 teachers) did except for one teacher who will not answer the questions from 16 to 20.

Question 16: The Use of ICT Tools

This question inquires about which ICT tools mentioned in question 14 were used by the teachers under study. The data collected revealed that their uses varied: Data show/ PC for half of them (5 teachers), PCs for another one, loud speakers for a seventh one ...etc. The results in fact are better clarified in the figure below:

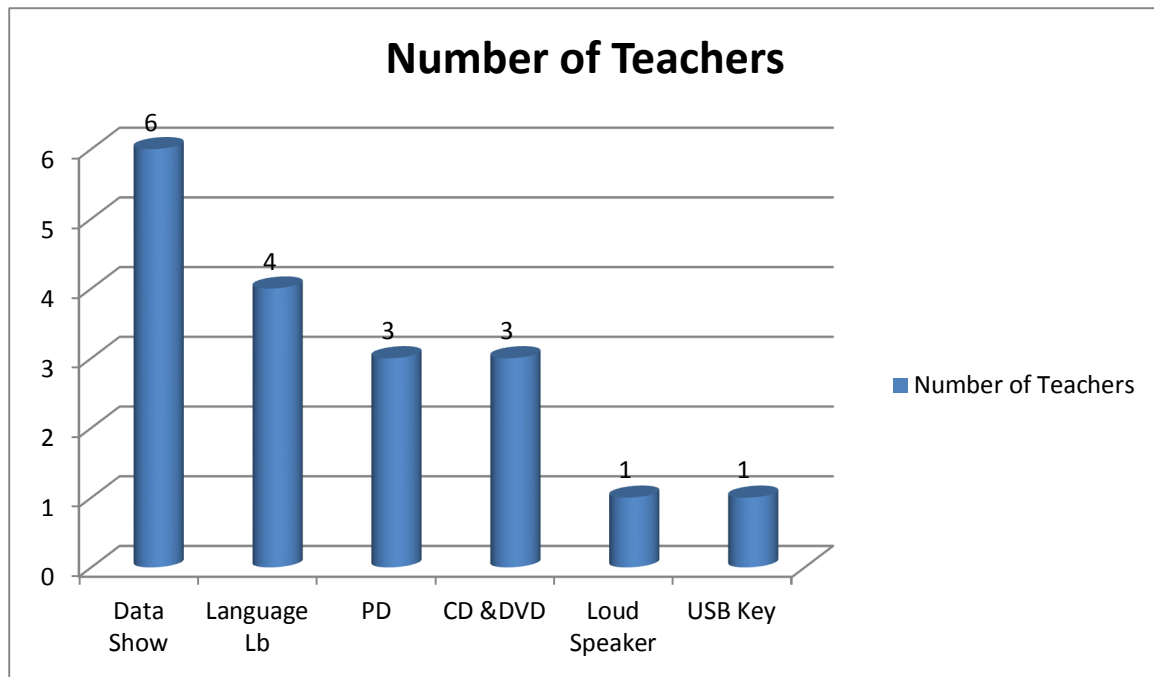


Figure 4.19. ICT Tools Used

As shown in the figure above the uses of ICT tools are varied and there is one respondent who used many of them and 6 teachers who used only one. What is seen in this figure is the frequent use of data show and PC, they also seemed using language labs and DVDs and CDs which appeared to be used in Oral Expression.

Question 17 aims to identify the frequency of use of the tools mentioned in the previous question.

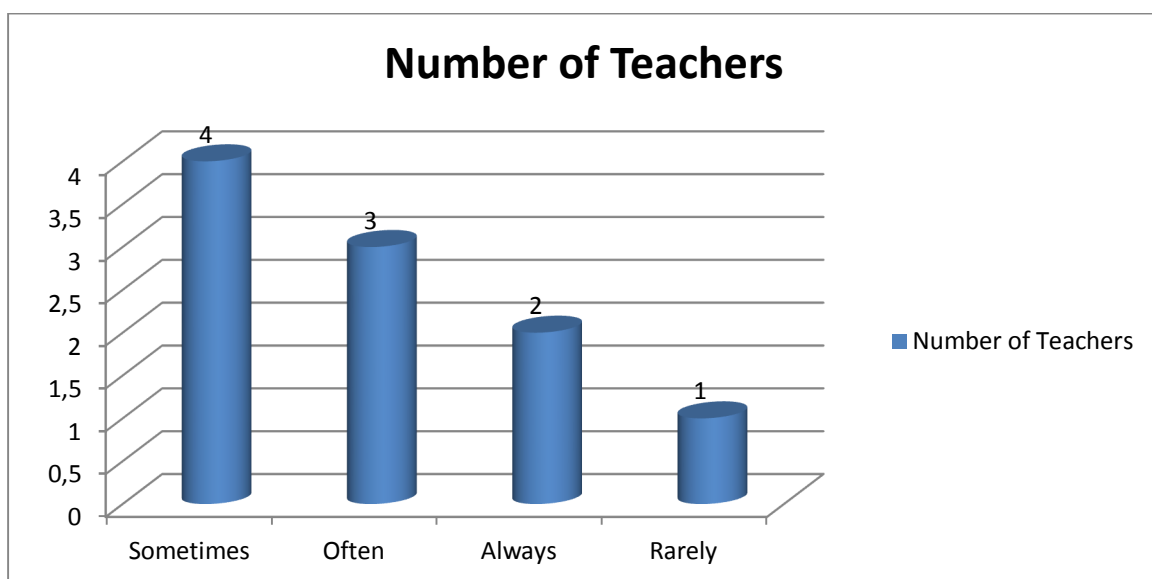


Figure 4.20. Frequency of Using ICT Tools

Dealing with 10 teachers only since one of them stated not using those tools, 4 of them sometimes used them, 3 others often used them, 2 stated of using them frequently while 1 said that he/she rarely employed them.

Question 18: Ability to use ICT tools

In addition to question13 which rated their computer proficiency, the respondents were asked in this question to rate their abilities in using ICT tools from beginner to intermediate to expert. The findings showed that most of them (9 teachers) rated themselves as intermediate whereas one of them stated that he was expert.

Question 19: Learning to use ICT tools

The researcher then wanted to explore how the respondents learned to use these tools. Some items were suggested and the respondents had to choose one of them. The findings from the analysis of their responses are revealed in the following figure:

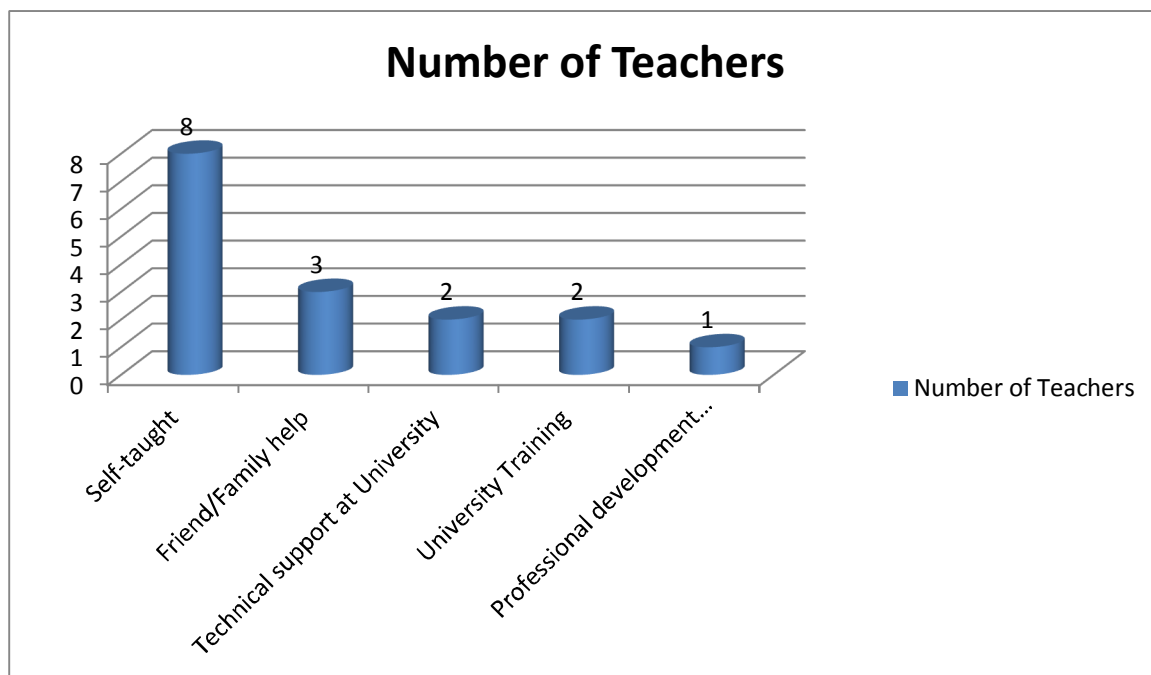


Figure 4.21. Learning the Use of ICT Tools

The results obtained in the above figure show that most of the respondents stated that they were taught by themselves (8 teachers). 3 of them relied on friends and family help while 2 of them stated having received technical support at university or university training. Only one teacher stated participating in professional development program.

Question 20: Reasons for using ICT

Related to all the statements in relation with the use of ICT tools mentioned in question 14, another question was formulated to ask about the reasons of teachers to use ICT. The responses differed from one teacher to another and the results are shown in the bar graph below:

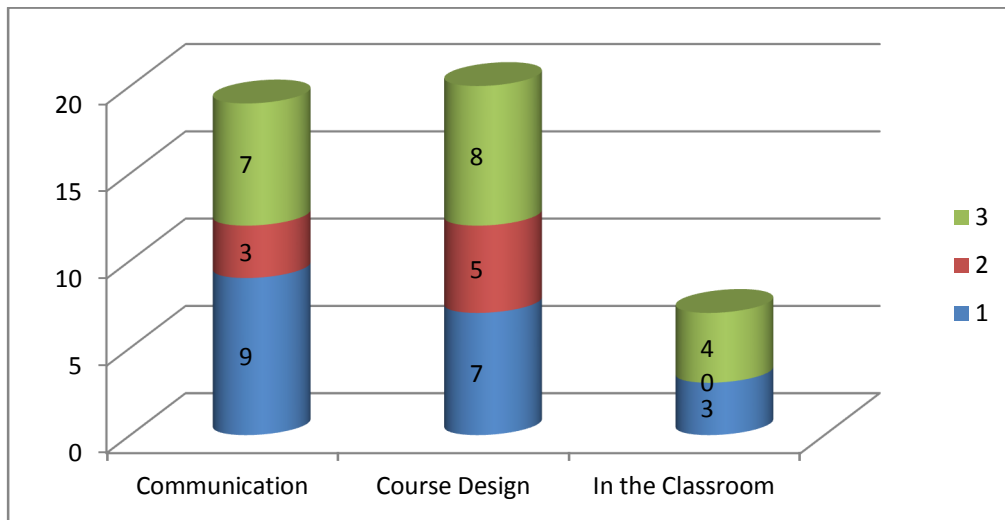


Figure 4. 22. Reasons for Using ICT

- Communication: 1- Contacting colleagues via email
 2 - Participating in online discussions
 3 - Collaborating with colleagues for the development of units
- Course Design: 1- Reviewing Resources
 2- Producing materials
 3 - Preparing Students' handouts/ Worksheets
- In the Classroom: 1- Using curriculum specific software Presentations
 2 - Teachers' access to Internet during lesson
 3 - Access to projector

These items 1, 2, 3 which are represented in the bar graph above characterize the sub- reasons of using ICT. For instance, teachers used ICT to design courses but what for, reviewing resources, or producing materials or even preparing students' handouts and worksheets. In fact, this question is divided into three main reasons and these ones are composed of three items given and one hidden in order to be filled freely.

1. ICT for communication: It was highlighted that most of the respondents (9) used ICT to contact colleagues via email. 3 of them stated the reason of participating in online discussions while 7 of them added the reason of collaborating with colleagues for the development of units. The other reason suggested by one of them was to do exams.
2. ICT to design courses: It was claimed by 7 of them that they used ICT for reviewing resources in addition to the reason of preparing students' handouts or worksheets replied by 8 of them but only few of them (2 teachers) used it for producing materials. Other suggested answers concerned using ICT for teaching EGP, ESP or Oral Expression. However, this answer was too general and lacked specificity.
3. ICT in the classroom: It was not so much dealt with since only 4 teachers said using ICT to have access to projector and 3 of them stated using curriculum specific software presentations in the classroom. Other suggestions regarded using ICT for authentic materials and for listening and speaking sessions and oral presentations.

Question 21: Designing Teaching Materials using Internet

This question aims to identify whether respondents relied on Internet in designing teaching materials. In fact, this question is linked with three other questions if the responses were positive. They tackled the frequency of Internet use, on what bases and the main websites used.

Regarding the respondents' answers to this question, it was revealed that all of them replied that they used Internet to design their teaching materials except one who will not be concerned with questions 22, 23 and 24.

Question 22: Frequency of Internet use to design courses

This question intends to know how often teachers used Internet to design their courses and the findings are seen in the figure below:

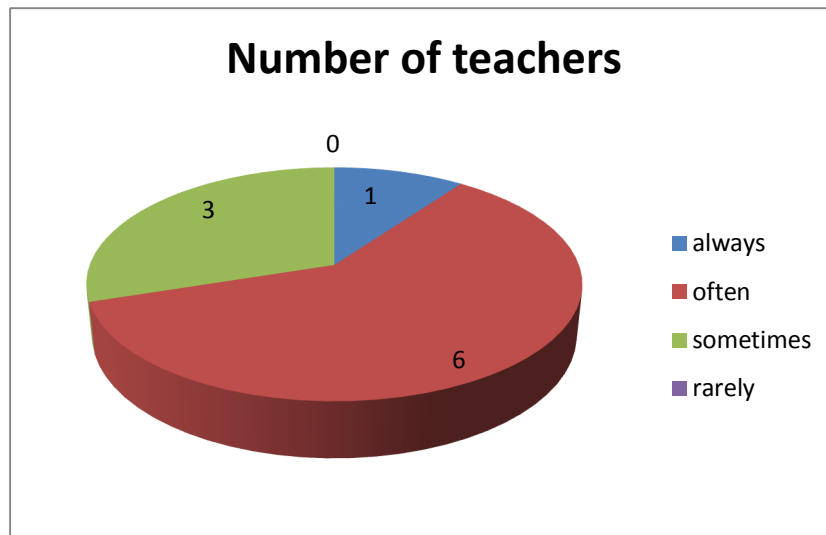


Figure 4.23. Frequency of Using Internet to Design Courses

The results revealed that most of them often used this means of technology to design their courses while three of them sometimes did and one always. What is seen is that generally all of them relied on Internet to design their courses with a high frequency bearing in mind that one was not accounted since he or she replied negatively to the previous question.

Question 23: The Choice of Web-based Materials

In order to know on which bases the respondents chose their web-based materials, the researcher designed this question. She aimed to know their criteria for choosing those materials. She proposes five items in which the respondents had to tick one of them or more while another item concerns a free answer they could state other criteria which are not suggested by the investigator. The criteria suggested are put in the following bars graph with the number of teachers who chose a particular criterion.

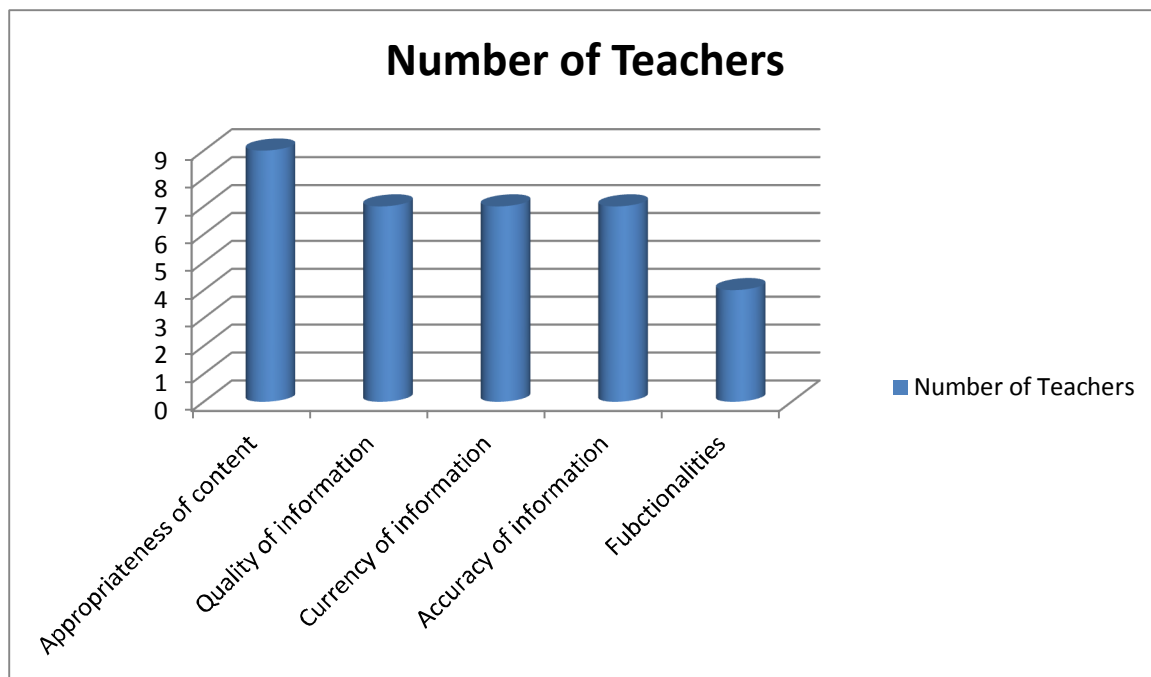


Figure 4.24. The Choice of Web-based Materials

It seems that nearly all the criteria (a- b- c- d) suggested by the researcher were taken into consideration by the respondents in order to choose their web-based materials except for the criterion of functionalities which was stated by only 4 of them. In addition to those criteria, they suggested others: Copyright document, up-dated information from all over the world, related tasks and unities, and simplicity of information.

Question 24: Websites Used in Course Design

In accordance with the two previous questions related to the use of Internet to design courses, the respondents were then asked about suggesting some useful websites that help them in their course design. One of them did not suggest any site and the others stated these:

- 5 teachers → google to search for websites
- 1 teacher → www.englishonline.net/ / www.extronto.edu
- 1 teacher → www.bbc-edu.ca.org / www.havard.edu.net
- 1 teacher → bookfi.org and 4 shared to download e-books/ google
- 1 teacher → copyright sources

From these suggestions, the researcher understands that the respondents did not really rely on a particular website to design their courses but they write the information or key words needed on google search engine to search for what they needed.

Question 25: Emails

This question intends to know if the teachers under investigation sent activities or texts to their students by emails. According to their answers, nearly half of them did not whereas the other half did. This means that sending texts and activities to students by emails is not commonly used by those teachers.

Question 26: Courses Online

This question looks for whether the teachers put their courses on the University platform or not. From the results obtained, it is noted that 4 out of 11 did.

Question 27: Difficulties of ICT use

This question seeks to know what difficulties faced the respondents when using ICT at University level. This question will follow a qualitative approach since the researcher will see each respondent's difficulties. It also helps the researcher to be aware of what could face her when undertaking her experimentation. The difficulties faced are shown in the following figure.

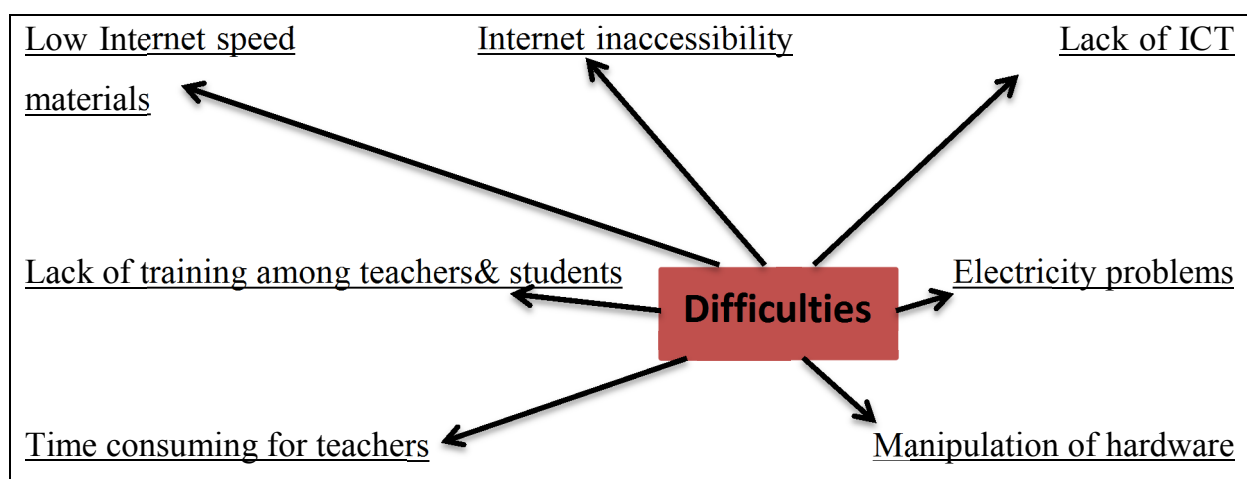


Figure 4.25. Difficulties of ICT use

It was noticed that all teachers complained about either inaccessibility of Internet connection or low speed. Consequently, bad connection seems to be a real problem in our universities.

Question 28: Advantages of effective integration of ICT at University level

This question aims at discovering the advantages which could result from an effective integration of ICT at University level. The respondents gave various and varied responses as shown in the figure below:

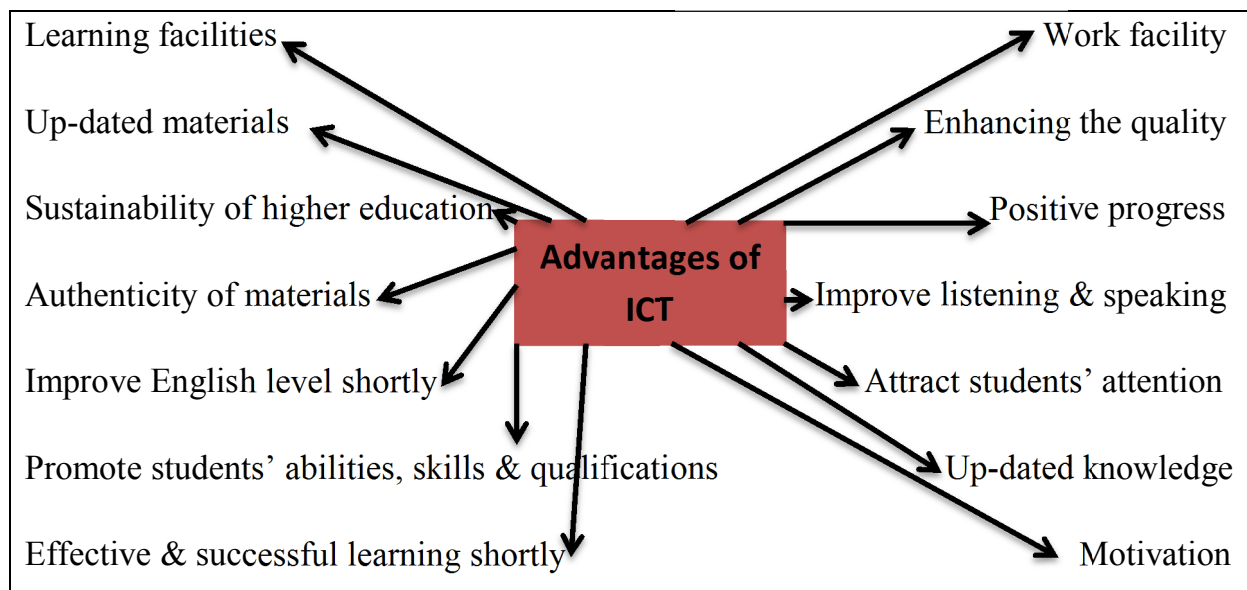


Figure 4. 26. Advantages of ICT Use at University Level

After discovering the difficulties and benefits of integrating ICT in teaching and learning at a tertiary level according to the respondents, the researcher may find answers to the second and third research questions in addition to the results obtained from the students' questionnaire. Thus, the results of both the students' questionnaire and the teachers' interview were analysed qualitatively and quantitatively and the fact of using two approaches of analysis could be helpful for the investigator to obtain reliable results as stated by Hamzaoui (2006: 130) "using more than one type of analysis is believed to provide more reliable research findings as the latter are not compressed into a single dimension of measurement."

4.6. Interpretation and Discussion of the Main Results

The teachers' interview and the students' questionnaire aim to identify EIE Master students' needs to learn English and explore both teachers' and students' attitudes towards the integration of web-retrieved materials in teaching reading. With these objectives in mind, the researcher tried to verify the first, second and third hypotheses. In addition, the outcomes revealed to be helpful for the investigator to design the course under study.

Regarding the first hypothesis which denoted that engineering students may need English to develop particular reading sub-skills and strategies and reinforce their linguistic background which help in improving their reading abilities to comprehend and understand texts related to their field of study, the results revealed that ESP students were really aware of the importance and immediate need of English for their studies including research as well as for their future careers and had a favourable attitude towards learning this language and claimed that the attendance in English courses should be obligatory. Questions 10, 11, 12 (students' questionnaire) revealed that students needed English to develop particular skills such as developing academic writing skills, fluency and accuracy in reading and writing and oral abilities to participate in discussions and debates. In addition to their need to increase their English vocabulary and read with grammatical correctness(questions 16, 17) so that they reinforced their linguistic background in vocabulary and grammar, they also needed to develop some reading strategies which seemed important to teachers in question 9 (teachers' interview) as they were concerned with developing many of them. The strategies needed varied between pre-reading, while-reading and post-reading strategies as previewing the material by thinking about the text, the title and the pictures, having a purpose for reading, activating prior knowledge and experiences about the topic, underlining or circling information in the text to increase understanding, engaging with the text, integrating the information in the text with what students already know, comparing and contrasting information from one or more texts ... etc. The students also highlighted the necessity of developing some reading sub-skills (question 19) such as reading course handouts, reading technical articles in

journals, reading technical manuals and reading study notes and texts on Internet through activities on reading for information especially for specialist information. Since they were generally assessed on reading and writing skills, they needed to raise their English proficiency level as they rated themselves as average in reading. With all these needs realized, they could recover their lacks. In addition, from the expectations of students related to their wants, they claimed their desire to have access to information via Internet (question 14) and to be able to read notes and texts on Internet too (question 19), collect information from journals and comprehend information in context. However, they did not really want to focus on the reading skill and they stated themselves somehow strong in reading for context whereas weak in reading with grammatical correctness (question 17, 18) but teachers in the interview claimed the contrary (question 8). Additionally, students required using web-retrieved materials in their English learning (question 21) which will improve their reading skills and enrich their vocabulary considerably (question 23). As a whole, all those results confirm the first hypothesis.

Concerning the second research hypothesis which denotes that ESP teachers may develop the reading skill using Internet sources by offering a diversity of activities and tasks related to comprehension as well as to evolution in students' field of study, the results revealed that teachers adopted various reading strategies in their teaching as shown in question 9 of the interview through various materials used as dictionaries, data show, PC and so on (question 10). They also showed a positive attitude with regard to integrating web-retrieved materials in teaching ESP in general (question 7, 14, 15, 16, 17). According to the results obtained, teachers use some ICT tools, some websites and google search engine (question 24) to develop their students' reading comprehension. On the other hand, the students also approved the use of the Web in their learning (question 20) since they wanted the delivery of instructional materials not only face to face but also using Internet and multimedia based materials and in question 21 and 22 of the questionnaire. It was found that students desired using a combination between various web materials and showed a positive attitude towards web learning without forgetting that they found web materials beneficial (question 23) in performing activities dealing with reading for specific information (question 11) and

choosing their own texts through interesting web sites (question 23). Teachers in question 20 explained the necessity of using ICT tools in reviewing resources and producing materials for their course design as well as in contacting colleagues via e-mails in order to exchange ideas concerning their teaching. Therefore, one may deduce that the findings related to the integration of web-retrieved materials in engineering English course seem to confirm the second hypothesis.

Dealing with the third hypothesis which identifies the difficulties that both teachers and students may encounter when using web-based materials to develop the reading skill, the results were very informative. Students in the questionnaire claimed the insufficiency of the time allocated to English courses (question 8) since they wanted more time for those courses (question 9) without forgetting the teachers' point of view on this concern which proved to be similar (question 2, 3). Another difficulty which faced teachers in integrating web-materials in their teaching was the inaccessibility or the low speed of Internet (question 27 of the teachers' interview). Lack of ICT tools was also highlighted by teachers as well as lack of training among teachers and students (question 27). Thus, the third hypothesis is also confirmed.

4.7. Conclusion

This chapter tended to analyse and interpret the findings obtained from the teachers' interview and the students' questionnaire. The results reached were satisfactory in terms of having a clear idea of the target situation in identifying the students' needs and inquiring on the feasibility of integrating web-materials in teaching the reading skill for ESP students, here engineering ones. To have more details about the feasibility of such experimentation, the analysis of the experiment tests in the following chapter will be dealt with.

The analysis of the data showed that the majority of ESP students need to develop particular reading sub-skills and strategies and reinforce their linguistic background in order to raise their proficiency level and since a number of researchers and ELT professionals have researched on the role played by information technology and web tools in enhancing learners' language skills (see chapter 2), it was proved that those tools seemed to be important to achieve improvement among learners. The need for

integrating technology into the Engineering English course is discussed in the next chapter by presenting some suggestions and recommendations hoping to achieve a fruitful impact on designing ESP courses to improve students' reading proficiency.

CHAPTER FIVE

CHAPTER FIVE**Design and Implementation of a Web-based Course**

- 5.1. Introduction
- 5.2. EST Course Design
 - 5.2.1. Approaches to EST Materials Design
 - 5.2.2. EST Distinctive Features
- 5.3. Aims of the Course
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 - 5.6.3. Complementary skills
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- 5.8. Teaching Method
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- 5.10. Experimentation of the Course
- 5.11. Analysis of Experiment tests
 - 5.11.1. Purpose
 - 5.11.2. Presentation and Organization
 - 5.11.3. Main Results

5.11.4. Discussion and Interpretation of the Main Results

5.12. Challenges

5.13. Conclusion

5.1. Introduction

With the increasing English language demands of engineering students with specific purposes, the researcher decided to meet their needs by offering a specialized course, designed for 2nd year Master's students in Electronic Instrumentation Engineering. Though technical texts had been used and taught by language teachers for many years, the English proficiency level of students is still low. Thus, a specialized course where students could improve specific language skills will be beneficial.

Teaching English for engineering students is becoming more and more important since nearly all the documentation in this field is in English without forgetting a potential job abroad where mastery of the English language is vital. In fact, teaching these students is not only a matter of mastering the meaning of some technical words used or seen in some technical texts, but it is a matter of knowing how to use and comprehend the English language with its structures in a specific and specialized field of study.

In addition, since the use of Internet by students increases nowadays, the researcher feels it beneficial to use web-retrieved materials in the course. Such materials are available and cheap for students and help them to be motivated and eager to learn because though the English language is so important for them, they still consider it as a secondary subject.

Thus, this chapter deals with the investigation itself which means the course design including aims, objectives, description and presentation of the course without neglecting the skills involved, the materials used, the testing and evaluation methods adopted as well as the challenges faced. The analysis of the experiment tests is also introduced in this chapter in order to check the feasibility of the implementation of web-based materials in teaching the reading skill for ESP students. In fact, the researcher aims to answer the fourth research question.

5.2. EST Course Design

Based on needs analysis, the course designer identified the global aims of an EST course as: to enhance the students' language skills in English; to bridge the gap between general English and common core technical English; to introduce linguistic element input along with specialist subject input and to activate learners' interests, awareness, confidence, autonomy and exploitability in learning by employing communicative classroom activities (Chen, 2005). EST course design, indeed, passed through various approaches.

5.2.1. Approaches to EST Materials Design

As aforementioned in the development of ESP (Chapter 1), the development in linguistics led also to the recognition of the appropriate model of language to be taught for EST learners who, as ESP learners, need at a first stage the language in order to communicate in the target situation. In fact, the goals of language teachers were different and Widdowson (1975, qtd. in Mackay and Mountford, 1978: 15) points out that 'The language teacher should be adept at drawing insights from a wide spectrum of enquiry and to exploit them for his own purposes in order to arrive at a synthesis based on pedagogic principles.'

It was already seen the notion of register in ESP and accordingly in EST. That is why Widdowson (1974, qtd. in Mackay and Mountford, 1978: 16) distinguishes sub-codes of a particular language:

In accordance with his view of functional variation language teachers engaged in preparing English material for students of science and technology and other specialist areas of use have supposed their task involves simply the selection and presentation of those lexical and syntactic features which occur most commonly in passages of English dealing with the specialist topics their students are concerned with.

Then came into surface the notion of rhetoric which is defined by one of the pioneers in EST research, Trimble (1985: 10) as:

Rhetoric is 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. An EST text is concerned only with the presentation of facts, hypotheses, and similar types of information. It is not concerned with the forms of written English that editorialize, express emotions or emotionally based argument or are fictional or poetic in nature.

Later, a much more emphasis came into existence and dealt with the importance of the communicative properties of the language. In fact, the focus was on the language to be taught and also the purposes of teaching it.

In general, the design of EST materials passed through different approaches mentioned in the literature: from register to rhetorical, skill-based, content-based or even genre-based passing by the same procedures, i.e. analyzing learners' needs, determining course objectives, evaluating and selecting available materials, deciding on an appropriate approach and finally testing materials. However, EST contains some distinctive features which distinguish it from other branches of ESP and recognizing these features help the researcher to develop her course design.

5.2.2. EST Distinctive Features

It is clear that scientific English has some distinctive features which differentiate it from other branches. Though some ESP studies advocate going beyond the teaching and learning of grammar (Parkinson, 2000) to include skills and discourses in order to help students develop communicative competence in occupational context (Maria, 2009), it is important to deal with some grammatical forms in EST. And grammar is one of the most significant features of English used in science and technology.

Academically oriented English for Science and Technology has some grammatical features:

1. The greater frequency of the passive

It has been commonly accepted that one of the most frequent grammatical features of scientific/technical writing is the use of the passive. For instance, Royds-Irmak (1975:7) qtd in Master (1991:16) declares that "In science, a sentence is often written in a passive form because the important idea is not who did something, but what was done ". Moreover, Quirk et al. (1972:808), qtd in Master (1991:16), states that:

The passive has been found to be as much as ten times more frequent in one text than in another. The major stylistic factor determining its frequency seems to be related to the distinction between informative and imaginative prose rather than to a difference of subject matter or of spoken and written English. The passive is generally more commonly used in formative than in imaginative writing, notably in the objective, impersonal style of scientific articles and news items.

Thus, the choice of either active or passive voice in EST depends on the function that the writer prefers that is why Dudley-Evans and John (1998:76) state that:

The idea that scientific...writing uses the passive voice more frequently than the active is a myth; what is true is that such writing uses the passive voice more frequently than some other types of writing....The choice of active or passive is constrained by functional considerations...

2. The greater frequency of non-defining relative clauses compared to defining

ones: Relative clauses are very common in EST as scientific writing since EST puts more emphasis on the noun phrase than the verb phrase.

3. Specific rhetorical devices: Such as anaphora, parallelism, parenthetical elements, emphatic inversion, rhetorical questions and ellipsis

4. Nominal style: Nominalisation is a word derived from a verb or an adjective by adding suffixes such as: -ation, -ity, or -ment. In fact, it is used to make the phrases simpler. Dudey-Evans and John (1998:78) states that nominalisation

"...enables complex information to be packaged into a phrase that is simple from a grammatical point of view ..."

5. The selection of pronouns employed: The pronouns which are more frequently used in EST are we, this, these rather than I, he, she, you in GE.
6. The occurrence of new plurals and Latin and Greek plurals: For example, flats, oils, greases and mitochondrion/ -ia; bacterium/ -ia
7. The use of telegram style:

In addition to the grammatical features of EST, it has also distinctive features in vocabulary. For instance, Nation (2001:198) has divided technical vocabulary into four categories:

Category 1: The vocabularies are restricted to the following fields.

Law: *jactitation, per curiam, closture*

Applied Linguistics: *morpheme, hapax legomena, lemma*

Electronics: *anode, impedance, galvanometer, dielectric*

Computing: *wysiwyg, rom, pixel*

Category 2: The vocabulary can be found in different fields, but with different meanings.

Law: *cite (to appear), caution (vb)*

Applied Linguistics: *sense, reference, type, token*

Electronics: *induced, flux, terminal, earth*

Category 3: The vocabulary is found in and outside this field, but the majority of its uses with a particular meaning are in this field.

Law: *accused, offer, reconstruction (of a crime)*

Applied Linguistics: *range, frequency*

Electronics: *coil, energy, positive, gate, resistance*

Computing: *memory, drag, window*

Category 4: the vocabulary is more common in this field, but there is little or even no specialisation of meaning. However, a learner with knowledge of the field will know the meaning better.

Law: *judge, mortgage, trespass*

Applied Linguistics: *word, meaning*

Electronics: *drain, filament, load, plate*

Computing: *print, program, icon*

Moreover, there are other characteristics of vocabulary in EST like:

1. it is international, often based on Latin or Greek elements;
2. it is standardised and as unambiguous as possible;
3. it is non-emotive in tone;
4. it favours certain processes of word formation
5. it includes symbols.

Similarly, regarding particular terminology used in EST, it is generally:

1. exact, that is to say the use of words having particular meaning;
2. unambiguous;
3. unique;
4. systematic, i.e. they are part of a large system of terms
5. neutral
6. Self-explanatory, i.e. they include elements which reflect the important features of the concept designated.

Regarding vocabulary, some scholars as Dudley-Evans and John (1998) and Nation (2001) claim that it is not the English teachers' job to teach technical words. However, it is sometimes necessary for the EST teacher to intervene in explaining some technical words. Accordingly, Dudley-Evans and John (1998:81) declare that "...students usually need to be able to understand the technical vocabulary in order to do the exercise". Thus, "... it may be also the duty of the ESP teacher to check that learners have understood technical vocabulary appearing as carrier content for an exercise". Moreover, Nation (2001:204) has determined that "considering the large number of technical words that occur in specialized texts, language teachers need to prepare learners to deal with them.

Another thing that should not be forgotten while dealing with such courses is focusing on how they are established, their main types and characteristics and other elements which should be discussed and clarified.

5.3. Aims of the Course

The current course was designed to achieve particular aims involving short-term and long-term aims as displayed below:

Short-term aims

- To practise the different reading skills and strategies as skimming, scanning and locating information. These skills and strategies are needed in an academic context.
- To master some useful grammatical structures that help students in reading comprehension as well as in writing.
- To develop the students' reading comprehension through engineering texts and comprehension exercises with content vocabulary.
- To raise students' motivation and update their knowledge thanks to the use of web-retrieved materials in the course, particularly as home work

Long-term aims

- To achieve a higher level of reading comprehension by using a variety of techniques and strategies and integrating web-based materials. Thus, a better comprehension and an efficient reading for either academic or professional purposes should be achieved.

As a whole, this course aims to prepare students for reading and comprehending texts specific to their field of study as well as some technical vocabulary via the use of technology.

5.4. Presentation of the Course

In order to design this course, a needs analysis questionnaire (Appendix A) was completed by 2nd year Electronic Instrumentation Engineering Master's students and this was of a great help to analyse the students' needs in terms of necessities, lacks, wants and expectations related to the course without forgetting the aim to use technology in learning.

As the course is designed to students who are used to communicate with their teachers and classmates with e-mails and wanted to use technology in their learning, the focus on various applications of information technology as well as modern communication technology as e-mails and University sites was beneficial. The course, itself, was downloaded from an e-book entitled "Oxford English for Electrical and Mechanical Engineering via the site bookfi.org. Then, it was adapted and modified according to the needs of the students under study.

The course was planned for 2nd year Electronic Instrumentation Engineering Master's students during one semester, i.e., 14 weeks with one hour and half per week which means 21 hours. It is composed of four units and each unit is built around the different reading strategies as pre-, while- and post- reading and the different sub-skills of reading and some supporting skills though the focus is on the reading skill. In fact, the course focuses on the reading skills which are useful for both the present academic year and for the future profession of students.

5.5. Organization of the course

The course is composed of four units related to the field of Electronics and each unit consists of five parts:

5.5.1. Reading

The course focuses on reading because it is an important skill for engineering students and should be taken into consideration. This part of the course is divided into three important elements which are considered as a common procedure in teaching reading.

5.5.1.1. Pre-reading

The pre-reading activity is very important teaching the reading skill since it is the strategy which helps the students to guess about the text of reading and prepares them to know what the text is about. It is introduced in the beginning of the course using generally pictures taken from the net related to the text as well as the field of study and so considered as a visual tool to help students understand what follows.

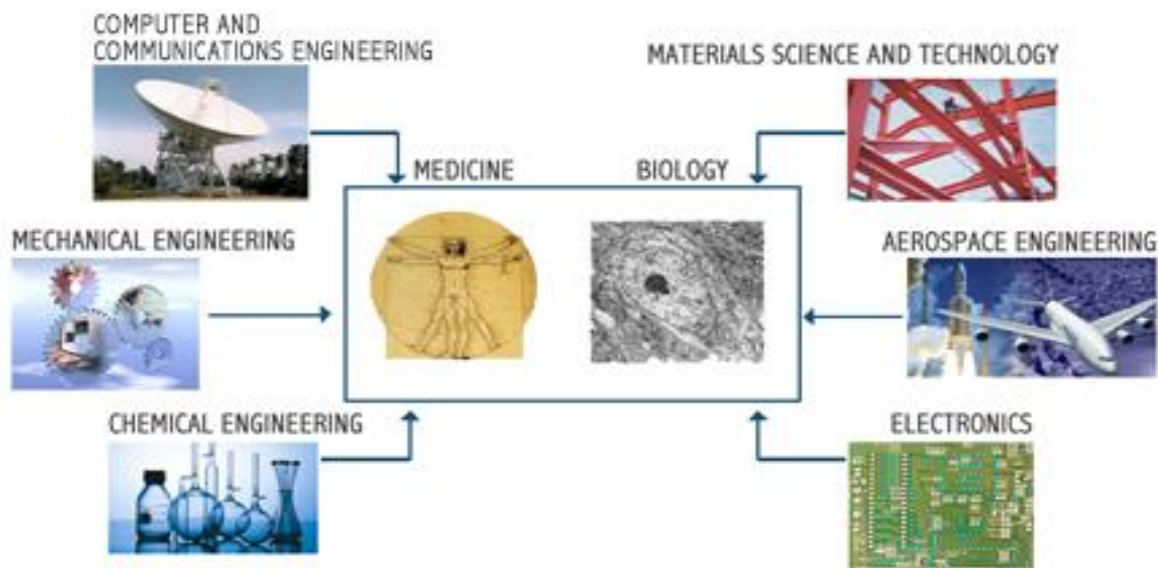


Figure 5.1. Different Engineering Fields (1)

The use of pictures in the pre-reading activity helps the students to comprehend easily what is turning around in the course and to be motivated and eager to know more about the reading passage. It helps also in the oral participation of the students through discussion and debates and thus, the speaking skill.

(1) <http://www.google.com.au/search?hl=en&q=branches+of+biomedical+engineering&um>

5.5.1.2. While-reading

The second part of the reading process is used for comprehension and better understanding of the text. The activities in this part of the course are varied and aim at raising comprehension using the different sub-reading skills as skimming, scanning, intensive reading for details for understanding or solving problems. There are different activities as multiple-choice comprehension questions, true-false statements, matching pairs, fill in the gaps exercises...etc.

2. Read the text to find the answer to these questions.

1. What does a cam do?
2. What does oscillating mean?
3. How are plastic pipes formed?
4. What simple mechanisms in the home are mentioned directly or indirectly?

Figure 5.2. Comprehension Questions Activity

5.5.1.3. Post-reading

This part of the course is crucial since it is considered as the testing phase of comprehension and understanding. It includes more difficult exercises to follow the strategy of gradation, i.e. from the easiest to the most difficult. The post-reading activities used in the course are varied as summarizing the text either individually or through filling the gaps, or matching pairs in web-quests retrieved previously from the web by the teacher, or also previewing and note taking activities.

STAGE 2 *Note-taking*

Now study the passage carefully and complete this framework of notes:

Effects of an electric current :

1. thermal
2.
3.
4. magnetic
 1. heat can be
 - (a) undesirable e.g. motor
 - (b) e.g. cooker
 2. light
 - (a) from incandescent conductor e.g.
 - (b) from e.g. vapour lamp
 3. = breakdown of chemical compound e.g. salt water into chlorine
 4. current flowing in conductor \rightarrow round it. Magnetic field has 3 applications:
 - (a) e.g. relay
 - (b) induce emf in another conductor e.g.
 - (c) e.g. motor

Figure 5.3. Post-reading Activity

In general, the activities used in the three previous stages of the course are various and different aiming at raising comprehension and understanding of the text which is closely related to the students' field of study. They are different in content and in form. That is to say, apart the use of habitual activities of reading, the researcher uses some web-quests retrieved from the net in order to raise students' motivation as well as create a certain variation and innovation and thus escape monotony and routine.

5.5.2. Language Study

This stage of the course deals with the study of language, i.e., the use of some connectors, linking words and structures. For example, the practice of the relative clause is so important in the Engineering field especially for building and making definitions to describe functions. It aims at using the language properly because as it is mentioned before, the use of technical words alone is not sufficient.

Column A lists a branch of engineering or a type of engineer. Column B lists things they are concerned with. We can show the link between them in a number of ways:

1. Mechanical engineering *deals with* machines.
2. Mechanical engineers *deal with* machines.
3. Mechanical engineering *is concerned with* machines.
4. Mechanical engineers *are concerned with* machines.
5. Machines *are the concern of* mechanical engineers.

Figure 5.4. Language Study

5.5.3. Word Study

This part of the course aims to use the word individually; either to study the word from a phonological point of view, i.e. stress, pronunciation and so on, or to study the word from the semantic point of view, i.e. vocabulary, meaning, synonyms, antonyms and so on. It includes different activities as matching pairs, completing tables, word formation of nouns, adjectives and verbs ... etc.

Word stress

Words are divided into syllables. For example:

Engine	‘en.gine	Two-syllable word
engineer	en.gi’n.eer	Three-syllable word
engineering	en.gi’n.eer.ing	Four-syllable word

* The stress is put on the third syllable from the end for words ending in **cal**, **ry**, **ty**, **phy**...

‘Che.mi.cal, ‘che.mis.try, pho.’to.gra.phy, cu.ri.’o.si.ty.

Figure 5.5. Word Study

5.5.4. Grammar

It is to focus on the language through the study of its grammar, i.e., the different grammatical structures used in English in general and in engineering in particular. The different grammatical structures are deeply explained, then followed by a series of exercises of practice so as to grasp each structure and not to misunderstand a sentence ignoring the use of a particular structure.

A. Complete the following. Pay attention to verb tenses.

1. Last night I went to bed after I _____ my homework.
2. Tonight I will go to bed after I _____ my homework.
3. Be sure to reread your composition for errors before you _____ it in to the teacher tomorrow.
4. We will have a big party when _____.

Figure 5.6. Grammar Activity

All the supporting skills used in this course are dealt with to support the reading skill because all the language skills; listening, speaking, reading, writing as well as the supporting skills; grammar, vocabulary, are inter-related and closely linked to have a better understanding of the English language in the area of Engineering.

5.6. Skills Involved in the Course

Though the course aims to develop the reading skills of the students in question, it seems also important for the course designer to integrate other supporting skills in order to make the course effective. Thus, this course consists of reading sub-skills, main supporting skills and complementary skills.

5.6.1. Reading sub-skills

Reading involves a number of sub-skills and students should be aware of them to read different texts with efficiency.

- Predicting to prepare what is going on in the text

- Skimming a text to get a general idea of the kind of information it contains
- Scanning to search for specific information
- Intensive reading for details and solving problems tasks

5.6.2. Main supporting skills

It is highly agreed that in academic settings that reading is used to carry out further language skills as writing, listening and speaking.

- **Writing:** note taking while reading, filling the gaps in texts and performing activities accurately.
- **Speaking:** oral discussions about the text, picture illustration and interpretations, oral gap filling, remembering what is taught previously.
- **Listening:** listen to the teacher and follow the students in discussions.

5.6.3. Complementary skills

As the main language skill help in developing students' reading competences, vocabulary and grammar also help in raising their reading level.

- **Vocabulary:** Word formation, mastering of some content words, dealing with technical terms.
- **Grammar:** Familiarization with some grammatical structures in relation to the students' field of study.

5.7. Materials Design

The course developer always tries to present materials which provide stimuli for learning. She tries to choose materials which are relevant to the students, containing topics and vocabulary related to their field of study. Thus, the researcher usually adopts texts with highly specialized terminology in order to develop comprehension and lexis in English. She also attempts to use materials which contain content easily managed by both students and teachers. Such materials will engage students' thinking capacities as well as opportunities to use the existing knowledge and enrich it.

The text materials adopted by the researcher are available on Internet and this is of a high interest among students in terms of motivation and authenticity. Moreover, they are interactive and include different media (graphics, audio, video, etc.). Access to electronic texts is important because a wide range of reading resources and writing activities are available on the net. In addition, some Internet sites are so interesting and contain some graphics and pictures which raise students' motivation and can easily be used to enhance literacy instruction. Internet, in fact, encourages teachers to introduce into the teaching of reading and offers them a great deal of materials required in the integration of different skills.

Furthermore, offering students authentic materials encourages richer knowledge and involves them with real events and so the real world. They also stimulate a more active role of students and require them to engage more actively in the learning process. As a whole, the course developer tries to use authentic materials related to the students' field of study and she provides available technology materials to provide repeated opportunities for students to build their reading as well as their writing skills.

5.8. Teaching Method

To achieve the goals of the web-based course, the teacher should be familiar with the different innovative approaches used in the domain and s/he should not limit her/his goals to one single approach. Using web practices and applications is certainly beneficial and leads to achievements of goals. However, using the web may not always solve all the problems faced in class. Going from face-to-face instruction to web-based instruction may fix up technology failure. Moreover, using multiple approaches helps the teacher meet the different learning styles of students.

In fact, the researcher based her course on both face-to-face instruction and web-based instruction. Since Internet connection was not available in the classroom, she relies on the overhead projector and her PC to develop the theoretical part of the course, i.e. , dealing with the different texts previously downloaded from e-books and the different structures in the classroom, and lets the practical part to be done at home by students either by receiving activities via e-mails sent by their teacher to be done

and corrected afterwards in the classroom or by performing the web-quests chosen by their teacher through a given link and self-assessed by themselves and also checked by the teacher in the classroom. The students copied their activities and web-quests in their mobile phones or tablets and brought them to the classroom where discussion and correction would follow.

Using the appropriate approach to achieve teaching goals depends also on the simple and clear instruction in order to avoid complexity and failure of students as well. Students usually feel frustrated when technology fails to develop their abilities and skills. Therefore, varying the approaches and learning improves their knowledge, makes them avoid their mistakes and helps them achieve their goals.

The e-mail as a web-based learning tool used by the investigator enables the teacher and students to send messages and data quickly through the Internet. She used this tool because it is a very practical online correspondence means that connects the learner with the entire class and with the teacher as well. She used it to guide the students' assignments and homework through sending the relevant information, requirements, guidelines and all the related issues for students to their e-mail box at any time. Learners also used e-mails for group work in which they can contact each other and collaborate effectively, easily, and quickly to accomplish the required task. In addition, they received answers, clarifications and explanations from their teacher.

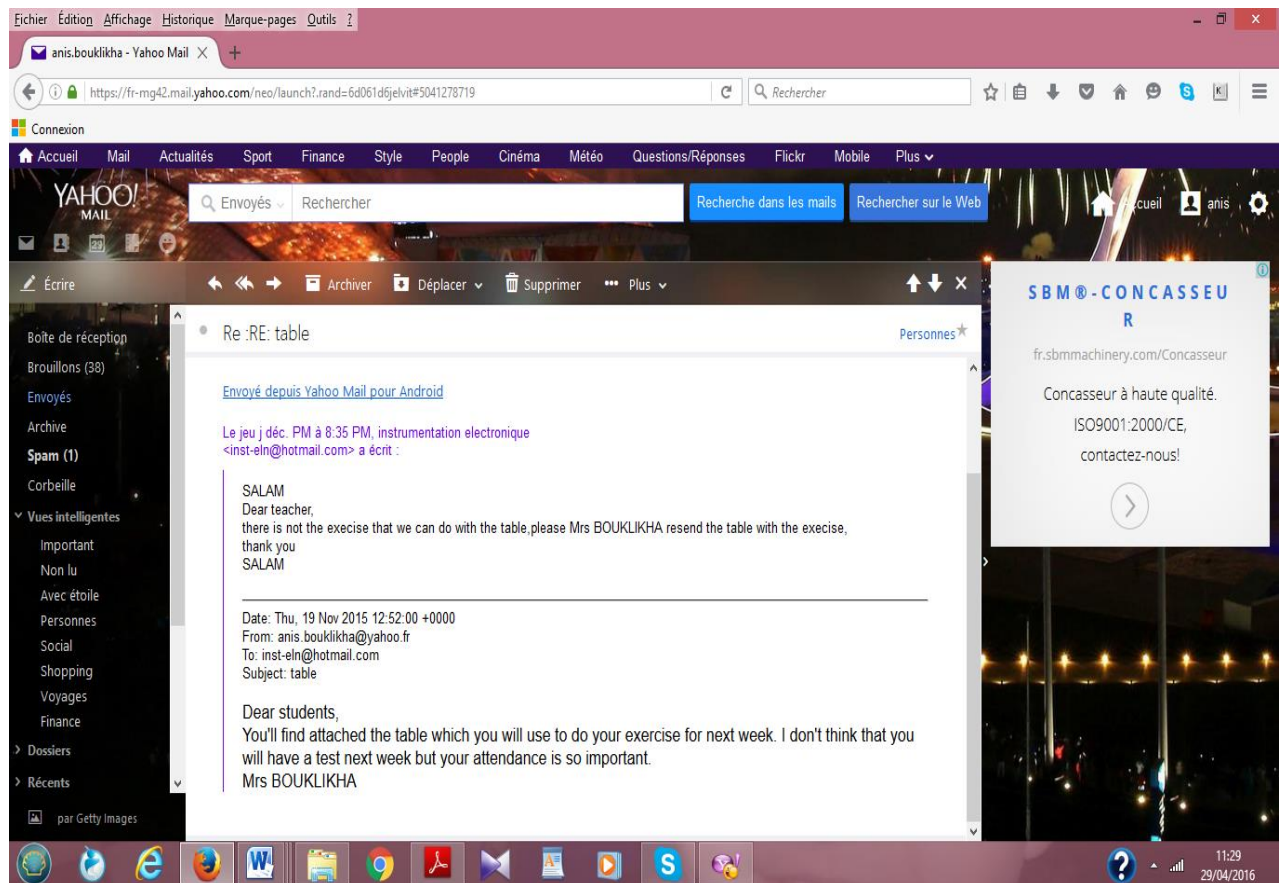


Figure 5.7. An Example of E-mail

Another web-based learning tool used by the investigator through home works was the web-quest. It helps learners to gather, analyse and evaluate information from Internet websites recommended by their teacher since they meet their needs and the content of their field of study. Moreover, it raises learners' online research skills and problem-solving abilities without forgetting their self-confidence and autonomy since they were self-assessed.

1 What is the diagram of?
 2 What does it consist of in terms of blocs?
 3 How are the blocks connected?
 4 What is the function of each block?

The figure shows the block diagram of an amplitude-modulated (AM) radio transmitter. It (1) _____ of a radio frequency (RF) oscillator, a (2) _____, an audio frequency (AF) amplifier, and an RF power amplifier. The RF (3) _____ generates an RF (4) _____ wave which is fed into the modulator.

The microphone converts sounds into audio frequency signals which are amplified by the AF (5) _____. The modulator then uses the amplified AF (6) _____ to modulate the RF carrier wave.

The power of the modulated carrier wave is increased by the RF (7) _____ amplifier. The strong modulated output signals are fed to the (8) _____ which enables them to be transmitted over long distances.

corrige

Figure 5.8. An Example of Web-quest

The researcher also developed her course using the overhead projector and her PC since CALL is playing a significant role in the pedagogical field of ESL or EFL or even ESP (see section 2.3.1).

In addition, at the end of each unit, the researcher sent it to the university site as an online course in order to give the chance to students to have an overall look of the whole unit (lessons and exercises) before moving to the following one.

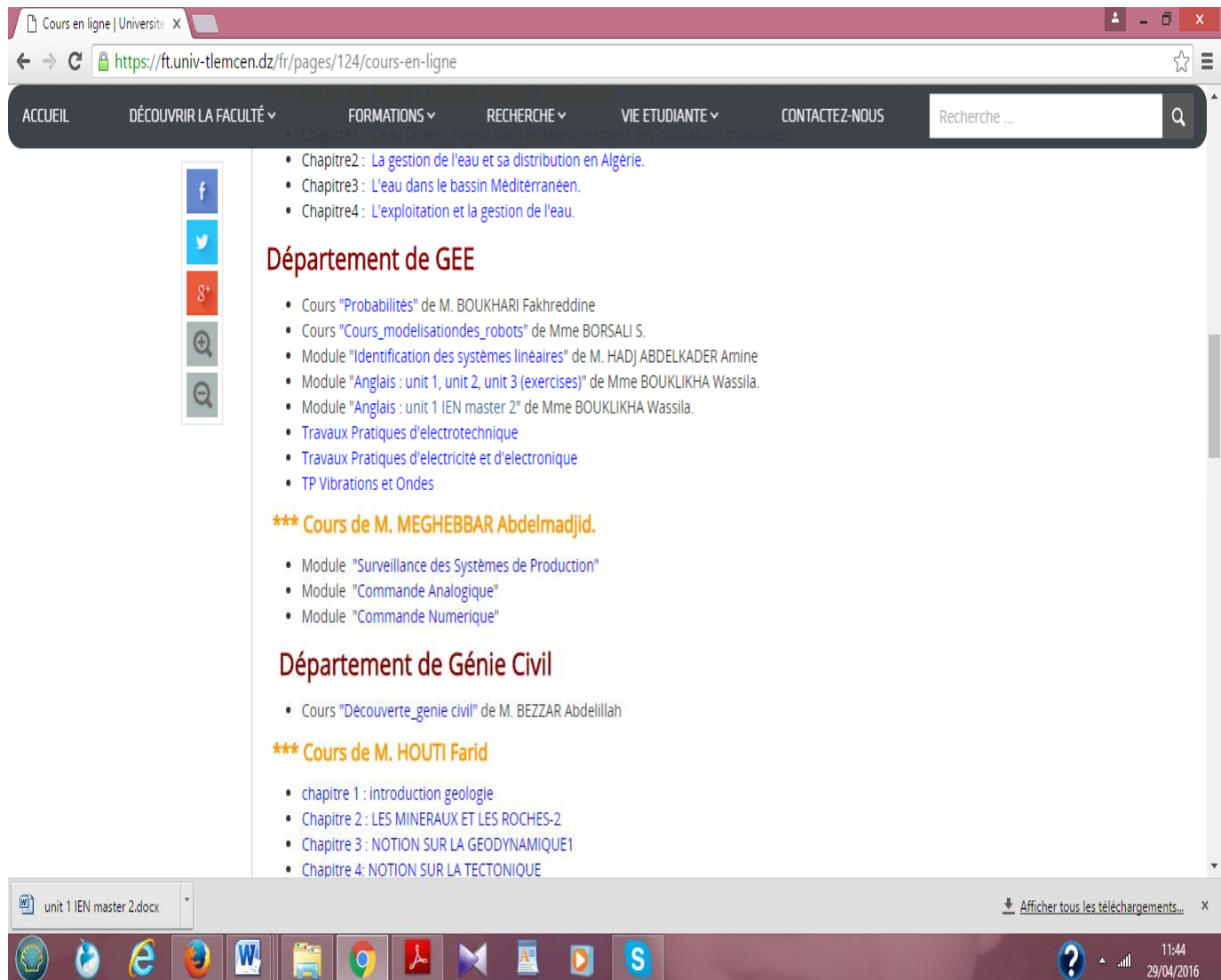


Figure 5.9. The Current Course Online Evaluation and Testing

5.9. Evaluation and Assessment

The researcher has chosen three types of testing to assign her students. She has opted for home works as regular tests in order to test them progressively and continuously, a pre-test before starting the course to check students' reading abilities and more importantly students English proficiency level and finally, a post-test at the end of the course to test students' evolution and progress.

In reality, the number of English lesson hours available in engineering faculty falls short of the amount of time that the researcher estimates and wants to achieve her course goals. That is why; she adopted numerous home works in her course in order to test students regularly as well as gaining time from the allocated time of the course. She believed that additional practice at home should be complementary and beneficial for students to achieve a better level of English.

What is important for the course developer in adopting homework in her course is that whatever she assesses will require follow up and this is the continuous and regular evaluation of students. In fact, the homework is not only used at the end of each unit of the course to have a final assessment and evaluation of students' comprehension and understanding of the course but also through all the stages of the course; on the one hand, to check comprehension of each part of the course and on the other hand to gain time and make students aware of the importance of English in their field of study in particular though unfortunately, it is generally considered as a secondary subject which should be learnt to complete the average.

In addition to ordinary exercises and activities used in the form of home works, the researcher used web- quests, retrieved from the net, to be completed and self-corrected at home by students. This helps them to be autonomous and more motivated to learn. Moreover, this facilitates the duty of correction for the teacher. In fact, the researcher could not really check whether those exercises were self-done or not but giving them this freedom to perform tasks without control raise their motivation and create on them a sense of responsibility. Those web-activities were later corrected in the classroom through overhead projector after downloading them in advance. What facilitate the work for the researcher was that nearly all the students under investigation brought their tablets or laptops and worked with during the course and especially during the correction of web-quests previously done. Because of the insufficient time allocated for English courses, the researcher sent some activities by e-mail to be done at home as well as some texts to be read and prepared at home. Indeed, the teacher and her students were in regular contact.

5.10. Experimentation of the Course

A pre-test was designed for students first in order to verify the proficiency level of English and at the end of the course, a post-test was given to see the evolution of students and their progress in English as well. In fact, both of them were put forward to verify the students' level of English proficiency but the post-test aims more to monitor their progress in English as well as their English ability.

TOEIC test of reading and listening, focusing on reading, was taken as a model and then adapted according to the needs of students to design both the pre-test and the post-test using the same objectives as well as the same sub-skills and nearly the same level of difficulty. The only difference between the two is that the pre-test is more general in terms of content while the post-test is more specific related to the students' field of study.

Both tests focus on the reading skill. They include three parts testing how well students understand written English and directions are given to each part. The first part deals with completing sentences from a multiple choice of words and phrases. It was adapted in both tests taking basic electronic information modelled to the TOEIC test. The second part copes with text completion where texts used in the pre-test were more general in content in comparison with the one used in the post-test. In fact, the two preceding parts of the tests are similar in content, based on testing the accuracy of the students' knowledge of the vocabulary, structure and usage of English. They aim to verify the ability of students to choose the appropriate words and phrases for a given context. The third part is related to reading comprehension. The text used in the post-test was more specialized than the one in the pre-test including comprehension questions to test comprehension of vocabulary as well as grammar in context.

In general, the researcher through both tests wanted to check students' development of their reading skills for either academic or professional purposes aiming at inculcating reading habits, developing effective reading skills and also measuring reading comprehension and basic reading abilities and thus encouraging them to be actively involved in participative learning of English.

5.11. Analysis of Experiment Tests

In order to know the feasibility of implementing web-retrieved in teaching the reading skill for EIE master's students, the researcher should deal with the analysis of the experiment tests.

5.11.1. Purpose

The experimental instruments were designed to evaluate the impact of the implementation of web-retrieved materials in teaching reading on the development of the reading skill and to explore the students' reading abilities if developed through the experimentation represented in the course under question. These instruments include a pre-test which was administered to the sample population before the beginning of the course application and a post-test at the end of the course under study.

The purpose of the pre-test is to assess the students' reading proficiency level and it is a manner to better understand the students' overall reading abilities. Consequently, it can determine the readiness of students for such experimentation. On the other side, the post-test aims to see the progress of students under study and to verify and raise the students' proficiency level particularly in reading and in English in general.

5.11.2. Presentation and Organization of Tests

Both the pre-test and post-test were adapted from TOEIC reading and listening tests focussing on reading only. They were also based on the students' needs which were presented in the students' questionnaire and the teachers' interview. By establishing such tests, the researcher will be fixed on the feasibility of the implementation of the current course. In fact, both tests have the same objectives, target the same skills and have nearly the same level of difficulty. They are also composed of the same parts described below:

- I) Incomplete Sentences: This part is guided by a direction to understand what to do and deals with completing sentences from multiple choices of words or phrases. The content of sentences that suits the students' field of study is highly taken into consideration since all the sentences in this part in both tests deal with English for engineering and more importantly, English for

Electrical and Electronic purposes. Emphasising on the students' field of study content motivates them and integrates them in the course.

- II) Text Completion: It asks students to complete a text. It should be noted that texts used in the pre-test are more general in content in comparison with those used in the post-test. It is based on testing the accuracy of the students' knowledge of the vocabulary, structure and usage of English and aims to verify the ability of students to choose the appropriate words and phrases for a given context.
- III) Reading Comprehension: The third part is related to the comprehension of given texts. The unique difference between texts in pre-test and post-test is that the text of the post-test is longer and more specialized than the one of the pre-test. It includes comprehension questions to test the students' understanding of the text.
- IV) Grammar: As seen in section 5.2.2 related to the importance of grammar in teaching ESP/ EST, the investigator adapted the TOEIC test by adding this fourth part for its importance to test the structures taught in the course under study. The fact of choosing one item or group of items from a multiple choice item makes the respondents more accurate and more aware of the structures in questions in terms of form and content.

5.11.3. Experiment Results

The scores of the pre-test and post-test obtained are clearly shown in the table below including the scores of all the parts included in the tests separately. In addition, the table shows the sum and means of scores of each part and of the whole tests. The mean is the most frequently employed measure of comparison, which represents the average of a set of numerical data. The formula of the mean is as follows:

$$X = \frac{\sum F_x}{N}$$

X : Mean F_x: Score frequency N: Number of scores Σ : The sum

Table 5.1. Pre-test and Post-test Scores

Students	Incomplete Sentences	Text Completion	Reading Comprehension	Grammar	Pre-test Mark	Incomplete Sentences	Text Completion	Reading Comprehension	Grammar	Post-test Mark
1	1	0	2	2	5	2	1	2	3	8
2	5	1	2	3.5	11.5	3	1	5	2	11
3	1	1	5	0	7	3	3	4	3	13
4	2	0	5	3.5	10.5	4	2	7	3	16
5	2	1	5	3.5	11.5	3	1	5	4	13
6	3	1	4	2.5	10.5	1	1	5	3	10
7	2	1	4	3.5	10.5	2	1	3	3	9
8	3	1	5	3.5	12.5	3	4	7	3	17
9	2	1	6	2.5	11.5	2	2	4	3	11
10	3	1	7	3.5	14.5	2	2	3	2	9
11	2	0	6	3.5	11.5	1	1	2	3	7
12	2	1	7	1.5	11.5	3	1	6	4	13
13	3	0	9	1.5	13.5	4	4	7	4	19
14	2	1	4	3.5	10.5	2	0	2	4	8
15	2	0	4	3.5	9.5	5	4	7	3	19
16	2	1	7	0	10	1	1	1	4	7
17	1	1	7	0.5	9.5	4	3	3	4	14
18	4	1	5	3.5	13.5	5	3	7	4	19
19	2	1	4	3	10	2	1	5	4	12
20	2	1	7	0	10	3	4	5	4	16
21	2	1	2	3	8	4	4	6	4	18
22	1	1	2	1	5	2	2	1	2	7
23	3	0	4	0	7	3	3	3	2	11
24	2	1	3	2.5	8.5	4	1	5	3	13
25	2	1	3	1	7	5	1	5	3	14
26	1	1	0	2.5	4.5	2	1	3	3	9
27	2	1	7	0	10	2	3	2	2	9
28	3	1	7	3.5	14.5	4	4	2	3	13
29	2	1	7	3.5	13.5	3	4	6	4	17
30	2	1	3	3.5	9.5	2	0	3	2	7
Sum of scores Σx	66	24	142.8	69	301.8	85.8	63	124.8	94.8	369
Mean of scores (\bar{X})	2.2	0.8	4.76	2.3	10.06	2.86	2.1	4.16	3.16	12.3

An experimental study involves taking measurements of the system under study, manipulating the system, and then taking additional measurements using the same procedure to determine if the manipulation has modified the values of the

measurements. The “rule of three” is used in statistical analysis. In this study, in order to measure the progress or regress of students from the pre-test to the post-test in each part of the tests, the following equation was used: $P = N \times 100 / \sum$.

P= Percentage N= Number of students \sum = The sum (Total number of students)

Pre-test Vs Post-test Results:

Following an experimental method of research, the investigator could justify the findings gained through the scores of the pre-test and post-test in attributing the causes of such differences. After analysis, the results revealed that the percentage of success in the post-test (66.66%) was slightly higher than that in the pre-test (63.33%). This means the percentage of students who reached the average in the post-test in comparison with that of the pre-test was higher.

$$P = N \times 100 / \sum$$

$$P_1 = 20 \times 100 / 30 = 66.66\% \text{ (percentage of students having above 10/20 in the post-test)}$$

$$P_2 = 19 \times 100 / 30 = 63.33\% \text{ (percentage of students having more than 10/20 in the pre-test)}$$

However, the scores increased or stayed the same from pre-test to post-test for the majority of the candidates. Most of them (63.33%) obtained better scores in the post-test comparing with those achieved in the pre-test while only 16.66% of them scored badly in the post-test. 20% of them kept nearly the same scores in both tests. The findings are better represented in figure 5.10.

$$P_3 = 6 \times 100 / 30 = 20\% \text{ (percentage of students who regressed in the post-test)}$$

$$P_4 = 19 \times 100 / 30 = 63.33\% \text{ (percentage of students who progressed in the post-test)}$$

$$P_5 = 5 \times 100 / 30 = 16.66\% \text{ (percentage of students who kept nearly the same scores in both tests)}$$

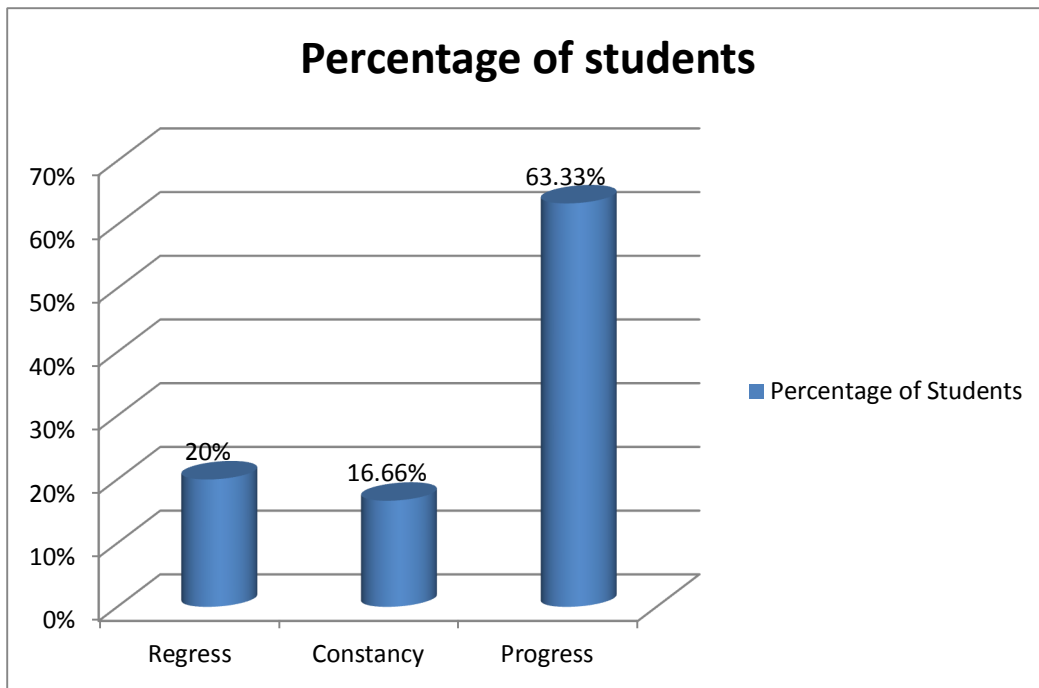


Figure 5.10. Students' Progress

In addition, even those students who regressed, they regressed moderately whereas those who progressed, they progressed considerably. Some examples are shown in the following table:

Table 5.2. An Example of Progress and Regress

Students	Pre-test	Post-test
1	9.5	19
2	9.5	14
3	8	18
4	10.5	9
5	11.5	7

The collected scores revealed also a progress in the mean of scores from the pre-test to the post-test. That is to say, the mean of scores in the pre-test was 10.06 whereas in the post-test, it was 12.3. This means a progress from the pre-test to the post-test. This showed that the implemented course was beneficial for students to develop their reading ability to understand and comprehend texts related to their field of study.

$$X = \Sigma x \div \Sigma$$

$$X_1 = 369 \div 30 = 12.3 \text{ (mean of scores of the post-test)}$$

$$X_2 = 301.8 \div 30 = 10.06 \text{ (mean of scores of the pre-test)}$$

I. Incomplete Sentences:

In this part, 17 of students obtained better scores in the post-test in comparison with those in the pre-test whereas 5 of them had lower scores in the post test and 8 of them kept the same score in both tests.

$$P_1 = 17 \times 100 / 30 = 56.66\%$$

$$P_2 = 5 \times 100 / 30 = 16.66\%$$

$$P_3 = 8 \times 100 / 30 = 26.66\%$$

Using this type of analysis, all the percentages were calculated for each part of tests. The scores obtained in this part of the pre-/post-tests revealed that 56.66% of students were more able after the intervention to complete successfully sentences, 26.66% of them kept the same scores in both tests and 16.66% did not seem to benefit from the course in this area.

II. Text Completion:

According to the results obtained in this part, it was revealed that 60% of them raised their scores in the post-test comparing with those in the pre-test, 33.33% of them kept the same scores in both tests while only 6.66% of them obtained lower scores in the post-test than in the pre-test. In addition, the mean of scores in the post-test (2.1) was much higher than in the pre-test (0.8). This explained that the students developed the ability to comprehend texts by filling appropriate words or phrases according to the context. The exercises about comprehension and vocabulary in the course seemed to be beneficial.

III. Reading Comprehension:

Regarding the scores obtained in this part of the tests, it was shown that 51.66% of the students regressed in comparison with the scores obtained in the pre-test whereas only 33.33% of them progressed in this part and 10% of them kept the same mark in

both tests. Additionally, the mean of scores in the pre-test (4.76) was slightly higher than that in the post-test (4.16). This enlightened the fact that students showed a little difficulty in comprehending a long text (post-test).

IV. Grammar:

Concerning this part which concerned grammar, the results revealed that 70% of students obtained better scores in the post-test comparing those in the pre-test whereas 30% of them had lower scores in the post-test in comparison with those achieved in the pre-test. The mean of scores in this part was much higher in the post-test (3.16) compared with that in the pre-test (2.3). In fact, in the pre-test, the students were tested on a grammatical structure which was dealt with previously in English courses whereas that dealt with in the post-test was explained and clarified by the researcher during the investigation. Moreover, the grammatical activities given in the course seemed to be beneficial for the mastery of grammatical structures that are useful in the students' field of study.

After analysing the third instrument of research (pre-test and post-test) which was analysed quantitatively, the researcher aims to know if the results obtained confirmed the fourth research hypothesis. Thus, the researcher tends to discuss and interpret the main findings.

5.11.4. Interpretation and Discussion of the Main Results

To examine the impact of the web-based language teaching on the performance of EIE students, the researcher designed a purposeful and focused course aimed at improving students' proficiency level, mainly reading skills. Therefore, the interpretation and discussion of the main results obtained from the pre-test and post-test scores of students explains the feasibility or non-feasibility of such experimentation.

Concerning the fourth hypothesis, it states that an ESP course supplemented by web-retrieved materials may have a positive impact on the development of the reading skill helping students to develop their abilities to understand and comprehend texts and

acquire knowledge on specialized vocabulary and grammatical structures useful in their field of study.

First, the results obtained from the first part (Incomplete sentences) of both tests reveal that students' progress in acquiring knowledge on specialized vocabulary which meets their field of study is clearly observed since the majority of them achieved satisfactory scores in this part of the post-test comparing with those obtained in the same part in the pre-test.

Dealing with the second part of the tests (Text completion) which aims to develop students' abilities to comprehend and understand small texts and acquire knowledge on vocabulary in context, it was seen that students reach a certain degree of achievement in understanding texts by filling appropriate words or phrases that explain an overall comprehension. This is shown in the scores obtained in this part of the post-test in comparison with those obtained in that of the pre-test.

Regarding the third part of the tests (Reading comprehension) which aims also at developing students' reading abilities to understand texts that meet their field of study by answering some comprehension questions, it was revealed that students scored better in the pre-test than in the post-test and this may explain the complexity and length of the text dealt with in the post-test.

Concerning the grammatical part introduced in both tests which aims to test the mastery of grammatical rules dealt with in the course under investigation, it was proved that students scored better in the post-test compared to the pre-test since the majority of them obtained satisfactory scores in the post-test. This explains their progress and better understanding of the grammatical structures involved in the implemented course.

As a whole, the results obtained in the experiment show that the mean of the scores (10.06/12.3) raised from the pre-test to the post-test and this explain the students' progress at the end of the experimentation. Therefore, the results seem to confirm that by implementing web-based activities in ESP reading instruction, the students are highly interested to learn English and teachers can provide them with a variety of

resources that cannot be dealt with in the classroom because of the lack of time. Using e-mail means of communication also helps the students to overcome their difficulties in performing their reading activities by helping each other and gaining profit from the teacher's help when clarifying ambiguities and misunderstanding.

Since the collected scores revealed a progress in the average of the group of students under study from the pre-test to the post-test in addition to their little regress comparing with their progress from the pre-test to the post-test, one can say that those results show a positive impact of an ESP course supplemented by web-retrieved materials on the development of the reading skill including a progress in their content knowledge and improvement in their reading competence. Therefore, the results obtained confirm the fourth hypothesis and the feasibility of such implementation.

5.12. Challenges

The course developer in the present case study identified time as the particular constraint that hindered the development of the course design. Lack of time was on the part of the students that led to limitations on the type of teaching and type of activities that could be used. First, one hour and half of English per week during only one semester in the academic year was proved to be insufficient, either for the teacher who wanted to give more language forms and structures, or for the students to assimilate all the language skills needed to accomplish a good comprehension and understanding besides interpretation of any specialized text, here in electronics. In addition, the students have a heavy time table concerning subject courses. That is why; it is understandable if they take only a limited time for home work or further reading in English. Thus, given that the students are short of time, the researcher presented and selected what is more or less important for the students despite her own preference as an educator.

One of the difficulties that the ESP teacher faced in this case was the fact of not being trained in the Engineering field and particularly in Electronics. This meant that she was turning around subject specialists and any information related to the Electronic domain for developing her understanding of Electronic discourse. However,

this may be advantageous for the researcher who was prevented from offering too complicated information in Electronics. She thus focused on language use in context.

5.13. Conclusion

In order to expand knowledge, more and more information to read, either in traditional or electronic form, is needed. The course aims to innovate the teaching of reading in an ESP context, here Electronics. It, thus, aims to help students improve techniques and strategies for efficient reading. The implementation of web-retrieved materials in this course is a manner to encourage students' autonomy, increase motivation and escape from monotony and routine. In addition, the interpretation of the results of the experiment tests reveals the feasibility of such implementation.

These results in addition to those obtained from the students' questionnaire and the teachers' interview lead to some suggestions and recommendations proposed by the researcher regarding the teaching of ESP. The following chapter intends to make ESP teachers adapt their teaching methodology in teaching the reading skill in particular in order to meet their students' needs and make them acquiring subject specific knowledge.

CHAPTER SIX

CHAPTER SIX**Suggestions and Recommendations to Promote Reading**

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6.7. Conclusion

6.1. Introduction

English as an international language has a great impact on the Engineering field in Algeria. Thanks to globalization the English language is spreading and proficiency in English is considered as a skill of great importance. The study has helped to identify the skill that Engineering students need in order to be successful as students and as professional engineers in future. To do so, this chapter will provide some recommendations to improve the Engineering English course in general.

As a contribution to the field of ESP education, the present chapter attempts to put forward some recommendations that might set useful practices in ESP instruction on the web. Therefore, this chapter first reconsiders the notions of WBL and ESP course design to fit the increasing demands and needs of learners in the information age, deals with the role of the teacher in ESP, the concept of NA that helps a lot in ESP course design and examines the need of teachers' training that has become necessary in ESP teaching. Finally, the chapter gives additional suggestions to promote the reading skill using web-retrieved materials and to improve the teaching of reading. It is in fact designed to provide possible solutions to the problems faced in the study. The results of the research work are discussed trying to highlight the relation between the findings and the current situation investigated in the implementation of the web-based approach in teaching reading for ESP/EST students.

6.2. Web-Based Learning

The researcher implemented a web-based learning approach to improve EIE Master Students' reading abilities. With this, she wanted to prove the feasibility of this approach as well as the integration of such an approach in the teaching of reading to various ESP students. In fact, the adoption of such an approach does not require a particular strategy of teaching but a number of ways and strategies that are seen to be effective to acquire a successful teaching and an appropriate learning environment. In this vein, Warschauer and Kern (2005: 17) state that "Net-work based language teaching does not represent a particular technique, method, or approach. It is a constellation of ways by which students communicate via computer networks and interpret and construct online texts and multimedia documents, all as part of a process steadily increasing engagement in new discourse communities."

Adopting web-based activities in the practice of the reading skill for ESP students was proved beneficial and interesting after analysing the pre- and post-tests undertaken in the study which revealed students' progress and interest during the implementation of this method of teaching. It seems to be interesting after the increase of students' attendance rate from one lecture to the other in the one semester course. The fact of using web materials in learning English appears to be a new experience for them and provides a certain satisfaction to attend English lectures and perform web-based tasks at home without forgetting texts reading in e-books which are particularly related to their field of study.

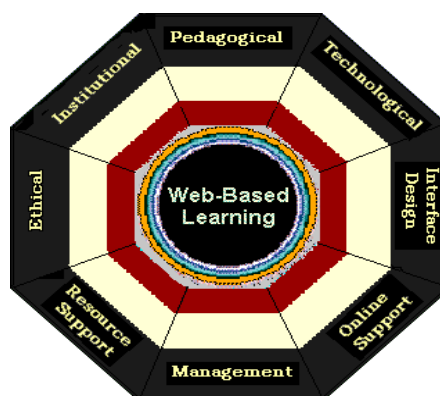
There are, indeed, numerous names to describe Web-Based Learning (WBL) activities such as Web-Based Training (WBT) and Web-Based Instruction (WBI). However, WBI is most common in academic settings. The researcher, from all these WBL activities used an approach that suited the current situation.

An ESP practitioner has a small role in preparing students to use technology in academic contexts. For instance, the mechanics of sending and receiving e-mails, conducting an Internet research and working with office applications should be self-taught. Unfortunately, the investigator showed some of her students even how to open an e-mail address. In addition, she faced the problem of the non-availability of Internet

connection in the classroom. Because of all these problems which were time consuming for the researcher, she adopted activities that depended on what was offered keeping in mind the idea of innovation, creativity and motivation in ESP teaching in general and teaching reading in particular. In fact, the use of overhead projector and PC to present her lectures in the classroom was not a problem since it was the teacher's concern. The positive aspect in the current research was the availability of laptops and tablets among the students under investigation and this facilitated the implementation of her approach. The activities that needed Internet connection like web-quests, the use of e-mails in exchanging messages between the teacher and the students for the purpose of answering questions and clarifying ambiguities that faced students and the consult of the University web site to have access to some reading texts, activities and lessons put by the researcher online used to be done at home in order to gain time for the teacher and the students. The task to be done in the classroom relied on computer-assisted tools which facilitated the learning and teaching processes.

6.2.1. Web-Based Learning Environment

Many factors help to create a meaningful web-Based Learning environment. They are systematically related and depend on one another. The WBL framework developed by Khan (2001:78) helped a lot the investigator to be strategic in her experiment. These factors, on which a WBL environment should rely according to Khan (2001), are represented in the following figure:



**Figure 6.1. WBL Framework
(Khan, 2001: 78)**

One of the factors mentioned in Khan's framework is the *pedagogical* aspect (Khan, 2001: 80). It relies on what type of content is appropriate to teach via the Web-Based strategies, who are the participants, what they are required to do, what multimedia elements of Internet are used (e-texts, web-quests, web-activities ...etc.), what the teacher's role is; to be facilitative, didactic or both, does the teacher base his/her instruction on organization and continuity, and finally does the teacher's approach of using the Web promote inside collaboration by providing reassuring environment for asking questions, clarifying directions, suggesting or contributing resources. In general, this is a summary of the concern of the *pedagogical* aspect of the WBL approach.

Following this dimension of WBL framework, the current course designer adopted her implementation of WBL in her teaching procedure based on the particular content of the students' field of study which is Electrical and Electronic Engineering; all the texts used in the experiment were based on this content. She worked with 2nd year Electronic Instrumentation Engineering Master's students in the Department of Electrical and Electronic Engineering in the Faculty of Technology, the University of Tlemcen. These students are adults wanting to be involved in the new experiment since they showed a positive attitude towards integrating web-based materials in their learning (see section 4.3.3). They were required to use the web in their learning in order to raise their abilities in reading and proficiency level in English as a whole and most importantly to be autonomous and interested in their learning. The investigator adopted the WBL through web-quests done at home and corrected by students themselves so that they became more responsible for their learning. She also suggested some e-books (1). She performed her task of teaching being facilitative in simplifying directions of activities and even in how to have access to those activities and didactic in instructing and demonstrating, tutoring, i.e. directing her teaching. She also based her teaching on organization and continuity (see section 5.5). In addition, she encouraged collaboration between the teacher and the students since she offered a reassuring environment based on asking questions, clarifying directions and suggesting resources. Therefore, an implementer of such an approach should take into consideration issues concerning goals, design approach, organization, methods,

strategies and medium of WBL environment. Thus, she followed the *pedagogical* aspect of Khan's framework in her experimentation.

The *technological* factor in WBL framework concerns the infrastructure which includes "standards, policies, course personnel, orientation programme, and internet services" (Khan 2001: 83). It deals with the assistance of the course designer in his/her teaching. It concerns also the hardware and software used in learning. Accordingly, since the current investigator complained about the unavailability of Internet connection in classrooms and even if available in some special rooms, it is of bad quality; she asked the students to use Internet individually since they preferred individual work (see section 4.3.2.3). They performed their home works either in those special rooms or at home. The way of how to search on the net was also shown by the researcher since she attempted to demonstrate how to be effective in searching on the net emphasising the key words and taking only what interested and corresponded to them. The teacher made sure that her students know how to use hardware requirements for the course. As far as software is concerned, necessary programmes should be included in any web-based course such as word processor and e-mail packages.

Another dimension that WBL framework relies on concerns the *interface design* which consists of page and site design, content design, navigation and usability testing. Website designers must consider the physical appearance of the website "to look good in a variety of web browsers and devices [...] and use a standard font type so that the text appears same in different computer platforms and browsers" (Khan, 2001: 84). For this concern, the researcher controlled the functionality of the screen when using the overhead projector in presenting her lessons. She also guided the students' navigation when performing the web-quests which were done at home. In addition, the experimental course was not based on blended or e-learning but rather on integrating

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- (1) - Oxford English for Electrical and Mechanical Engineering' by Eric H. Glendinning and Norman Glendinning (bookfi.org)
- Cambridge English for Engineering edited by Cambridge University Press 2008 (www.cambridge.org/elt/englishforengineering)

some web-based activities in the course itself. This approach of teaching proved to be accessible by the students since they all answered their teacher's e-mails, received activities, consulted the lessons put online on the University site by their teacher and downloaded attached documents sent by e-mail. What really attracted the researcher was that even when the information did not arrive to some students because of technical problems, the other ones put this information on Facebook to share it with those who did not receive it. This showed their spirit of sharing knowledge and more importantly their interest to technology.

Moreover, *evaluation* is considered as a key element in the WBL framework based on the evaluation of teaching and learning environment, i.e., the evaluation of the course content, the instructors' method, learning environment, learning resources, course design, and technical support, etc. Thus, the researcher ensured that the course content corresponded to the students' field of study and the experimental tools (pre- and post-tests) also helped in measuring the effectiveness and feasibility of the course.

Besides, the *management* of WBL refers to the maintenance of the learning environment and distribution of information. Here, it concerns the content development of the course which was supported by web information. When adopting this WBL, the investigator should inquire about problems that occurred in the performance of the experiment such as the bad connection, some software or hardware problems and even power cut.

Resource support is also an aspect in the WBL framework dealing with an online support of experts or specialized staff. This aspect, indeed, does not really concern the current investigation since the investigator did not aim in her study to perform online courses. However, she controlled students' resources and proposed others available in digitalized format using students' and the teacher's tablets, computers and mobile phones. Thus, the researcher examined the sources that foster the learning environment.

The *ethical* side of the framework is related to the cultural and geographical diversity of learners, which does not particularly concern the current study except for two students who were from a Nigerian origin and proved to be different in their proficiency level in English since they received English teaching from the primary school not like our students. Diversity among students is also shown in their different attitudes towards learning, their degree of motivation and interest and their computer competences and abilities.

Finally, the *institutional* dimension deals with issues of academic concern. It is purely administrative since it deals with whether the institution is ready to offer such an instruction and whether it provides quality teaching. In fact, this implementation of web-based course is purely academic related to research purposes and may be further used. Yet it should be mentioned that the course designed in this study was presented to the scientific committee of the Department of Electrical and Electronic Engineering, the Faculty of Technology to be approved and adopted to teach Electrical and Electronic Engineering Master's students. In addition, the current course was approved by two teachers who were asked for expertise since they presented favorable expertise reports of the handout containing the units dealt with in the course under study.

All the dimensions mentioned above present some learning issues that faced the investigator when planning, designing, evaluating or implementing web-based teaching. In fact, web-based teaching has some components that should be taken into consideration by the web-based course designer.

6.2.2. Web-Based Teaching Components

The components of Web-Based Teaching proposed by Khan (2001) are grouped in eight categories. An understanding of abilities of WBT components and features can facilitate the design of a meaningful Web-based learning environment.

1. Content Development dealing with learning and instructional theories and design as well as curriculum development.
2. Multimedia Component which consists of texts, graphics, transmission of audio and video means, graphical user interface and compression technology.

3. Internet Tools comprising communication tools as e-mail, text-based, Internet phone...etc. In addition to remote access tools, Internet navigation tools that give access to databases and web documents as search engines (Google).
4. Computers and Storage Devices.
5. Connection and Service Providers including modems, mobile technology, Internet Service Provider (ISP)... etc.
6. Authoring and Management Programs such as hypertexts and HTML.
7. Servers and Networks such as http servers, web site, Uniform Resource Locator (URL), Wireless Application Protocol (WAP) ... etc.
8. Browsers and other applications that comprise text-based browser, links and so on.

6.2.3. Web-Based Teaching Features

WBT features are divided into two parts: key features and additional features. Key features are naturally linked to the web whereas additional features are specific to a particular WBT design with all its challenges. Concerning the key features of WBT, among the most popular websites for English language teaching and learning are: BBC English (www.bbc.co.uk/worldservice/learningenglish/index.shtml), Dave's ESL Cafe (www.eslcafe.com), Global English (www.globalenglish.com), and English Language Resources for Teachers and Students of English (www.eltweb.com/liason). Regarding the additional features of WBT, Khan (2001) suggests that a well-designed WBT has the ability to provide learner-centered, engaging, interactive, affordable, efficient, easily accessible, flexible, meaningful, distributed and facilitated learning environment.

6.2.4. Further Suggestions

Based on the findings obtained in this research work, the study recommends that the *Engineering English* course is directed to the target situation and the study needs, based on the principles of globalization and web-based. The course is innovative in content, in methodology and in learning outcomes and this promotes creativity, critical thinking skills, group skills, etc.

In fact, the *Engineering English* course offers a wide range of skills in addition to the basic language skills. It develops learner autonomy through web-based learning and took into consideration the learners' views while designing the course following NA.

ESP course designer introduces technology-integrated language learning in the course which is evaluated and modified frequently according to the target needs of students. She is, thus, trained to be creative and effective.

Internet is bringing further changes as language courses can now be downloaded from all over the world. The interactive exercises on the Internet provide the learners with plenty of opportunities to assess their language skills. Podcasts, voice chats, blogs and authentic materials available on the Web enable learners to develop their listening, speaking, writing and reading skills respectively. One point expressed in many researches in this context is the availability of ICT to assist second language acquisition.

There is a great need for educational professionals in Tlemcen University to have complete Instructional Design skills to create meaningful learning materials. Therefore, it is necessary to see more and more educators in Algeria adopting such Instructional Design and Web-Based Learning to improve education quality using locally available technology tools. In order to design an effective ESP course, it is important to deal with the teaching methodology.

6.3. Teaching Methodology

Whatever methodology adopted to teach the reading skill for ESP students using web-based materials, it is important to recognize that a teacher should not focus on one method but attempt to find all the appropriate ways that suit the students' needs for learning and that raise their English proficiency level as well as their reading abilities. In order to do so, the integration of web-based materials to teach this skill to ESP students seems appropriate and beneficial since it makes students motivated and paves

the way to advanced Technology. In fact, the teaching methodology encompasses many elements that should be taken into consideration as displayed below.

6.3.1. Teacher Training

Whenever dealing with research about teaching in an ESP context, teacher training is highly recommended. Many researchers who investigated the ESP teaching situation in Algeria suggested teacher training (Benyelles, 2009, Hemche, 2014, Lamri, 2015). They opted for training in different fields of studies which means that whatever the field of study, an ESP teacher should be trained. For instance, Benyelles (2009: 203) suggests that an ESP teacher should be trained in particular areas such as needs analysis, syllabus design based on needs analysis results and course design and states that teacher training course needs:

- to provide trainees with knowledge in Applied Linguistics
- to provide trainees with practical and theoretical knowledge in ESP
- to give trainees the opportunity to design teaching materials and evaluate them in their classrooms.
- to teach trainees how to assess the language needs of students and how to plan courses relevant to their needs.

Hemche (2014: 271) as well highlights lack of Algerian ESP teacher training. When she undertook a comparative study between ESP teaching in Algeria and in France, she proposes (272-273) two essential phases in ESP teacher training: pre-service and in-service training.

- Pre-Service Training: This phase includes instruction in the different sciences involved in TEFL such as Phonetics, Linguistics, Psycho-pedagogy, teaching techniques, methodology, and so on (Miliiani, 1993) and provides knowledge on the context in different areas depending on learners' needs. In addition, an ESP teacher needs also to be trained in the needs identification and analysis process with its underlying principles as well as syllabus design, materials production, and students' assessment and course evaluation. Besides theory, pre-service training will pave the way for practice. This means that the trainee has to be given the opportunity to observe ESP teachers at work to evaluate his/her

teaching practice and so attempt to ensure teaching quality and course effectiveness.

- In-Service Training: It occurs in the period of teaching and tends to make ESP practitioners 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 training. In-service training aims at helping the teachers to have an important knowledge of the language taught namely EST, to master the specific terminology related to this area, and become familiar with the widest possible range of teaching techniques to rely on and language aspects to focus on when performing his task.

Similarly, Lamri (2015:245) proposes providing the ESP teacher with adequate training that expands his knowledge about the specific needs of students, being aware of the content to be taught and the teaching methods to be used. That is to say, training ESP teachers includes areas as needs analysis, transfer of needs analysis results into syllabus, course design about teaching the four skills (Koné, 1989:2-5).

In fact, the major problem that language teachers face is the understanding of scientific and technical texts. Boswood and Marriott (1993: 90) say that: "As ESP enterprise essentially requires discourse competence across community boundaries, ESP Practitioner Training needs to address the intersecting modes of professional discourse which operate in a given ESP context".

In the same vein, the current researcher claims also that ESP teachers need training. They have difficulty in getting or exchanging information in the field and the concentration on learner needs has led to neglecting their own ones, particularly in the case of teacher training courses. It is also recommended projects that develop the teaching of ESP as a profession and encourage ESP teachers both at the local, national and why not international level to work in collaboration in order to find solutions to the problems that exist, to share their experiences and knowledge, obtain new ideas and information on methods and techniques in teaching ESP. In addition, since we

belong to an era of globalization and Technology, an ESP practitioner needs to be trained on mastering the new tools of Technology as well as updating the ESP course design based on web materials that will open for them the door to innovation and will broaden awareness of what will occur in the domain of teaching in general and teaching ESP in particular all over the world.

Apparently, some teachers are unenthusiastic to design web-based courses due to several reasons as lack of computer knowledge, how to design web-based courses and what program/software to choose. In fact, Web-based course designer needs to be computer literate, select the necessary materials to be put online or retrieved from the web, develop interactive activities, decide on the tasks and exercises, etc. To do so, they require particular training on acquiring knowledge related to computer literacy and how to use the Web to design courses and implement new teaching methods.

Recognizing the problems faced by most of the teachers in designing web-based courses leads to careful planning and a lot of preparation which are time consuming. Thus, certain guidelines should be given to assist those teachers in planning their courses and thus making the process of designing the English language web-based course easier and faster. Teachers are introduced to the basic steps for developing the web course that will benefit both the teacher and students.

Based on the above views on how to design an English web-based course, the following figure summarizes the framework that may help to encourage and facilitate the task of English language teachers to develop English language course integrating web-based materials. Once teachers have developed the English web-based courses, they can then vary their teaching approaches and strategies, thus making teaching more interesting and meaningful.

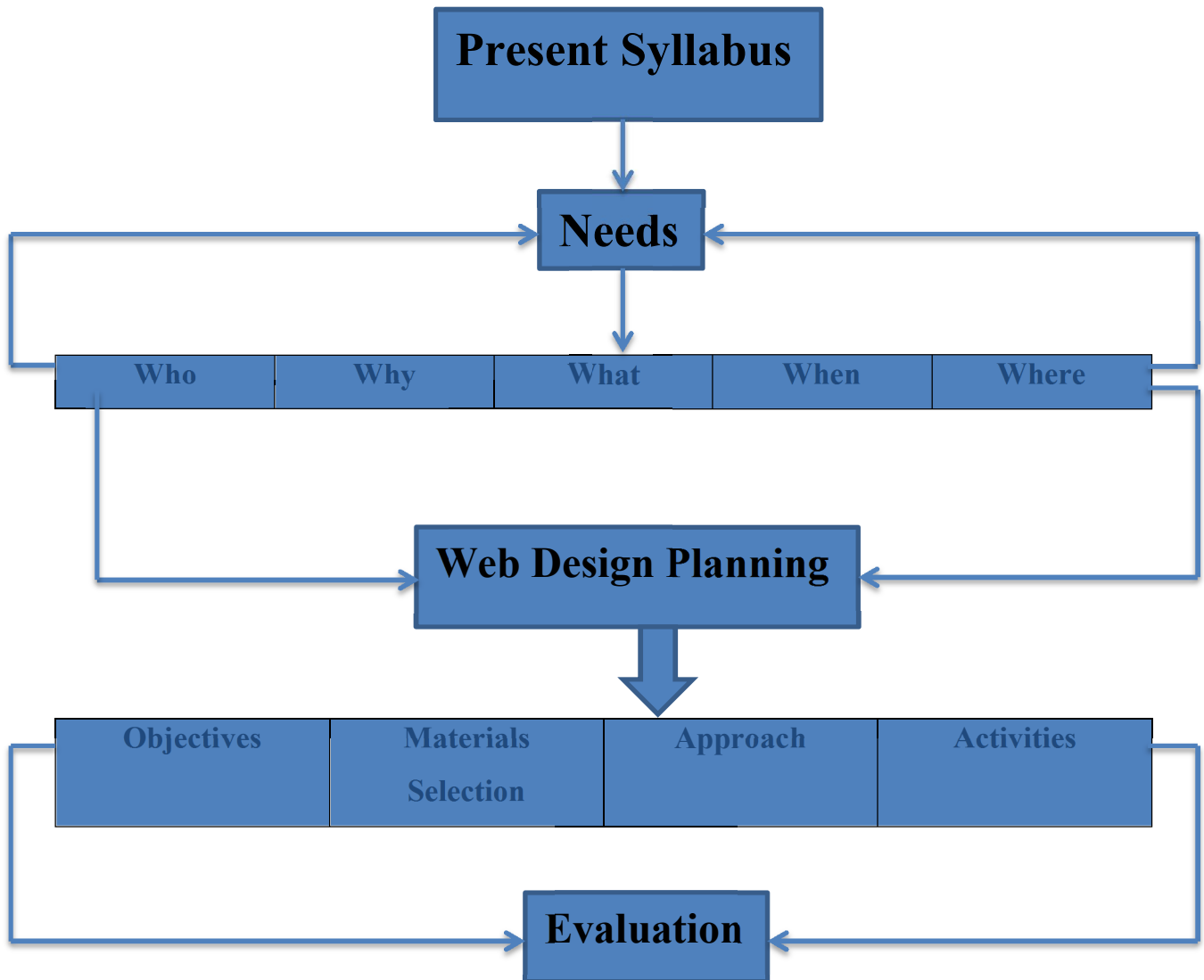


Figure 6.2. Designing English Web-Based Course

This figure above explains the way the researcher followed to design her web-based course. She first dealt with a needs analysis that clarified the target needs of the sample population by asking question as who are the students, why they need to learn English, what they need to learn, when and where the English language is used. Then, she planned her web-based course by determining objectives, selecting materials, deciding about the approach to be undertaken and the activities and tasks to be performed. Finally, an evaluation of the course was done using experiment tests to know the feasibility of the experiment.

6.3.2. Role of the Teacher

According to previous and recent research works, the role of an ESP teacher in course design and in performing the teaching task is important to define. First, various and varied roles of English teacher are stated by Dornyei (2002: 57-62) that can be adopted for ESP practitioner too, in supporting the view that English teachers can be seen as controllers, organizers, assessors, prompters, participants, resources, tutors and observers. Also, it was earlier suggested by the researcher in Bouklikha (2012: 97) that teacher's role has changed nowadays and goes more towards "the role of facilitator or guide so as to increase student motivation and develop the skills and strategies that make a student more competent and to structure the learning environment." Apart from the role of a teacher to raise motivation, Lamri (2015: 244) explains the role of ESP teacher as a course designer who designs a syllabus and learning activities; as an ESP teacher who organizes courses, sets learning objectives, establishes positive environment in the classroom and evaluates students' progress and as an online teacher who has to master additional skills in Technology.

Similarly with Lamri's suggestions, the current researcher plays different roles in undertaking her experimentation. She was first a course designer who established a one semester course intended to EIE students adopting a particular methodology to be adequate with those students' needs. She was also a teacher since she taught her present course based on stated objectives, trying to offer a suitable environment for learning and finally evaluating students' progress (tests). Additionally, she was a collaborator because she collaborated with subjects' specialists at the Department of Electrical and Electronic Engineering thanks to the help of the head of the Department in making the first contact and they were fortunately collaborative in enlarging her knowledge about Electrical and Electronic Engineering field to cope with the current teaching situation. It can be said that she was also a web teacher since she relied on the web and Internet in general to retrieve her materials of teaching related first to her students' needs and to the integration of web-based materials in teaching the reading skill. She so found herself obliged to master some particular skills in Technology. She relied on self-teaching in using the ICT tools investigated in the experiment and on the

way of searching on the net to have particular information and activities. However, she wanted to learn how to create and design a web-quest by herself since the web-quests used in the study were ready made, related to the students' content and provided on the net. She, therefore, suggested for ESP teachers to create their own web-quests that will better suit the needs of a given population.

6.3.3. Needs Analysis

The key element of ESP course is the accomplishment of a needs analysis which analyzes the students' target and present situation needs. Target situation needs analysis focuses on the learners' needs at the end of the course whereas present situation needs analysis seeks to establish what the learners are like at the beginning of the language course by investigating their strengths and weaknesses. To do so, questionnaires and interviews are the most widely used instruments to gather information about the respondents in addition to a pre-test administered before the course to test their proficiency level in English as well as revealing the results of the present situation analysis and a post-test at the end of the course to assess their progress or regress and so to show the findings of the target situation analysis.

6.3.4. Course Design

The current course design identifies and defines at its outlet the course objectives and establishes a list of the skills to be developed at the different stages of the course. In fact, the ESP course design is the result of a dynamic interaction between: the results of a needs analysis, the course designers' approach and methodology, existing materials, and related limitations including institutional attitude, status of English and the students' motivation. Concerning all these course design features, an ESP course designer attempts to overcome all the problems encountered and find solutions that help in making the ESP course as effective as possible. The ESP students under investigation need to develop some particular skills to improve their reading abilities as well as their proficiency level in English. This is why, the investigator developed a course which fit their needs, accomplished their lacks and reached their wants and desires of a better learning based on new technologies which seemed to be necessary

since they belong to this new era of Technology. Implementing web-based materials in ESP courses is considered as a way to make learners more involved in their learning. They are, in fact, involved in their learning through the content-based course which relies on collaboration between their English teachers, their subject specialist teachers and themselves discussing the content that better suited their field of study. Making students involved in the integration of Technology in the teaching and learning processes is also a way to increase students' motivation and interest for learning. In fact, designing an ESP course focusing on reading requires a selection of appropriate topic and texts.

6.3.5. Topic and Texts Selection

Since the current course focuses on the reading skill and aims at promoting this language skill, it is essential to tackle a key element of the course development process which concerns the topic selection. As the students under study are in the second year Master in Electronic Instrumentation Engineering, they seem well aware of the content of their area of study. What is of crucial importance in ESP is to work with this specific content using the English language. For those students who passed a long time dealing with the same content will find it interesting and significant to deal with it in English since this medium of instruction is proved to be important in their research and studies as well as in their work domains. That is why, the more narrowly the topics dealt with in the ESP course are related to the field of Engineering and particularly Electrical and Electronic Engineering, the more they will be eager to learn the language content presented. This means that dealing with topics closely related to their field of study will certainly make them enthusiastic to learn the language.

Moreover, by selecting the appropriate topics to be dealt with in the English course, the ESP practitioner needs to select appropriate texts as well in conducting reading instruction. Benyelles (2009: 164), for instance, states that the type of the text wanted by the learner can rely on the *source* of the text (journal, newspaper, note... etc.) and the *mode* (authentic or not). Accordingly, the current researcher looks for authentic texts to be read and understood taken and retrieved from the Web. These texts are

taken from well-known e-books dealing with their area of study, written by experts in the field and adopted by significant universities as Cambridge University. They are also different in form in order to suit the students' Engineering needs as tables, diagrams and figures. For instance, reading content in a table form (see section 5.12) for acquiring specific information from columns or horizontal lines seems to be new for the students under investigation though it is not new for the Engineering reading requirements. Since the current researcher was the English teacher of EIE Master's students during the semester of investigation and one year before also, she observed that whenever she introduced a new topic (related to their field of study), her students seemed excited to know more about a given text, to go in details, to perform tasks and to follow the different parts of the didactic unit as if it was a story which they were eager to know the end in addition to the terminology used which was familiar to them though in English and introducing it in texts made them satisfied of their learning. This satisfaction was shown by the number of students' attendance lecture after lecture without any pressure from the teacher. Thus, selecting appropriate texts that satisfy the students' needs is really important in ESP instruction in general and in reading instruction in particular.

6.3.6. Skills Integration

After analysing the data collected from the different instruments of research used in the study, it was revealed that Engineering students needed to develop particular sub-skills to improve their reading abilities to understand and comprehend texts related in content to their field of study. In fact, they wanted to develop skills as comprehending and analysing texts in context, reading technical articles in journals offered on the net and having access to information through Internet in English. All these sub-skills seemed to be important for ESP learners and indeed they are primordial to make ESP learners able to read with correctness and comprehension.

The writing skill is developed as well via web tools. It is successfully practised online using Web-quests and e-mail. In addition to developing the writing skill to teach the reading one, dealing with grammar and vocabulary that suit the students'

field of study is also important. Including the speaking and listening skills in discussion and debates during the lessons is also essential to well perform the reading instruction.

6.4. Designing Reading Activities

In order to develop EIE students' reading abilities, the investigator encompasses in her course design different activities based on particular aims. From those activities, she opted for the use of web-quests as a way to integrate web-based materials in the practice of the reading skill in an ESP context.

6.4.1. Web-quests

The researcher has focused on the design, implementation and evaluation of computer-based learning aiming it to be effective, motivating, and autonomy based. This approach clearly describes the process of the learning experience which challenges, motivates and engages learners. In her adoption of the web-based experiment, she retrieved ready-made web-quests after a deep research.

In fact, a web-quest was defined by Dodge (2001 qtd in Hassanien, 2006: 42) as:

An inquiry-oriented activity in which most of all of the information used by learners is drawn from the Web. Web quests are designed to use learners' time well, to focus on using information rather than looking for it, and to support learners' thinking and levels of analysis, synthesis, and evaluation.

Based on this definition, the researcher used this activity in her investigation. Since web-quests are designed to use learners' time well as shown above, she found that performing those web-quests as home works because of the unavailability of Internet access in the classroom, would consolidate their learning and make them gaining time since there is not sufficient time allocated for English courses. It would also raise their thinking and problem-solving abilities and support their levels of analysis, synthesis, and evaluation which are so important in ESP context in general and Engineering context in particular. However, Internet connection in the University and particularly in the classroom is so necessary to be available.

In order to cover more the meaning of web-quest, March (2008) states that:

A web-quest is a scaffold learning structure that uses links to essential resources on the World Wide Web and an authentic task to motivate students' investigation of a central, open-ended question, development of individual expertise and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding.

In fact, the web-quest is used by the researcher to support her students' learning by making them autonomous. She explained the directions of activities during the lecture in the classroom or by e-mails when students' asked for clarification and played the role of a facilitator who guided her students to perform those activities. This performance made them self-directed in their learning and motivated by showing their own abilities in doing their tasks. The best web-quests are designed in a way that stimulates students to see richer thematic relationships, facilitate a contribution to the real world of learning and reflect on their own metacognitive processes.

The key concept of this approach is that learning becomes an active process of creating rather than acquiring knowledge. When Internet technology is integrated into the course curriculum, students are enabled to learn by constructing their perceptions of complex concepts (Watson, 1999). By using web-quests, learners have to activate the mental processing which results in understanding and the creation of meaning from their own experiences (Grant, 2002).

Indeed, web-quests encourage critical thinking skills. "Learners are not required to simply regurgitate information they find, but have to transform that information in order to achieve a given task." (Dudeny and Hockly, 2007: 44). In addition, since ESP courses are based on the content of a given area of study, a web-quest can be applied in this context as stated by Maria (2002) that "web-quests are activities especially suited to content-based language learning. Students perform a real world task using authentic materials related to a topic within their academic discipline". This is an example of web-quests used in the implemented course:

1 2 3 4

8) Each of these verbs has a related noun ending in *-er* or *-or* which refers to an instrument or component. Complete the column of nouns. You have met this nouns.

	Verb	Noun
Example	<i>record</i>	<i>recorder</i>
1	oscillate	<input type="text"/>
2	transmit	<input type="text"/>
3	transform	<input type="text"/>
4	charge	<input type="text"/>
5	rectify	<input type="text"/>
6	process	<input type="text"/>
7	amplify	<input type="text"/>
8	collect	<input type="text"/>
9	detect	<input type="text"/>
10	tune	<input type="text"/>

Figure 6.3. Web-quest Example (Appendix E)

If technology is used effectively as a tool for creative work, students can be more autonomous, collaborative and reflective than in classroom without the utilization of technology.

6.4.2. Proficiency Tests of Reading

A proficiency test was administered to the sample group of EIE Master's students to assess the gap between the marks students score in final test and the scores they received in the pre-test. This test assessed the reading skill in particular in addition to a supported skill which was grammar in order to measure students' proficiency in English. In fact, the post-test established in the current study is conducted in the form of exams at the end of the course. The exams have only a written component and it is based on some combination of grammar, reading and writing. There is, indeed, no oral component and Listening and speaking skills are not tested. The structure of those exams or tests is universal and follows the standardized TOEIC tests of Reading, especially undertaken in Cambridge University which are built on a unique framework based on filling the gaps by choosing one item from some suggested ones and thus

regrouping two basic reading activities which are filling the gaps and multiple choice items activities.

In fact, the pre-test and post-test used in this study are adapted from a TOEIC exam model of reading and listening but the researcher focused only on reading and added a grammatical activity to test what was taught in the course under study. The use of international proficiency tests as TOEIC (Test of English for International Communication) and TOEFL (Test of English as a Foreign Language) in the USA and EPTB (English Proficiency Test Battery) in the UK is a reliable evaluation for ESP students.

It was realised in the UK and in the US that some kind of admission test was necessary to ensure proficiency in the English language. “Otherwise, because of inadequate proficiency in English, the institutions and students would waste time and effort.” (Davies, 2008: 3). With ELTS (English Language Testing System) came into existence the idea that a test should be authentic and relevant to a particular situation and this led to a growing interest in English for Specific Purposes (ESP). It is agreed by Knapp and Seidlhofer (2009: 631) that “proficiency testing is now considered as a means to measure in how far test makers could meet the communicative demands of specific situations ... the demands of attending academic courses of different types and disciplines.” In addition, Davies (2008: 113) states that “... Academic proficiency then is the ability to perform the appropriate discourse. And what is appropriate can be generalized across subject disciplines.” For the importance of proficiency tests stated above, the researcher used International proficiency test (TOEIC) as a reliable evaluation for her EIE students.

6.4.3. Varied Reading Tasks

From the different activities that the researcher used in her course, comprehension questions exercises which are so important for testing students’ comprehension and understanding of a given text. There are easy questions which require students to read particular passages of a text to be able to answer, i.e. to read for particular information whereas more difficult questions aim at measuring deeper students’ understanding of a

given text. They are divided into yes/no and Wh question where the respondents give a particular answer that suits the meaning in a text.

In addition, true/false statements are highly used when proceeding reading tasks, testing either vocabulary, grammar or reading content. It is also important to grade exercises from the easiest to the most difficult to achieve progress in understanding. Moreover, multiple-choice items are used in the present course and particularly in the pre- and post- tests, adapted from TOEIC tests and which aim to deepen concentration and understanding. Gap- filling exercises are also used in the course and in the experimental tests. They are performed either by filling the blanks by provided words. Besides, matching pair statements are liked by students.

There is a system that can be suggested here which is quite simple for teachers to explore and work with, called 'Hot Potatoes'. Through this system, teachers can easily type their work in the Microsoft Word and then just transfer the information or the selected content via cut and paste procedures. 'Hot Potatoes' is developed by University of Victoria CALL Laboratory Research and Development team. This system groups six applications, which enable teachers to create interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the World Wide Web. In 'Hot Potatoes' system, there is a tutorial section whereby teachers or course developers can learn from before they start using the system (2). Here are some examples of Hot Potatoes System (University of Victoria):

(2) <http://web.uvic.ca/hrd/halfbaked/>

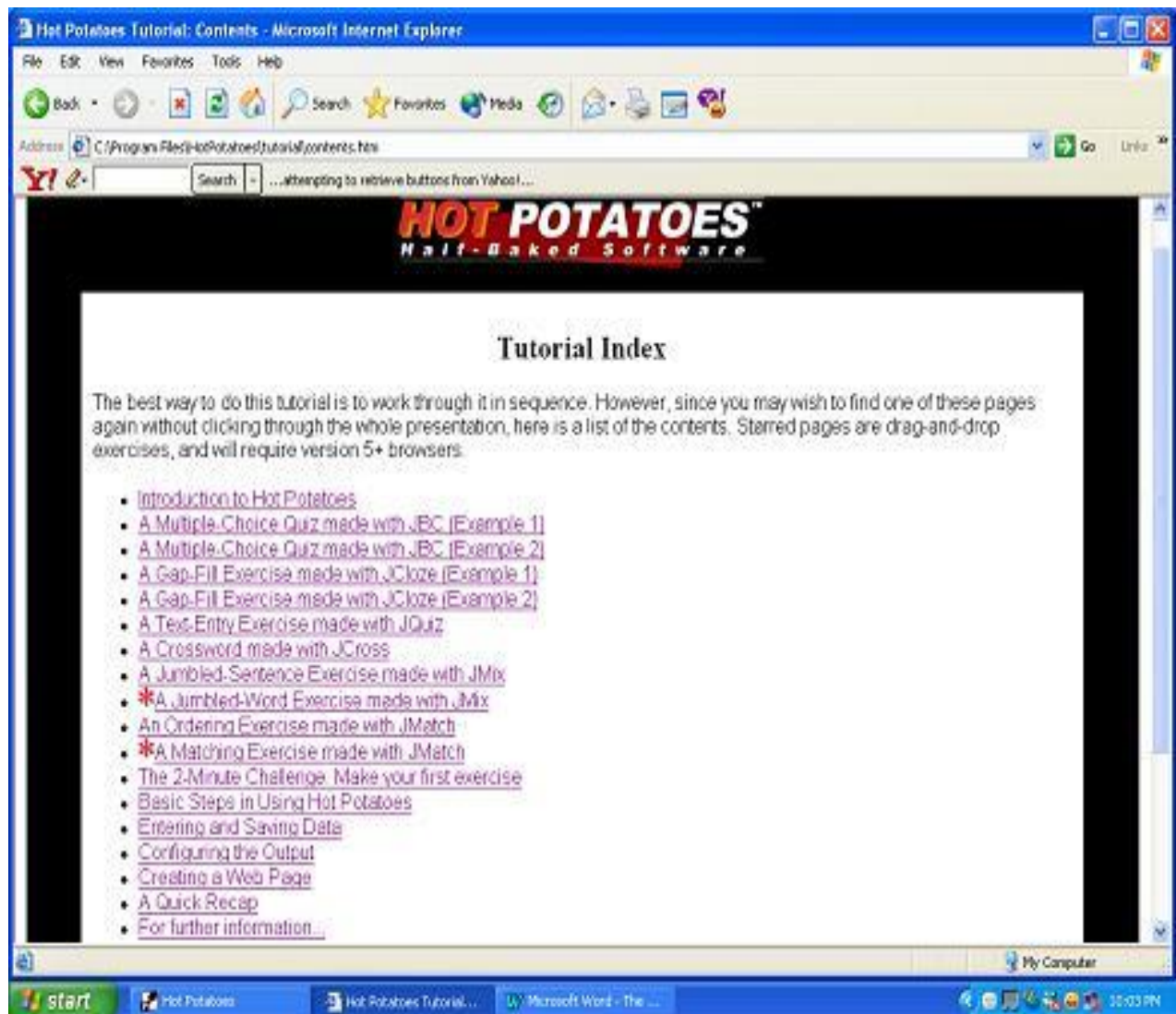


Figure 6.4. Tutorial Index (2)

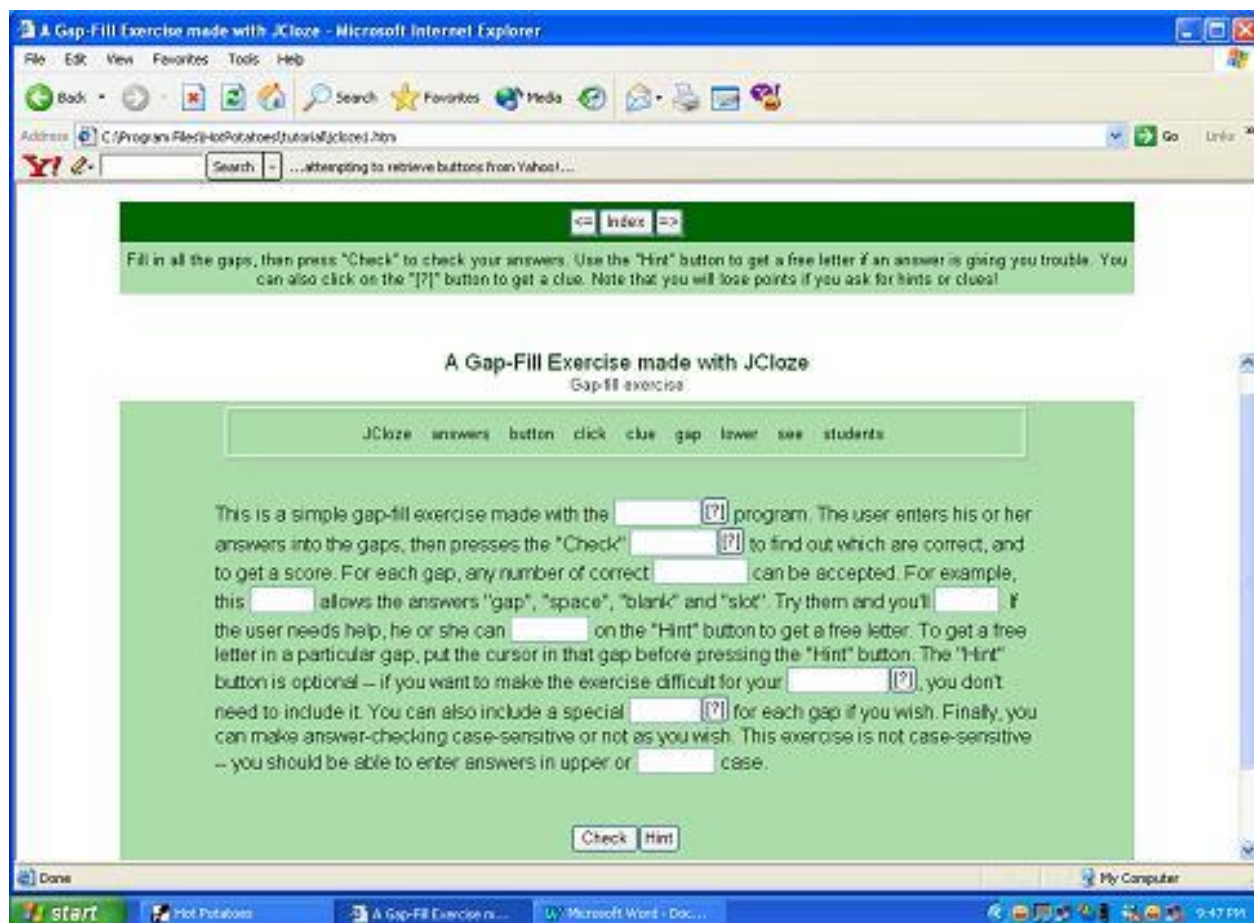


Figure 6.5. Gap-filling Exercise (2)

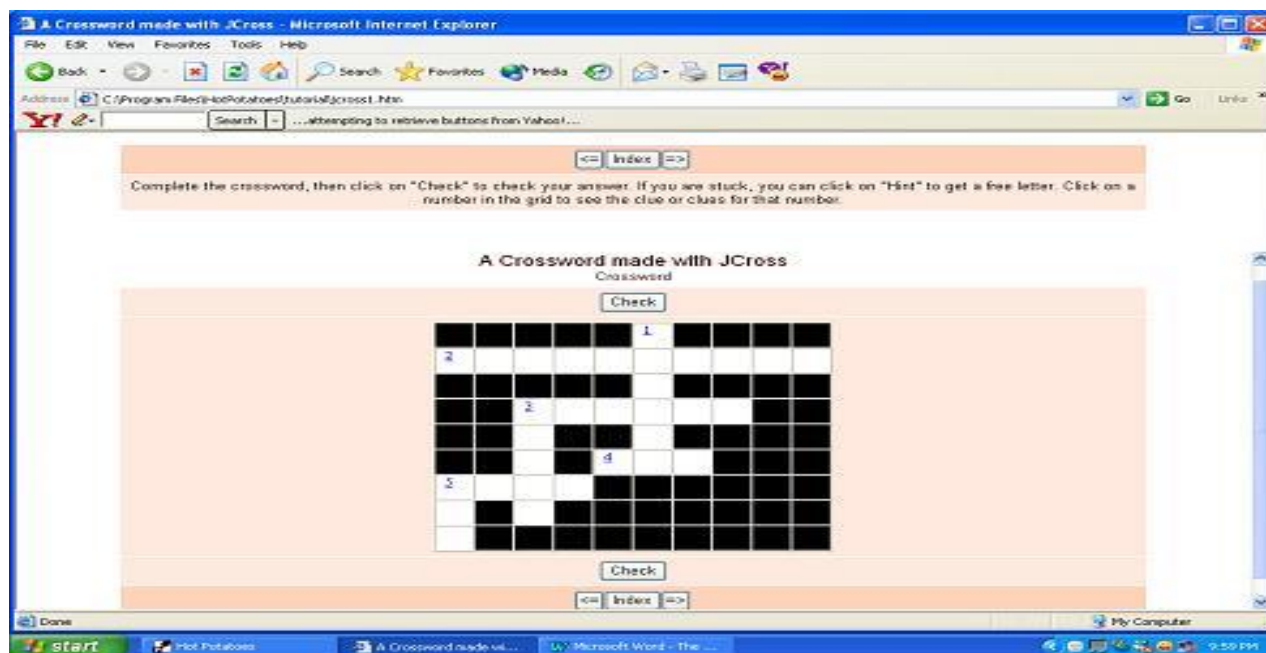


Figure 6.6. Crosswords Exercise (2)

6.5. Strategic Reading Instruction

This study revealed that ESP students need to develop their strategic competence which helps in improving their reading abilities to comprehend and understand texts related to their field of study. Research on strategy teaching revealed that reading strategies can be explicitly taught. Such teaching should be integrated into ESP reading courses in order to help students monitor their reading process and improve their reading comprehension as well.

6.5.1. Characteristics

Strategic reading instruction depends on the different teaching settings and students' characteristics and needs. However, there are some standard principles that help the instructor and guide his teaching involving texts selected, strategies adopted, lessons planned and materials adapted. The researcher when adopting strategic teaching, selected appropriate texts that satisfied her students' needs in terms of vocabulary, grammar, and organization and their demands of reading texts related to content and genre of their field of study. In addition, when she attempted to adopt a given strategy, she took into consideration 'the complexity of the reading process and the range of strategic thinking abilities that reading can and should evoke' (Janzen and Stoller, 1998: 225).

To ensure an effective teaching based on strategies, some steps based on Winograd and Hare (1988) are suggested to be followed as:

- (i) Describing the nature of the strategy the learners are going to learn,
- (ii) explaining why a targeted strategy is important,
- (iii) pointing out when and where a particular strategy can be used,
- (iv) demonstrating how to use a strategy by teacher modelling strategic reading processes and behaviour with reading tasks and activities, and
- (v) teaching them how to evaluate their successful use of strategy.

In fact, defining the strategy to be used in particular time and place, demonstrating how to use it through selected reading activities and teaching students how to evaluate their successful use of it is so important in strategic reading instruction.

6.5.2. Reading Strategies

When dealing with the reading strategies that are appropriate to the present situation, the investigator relied on some comprehension strategies frequently used and undertaken by English teachers stated in the teachers' interview (Appendix 2) involving three- phase procedures, pre-, while- and post- reading stages. The strategies specified are as follows:

Pre-reading:

- Preview the material by thinking about: the text, the title, and the pictures.
- Have a purpose for reading.
- Activate prior knowledge and experiences about the topic.
- Ask questions about the text before reading it.
- Regulate mood to stimulate the reading process.
- Use tables, figures, and pictures in text to increase understanding.

While-reading:

- Skim and scan the text for information.
- Underline or circle information in the text to help student remember it.
- Stop reading to check comprehension.
- Use context clues to help students understand what is being read.
- Paraphrase what students read.
- Check understanding when coming across conflicting information.
- Reread the problematic part.
- Look up unknown words in a dictionary.
- Guess the meaning of unknown words or phrases.
- Discuss one's reading with others to check understanding.
- Concentrate on the reading task.
- Engage with the text.

- Complete graphic organizers such as Venn diagram, KWL, etc.
- Integrate the information in the text with what students already know.

Post-reading:

- Write summaries to reflect on key ideas in the text.
- Provide one's own feedback on what one has read.
- Make inferences and draw conclusions.
- Compare and contrast information from one or more texts.
- Analyse and evaluate the information presented in the text.

6.6. Additional Suggestions to Promote the Reading Skill in an ESP Setting

In addition to all the points mentioned above to promote the reading skill in an ESP context, there are some further suggestions put forward by the investigator after recognizing the challenges and difficulties encountered in the present research work.

6.6.1. Teaching Time Load

In fact, implementing a course relying on web-retrieved materials is time consuming for the teacher but it allowed the students to gain time. The results of the study reveal that time allocated to English courses is insufficient and needs to be adapted to the students' needs. This insufficient time allocated to English courses in ESP settings is proved to be frequently discussed and suggested to be raised by many researchers dealing with research on ESP (Benyelles, 2009; Bouklikha, 2012; Hemche, 2014; Lamri, 2015 ...etc). Yet, integrating web-based materials in the practice of the reading skill for EIE Master's students helped with a great deal to overcome this lack of teaching time in order to develop their reading abilities to understand and comprehend texts related to their field of study. This insufficient time allocated to English courses in ESP settings is proved to be frequently discussed and suggested to be raised by many researchers dealing with research on ESP (Benyelles, 2009; Bouklikha, 2012; Hemche, 2014; Lamri, 2015 ...etc).

6.6.2. Focus on Reading E-books and Extensive Reading

During the course implementation, the researcher encouraged further readings by students at home and this helped a lot in developing their abilities to read and understand information in context. At this line of thoughts, Allington (2001: 110) states that “readers need to read a lot to become proficient readers. They need books in their hands that they can read accurately and fluently. They need books of interest to them.” The fact of reading texts that interest students is highly recognized and the vast amount of e-books and reading texts offered on the net is so helpful to establish a reading habit which determines the academic achievements of students to a great extent. Further reading at home solves the problem of lack of ESP teaching time and leads to raise reading proficiency level of readers in English.

The teacher in the classroom can provide students with opportunities to read English from books as well as other English language resources, for instance, books offered on the net. In fact, the students have varying levels of ability in reading English, requiring varying levels of support from the teacher. Research has shown that, whatever level of reading skills they might have, it is important to provide students with daily opportunities to experience reading pleurably. This can happen by offering students texts related to their field of study acquiring a great amount of vocabulary that is of high interest for them. The researcher sent texts by e-mail to students or provided some interesting links and those texts were followed by activities that should be performed. Dealing with particular vocabulary previously seen by students in their subjects increased their interest to discover things already dealt with in their field of study but in English language.

In addition, extensive reading has numerous advantages for the readers involving promoting a positive attitude to reading, increasing the amount of reading, encouraging the use of reading strategies, and acquiring not only a new amount of vocabulary but also an understanding of the properties of words in use. Zimmerman (1997, cited in Bramford and Day, 1998: 136-137) states that teachers should encourage their students to ‘adopt the habit of self-selected materials, based on the evidence that incremental knowledge of words may be gained from reading.’

6.6.3. Frequency of Homework

The use of frequent homework in the present study helped to overcome the issue of lack of time assigned to English courses. In addition, the unavailability to perform web-quests in the classroom because of the inaccessibility of Internet connection obliged the researcher to ask the students to perform them at home or in Internet room in University.

The present investigator adopted numerous home works in her course in order to control students regularly and gain time since the allocated time of the English course is insufficient. She believed that additional practice at home was complementary and beneficial for students to achieve a better proficiency level in English. What is important for the current course developer in adopting such technique in her course is that whatever she assesses will require follow up and thus perform continuous and regular evaluation of students.

6.6.4. ICT Tools

Today's education sees challenges caused by new technologies, great number of information sources, thus teachers become forced to search for new and effective methods of teaching delivery and learning. The application of ICT as a driving force in higher education means fundamental changes in the area of educational technologies. It is becoming one of the major issues of contemporary education. Research concerning ICT use for language teaching and learning is becoming a question of the day.

It is revealed after the analysis of data collected in the current study that many ICT tools were unavailable in Universities. This is an obstacle for teachers as well as students to be updated and follow the technological progress and evolution. With the world moving rapidly into digital media and information, the role of ICT in education is becoming more and more important and this importance will continue to grow and develop. In fact, this tendency to adopt ICT as a tool used for teaching refers to the use of "computing devices such as desktop computers, laptops, software, or Internet for instructional purposes" (Hew and Brush 2007: 225). That is why the researcher

attempted to use those tools in her teaching though their unavailability to accelerate, enrich, and deepen skills as well as to motivate and engage students.

Besides, it is agreed that “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 and collaboration” (Hemche, 2014: 290). It is also stated by Bouklikha (2012: 113) that:

The use of technology increases student motivation for language study by helping them to choose activities, media sources and content topics most appropriate to their interests and learning styles. Technology also contributes to the authenticity of the learning process. Authentic resources in technology-based ESP learning context, besides the main language skills, encourage a more active approach to autonomous and motivating learning.

As a whole, the integration of ICT in teaching can help to revitalize teachers and students. It can also improve and develop the quality of education by providing curricular support in difficult subject areas.

6.6.5. Promoting E-mail Means of Communication

One cannot underestimate students’ desire to communicate. With its universal nature, relative low cost, global reach, speed, and flexibility, email is becoming the communication choice of many students even if it is dealt with in learning processes. It seems therefore; natural that researcher looks to email as a promising instructional and learning tool. However, its strength as an educational tool relies only on constructing a solid email-based environment and a pedagogically comprehensive message.

Email can be a wonderful tool for delivering feedback to students. That is why many researchers undertook researches on enhancing this technological tool in education. Yu and Yu (2002: 123) found “empirical evidence supporting the usefulness of e-mail as a promising aid to promote student cognitive growth pertaining

to computer knowledge and skills”. In addition, Tao and Boulware (2002: 288) suggest that email communication benefits teachers by “identif[ing] instructional focus and tak[ing] advantage of instructional moments to fit the developmental needs of their students in authentic situations”. In fact, it is proved that email motivates learners, encourages authentic communication, and creates new learning opportunities. The successful use of email in the educational arena will be largely determined by how well it meets the identified needs of the learner.

The researcher used e-mail because it is very useful as an online correspondence means that connects the students with each other and with the teacher as well. This means of communication helps her to guide the students’ assignments and homework by sending and receiving messages clarifying ambiguities, misunderstanding or even giving information in the form of attached documents. Students also used e-mails for group work in which they can contact each other and collaborate effectively, easily, and quickly to accomplish the required task.

6.7. Conclusion

As mentioned earlier Web-based activities help to develop learner's autonomy, enhance learners' communication skills, promote collaborative learning and foster critical thinking. Engineers need all these skills: communication, critical thinking and group skills and engineering students who depend much on Technology find the WBL environment very favourable for language learning and therefore Technology should be integrated into the Engineering English course. The Engineering English content should help the learners achieve the target language proficiency level reflected in the objectives stated above. Such a level of language proficiency will enable engineering students to function competently in a professional and academic context.

Designing web-based ESP course requires a focus on NA to meet the different learners' target needs. Moreover, it necessitates a better understanding of the methodology of ESP that reflects learners' expectations of learning. This can be done by ESP instructors training to pursue such profession based on collaboration with subject specialists. Additionally, using web-based materials to teach ESP requires training, exposure, experience, and availability of equipment to be up-to-date and increase students' autonomy and motivation. The suggested recommendations, if properly considered, may improve the teaching of reading in ESP context and help to overcome the problems identified in the study.

GENERAL CONCLUSION

The existing situation of ESP teaching at Tlemcen University especially in Electrical and Electronic Engineering Department requires immediate action and appropriate remedies in both methodology and practice. ESP teachers provide the necessary knowledge and tools to deal with their own students' specializations. They help students develop the essential skills in understanding, using, and presenting information. They also bring the necessary teaching aids, frameworks, and principles of course design to apply them to new material. Yet, teaching ESP should include much more than the teaching of English through specific material and content. In addition, reading about topics related to the students' intended careers allowed them to gain a broad view of the world with regard to their own field of study, so they should have appropriate, relevant knowledge according to their own interests. Moreover, in the era of information technology, ESP course designers are looking nowadays for innovative, inventive and effective materials to solve the problems of both learners and teachers. To help learners engage effectively in the course and produce better outcomes, ESP teaching is based on authentic materials including web-based ones. In fact, Internet is used for different teaching purposes and it has a positive impact on the overall teaching-learning environment since it overcomes barriers of space and time and opens new possibilities for better learning atmosphere that leads to academic achievement.

Thus, the investigator focuses on the teaching of the reading skill investigating the use of web-retrieved materials to suit the students' academic needs, develop their abilities in reading and raise their interest to learn the English language. The present study explores the usefulness of web-based teaching in ESP as an updating instruction that is increasingly implemented in international institutions and academic settings to make use of the facilities offered by Internet in education. In order to reach these objectives, the researcher designed a one semester English course for 2nd year Master's students in EIE based on a needs analysis of these students. The implemented course was a great opportunity for those students to become familiar with reading techniques that allowed them access to topics of their specialism in English. Thus, the reading process approach (pre-reading, while-reading, and post-reading) facilitated the

acquisition of a specialized vocabulary which made students feel self-confident and motivated not only in their own learning process but also in their use of the English language. In fact, the present course was delivered to 30 engineering students with varied proficiency levels in English. The course was based on the selection of appropriate reading materials in conjunction with suitable and interesting tasks that highlighted specific discourse features in order to facilitate comprehension of specialized texts aiming at comprehending more complex research in science and engineering journals later on.

Hence, this study is carried out to confirm or reject the hypotheses. EIE Master's students were chosen to be the case study representing the entire ESP enterprise at Tlemcen University. Therefore, the researcher puts forward the following research questions:

1. What are engineering students' English language needs specifically to develop the reading skill?
2. How to develop the reading skill by integrating web-retrieved materials in the engineering English course?
3. What are the teaching and learning difficulties are encountered when using web-retrieved materials to develop the reading skill?
4. What is the impact of an ESP course supplemented by web-retrieved materials on the development of the reading skill?

The present study is divided into two main parts; theoretical and practical. The first one which overviews the related literature consists of two chapters; while, the practical part which describes the fieldwork is composed of three chapters followed by a final chapter of recommendations and suggestions. The first chapter deals with a broad overview of English for specific purposes covering all its aspect and dealing with ESP course design characteristics. The second chapter gives insights related to reading in connection with technology integration in language learning in general and reading using web-based tasks in particular. The fieldwork begins with the third chapter where the researcher analyzes the situation under investigation and describes the research

methodology employed regarding the research instruments that help her to collect data. The fourth chapter deals with the qualitative and quantitative analyses of the data collected from the students' questionnaire and the teachers' interview. On the basis of the results obtained, chapter five presents the different steps of the design and implementation of the course under question and the analysis of the experiment tests (pre-test and post-test). Finally, the researcher completes her work by giving some solutions to the problems faced during the study in the last chapter.

In sum, this research work was divided into two phases: The first phase considers the needs of EIE Master's students and the second one attempts to test the usefulness of implementing web-retrieved materials in teaching the reading skill for ESP students believing the practice of the reading skill through web-retrieved activities to facilitate learning and make ESP students able to read efficiently. The results of this study enabled the researcher to draw the following conclusions.

Regarding the first hypothesis, the results of the students' questionnaire and the teachers' interview revealed that ESP students were really aware of the importance and immediate need of English for their studies and had a favourable attitude towards learning this language since they claimed that the attendance in English courses should be obligatory. It was also shown that students needed English to develop particular skills such as developing academic writing skills, fluency and accuracy in reading and writing and oral abilities to participate in discussions and debates in addition to their need to increase their English vocabulary and read with grammatical correctness. They also needed to develop some reading strategies which varied from pre-reading, while-reading to post-reading strategies as previewing the material by thinking about the text, the title and the pictures, having a purpose for reading, activating a prior knowledge and experiences about the topic, underlining or circling information in the text to increase understanding, engaging with the text, integrating the information in the text with what students already know, comparing and contrasting information from one or more texts ... etc. Moreover, it was stated that students found it necessary to develop some reading sub-skills such as reading textbooks, course handouts, technical

articles in journals, technical manuals, study notes and texts on Internet through activities on reading for information especially for specialist information. They also needed to raise their English proficiency level in reading. As a whole, one can say that all those results confirmed the first hypothesis.

Concerning the second research hypothesis, the results from the teachers' interview revealed that teachers adopted various reading strategies in their teaching through various materials used as dictionaries, data show, PC and so on. They also showed a positive attitude with regard to integrating web-retrieved materials in teaching ESP in general. Moreover, they developed reading using some ICT tools as well as some websites and most importantly the use of google search engine. Moreover, teachers explained the necessity of using ICT tools in reviewing resources and producing materials for their course design as well as in contacting colleagues via e-mails in order to exchange ideas concerning their teaching. Accordingly, the students' results in the questionnaire revealed that they also approved the use of the Web in their learning since they wanted the delivery of instructional materials not only face to face but also using Internet and multimedia based materials. It was also shown that students desired using a combination between various web materials and showed a positive attitude towards web learning without forgetting that they found web materials beneficial in performing activities dealing with reading for specific information and choosing their own texts through interesting web sites. Therefore, the findings related to the integration of web-retrieved materials in engineering English course seemed to confirm the second hypothesis.

As far as the third hypothesis is concerned, the results of both the students' questionnaire and the teachers' interview showed the insufficiency of the time allocated to English courses. It was also revealed that inaccessibility or low speed of Internet, lack of ICT tools and training were considered as obstacles in integrating web-materials in teaching ESP. Thus, the third hypothesis is also confirmed.

The fourth hypothesis stated that an ESP course supplemented by web-retrieved materials had a positive impact on the development of the reading skill helping students to develop their abilities to understand and comprehend texts and acquire

knowledge on specialized vocabulary and grammatical structures useful in their field of study. The results revealed that by implementing web-based activities in ESP reading instruction, the students were highly interested to learn English and teachers were able to provide them with a variety of resources that could not be dealt with in the classroom because of the lack of time. Since the collected scores of the experiment tests revealed a progress in the mean score of the group of students under study from the pre-test to the post-test, one can say that those results showed a positive impact of an ESP course supplemented by web-retrieved materials on the development of the reading skill including a progress in the students' content knowledge and improvement in their reading competence. Therefore, the results obtained confirm this hypothesis and the feasibility of such a course.

It should be noted that the results obtained from this study cannot be generalized because the study still undergoes some limitations and shortcomings. First, the study was conducted on only one group of EIE Master's students and this prevented the generalization of results to a larger sample of ESP learners. The study, therefore, should have involved more participants of different ESP disciplines for more credibility of results. Second, the implemented course lasted one semester which is, in fact, a short period to test the effectiveness of integrating web-retrieved materials in teaching the reading skill for ESP students. In addition, one hour and half of English per week was not sufficient instructional load that allows appropriate outcomes of students. It would be better if its time load was longer. Moreover, the limited range of the utilized web-retrieved materials during the experiment might reduce its rationality. We wished if more available web-tools were also implemented in the scope of this experiment. Acknowledging such limitations would call for future research in the field of web-based instruction in ESP on a more experimental basis that reinforces the reliability of the findings and overcomes the already stated shortcomings.

To conclude, Internet is a powerful tool used to teach foreign languages in general considered as an aid to better understanding, effective reading and successful learning. The present study provided the integration of new technologies in teaching reading for ESP students, particularly engineering ones in order to raise their English proficiency

level and integrate them in the increasing development of technology in this era of information. ESP practitioners may benefit from the current investigation despite its limitations. However, ESP practitioners should be necessarily innovative and perform a variety of needs assessment tasks developing computer-based programs and authentic tests. Whatever its direction, ESP will remain central to ESL and EFL teaching throughout the world.

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APPENDICES

APPENDIX A

Students' Questionnaire

This questionnaire is part of an academic research on the practice of the reading skill in an ESP context using web-retrieved materials. Its principal objective is to investigate the engineering students' needs. The researcher promises to maintain strict confidentiality of your information. Please put a tick on the correct options & write information if required.

I/ Background & Profile:

- a) Your age:
- b) Your sex: Male Female
- c) Level of study:
- d) Department:
- e) University:

II/ Needs Analysis (Hutchinson & Waters, 1987)**a- Necessities:**

- 1- Do you think English is important for your studies? Yes No
- 2- How would you describe your attitude towards learning English?
 Favorable Unfavorable.....
- 3- What do you think the nature of attendance in the English course should be?
 Obligatory Optional
- 4- What will the content area be?
 Engineering Commerce Other
- 5- For what immediate purposes do you need to learn English?
 Study Study abroad Research
 Travelling Job Other
- 6- When do you use English?
When studying..... When socializing When you are at home Others

b- Lacks:

- 7- Were you satisfied with your last-year English course? Yes No
- 8- Is the time allocated to the English course enough to you to use the language effectively?
 Yes No
- 9- How many hours of English a week do you think is enough for you? hours.
- 10- State whether your last year English course helped you develop the following skills.
- | | |
|------------------------------------|------------------|
| 10.1 Understanding spoken English | Yes No |
| 10.2 Developing reading strategies | Yes No |
| 10.3 Developing writing skills | Yes No |

- | | |
|---|------------------|
| 10.4 Developing academic writing skills | Yes No |
| 10.5 Developing study skills | Yes No |
| 10.6 Developing fluency and accuracy | Yes No |
| 10.7 Increasing English vocabulary | Yes No |
| 10.8 Developing oral presentation skills | Yes No |
| 10.9 Developing ability to take part in discussions / debates | Yes No |

11- Did you have the following activities in your last year English course?

- | | | |
|---|-----------|----------|
| 11.1 Reading for information | Yes | No |
| 11.2 Reading for specialist information | Yes | No |
| 11.3 Summarizing texts | Yes | No |
| 11.4 Writing compositions | Yes | No |
| 11.5 Writing reports, technical documents | Yes | No |
| 11.6 Listening for general information | Yes | No |
| 11.7 Listening for specific information | Yes | No |
| 11.8 Watching videos | Yes | No |
| 11.9 Discussions/debates | Yes | No |
| 11.10 Role-play | Yes | No |
| 11.11 Making presentations | Yes | No |
| 11.12 Fulfilling exercises | Yes | No |
| 11.13 Taking tests | Yes | No |
| 11.14 Others: | | |

12. Did the different English tests and examinations that you had last year assess the following language skills?

- | | Yes | No |
|----------------|-------|-------|
| 12.1 Listening | | |
| 12.2 Speaking | | |
| 12.3 Reading | | |
| 12.4 Writing | | |

13. State your proficiency in English in the different skills:

- | | Weak | Average | Good | V Good |
|----------------|-------|---------|-------|--------|
| 13.1 Listening | | | | |
| 13.2 Speaking | | | | |
| 13.3 Reading | | | | |
| 13.4 Writing | | | | |

c- Wants:

14- You want to study English to :

- 14.1 have access to information via Internet
- 14.2 get information from text books, journal
- 14.3 make presentations at symposiums, conferences, etc.
- 14.4 write projects, reports, proposals, etc.
- 14.5 make summaries
- 14.6 write business letters, notes, and messages
- 14.7 use English for oral communication
- 14.8 use English for further studies
- 14.9 get a job abroad
- 14.10 get personal satisfaction
- 14.11 pass the exam
- 14.12 know terminology in context
- 14.13 comprehend and analyze texts in context
- 14.14 write coherently in context

15. Are the following types of class work useful (U)/not useful (NU), interesting /enjoyable (IE) or not interesting/enjoyable (NIE) for you?

Type of class work	U	NU	IE	NIE
5.1 Individual work				
5.2 Pair work				
5.3 Group work				
5.4 Team work				
5.5 Project work				

16. Which skill do you want your teacher to focus on?

- 16.1 Speaking
- 16.2 Reading
- 16.3 Writing
- 16.4 Listening
- 16.5 Grammar
- 16.6 Technical vocabulary

17. What strengths do you have in reading?

- 17.1 can read with grammatical correctness
- 17.2 can read in context
- 17.3 can read correctly
- 17.4 can understand vocabulary in context

18. What weaknesses do you have reading?

- 18.1 can't read with grammatical correctness
- 18.2 can't read in context
- 18.3 can't read correctly
- 18.4 can't understand vocabulary in context

19. What sub skills of reading would you most like to use?

- 19.1 Reading textbooks and course handouts
- 19.2 Reading technical articles in journals
- 19.3 Reading technical manuals
- 19.4 Reading study notes and texts on Internet

III Attitudes towards the integration of web-retrieved materials

20. How do you want the instructional materials to be delivered?

- 20.1 Have no idea
- 20.2 Traditionally face-to-face
- 20.3 On-line and multimedia based
- 20.4 Not only face to face, but also using Internet and multimedia presentations

21. What types of materials do you think the course should include?

- 21.1 Textbooks, instruction/equipment manuals, CDs, DVDs, videotapes, and other materials used in content courses or to train people for a job.
- 21.2 Materials used on a job, such as work forms, charts and samples of relevant course assignments and student papers.
- 21.3 Materials from websites like emails, reading sites, web-quests, etc.
- 21.4 Combination of all of these.

22. What do you think about the integration of web- materials in teaching the reading skill?

Strongly disagree Disagree Agree Strongly agree

23. Please tick your response about the following statements.

Statements	Strongly agree	Agree	No opinion	Disagree	Strongly disagree
1. Learning with web materials will be useful and interesting					
2. Web materials are rich in content with useful links.					
3. 4. I prefer learning Web-based reading course rather than the traditional paper-based reading course.					
4. . I prefer to choose my own topics and texts through interesting web sites					
5. Through Web-based reading course, my reading skill will improve.					
6. Through t Web-based reading course, my vocabulary will be enriched considerably.					
7. Web materials will motivate me to read					

24. Do you have any suggestions to make the Engineering English course effective?

.....

THANK YOU FOR YOUR COOPERATION

Appendix B
TEACHERS' INTERVIEW

This interview aims at identifying teachers' use of ICT (Information and Communication Technology) and web-retrieved materials in their teaching practices (ESP). You are kindly requested to answer the following questions to help me carry out this research.

Thank you for your collaboration!

a. Degree: B.A. / License M.A. / Magister Ph.D. / Doctorate

b. Age range (years): 20-30 30-40 40-50 over 50

c. Teaching experience:
Less than 5 years 5-10 years more than 10 years

d. Fields of ESP taught:

I Needs Analysis: Necessities

1. Do you teach English for Specific Purposes? Yes No
2. What is the time allocated for teaching English? hours per week
3. Is it sufficient to raise students' proficiency level in English? Yes No
4. Do you need to make a needs analysis questionnaire for your students in order to design your course? Yes No
5. Do you have Internet access in your university? Yes No
6. If yes, do you have a good connection? Yes No
7. Do you really need Internet in the university in order to:
 - prepare your courses Yes No
 - teach your students Yes No
 - others

II Present Teaching of ESP

8. Do you focus in your teaching on the reading skill? Yes No
9. What comprehension strategies do you use in teaching the reading skill?

Comprehension Strategies	always	sometimes	never
Pre-reading: Preview the material by thinking about: the text, the title, and the pictures.			
Have a purpose for reading.			
Activate prior knowledge and experiences about the topic.			
Ask questions about the text before reading it.			
Regulate mood to stimulate the reading process.			
Use tables, figures, and pictures in text to increase understanding.			

While-reading			
Skim and scan the text for information.			
Underline or circle information in the text to help student remember it.			
Stop reading to check comprehension.			
Use context clues to help students understand what is being read.			
Paraphrase what students read.			
Check understanding when coming across conflicting information.			
Reread the problematic part.			
Look up unknown words in a dictionary.			
Guess the meaning of unknown words or phrases.			
Discuss one's reading with others to check understanding.			
Concentrate on the reading task.			
Engage with the text.			
Complete graphic organizers such as Venn diagram, KWL, etc.			
Integrate the information in the text with what students already know.			
Post-reading:			
Write summaries to reflect on key ideas in the text.			
Provide one's own feedback on what one has read.			
Make inferences and draw conclusions.			
Compare and contrast information from one or more texts.			
Analyze and evaluate the information presented in the text.			

10. Which materials do you use to adopt these strategies in teaching reading?

.....

III Attitudes towards the integration of web-retrieved materials in teaching ESP

11. Do you have a personal computer? Yes No

12. If yes, for how long do you have one? (years)
 a) 1-3 b) 3-5 c) 5-10 d) over 10

13. Can you rate your computer proficiency on a scale of 1 to 10?

14. Which of the following ICT tools are available in your university?
 a) Classroom computer for teachers' use b) Overhead projector
 c) Students' computers in a lab d) Students' computers in a classroom
 e) Digital camera f) portable computer units g) TV
 h) CD/ DVD Player i) other.....

15. Do you use any of the above tools? a) Yes b) No

If 'yes', please answer questions 16 to 20
 If 'no', go directly to question 21

16. Which of the above tools do you use?

17. How often do you use these tools?
 a) Always b) often c) sometimes d) rarely

18. How do you rate your ability to use ICT tools?

- a) Beginner b) intermediate c) expert

19. How did you learn to use these tools?

- a) Self-taught b) Friend/Family help c) technical support at university
 d) Professional development program e) university training

20. What do you use ICT for?

- a) Communication: - Contacting colleagues via email
 - Participating in online discussions
 - Collaborating with colleagues for the development of units
 - Other:

- b) Course Design: - Reviewing Resources
 - Producing materials
 - Preparing Students' handouts/ Worksheets
 - Other:

- c) In the Classroom: - Using curriculum specific software Presentations
 - Teachers' access to Internet during lesson
 - Access to projector
 - Other:

21. Do you rely on internet in designing teaching materials?

- Yes No

If 'yes', please answer questions 22, 23 and 24

If 'no', go directly to question 25

22. How often do you use Internet to design your courses?

- a) Always b) often c) sometimes d) rarely

23. What are your criteria for choosing web-based materials? (You can tick more than one answer)

- a) Appropriateness of content b) Quality of information
 c) Currency of information d) Accuracy of information
 e) Functionalities f) Other

24. What are the main websites that you use in your course design?

.....

25. Do you send activities or texts to your students by email? Yes No

26. Do you put your courses on the university platform? Yes No

27. According to you what is/are the difficulties faced when using ICT at university level?

.....

.....
.....

28. In your opinion, what advantages could result from the effective integration of ICT at university level?

.....
.....
.....
.....
.....
.....

APPENDIX C
PRE-TEST**I. Incomplete Sentences**

Directions: A word or phrase is missing in each of the sentences below. Four answer choices are given below each sentence. Select the best answer to complete the sentence. Then mark the letter (A), (B), (C), or (D) on your answer sheet.

1. Electronics is the study and utilization of systems that function by guiding electron flow in such as semiconductors.
 (A) contrivances
 (B) devices
 (C) pieces
 (D) servers
2. Designing and building electronic circuits to solve problems is the mandate of electronics engineering.
 (A) parallel
 (B) practical
 (C) partial
 (D) production
3. Research into innovative semiconductor technology and applications is considered a of physics.
 (A) branch
 (B) responsibility
 (C) segment
 (D) subsidiary
4. Electronic circuits are mainly used to control, process and distribute information, and for the and distribution of electric power.
 (A) commutation
 (B) contamination
 (C) conversation
 (D) conversion
5. These two purposes rely on the creation and detection of electromagnetic and electrical currents.
 (A) fields
 (B) floors
 (C) grounds
 (D) surfaces

Retrieved from: (<http://www.english-test.net/esl/learn/english/grammar/ai138/esl-test.php>)

II Text Completion

Directions: Read the text that follows. A word or phrase is missing in some of the sentences. Four answer choices are given below each of the sentences. Select the best answer to complete the text. Then mark the letter (A), (B), (C), or (D) on your answer sheet.

Questions 6-9 refer to the following letter

Ms. Monica Eisenman
555 King Street
Auckland
New Zealand

Dear Ms. Eisenman:

I am ----- to confirm our offer of part-time employment at Western Enterprises. In your role

6. (A) pleased
(B) pleasing
(C) pleasant
(D) pleasure

as research assistant, you will report to Dr. Emma Walton, who will keep you informed of your specific duties and projects. Because you will be working with confidential information, you will be expected to ----- the enclosed employee code-of-ethics agreement.

7. (A) follow
(B) advise
(C) imagine
(D) require

As we discussed, you will be paid twice a month ----- the company's normal payroll schedule. As -----

8. (A) accords
(B) according
(C) according to
(D) accordance with

an hourly employee working fewer than twenty hours per week, you will not be ----- to

9. (A) tolerable
(B) liberal
(C) eligible
(D) expressed

receive paid holidays, paid time off for illness or vacation, or other employee benefits. Your employment status will be reviewed in six months.

If you have any questions, please feel free to contact me. Otherwise, please sign and return one copy of this letter. You may keep the second copy for your files. We look forward to working with you.

Sincerely,
Christopher Webster

Christopher Webster
Human Resources
Enclosures

III Reading Comprehension

Directions: In this part you will read a selection of texts, such as a magazine and newspaper articles, letters, and advertisements. Each text is followed by several questions. Select the best answer for each question and mark the letter (A), (B), (C), or (D) on your answer sheet.

Questions 10-12 refer to the following advertisement

Italian Food at its Finest...The Venezia		
Under New Ownership Open 7 Days, 11 A.M.-11 P.M.		
COUPON \$2 off Any order over \$10 with this coupon. Not valid with other offers. Offer good until June 16.	COUPON 50% off Buy 1 meal, get 2nd one 50% off with this coupon. Not valid with other offers. Offer good until June 16.	COUPON FREE 1 liter of soda with delivery with this coupon. Not valid with other offers. Offer good until June 16.

10. What is the purpose of this advertisement?

- (A) To announce a change in business hours
- (B) To advertise a business for sale
- (C) To encourage diners to eat early
- (D) To attract more customers

11. What will customers receive if they spend more than \$10?

- (A) A \$2 discount on their bill
- (B) 50% off their next purchase
- (C) A liter of soda
- (D) Free delivery service

12. What will happen on June 16?

- (A) A new owner will take over the business.
- (B) The coupons will expire.
- (C) Prices will be further reduced.
- (D) The business will close.

Questions 13-16 refer to the following article.

The new economy has created great business opportunities as well as great turmoil. Not since the Industrial Revolution have the stakes of dealing with change been so high. Most traditional organizations have accepted, in theory at least, that they must make major changes. Even large new companies recognize that they need to manage the changes associated with rapid entrepreneurial growth. Despite some individual successes, however, this remains

difficult, and few companies manage the process as well as they would like. Most companies have begun by installing new technology, downsizing, restructuring, or trying to change corporate culture, and most have had low success rates. About 70 percent of all change initiatives fail.

The reason for most of these failures is that in their rush to change their organizations, managers become mesmerized by all the different, and sometimes conflicting, advice they receive about why companies should change, what they should try to accomplish, and how they should do it. The result is that they lose focus and fail to consider what would work best for their own company. To improve the odds of success, it is imperative that executives understand the nature and process of corporate change much better. Most companies use a mix of both hard and soft change strategies. Hard change results in drastic layoffs, downsizing, and restructuring. Soft change is based on internal organizational changes and the gradual development of a new corporate culture through individual and organization learning. Both strategies may be successful, but it is difficult to combine them effectively. Companies that are able to do this can reap significant payoffs in productivity and profitability.

13. What is the article mainly about?

- (A) Corporate marketing plans
- (B) New developments in technology
- (C) Ways for companies to increase profits
- (D) How companies try to adapt to new conditions

14. The word “manage” in paragraph 1, line 6, is closest in meaning to

- (A) correct
- (B) attract
- (C) handle
- (D) regulate

15. According to the article, why do so many attempts to change fail?

- (A) Soft change and hard change are different.
- (B) Executives are interested only in profits.
- (C) The best methods are often not clear.
- (D) Employees usually resist change.

16. What is soft change based on?

- (A) Changes in the corporate culture
- (B) Reductions in company size
- (C) Relocating businesses
- (D) Financial markets

IV Choose one verb to complete the following sentences

1. Donna started looking for a new job after she the exam.
(A) will pass
(B) had passed
(C) passed
2. He went to university after he school.
(A) had left
(B) left
(C) will leave
3. Call me as soon as you
(A) arrived
(B) will arrive
(C) arrive
4. As the coil the object, the audible note becomes louder and louder.
(A) Approaches
(B) Will approach
(C) approach

**APPENDIX D
POST-TEST****I. Incomplete Sentences**

Directions: A word or phrase is missing in each of the sentences below. Four answer choices are given below each sentence. Select the best answer to complete the sentence. Then mark the letter (A), (B), (C), or (D) on your answer sheet.

1. The rapid modern advancement of electronics began in with the introduction of the radio.
 - (A) earnest
 - (B) enthusiasm
 - (C) secret
 - (D) sincerity
 2. There are three divisions to an electronics system, an example of which is a television
 - (A) box
 - (B) case
 - (C) kit
 - (D) set
3. First, the input is a broadcast signal either received by its antenna or in through a cable.
 - (A) cued
 - (B) fed
 - (C) led
 - (D) sped
 4. Second, processing circuits inside the TV the brightness, colour and audio data from this signal.
 - (A) contract
 - (B) detract
 - (C) extract
 - (D) retract
 5. Third and last, its output apparatus, a cathode ray tube, changes the electronic signals into a image on its screen.
 - (A) vague
 - (B) valuable
 - (C) viable
 - (D) visible

Retrieved from: (<http://www.english-test.net/esl/learn/english/grammar/ai138/esl-test.php>)

II Text Completion

Directions: Read the text that follows. A word or phrase is missing in some of the sentences. Four answer choices are given below each of the sentences. Select the best answer to complete the text. Then mark the letter (A), (B), (C), or (D) on your answer sheet.

Questions 6-7 refer to the following memo:

Potentially insightful and powerful analytical tools, the new electronic databases used to drive corporate planning often lead to (6)_____ hypotheses, chiefly, in quantitative

- A. creditable
- B. cogent
- C. inelegant
- D. good

science and finance, areas in which inventive solutions achieved in the past by more traditional means have been highly (7)_____.

- A. suspect
- B. adequate
- C. efficacious
- D. irregular

III Reading Comprehension

Directions: In this part you will read a text which is followed by several questions. Select the best answer for each question and mark the letter (A), (B), (C), or (D) on your answer sheet.

Questions 8–16 refer to the following text

Smart Energy

The next few decades will see great changes in the way energy is supplied and used. In some major oil producing nations, 'peak oil' has already been reached, and there are increasing fears of global warming. Consequently, many countries are focusing on the switch to a low carbon economy. This transition will lead to major changes in the supply and use of electricity. **[A]** Firstly, there will be an increase in overall demand, as consumers switch from oil and gas to electricity to power their homes and vehicles. **[B]** Secondly, there will be an increase in power generation, not only in terms of how much is generated, but also how it is generated, as there is growing electricity generation from renewable sources. **[C]** To meet these challenges, countries are investing in Smart Grid technology. **[D]** This system aims to provide the electricity industry with a better understanding of power generation and demand, and to use this information to create a more efficient power network.

Smart Grid technology basically involves the application of a computer system to the electricity network. The computer system can be used to collect information

about supply and demand and improve engineer's ability to manage the system. With better information about electricity demand, the network will be able to increase the amount of electricity delivered per unit generated, leading to potential reductions in fuel needs and carbon emissions. Moreover, the computer system will assist in reducing operational and maintenance costs.

Smart Grid technology offers benefits to the consumer too. They will be able to collect real-time information on their energy use for each appliance. Varying tariffs throughout the day will give customers the incentive to use appliances at times when supply greatly exceeds demand, leading to great reductions in bills. For example, they may use their washing machines at night. Smart meters can also be connected to the internet or telephone system, allowing customers to switch appliances on or off remotely. Furthermore, if houses are fitted with the apparatus to generate their own power, appliances can be set to run directly from the on-site power source, and any excess can be sold to the grid.

With these changes comes a range of challenges. The first involves managing the supply and demand. Sources of renewable energy, such as wind, wave and solar, are notoriously unpredictable, and nuclear power, which is also set to increase as nations switch to alternative energy sources, is inflexible. With oil and gas, it is relatively simple to increase the supply of energy to match the increasing demand during peak times of the day or year. With alternative sources, this is far more difficult, and may lead to blackouts or system collapse. Potential solutions include investigating new and efficient ways to store energy and encouraging consumers to use electricity at off-peak times.

A second problem is the fact that many renewable power generation sources are located in remote areas, such as windy uplands and coastal regions, where there is currently a lack of electrical infrastructure. New infrastructures therefore must be built. Thankfully, with improved smart technology, this can be done more efficiently by reducing the reinforcement or construction costs.

Although Smart Technology is still in its infancy, pilot schemes to promote and test it are already underway. Consumers are currently testing the new smart meters which can be used in their homes to manage electricity use. There are also a number of demonstrations being planned to show how the smart technology could practically work, and trials are in place to test the new electrical infrastructure. It is likely that technology will be added in 'layers', starting with 'quick win' methods which will provide initial carbon savings, to be followed by more advanced systems at a later date. Cities are prime candidates for investment into smart energy, due to the high population density and high energy use. It is here where Smart Technology is likely to be promoted first, utilising a range of sustainable power sources, transport solutions and an infrastructure for charging electrically powered vehicles. The infrastructure is already changing fast. By the year 2050, changes in the energy supply will have transformed our homes, our roads and our behaviour.

8 According to paragraph 1, what has happened in some oil producing countries?

- A They are unwilling to sell their oil any more.
- B They are not producing as much oil as they used to.
- C The supply of oil is unpredictable.
- D Global warming is more severe here than in other countries.

9 Where in [paragraph 1](#) can the following sentence be placed?

There is also likely more electricity generation centres, as households and communities take up the opportunity to install photovoltaic cells and small scale wind turbines.

- A
- B
- C
- D

10 Which of the following is NOT a benefit of Smart Grid technology to consumers?

- A It can reduce their electricity bills.
- B It can tell them how much energy each appliance is using.
- C It can allow them to turn appliances on and off when they are not at home.
- D It can reduce the amount of energy needed to power appliances.

11 According to [paragraph 4](#), what is the problem with using renewable sources of power?

- A They do not provide much energy.
- B They often cause system failure and blackouts.
- C They do not supply a continuous flow of energy.
- D They can't be used at off-peak times.

12 In [paragraph 5](#), what can be inferred about cities in the future?

- A More people will be living in cities in the future than nowadays.
- B People in cities will be using cars and buses powered by electricity.
- C All buildings will generate their own electricity.
- D Smart Grid technology will only be available in cities.

13 The word 'remote' in [paragraph 5](#) could be best replaced by:

- A isolated
- B crowded
- C attractive

D alone

14 The word 'underway' in [paragraph 6](#) is closest in meaning to:

A permanent

B complete

C beneficial

D in progress

15 What is the main idea of the final paragraph? ([paragraph 6](#)).

A To describe who will benefit from Smart Grid technology first.

B To outline the advantages of Smart Grid technology.

C To summarise the main ideas in the previous paragraphs.

D To describe how, where and when Smart Technology will be introduced.

16 In paragraph 6, what can be inferred about the introduction of Smart Grid Technology?

A The technologies which produce most benefits will be introduced first.

B The cheapest technologies will be introduced first.

C The technologies which are most difficult to put into place will be introduced first.

D Technologically advanced systems will be introduced first.
Smart Energy

IV Link these statements using a relative clause

1. a) The technology is here today.
b) It is needed to set up a home network.
.....
2. a) Her house has a network.
b) It allows basic file-sharing and multi-player gaming.
.....
.....
3. a) There is a line receiver in the living room.
b) It delivers home entertainment audio to speakers.
.....
.....
4. a) The house has an electronic door-keeper.
b) It is programmed to recognize you.
.....

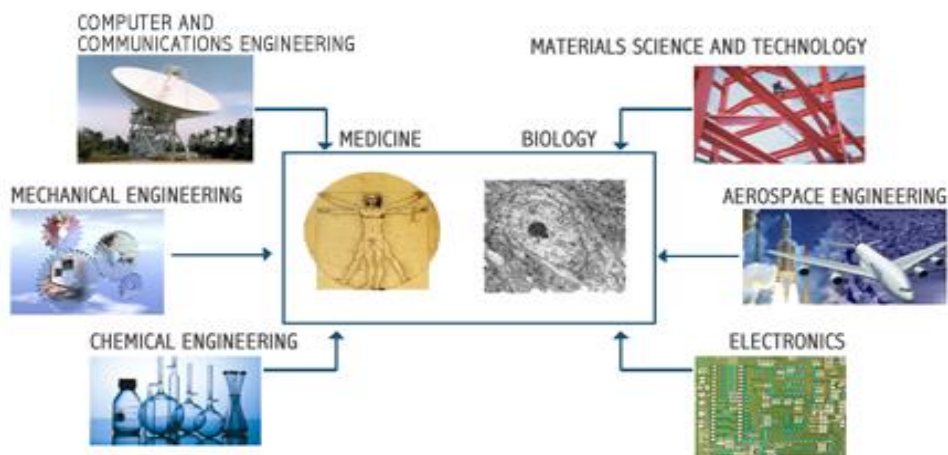
APPENDIX E COURSE

UNIT 1: Engineering- What is all about?

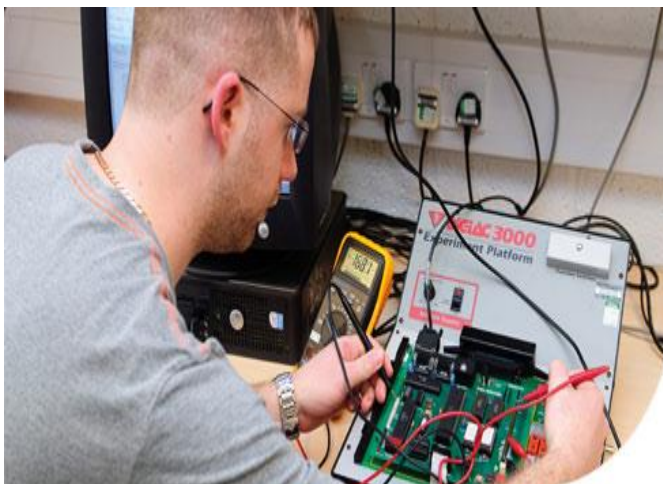
(Download the book ‘oxford english for electrical and mechanical engineering’by Eric H. Glendinning and Norman Glendinning through the site bookfi.org)

A. Reading:

a- **Pre-reading activity:** Look at the following pictures and discuss about the different branches of engineering.



(<http://www.google.com.au/search?hl=en&q=branches+of+biomedical+engineering&um>)



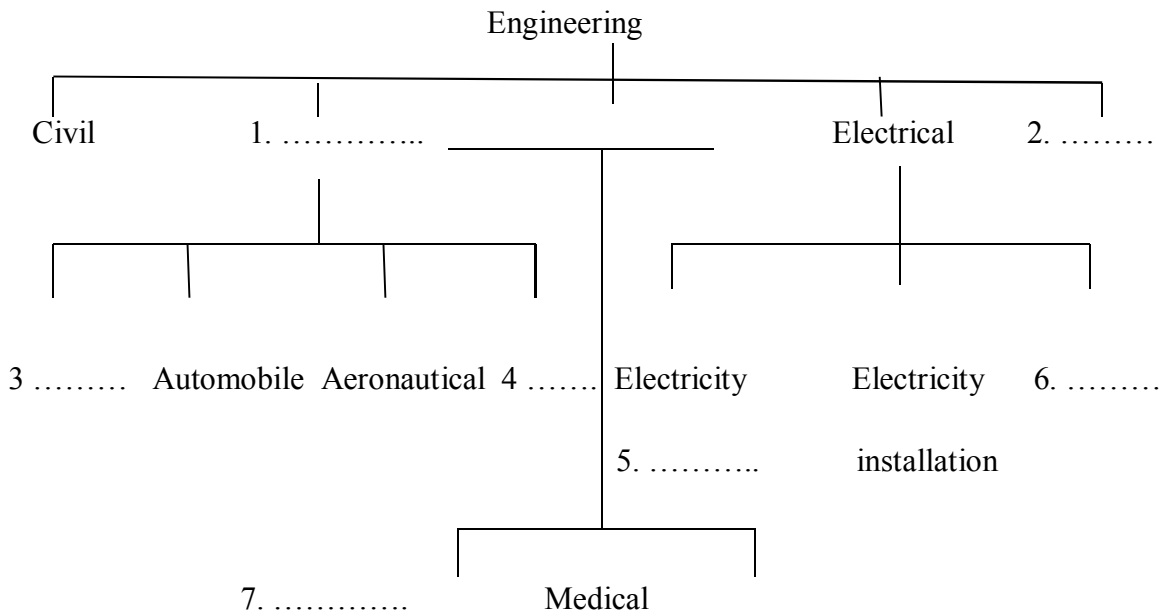
b- Reading activities:

1. Read the following passage and find out how many branches of engineering are mentioned.

Engineering is largely a practical activity. It is about putting ideas into action. Civil engineering is concerned with making bridges, roads, airports, etc. Mechanical engineering deals with the design and manufacture of tools and machines. Electrical engineering is about the generation and distribution of electricity and its many applications. Electronic engineering is concerned with developing components and equipment for communications, computing, and so on.

Mechanical engineering includes marine, automobile, aeronautical, heating and ventilating, and others. Electrical engineering includes electricity generating, electrical installation, lighting, etc. Mining and medical engineering belong partly to mechanical and partly to electrical.

2. Complete the blanks in this diagram using information from the text.



3. a. Read the following texts then match each one with the corresponding picture.

1. Transport: cars, trains, ships and planes are all products of mechanical engineering. Mechanical engineers are also involved in support services such as roads, rail track, harbours and bridges. **Picture ...**

2. Food processing: Mechanical engineers design, develop and make the machines and the processing equipment for harvesting, preparing and preserving the foods and drinks that fill the supermarket. **Picture ...**

3. Medical engineering: Body scanners, X-ray machines, life-support systems, and other high-tech equipment result from mechanical and electrical engineers combining with medical experts to convert ideas into life-saving and preserving products. **Picture ...**

4. Building services: Electrical engineers provide all the services we need in our homes and places of work, including lighting, heating, ventilation, air-conditioning, refrigeration, and lifts. **Picture ...**

5. Energy and power: Electrical engineers are concerned with the production and distribution of electricity to homes, offices, industry, hospitals, colleges and schools, and the installation and maintenance of the equipment involved in these processes. **Picture ...**

Picture 1



Picture 2



Picture 3



Picture 4



Picture 5



b. Match each text with the kind of engineers concerned with these areas.

Text 1

Text 2

Text 3

Text 4

Text 5

→Electrical

→Mechanical

c- Post-reading activities:

1. Summarize all what is done by filling the gaps.

The main branches of engineering are civil, ¹ _____, ² _____, and electronic. Mechanical engineering is ³ _____ ⁴ _____ machinery of all kinds. This branch of engineering includes ⁵ _____, automobile, ⁶ _____, and heating and ventilating. The first three are concerned with transport: ⁷ _____, cars and planes. The last ⁸ _____ with air-conditioning, refrigeration, etc.

Electrical engineering deals with ⁹ _____ from generation to use. Electricity generating is concerned with ¹⁰ _____ stations. Electrical installation deals ¹¹ _____ cables, switchgear, and connecting up electrical equipment.

Two branches of engineering include both ¹² _____ and ¹³ _____ engineers. These are mining and ¹⁴ _____ engineering. The former deals with mines and mining equipment, the latter with hospital ¹⁵ _____ of all kinds.

B. Word study: Word stress

Words are divided into syllables. For example:

Engine 'en.gine Two-syllable word

engineer en.gi'n.eer Three-syllable word

engineering en.gi'n.eer.ing Four-syllable word

* The stress is put on the third syllable from the end for words ending in **cal, ry, ty, phy...**

'Che.mi.**cal**, 'che.mis.**try**, pho.'to.gra.**phy**, cu.ri.'o.si.**ty**.

3 / 2 / 1

* The stress is put on the second syllable from the end for words ending in **tion, ic, ics ...**

'Phy.**sics**, scien.'ti.**fic**, a.'to.**mic**, at.'trac.**tion**.

- Look at these words. Try to mark the stressed syllable. (Most students use electronic dictionaries)

1. machinery 2. mechanical 3. machine 4. install 5. installation 6. electricity 7. electrical 8. electronic 9. aeronautical 10. Ventilation

C. Language study: *deals with / is concerned with*

What is the link between column A and column B?

A	B
Mechanical	machines
Electrical	electricity

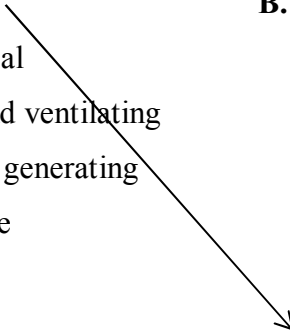
Column A lists a branch of engineering or a type of engineer. Column B lists things they are concerned with. We can show the link between them in a number of ways:

1. Mechanical engineering **deals with** machines.
2. Mechanical engineers **deal with** machines.
3. Mechanical engineering **is concerned with** machines.

4. Mechanical engineers *are concerned with* machines.

5. Machines *are the concern of* mechanical engineers.

- Match each item in column A with an appropriate item from column B and join the two parts to form a sentence as the ones above.

A. 1. marine 2. aeronautical 3. heating and ventilating 4. electricity generating 5. automobile 6. civil 7. electronic 8. electrical installation 9. medical		B. a. air-conditioning b. roads and bridges c. body scanners d. cables and switch-gear e. communication and equipment f. ships g. planes h. cars and trucks i. power stations
---	---	--

D. Grammar

Time Clauses

Time clauses are used to show how actions are linked in time. The most common time links between two sentences are **when, until, before, as, once** and **after**. Comma is used after the time clause when it comes first in a sentence.

- When dealing with time clauses meaning scientific truth, the present simple tense is usually used in both clauses.

1. **After** it feeds them into microchip, they are interpreted and verified.

Pr. S

Pr. S in passive

2. **Once** they are interpreted and verified, your instructions are carried out.

3. **When** a photodiode picks up rays from the remote control, it feeds them into a decoding microchip.

4. **As** the coil approaches the object, the audible note becomes louder and louder.

- When using two successive actions referring to the present time, the present simple tense is usually used in the adverb clause of time and the future simple tense is used in the main clause.

1. **After** she graduates, she will get a job.
2. I will leave **before** he comes.
3. **When** I see him tomorrow, I will ask him.
4. **Once** it stops raining, we will leave.

- When using two successive actions referring to the past time, the action that happened first should be in the past perfect tense and the other one in the past simple tense.
1. **After** she had graduated, she got a job.
 2. I had left **before** he came.
 3. **When** I got there, he had already left.

PRACTICE

A. Complete the following. Pay attention to verb tenses.

1. Last night I went to bed after I _____ my homework.
2. Tonight I will go to bed after I _____ my homework.
3. Be sure to reread your composition for errors before you _____ it in to the teacher tomorrow.
4. We will have a big party when _____.

B. Complete the following sentences. Punctuate carefully. Pay attention to verb tense usage.

1. I'll help you with your homework as soon as I
2. Just before I
3. I had already when
4. I will be here until I

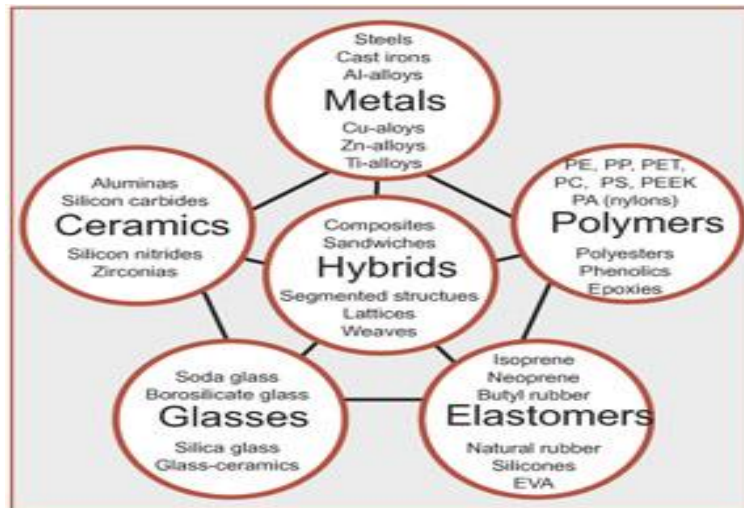
Unit 2: Engineering Materials

(Download the book ‘oxford english for electrical and mechanical engineering’by Eric H. Glendinning and Norman Glendinning through the site bookfi.org)

A. Reading:

a- Pre-reading activity:

- Look at the diagram below and discuss about the different materials mentioned in it.
Give the name of other materials that you know.



b- Reading activities

Scanning tables

Reading tables, charts, diagrams and graphs and analyzing them are so important in the field of engineering. Scanning is the best strategy to do so. It is a reading skill used to locate key or specific information quickly, e.g. dates, numbers, examples & definitions. To scan a table, you move your eyes up and down the columns until you find the word or words you want.

1. Scan the table which follows to find a material which is:

- soft
- ductile
- malleable
- tough
- scratch-resistant
- conductive and malleable
- durable and hard
- stiff and brittle
- ductile and corrosion-resistant
- heat-resistant and chemical-resistant

Material	Properties	Uses
Metal Aluminium	Light, soft, ductile, highly conductive, corrosion-resistant	Aircraft, engine components, foil, cooking utensils.
Copper	Very malleable, tough & ductile, highly conductive, corrosion-resistant.	Electric wiring, PCBs, tubing
Brass (65% copper, 35% zinc)	Very corrosion-resistant. Casts well, easily machined. Can be work hardened. Good conductor.	Valves, taps, castings, ship fittings, electrical contacts
Mild steel (iron with 0.15% to 0.3% carbon)	High strength, ductile, tough, fairly malleable, cannot be hardened and tempered, low cost, poor corrosion resistance.	General purpose
High carbon steel (iron with 0.7% to 1.4% carbon)	Hardest of the carbon steels but less ductile and malleable. Can be hardened and tempered.	Cutting tools such as drills, files, saws.
Thermoplastics ABS	High impact strength & toughness, scratch-resistant, light & durable.	Safety helmets, car components, telephones, and kitchenware.
Acrylic	Stiff, hard, very durable, clear, can be polished easily, can be formed easily.	Aircraft canopies, baths, double glazing.
Nylon	Hard, tough, wear-resistant, self-lubricating.	Bearings, gears, castings for power tools.
Thermosetting plastics Epoxy resin	High strength when reinforced, good chemical & wear resistance.	Adhesive, encapsulation of electronic components.
Polyester resin	Stiff, hard, brittle. Good chemical and heat resistance.	Moulding, boat and car bodies.
Urea formaldehyde	Stiff, hard, strong, brittle, heat-resistant, and a good electrical insulator	Electrical fitting, adhesives

2. Scan the table to find:

- a. A metal used to make aircraft.
- b. Plastics used for adhesives
- c. Steel which can be hardened
- d. An alloy suitable for castings
- e. A plastic with very low friction
- f. A material suitable for safety helmets
- g. A metal suitable for a salt-water environment
- h. A metal for general construction use but which should be protected from corrosion
- i. A plastic for car bodies
- j. The metal used for the conductors in printed circuit boards

3. Match materials with definitions.

7 _____ An obstacle to recycling is the need to sort waste carefully. While some types can be melted down for reuse, many cannot, or result in low-grade material.

14 Unit 2 Materials technology

b Match the materials from the web page (1–8) in Exercise 2 to the definitions (a–h).

1 stainless steel	a a metal used to make brass, and in galvanised coatings on steel
2 zinc	b the predominant metal in steel
3 iron	c a type of steel not needing a protective coating, as it doesn't rust
4 bronze	d a dense, poisonous metal
5 lead	e rocks from which metals can be extracted
6 hardwood	f an alloy made from copper and tin
7 ore	g timber from pine trees
8 softwood	h timber from deciduous trees

(Cambridge English for Engineering book downloaded from bookfi.org)

c- Post-reading activity:

Complete the missing headings in the web page below:

2 a Read the following web page and complete the missing headings using the words in the box.

Aluminium Copper Glass Plastic Rubber **Steel** Timber

RECYCLABLE MATERIALS

1 Steel Scrap can be sorted easily using magnetism. If the metal is galvanised (coated with zinc) the zinc is fully recyclable. If it is stainless steel, other metals mixed with the iron, such as chromium and nickel, can also be recovered and recycled. [More ...](#)

2 _____ Sorting is critical, as there are key differences between the clear and coloured material used in bottles and jars, and the high-grade material used in engineering applications, which contains traces of metals. [More ...](#)

3 _____ Scarcity makes recycling especially desirable, and justifies the cost of removing insulation from electric wires, which are a major source of scrap. Pure metal can also be recovered from alloys derived from it, notably brass (which also contains quantities of zinc, and often lead) and bronze (which contains tin). [More ...](#)

4 _____ The cost of melting down existing metal is significantly cheaper than the energy-intensive process of electrolysis, which is required to extract new metal from ore. [More ...](#)

5 _____ Hardwood and softwood can be reused. However, the frequent need to remove ironmongery and saw or plane off damaged edges, can make the process costly. [More ...](#)

(Cambridge English for Engineering book downloaded from bookfi.org)

B. Word study:

Study these examples of adjective and noun pairs for describing the properties of materials.

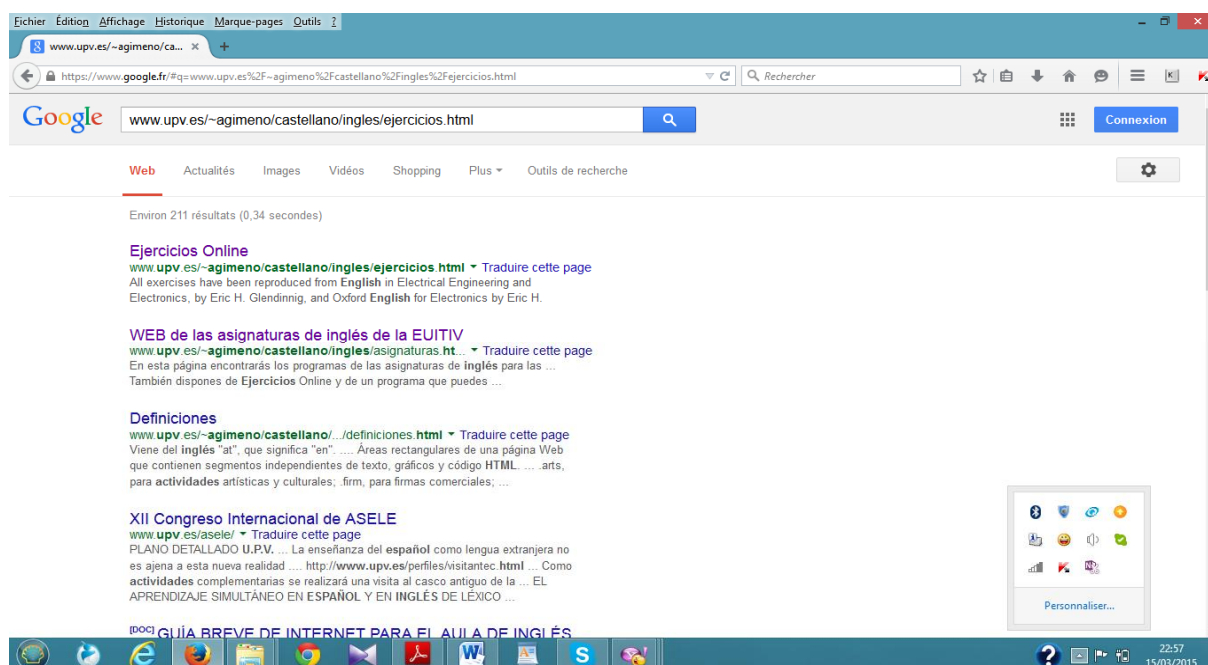
Adjective	Noun
Flexible	flexibility
Light	lightness
Strong	strength

- Now fill in the gaps in this table with the missing adjectives and nouns

Adjective	Noun
.....	wind
Elastic
.....	resistance
tough	plasticity
.....
soft	brittleness
rigid	
wear-resistant	
.....	
hard	

Homework:

- Using the search engine 'Google', write the following site <http://www.upv.es/~agimeno/castellano/ingles/ejercicios.html>, then click on 'Ejercicios Online' to have access to a ready-made web-quest which allows students to do the task alone at home and then check the correction. All exercises have been reproduced from **English in Electrical Engineering and Electronics**, by Eric H. Glendinnig, and **Oxford English for Electronics** by Eric H. Glendinning and John McEwan, both published by Oxford University Press.



- Form nouns from the following verbs:

1 2 3 4

8) Each of these verbs has a related noun ending in *-er* or *-or* which refers to an instrument or component. Complete the column of nouns. You have met this nouns.

	Verb	Noun
Example	<i>record</i>	<i>recorder</i>
1	oscillate	<input type="text"/>
2	transmit	<input type="text"/>
3	transform	<input type="text"/>
4	charge	<input type="text"/>
5	rectify	<input type="text"/>
6	process	<input type="text"/>
7	amplify	<input type="text"/>
8	collect	<input type="text"/>
9	detect	<input type="text"/>
10	tune	<input type="text"/>

C. Language Study

Relative clause (which)

- Consider the following examples about aluminum taken from the above table.

1. Aluminum is a light metal.
2. Aluminum is used to make aircraft.

- Join these sentences to avoid repetition.

➔ Aluminium is a light metal **which** is used to make aircraft.

1. Match information from column A, B and C to describe materials in A using the relative pronoun '**which**'.

A	B	C
1. an alloy 2. a thermoplastic 3. mild steel 4. a conductor 5. an insulator 6. high carbon steel 7. brass 8. a thermosetting plastic	a metal a material an alloy	a. allows heat or current to flow easily b. remains rigid at high temperatures c. does not allow heat or current to flow easily d. contains iron & 0.7% to 1.4% carbon e. becomes plastic when heated f. contains iron & 0.15% to 0.3% carbon g. formed by mixing other metals or elements h. consists of copper and zinc

Homework

- Join the following sentences using the word in italics. (selected exercise from the web-quest)

1 *which*
 A resistor is a component. A resistor is used to add resistance to a circuit.

2 *which*
 Carbon resistors are made of compressed graphite. The graphite is formed into small tubes.

3 *to*
 A ceramic coating is applied over the graphite. The ceramic coating insulates the graphite.

4 *to*
 The ends of the graphite are sprayed with metal. This forms contacts.

5 *which*
 End caps are forced on the metal-sprayed ends. The caps have connecting wires attached.

6 *to*
 The ceramic is marked with colour bands. The bands indicate the value and tolerance.

7 *which*
 Resistors are made in a range of preferred values. These values meet all the needs of circuit designers.

corrigé

D. Grammar

Passive Voice

The passive voice is largely used in engineering studies. The present simple tense is the most frequently used. It is sometimes not necessary to mention the agent.

Example: Chemical energy is potential energy that **is stored** in gasoline, food and oil.

1. Solar cells convert solar energy into electricity.

→ Solar energy **is converted** into electricity by solar cells.

2. The introduction of the new equipment has increased production.

→ Production **has been increased** by the introduction of the new equipment.

3. They are constantly reducing the size of solid-state devices.

→ The size of solid-state devices **is constantly being reduced**.

4. The scanner converts the barcode into electrical pulses.

→ The barcode **is converted** into electrical pulses by the scanner.

PRACTICE

1. Turn these sentences into the PASSIVE FORM, use the agent where necessary.

1. Where do we store important data?

2. The CPU performs the data processing functions.

3. A programmer often has to modify programs.

4. Computer technology has made household appliances smarter and feature richer.

5. We can use transistors for amplification and frequency conversion.

6. Smart devices will perform many ordinary chores in the future.

7. Will machines perform our ordinary chores in the future?

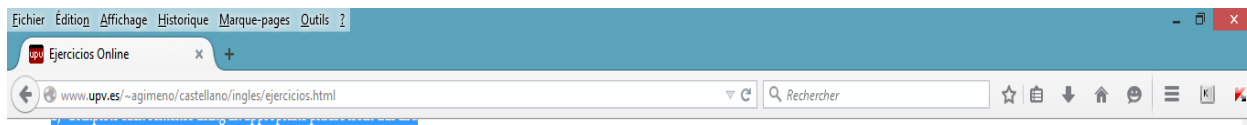
8. We use the decimal system for scientific purposes.

9. Can we control the electron flow in solid materials?

10. Stratum soft are developing the first virtual assistant, or EVA.

Home works (selected from the web-quest)

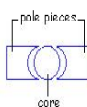
1. Complete each sentence using an appropriate phrase from this list:



wound round	located within
connected across	applied to
mounted on	connected to
wired to	connected between



1. The lamps are the battery.



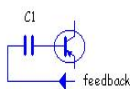
2. The core is the pole pieces.



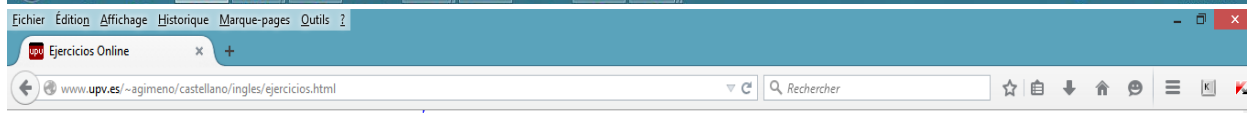
3. The 27pF capacitor is the collector and the base.



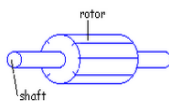
4. The antenna is the coil.



5. Feedback voltage is the base of the transistor through C1.



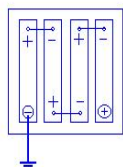
5. Feedback voltage is the base of the transistor through C1.



6. The rotor is the shaft.



7. The coil is an iron core.

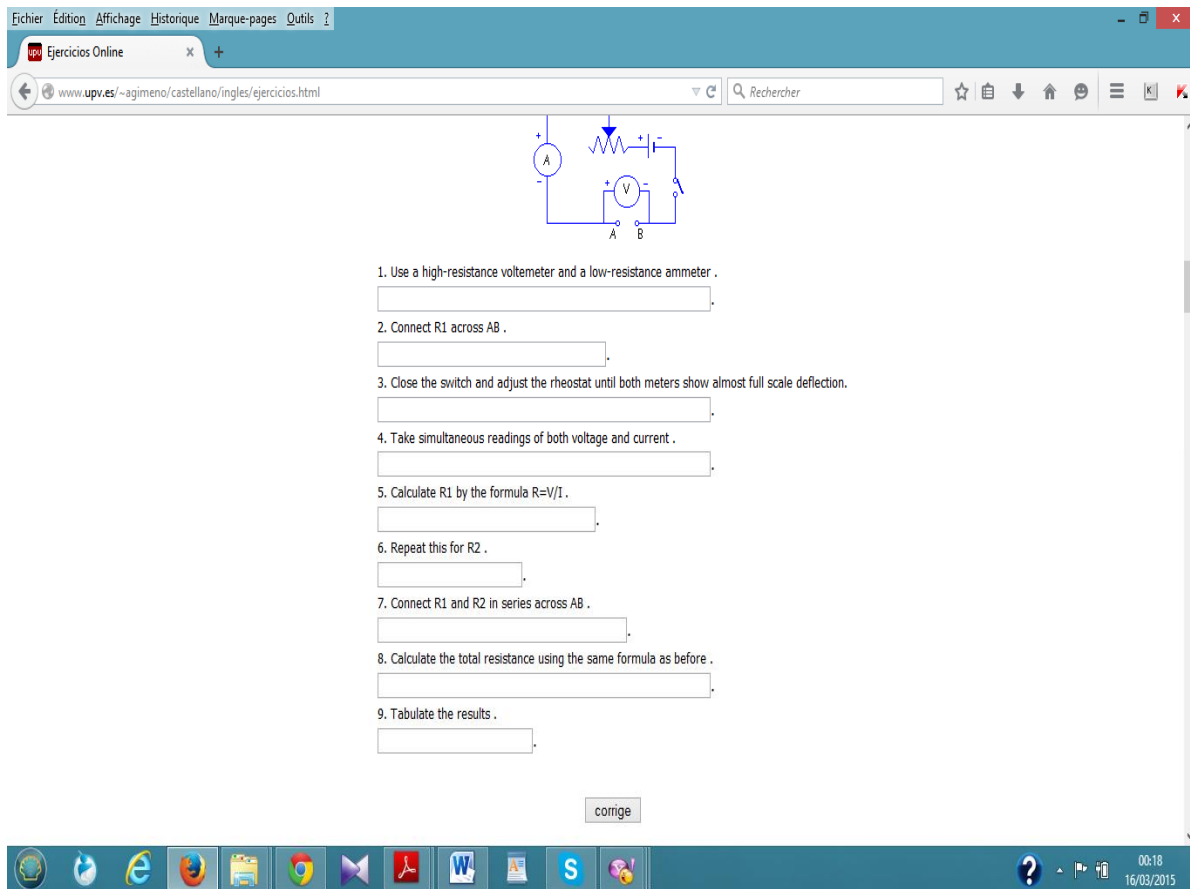


8. The negative pole of the battery is earth.

corrigé



2. Make a description of the experiment by rewriting the instruction in present passive:



The screenshot shows a web browser window with the following content:

Browser: Firefox
 Tab: Ejercicios Online
 URL: www.upv.es/~agimeno/castellano/ingles/ejercicios.html
 Search: Rechercher

Circuit Diagram: A series circuit containing a battery, a rheostat, an ammeter (A), and a voltmeter (V). The voltmeter is connected across terminals A and B. A switch is also present in the circuit.

1. Use a high-resistance voltmeter and a low-resistance ammeter .
2. Connect R1 across AB .
3. Close the switch and adjust the rheostat until both meters show almost full scale deflection.
4. Take simultaneous readings of both voltage and current .
5. Calculate R1 by the formula $R=V/I$.
6. Repeat this for R2 .
7. Connect R1 and R2 in series across AB .
8. Calculate the total resistance using the same formula as before .
9. Tabulate the results .

Button: corrige

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Further Reading

Concerning searching for specific information from diagrams and charts, these two home works, taken from the web-quest, should be beneficial for engineering students and particularly electrical and electronic engineering ones.

Homework 1: Using the diagram of the moving-coil meter, fill the spaces in this description of the meter.

Eichier Édition Affichage Historique Marque-pages Outils ?

Ejercicios Online

www.upv.es/~agimeno/castellano/ingles/ejercicios.html

Rechercher

3) Using the diagram of the moving-coil meter, fill the spaces in this description of the meter.

The essential components of a moving-coil meter are a (1) and a moving-coil. The magnet is (2) or semi-circular and is made of a material such as Alcomax. Each pole terminates in a curved (3) pole piece. The (4) which gives the instrument its name is composed of fine copper wire (5) a thin rectangular aluminium (6) . The former is mounted centrally on hard steel (7) and can rotate around a fixed cylindrical (8) . The core is (9) the pole pieces in such a way that an annular gap is formed between it and the pole pieces. A pointer is (10) the former and traverses a linear scale.

23:01 15/03/2015

Homework 2: With the help of the diagram, fill in the gaps. Each gap represents one word.

The description should answer these questions:

- 1 What is the diagram of?
- 2 What does it consist of in terms of blocks?
- 3 How are the blocks connected?
- 4 What is the function of each block?

Ejercicios Online

www.upv.es/~agimeno/castellano/ingles/ejercicios.html

1 What is the diagram of?
 2 What does it consist of in terms of blocs?
 3 How are the blocks connected?
 4 What is the function of each block?

The figure shows the block diagram of an amplitude-modulated (AM) radio transmitter. It (1) of a radio frequency (RF) oscillator, a (2) , an audio frequency (AF) amplifier, and an RF power amplifier. The RF (3) generates an RF (4) wave which is fed into the modulator.

The microphone converts sounds into audio frequency signals which are amplified by the AF (5) . The modulator then uses the amplified AF (6) to modulate the RF carrier wave.

The power of the modulated carrier wave is increased by the RF (7) amplifier. The strong modulated output signals are fed to the (8) which enables them to be transmitted over long distances.

corrige

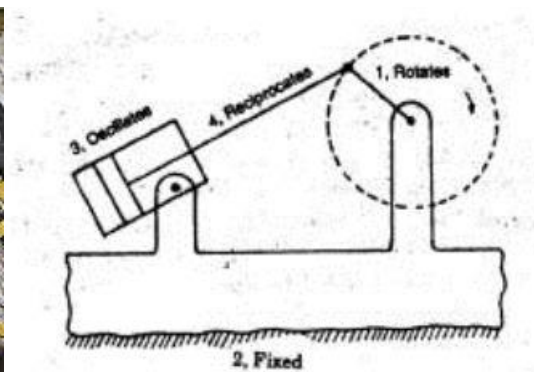
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UNIT 3: MECHANISMS

(Download the book ‘oxford english for electrical and mechanical engineering’by Eric H. Glendinning and Norman Glendinning through the site bookfi.org)

A. Reading: The aim of this unit is to show the link between mechanical and electrical engineering.

a- Pre-reading activity: Look at the picture and guess what the text of reading will be about.



b- Reading activities:

1. Scan the text quickly to find out which of these mechanisms are mentioned.

1. cam 2. tap 3. pendulum 4. foot pump 5. Escalator

Mechanisms are an important part of everyday life. They allow us to do simple things like switch on lights, turn taps, and open doors. They also make it possible to use escalators and lifts, travel in cars and fly from continent to continent.

Mechanisms play a vital role in industry. While many industrial processes have electronic control systems, it is still mechanisms that deliver the power to do the work. They provide the forces to press steel sheets into car body panels, to lift large components from place to place, to force plastic through dies to make pipes.

All mechanisms involve some kind of motion. The four basic kinds of motion are:

Rotary: Wheels, gears, and rollers involve rotary movement.

Oscillating: The pendulum of a clock oscillates – it swings backwards and forwards.

Linear: The linear movement of a paper trimmer is used to cut the edge of the paper.

Reciprocating: The piston in a combustion engine reciprocates.

Many mechanisms involve changing one kind of motion into another type. For example, the reciprocating motion of a piston is changed into a rotary motion by the crankshaft, while a cam converts the rotary motion of the engine into the reciprocating motion to operate the valves.

2. Now read the text to find the answer to these questions.

1. What does a cam do?
2. What does oscillating mean?
3. How are plastic pipes formed?
4. What simple mechanisms in the home are mentioned directly or indirectly?
5. What is the function of the crankshaft?
6. Give an example of a device which can produce a linear movement?
7. How are car body panels formed?
8. What do mechanisms provide in industry?

c- Post-reading activity:

(Exercise selected from the web-quest done in the classroom)

Match each component or unit with its function in a battery charger.

For example :

1-a	The transformer steps down the AC mains voltage
-----	---

Component/Unit	Function in a battery charger
1 Transformer	a steps down the AC mains voltage
2 Double-pole switch	b prevents the output from changing when the load varies
3 Neon lamp	c keeps the diodes from overheating
4 Fuse	d shows when the charger is on
5 Rectifier	e removes the fluctuations in the DC output of the rectifier
6 Aluminium heatsink	f protects the transformer
7 Smoothing circuit	g converts the AC voltage to DC voltage
8 Stabilizing circuit	h switches the charger on and off

B. Word Study: Compound Nouns

- We can use adjectives to describe an object in greater detail. For example:

light *electric light*

a motor *an electric motor*

steel *stainless steel*

gears *helical gear*

- We can also use nouns. For example:

light *laser light*

a motor *an air motor*

steel *carbon steel*

gears *titanium gears*

- Many relationships are possible in noun compounds. For example:

an air motor *a motor which uses air*

carbon steel *steel which contains carbon*

titanium gears *gears made of titanium*

1. Put each of these examples in the correct column.

1. carbon blocks 2. a power tool 3. aluminium alloy 4. a ball bearing 5. carbon fibre 6. a concrete beam 7. a gas burner 8. a diesel boat 9. roller bearings 10. a spring balance 11. a circuit board 12. a plastic tube 13. a plastic pipe 14. steel sheets 15. magnesium alloy

uses	is made of	contains

1. What new relationships can you find in the example below? Rewrite each compound to show the relationship. For example:

a foot pump *a pump which is operated by foot*

a ribbon cable *a cable which is like a ribbon*

a gear lever *a lever for operating gears*

1. chain wheel 6. College lecturer 2. disc wheel 7. Toe-clip 3. foot brake 8. Boiler thermostat
4. a hand throttle 9. Safety helmet 5. strain gauge 10. Aircraft engineer

Homework: Each word in column A often goes before one word from column B. For example, *integrated circuit* (1f). Find the other word pairs.

	A	B	
1	integrated	a sensor	<input type="text" value="1f"/>
2	circuit	b cell	<input type="text"/>
3	alternating	c switch	<input type="text"/>
4	primary	d supply	<input type="text"/>
5	zener	e diode	<input type="text"/>
6	remote	f circuit	<input type="text"/>
7	reed	g current	<input type="text"/>
8	surface	h bias	<input type="text"/>
9	vibration	i control	<input type="text"/>
10	reverse	j diagram	<input type="text"/>
11	mains	k wave	<input type="text"/>

C. Language Study

1. Linking Words

- When we write, we may have to describe, explain, argue, persuade, complain, etc. in all these forms of writing, we use ideas. To make our writing effective, we have to make sure our readers can follow our ideas by using linking words.

- Join these pairs of sentences using the appropriate linking word.

1. Mechanisms are important to us.
2. They allow us to travel.

→ Mechanisms are important to us **because/since/as** they allow us to travel. **(Reason)**

3. Mechanisms deliver the power to do work.

4. They play a vital role in industry.

→ Mechanisms deliver the power to do work **so** they play a vital role in industry. **(Result)**

Mechanisms deliver the power to do work; **therefore** they play a vital role in industry.

5. Friction is sometimes a help.

6. It is often a hindrance.

→ Friction is sometimes a help **but** it is often a hindrance. **(Contrast)**

2. Join these pairs of sentences using the suitable linking words.

1. Copper is highly conductive. It is used for electric wiring.

2. Weight is measured in new tons. Mass is measured in kilogram.

3. Nylon is used for bearings. It is self-lubricating.

4. ABS has high impact strength. It is used for safety helmets.

5. The foot pump is the class 2 lever. The load is between the effort and the fulcrum.

6. Friction is essential in brakes. Friction is a nuisance in an engine.

7. The upper surface of a beam is in compression. The lower surface is in tension.

8. Concrete beams have steel rods near the lower surface. Concrete is weak in tension.

2. Rewrite each sentence so that it has a similar meaning and contains the word in bold.

1. He had an accident and couldn't attend the conference on IT in Vienna. **so**

2. We didn't use that piece of string, because it was too short. **enough**

3. The question was so difficult that I had to ask for help. **such**

4. Plastics are used widely in engineering. They are cheap. **because**

5. We need to complete the experiment. Another week will be needed. **In order to**

6. The tests cannot be done. The test chamber has not been available for days. **since**

7. We couldn't do anything. They hadn't brought necessary equipment. **as**

2. Technical Terms

- One of the difficult things about the English of engineering is that there are many technical terms to learn. But many terms will be quite different and you may not always remember

them. When this happens, you will have to use whatever English you know to make your meaning clear.

2. Match terms in column A to ones in column B that are similar in meaning.

A	B
1. oscillates	a. changes
2. rotates	b. large, thin, flat pieces
3. reciprocates	c. moving stairs
4. has a linear motion	d. goes round and round
5. converts	e. movement
6. motion	f. goes in a line
7. escalator	g. swings backwards and forwards
8. sheets	h. goes up and down

D. Grammar

Making Questions

In *simple present* questions, we use **do/does**:

Do you live near here?

What time does the movie begin?

In *simple past* questions, we use **did**:

Did you sell your car?

How did the accident happen?

But do not use do/does/did if who/what / which is the subject of the sentence.

Emma phoned *somebody*. => *Who did Emma phone?*

Somebody phoned Emma. => *Who phoned Emma?*

More examples: - *Who wants* something to eat? (*not* who does want)

- *What happened* to you last night? (*not* what did happen)

- *Which bus goes* downtown? (*not* which bus does go)

Note the position of prepositions in questions beginning Who/What/Which/Where ... ?

- Who do you want to speak to?

- Which job has Jane applied for?
- What was the weather like yesterday?
- Where are you from?

Subject –Verb Agreement. A verb must match its subject in number, singular subjects take singular verbs, and plural subjects take plural verbs.

Basic Subject-Verb Agreement

- My friend is/was/has/does ...
- My friends are/were/have/do ...

Frequently Asked Question Typed

A. When the subject and verb are split:

- The teacher, along with his students, wants to play soccer.
- The institute that helps them is financially supported by the government.
- The instructor, as well as his students, has welcomed the school's decision of the uniform.

Note: The number of a subject is not affected by a phrase or clause that separates the subject from its verb.

B. When the subject is an expression of time, distance, price, and weight.

- Ten dollars is too much for a drink.
- Twenty miles is too long a way to walk in a day.
- Twenty minutes is not enough time for me to get there.

C. When a fraction or its equivalent initiates a subject:

- Two-thirds of the land has been sold.
- Two-thirds of them are students.

Note: In these cases, the noun in the *of*-phrase determines the number of the verb.

D. When a subject begins with *either A or B*, *neither A nor B*, or *not only A but (also) B*.

- Either he or his pupils are going to help us.
- Not only John but his parents want to help us.

Note: When these expressions initiate a subject, the verb must agree with *B* in number.

- E. When a subject consists of a proper noun or a branch of learning ending in *-s*:
- The United State has a population of over 265 million people.
 - Mathematics is my favorite subject.
 - Physics has been studied for many centuries.
- F. When a subject contains expressions like *every, each, more than one, many a, etc.*
- More than one person has applied for that position.
 - Every girl and boy was upset because of the outcome.
- G. When a subject contains expressions like *many of, a number of, a couple of, a group of, a few, several, both, etc.*
- A number of my friends are from China.
 - Many countries have joined the European Union.
 - Several cars were damaged in the accident.

PRACTICE

I. Ask Joe questions. (look at his answers before you write the questions)

1. (where / from?) - From Toronto originally.
2. (where / live / now?)..... - In Vancouver.
3. (married?)..... - Yes.
4. (how long / married?)..... - Twelve years.
5. (children?).....- Yes, three boys.
6. (how old / they?)..... - They're 4, 7, and 9.
7. (what / wife / do?)..... - She's a police officer.
8. (she / like her job?)..... - Yes, very much.

II. Make questions with *who* or *what*.

1. Somebody gave me the key. -
2. Something happened. -
3. Diane told me something. -

4. The book belongs to somebody. -
5. Somebody lives in that house. -
6. I fell over something. -
7. Something fell on the floor. -
8. This word means something. -
9. I borrowed the money from somebody. -
10. I'm worried about something. -

UNIT 4: THE ELECTRIC MOTOR

(Download the book 'oxford english for electrical and mechanical engineering' by Eric H. Glendinning and Norman Glendinning through the site bookfi.org)

A. Reading:

a- Pre-reading activity: Look at the picture and discuss

THE DC MOTOR

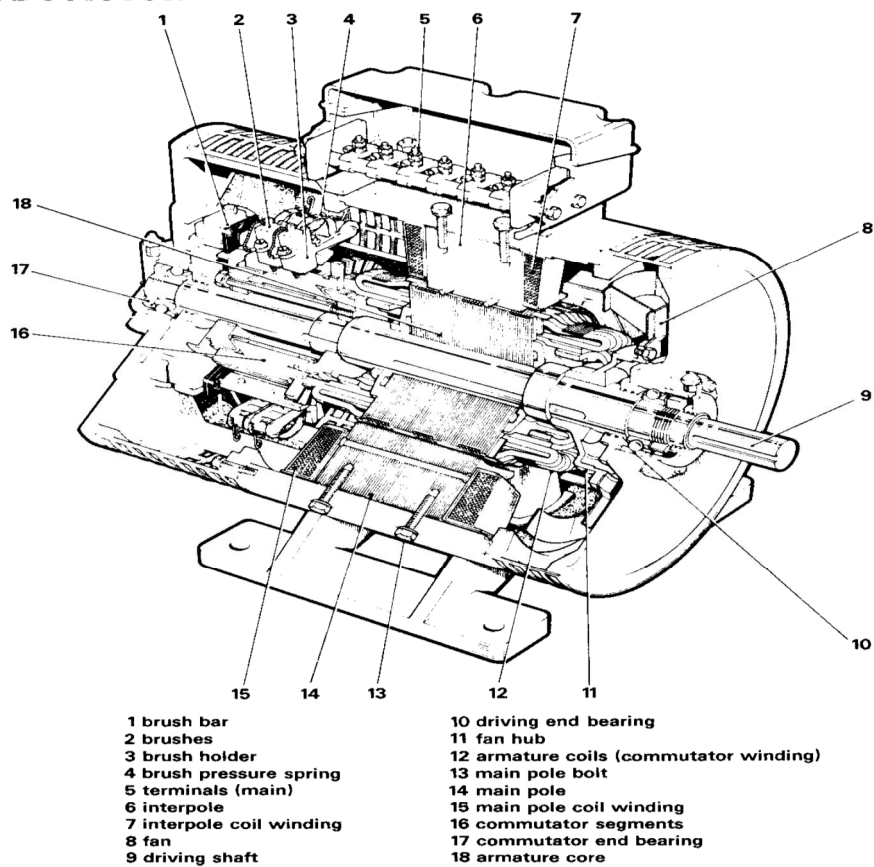


Figure A

- Look at figure A and fill in the gaps
- 1. The motor shown in figure 1 is
- 2. It is composed of Elements.

b- Reading activities: Skimming

Skimming is a useful strategy is reading a text quickly to get a general idea of the kind of information it contains.

1. Skim this text and identify the paragraphs which contain information on each of these topics. The first one has been done for you.

- | | |
|---------------------------------------|--------------------|
| a. What electric motors are used for | <i>Paragraph 1</i> |
| b. The commutator | |
| c. Why the armature turns | |
| d. Electromagnets | |
| e. Effect of putting magnets together | |
| f. The armature | |

In an electric motor, an electric current and magnetic field produce a turning movement. This can drive all sorts of machines, from wrist-watches to trains. The motor shows in Fig. 1 is for a washing machine. It is a universal motor, which can run on direct current or alternating current.

A electric current running through a wire produces a magnetic field around the wire. If an electric current flows around a loop of wire with a bar of iron through it, the iron becomes magnetized. It is called an electromagnet; one end becomes a north pole and the other a south pole, depending on which way the current is flowing around the loop (see Figure 1).

If you put two magnets close together, like poles – for example, two north poles – repel each other, and unlike poles attract each other.

In a simple electric motor, like the one showed in Fig. 2, a piece of iron with loops of wire round it, called an armature, is placed between the north and south poles of a stationary magnet, known as the field magnet. When electricity flows around the armature wire, the iron becomes an electromagnet (see Figure 2).

The attraction and repulsion between the pole of this armature magnet and the poles of the field magnet make the armature turn. As a result, its north pole is close to the south pole of the field magnet. Then the current is reversed so the north pole of the armature magnet becomes

the south pole. Once again the attraction and repulsion between it and the field magnet make it turn. The armature continues turning as long as the direction of the current, and therefore its magnetic poles keeps being reversed.

To reverse the direction of the current, the ends of the armature wire are connected to different halves of a split ring called a commutator. Currents flow to and from the commutator through small carbon blocks called brushes. As the armature turns, first one half of the commutator comes into contact with the brush delivering the current, and then the other, so the direction of the current keeps being reversed.

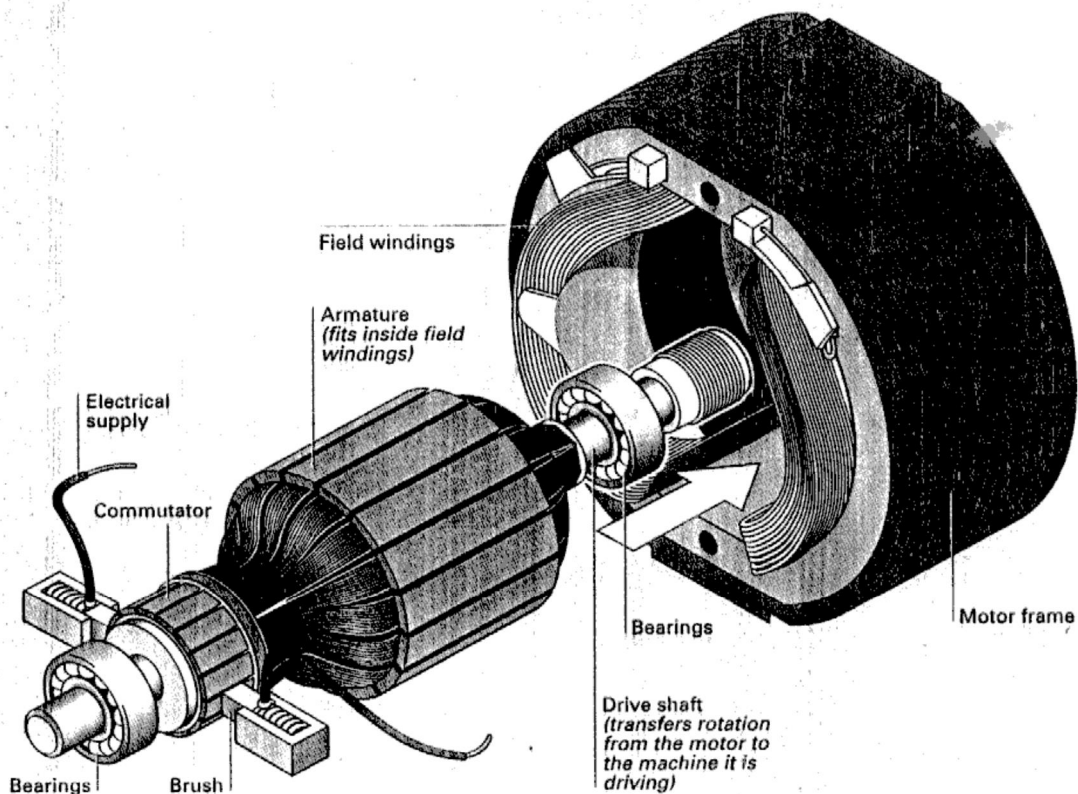


Fig. 1

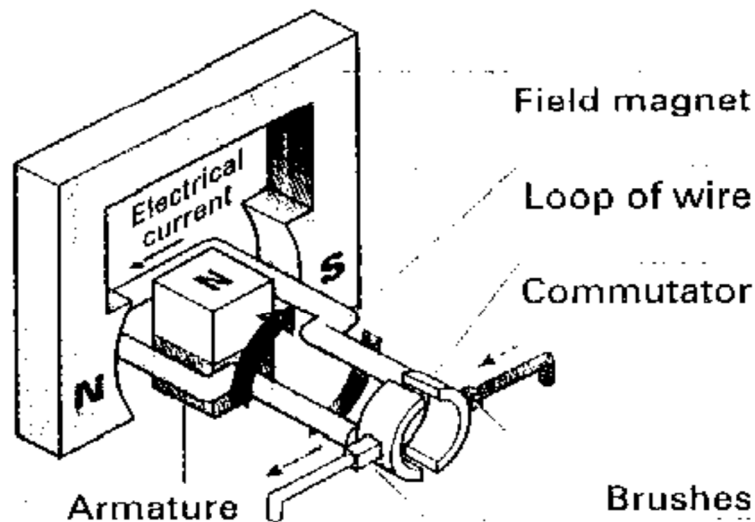


Fig. 2

2. Match each of these diagrams with the correct description **a**, **b**, **c** or **d**. One of the description does not match any of the diagrams. (The diagrams are in the correct sequence, but the descriptions are not.)

- a.** The armature turn a quarter of a turn. Then electric contact is broken because of the gap in the commutator, but the armature keeps turning because there is nothing to stop it.
- b.** When the current flows, the armature becomes an electromagnet. Its north pole is attracted by the south pole and repelled by the north pole of the field magnet.
- c.** When an universal motor is run on direct current, the magnetic poles in the armature change while those of the field magnet remain constant.
- d.** When the commutator comes back into contact with the brushes, current flows through the armature in the opposite direction. Its poles are reversed and the turn continues.

- c- **Post-reading activity:** (Exercises extracted from English in Electrical Engineering and Electronics, downloaded through bookfi.org)

STAGE 1 *Previewing*

Read the title and the first sentence of each paragraph. Then write down what you think the passage is about.

THE EFFECTS OF AN ELECTRIC CURRENT

The effects of an electric current are thermal, luminous, chemical and magnetic. When a current flows through a conductor it may heat the conductor. This heat is sometimes undesirable and has to be reduced. For this reason many electric motors and generators contain a fan. However, 5 domestic appliances, such as electric cookers, and many industrial processes depend on the heating effect of an electric current.

The passage of a current may produce light. This can happen in a number of ways. The heat generated by the current may be so great that the conductor becomes incandescent. For example, the filament of a light bulb 10 emits intense white light when heated by a current. Light is also produced when a current ionizes a gas. The colour of the light will vary according to the gas used. Mercury vapour lamps give a greenish-blue light.

An electric current can separate a chemical compound into its components. This is called electrolysis. Chlorine is generated by the 15 electrolysis of salt water. Electrolysis can also be used to break down water into hydrogen and oxygen. Because pure water does not conduct well, sulphuric acid has to be added before the electrolysis takes place.

A current flowing through a conductor creates a magnetic field around it. This field has three applications. It can magnetize magnetic materials and 20 attract them to the conductor. The electric relay works on this principle. If the magnetic field is cut by another conductor, an electromotive force will be induced in that conductor. For instance, the change in current flowing through the primary of a transformer will induce a current in the secondary. This principle is also used in generators. Thirdly, if a current- 25 carrying conductor is placed in the magnetic field, a force will be exerted on it. This effect is utilized in the electric motor.

STAGE 2 *Note-taking*

Now study the passage carefully and complete this framework of notes:

Effects of an electric current :

1. thermal
2.
3.
4. magnetic
 1. heat can be
 - (a) undesirable e.g. motor
 - (b) e.g. cooker
 2. light
 - (a) from incandescent conductor e.g.
 - (b) from e.g. vapour lamp
 3. = breakdown of chemical compound e.g. salt water into chlorine
 4. current flowing in conductor \rightarrow round it. Magnetic field has 3 applications:
 - (a) e.g. relay
 - (b) induce emf in another conductor e.g.
 - (c) e.g. motor

B. Word study:

*Verbs with **óize /-ise*** Study these statement:

*The rotor is **magnetized**.*

What does it mean? Can you say it another way?

We can rewrite this statement as:

*The rotor is **made magnetic**.*

Verbs ending in *-ize / -ise* have a range of meanings with the general sense of „make + adjective“

*Rewrite these sentences replacing the phrases in italics with appropriate **óize/-ise**.*

1. Some cars are fitted with a security device which *makes* the engine *immobile*.
2. In areas where the power supply fluctuates, for sensitive equipment a device to *make* the voltage *stable* is required.
3. Manufacturers seek to *keep* costs to a *minimum* and profits to a *maximum*.
4. Most companies have *installed computers* to *control* their production line.
5. Companies may *make* their operation *more rational* by reducing the variety of products they make.

C. Language study:

1. Describing function

Try to answer this question: „What does an electric motor do ?“

When we answer a question like this, we describe the function of something. We can describe the function of an electric motor in this way: *An electric motor converts electrical energy to mechanical energy.* We can emphasize the function like this: *The function of an electric motor is to convert electrical energy to mechanical energy.*

- Match each of these motor components to its function, and then describe its function in a sentence.

Component	Function
1. armature	a. transfer rotation from the motor.
2. bearings	b. create an electromagnet field
3. brushes	c. converts electromagnetic energy to rotation
4. commutator	d. reverses the current to the armature
5. drive shaft	e. support the drive shaft
6. field windings	f. supply current to the armature

2. Describing components

Now study this description of the motor

A simple dc motor *consists of* a field magnet and an armature. The armature *is placed between* the poles of the magnet. The armature *is made up of* a loop of wire and a split ring *known as* a commutator. The loop *is connected to* the commutator. Current is supplied to the motor through carbon blocks *called* brushes.

To write a description, you need to use language to:

1. dismantle a piece of equipment into its main parts. These expression will help:

A consists of X and Y Is made up of Is composed of

2. name components:

Carbon blocks *known as* brushes. *called*

3. locate components:

The armature is placed between the poles.

4. connect components:

The loop *is connected to* the commutator.

- Look at figure 3

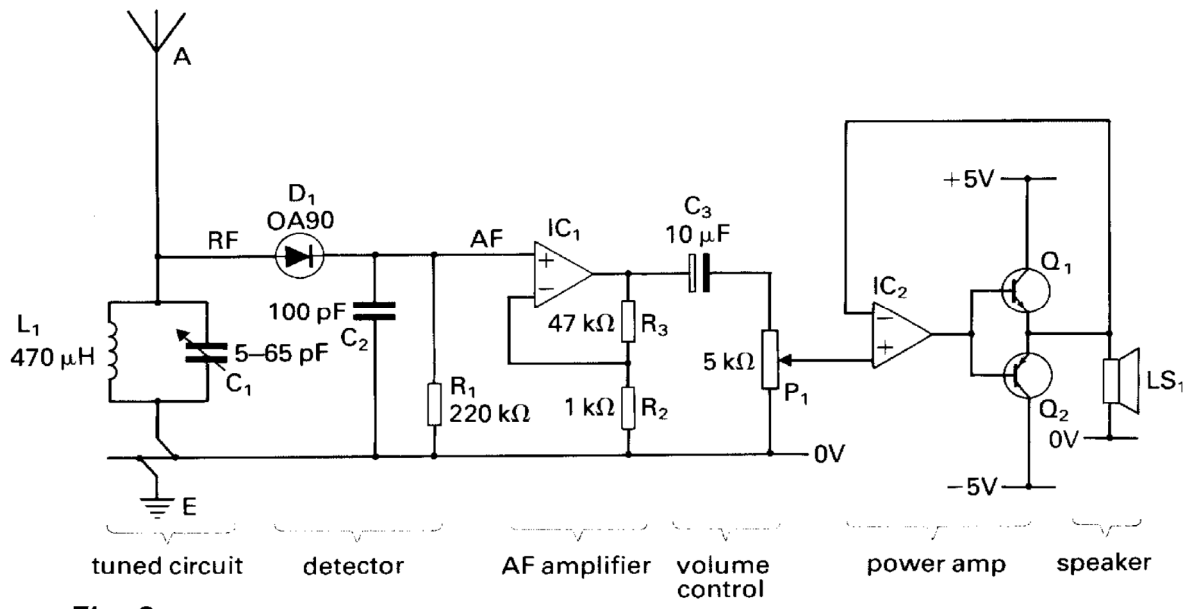


Figure 3


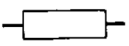
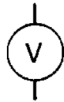

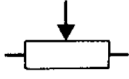

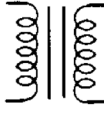





- The radio **consists of/ is composed of** a tuner, a detector, and an AF amplifier.
 - The tuner **is connected to:** **is linked to** the detector.
1. Exercise extracted from Oxford English for Electronics, downloaded through bookfi.org

Here are some circuit symbols. Label them and describe their function. For example:

5 h *It's called a transformer. It steps AC voltages up or down.*

This list of functions may help you.

- | | | | |
|----------|---------------------------------|----------|---------------------------------|
| a | varies capacitance in a circuit | f | protects a circuit |
| b | rectifies alternating current | g | varies the current in a circuit |
| c | adds resistance to a circuit | h | steps AC voltages up or down |
| d | measures very small currents | i | receives RF signals |
| e | breaks a circuit | j | measures voltages |

1			6	
2			7	
3			8	
4			9	
5			10	

2. Use the following words to complete the text:

Are made up / is placed / is composed / consists

A transformer Of two coils, a primary and a secondary. The coils are wound on a former which is mounted on a core. The coils of a number of loops of wire. The core

..... of thin pieces of soft iron. U- and T- shaped pieces are used. The former on the leg of the T.

D. Grammar

Gerunds and Infinitives

Infinitive: An infinitive is the base form of a verb with to preceding it.

- A. Use a to-infinitive after the following common verbs: agree, decide, expect, happen, pretend, promise, manage, tend.

He decided to go home.

- B. Use a to-infinitive after the following common verbs plus their object: advise, allow, expect, forbid, want, force, tell.

His manager allowed him to go home.

- C. Use an infinitive without to after the common following verbs plus their object: have, let, make, feel, see, hear, smell, find.

He let Tom go home.

Gerunds: A gerund is the –ing form of a verb. It is used as a noun.

Use an –ing form after the following common verbs: avoid, can't help, deny, feel like, give up, imagine, mind, postpone, enjoy.

He denies eating the cake.

Choosing Between Infinitives and Gerunds

A gerund is always used when a verb is followed by a preposition: admit to, approve of, argue about, believe in, care about, complain about, concentrate on, confess to.

They apologized for being late.

He dreamt about eating a hamburger.

The following common verbs allow both a to-infinitive form and an –ing form. Sentences with either form will have the same meaning. They are: attempt, begin, continue, hate, like, love, neglect, prefer, regret, stand/can't stand, start.

He hates running.

He hates to run.

The following common verbs allow both a to-infinitive form and an –ing form. However, their meanings are different in each case: remember, forget, stop, regret, try.

I forgot to turn the light off. (= I didn't turn it off, and it remained on)

I forgot turning the light off. (= I actually turned it off. I forgot that I had done that.)

Note: The choice of a to-infinitive or an –ing form depends on the meaning. Choosing Subjects A. Use objective case pronouns with an infinitive. expect him to help her. allow them to do it. let him go.

B. Use a possessive pronoun with a gerund.

enjoy their singing.

mind my smoking.

- Some more verbs followed by –ing

finish avoid consider admit miss involve quit postpone delay imagine deny risk practice

- Some more verbs followed by to-infinitive

offer decide hope deserve attempt mean promise agree plan aim afford manage intend threaten refuse arrange learn need fail

PRACTICE

1. Put the verb into the correct form, to-infinitive or –ing form.

1. When I'm tired, I enjoyed _____ TV. It's relaxing. (watch)
2. It was a nice day, so we decided _____ for a walk. (go)
3. There was a lot of traffic, but we managed _____ to the airport in time. (get)
4. I'm not in a hurry, I don't mind _____. (waiting)
5. They don't have much money. They can't afford _____ out very often. (go)
6. We've got a new computer in our office. I haven't learned how _____ it yet. (use)
7. I wish that dog would stop _____. It's driving me crazy. (bark)
8. Our neighbor threatened _____ the police if we didn't stop the noise. (call)
9. We were all afraid to speak. Nobody dared _____ anything. (say)
10. We were hungry, so I suggested _____ dinner early. (have)

ملخص:

يمكن استغلال الكمّ الهائل والمجموعة الكبيرة والمتنوعة من الوسائل المتاحة والمتوفرة بسهولة على شبكة الأنترنت لدمج مهارات مختلفة في تدريس اللغة الإنجليزية المتخصصة.

يكشف هذا البحث إدماج الوسائل المعتمدة على الويب (Web) في درس اللغة الإنجليزية لأهداف خاصة على أساس المحتوى. ويدرس كيف يمكن للأنترنت أن يوفر الفرصة لتحضير تمارين هامة متعلقة بأهداف الدرس، لذلك يُقترح استخدام الأنترنت لمساعدة المتعلمين في التحكم في تعلمهم، كما أنه يشجع البحث الحالي دراسة تجريبية لطلبة السنة الثانية ماستر في هندسة الأجهزة الإلكترونية. تمّ جمع المعلومات باستعمال ثلاث وسائل بحث: استجواب الطلاب المعنيين في البحث، لقاء مع أساتذة اللغة الإنجليزية. استعملت تحاليل نوعية وكمية قصد تسليط الضوء على احتياجات طلبة الهندسة والمواقف نحو إدماج الوسائل المعتمدة على الويب في تدريس القراءة، بعد التحليل تبين أنّ طلبة هندسة الأجهزة الإلكترونية يحتاجون إلى تطوير مهارات محدّدة في الإنجليزية ومن ثمّ العمل على الرفع من قدراتهم في القراءة. وتبين أيضاً أنّ إدماج الوسائل المعتمدة على الويب في تدريس القراءة مقبول إيجابياً من طرف هؤلاء الطلبة والذي أدى إلى تقدّمهم بعد التجربة.

الكلمات المفتاحية: اللغة الإنجليزية لأهداف خاصة، الوسائل المعتمدة على الويب، هندسة الأجهزة الإلكترونية، مادة القراءة، احتياجات طلبة الهندسة.

Résumé

La grande quantité et variété de données actuelles qui sont facilement accessibles sur Internet, peuvent être exploitées pour intégrer les différentes compétences dans l'enseignement de l'Anglais spécifique. Cette étude explore l'intégration de ces données sur le web dans un cours d'Anglais spécifique basé sur le contenu. Elle examine comment Internet offre l'opportunité de concevoir des activités significatives liées aux objectifs du cours. Il est donc proposé que l'Internet doit être utilisé pour aider les apprenants à prendre plus le contrôle de leur apprentissage et de promouvoir des attitudes qui conduisent à un apprentissage autonome et à un enseignement motivant. Le présent travail de recherche est une étude de cas expérimentale des étudiants en 2ème année Master en Génie Electronique Instrumentation. Les informations ont été rassemblées en utilisant trois instruments de recherche : un questionnaire aux étudiants, une interview avec les enseignants et des instruments expérimentaux (pré- et post- tests). Des analyses qualitatives et quantitatives ont été procédées afin de connaître les besoins des étudiants en Ingénierat ainsi que leurs attitudes envers l'intégration de données basées sur le web dans l'enseignement de la lecture. Après analyse, il a été révélé que les étudiants en Génie Instrumentation Electronique ont besoin de développer des compétences particulières en Anglais et d'augmenter leurs capacités en lecture. Il a été aussi démontré que l'intégration des données basées sur le web dans l'enseignement de la lecture a été positivement acceptée par ces étudiants d'où leur progression après expérimentation.

Mots clés: Anglais Langue de Spécialité, données basées sur le web, Ingénieur en Instrumentation Electronique, la matière de la lecture, les besoins des étudiants en Ingénierat.

Summary

The vast amount and great variety of current and readily available materials on Internet can be exploited to integrate the different skills in ESP teaching. This research explores the integration of web-based materials into a content-based ESP course. It examines how Internet offers the opportunity to design significant activities related to the course objectives. It is, therefore, proposed that Internet should be used to help learners take more control of their learning and promote attitudes which lead to autonomous learning and motivating teaching. The present research work is an experimental case study of 2nd year Electronic Instrumentation Engineering Master Students. Data were collected through three instruments of research: a students' questionnaire, an English teachers' interview and experimental instruments (pre- and post-tests). Qualitative and quantitative analyses were proceeded in order to have insights into engineering students' needs as well as attitudes towards the integration of web-retrieved materials in the reading instruction. After analysis, it was revealed that EIE students need to develop particular skills in English and raise their reading abilities as well. It was also shown that the integration of web-based materials in teaching the reading skill was positively accepted by those students resulted by their progress after experimentation.

Key Words: ESP, web-based materials, Electronic Instrumentation Engineering, reading skill, engineering students' needs.