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Designing a Technical English Course for Engineering
Postgraduate Students at Badji Mokhtar University of
Annaba

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To the memory of my dear Father;

May his soul rest in peace



Dedication

To my unique dear daughter Batoul

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Abstract

English for specific purposes (ESP) is considered as a trend in English language teaching. It is a belief that ESP courses help students become more proficient in their field of study. The present study demonstrates the design of a technical English course for postgraduate students of Engineering at Badji Mokhtar Annaba University. Through a pilot study, the postgraduate students declared that they need to have courses in English for academic purposes in order to read and understand the newly updated researches in English, and to be able to write and publish their own articles without referring to experts for the translation from French into English, and also to interact with foreign professionals in internal or external conferences. Thus, an EAP course is expected to be beneficial in their field of study and may help the students develop their skills. After having permission from the dean of faculty of Engineering, data was collected via a constructed questionnaire, semi-structured interviews and classroom observation. Thus, postgraduate students showed a great interest to the suggested course which aims at developing their four skills in technical English.

Keywords: ESP, EAP, technical English course, engineering, postgraduate students

List of Acronyms

ESP: English for Specific Purposes.

GE: General English.

FLT: Foreign Language Teaching.

BE: Business English.

EAP: English for Academic Purposes.

EOP: English for Occupational Purposes

EST: English for Science and Technology.

EBE: English for Business and Economy.

ESS: English for Social Studies.

EAST: English for Academic Science and Technology

EAMP: English for Academic Medical Purposes

EALP: English for Academic Legal Purposes

EMFE: English for Management, Finance and Economics

EPP: English for Professional Purposes

EVP: English for Vocational Purposes

EMP: English for Medical Purposes

NA: Needs Analysis.

GA: Genre Analysis



EFL: English as a Foreign Language.

TEFL: Teaching English as a Foreign Language.

TOEFL: Test of English as a foreign Language.

BALEAP: British Association for Lectures in EAP.

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GENERAL INTRODUCTION

After the World War 2, English language gained the title of the international language, because of the global superpower of the United States of America that was imposed on the world. This led to the expansion of foreign investments and the development of many industries around the world and Algeria was not an exception. In the same time, English for Specific purposes (ESP) emerged to fulfil the need of learners for the appropriate and effective use of English in the field of study or work. In this context, Hall (2016) states that “from 1960’s onwards, ESP saw sustained growth and (...) intended to meet the communication needs of rapidly industrialized nations” (p.150).

Besides, Dudley-Evans and St. John (1998) stress that ESP courses are generally intensive and narrow focused. They focus on specific skills in specific contexts for specific students. This comes as a result of the students’ needs, the resources available and the contexts where the courses are conducted.

1. The Statement of the Problem

Studying English for Specific Purposes (ESP) courses at the faculty of Engineering at Badji Mokhtar Annaba University is a kind of learning General English. The researcher noticed that teachers do not identify their students’ language needs as a major component that rarely exists and even if it does, it is basically unsystematic depending mainly on teachers’ intuitions. This is mostly due to the non-conducting of needs analysis while designing their courses being unaware of its importance in targeting their students’ language issues and the absence of a conventional technical English syllabus designed for Engineering Students in all the Algerian universities . In our investigation, we administered questionnaires to postgraduate students of engineering who showed a great interest to learn English which is specific to their field of study because they are aware of their needs and goals which are neglected by the authorities

including the university administration. Furthermore, they listed some reasons related to why English for academic Specific purposes (EASP) is needed in their studies of post-graduation. Firstly, the students need to read and comprehend texts and resources related to their study field. Secondly, They need to be able to write their research articles in English as a part of their doctoral project and thirdly, they need to attend any of the academic contexts like conferences in foreign countries since the administration selects only those who have a good level in English so as to be able to correspond with English speaking professionals in the field. Therefore, our study focuses on designing a technical English course for all the forty five (45) postgraduate students of engineering belonging to Engineering faculty at Badji Mokhtar University in Annaba in order to equip them with adequate English ability to meet their needs and to remedy their weaknesses.

2. Research Questions

In our investigation, four (04) research questions are formulated as the following:

1. Why is a technical English course efficient and beneficial for the postgraduate students of engineering at Badji Mokhtar University?

In this question, the researcher has to point out the reasons why a technical English course is considered important to postgraduate students, and confirm its efficiency in their academic field.

2. What are the main learning and target needs of engineering postgraduate students in ESP?

Regarding the second question, we seek to identify the main learning and target needs of the postgraduate students in learning English for Specific Purposes because this step is in the heart of any ESP course design.

3. Which teaching approach is appropriate to satisfy their academic needs?

This question is related to the approach of teaching the four skills in ESP context to engineering students.

4. Which type of materials is effective for their ESP learning?

As far as the selection of materials in ESP is concerned, the researcher, in this question wants to emphasize on the importance of selecting the appropriate and effective materials for a better and successful ESP teaching.

3. Research Hypotheses

The above questions lead to the following hypotheses:

1. A technical English course is beneficial and effective for postgraduate students of the faculty of engineering because it will help them overcome their language issues and respond to their academic needs in their field of study.
2. Postgraduate students of Engineering need to develop their four language skills in addition to translation as a fifth skill.
3. Considering needs analysis as an important step to course design, selection of appropriate materials and organization of the course are essential elements that should be taken into consideration by any ESP teacher to design his course, so the eclectic approach is the best approach to conduct this ESP teaching.
4. Intensive, adequate and relevant tasks and assignments in the four skills are the most effective materials to enhance students' ESP learning since "practice makes it perfect", in addition to the integration of ICTs.

4. Significance of the study

The need for the ESP courses at the university level is significantly important. Non-native English students need to develop their understandings of the language that is used in a specific context in terms of vocabulary, registers, styles, common structures, and specific formats. The students also need to develop their academic skills and familiarize themselves with the new academic environment. Due to these reasons, Universities in our country should establish different types of ESP courses for different departments such as English course for the department of Computer sciences, English course for the department of Engineering, English course for the department of Medicine, etc.

By the use of the guidelines and principles in ESP literature, this Project paper concentrates on the Design of a technical English course for the faculty of Engineering including the departments of Mechanics, Electro-mechanics, Electronics, Electro-technics, Computer Science, Processing Engineering, Metallurgy and Material Engineering. The purpose of the course is to develop the English proficiency and the academic skills for the postgraduate students of engineering who need to read and comprehend both short and long texts relevant to their field of study and write their own articles as a part of their doctoral project. In addition, they need to speak with foreign professionals and present their projects in internal and external conferences since English language is the medium of communication in several academic contexts.

5. Aims of the study

It is required to understand the expectations of students and teachers as well as students' necessities and difficulties before designing ESP courses. The present study aims at investigating the students' needs towards their ESP course at the faculty of Engineering and

designing a technical English course that meets their academic specific needs of the English language in order to conduct effectively and adequately in their studies.

The major aims of our research work are as follows: To investigate and analyze the student's learning and target needs; due to the reason that needs analysis is at the core of any ESP course design. Also, we aim at designing the appropriate materials, because the selection of the appropriate materials used in the ESP course, is very helpful to achieve the desired learning objectives. Finally, another major goal is the design of a technical English course to postgraduate students of engineering in order to satisfy their academic needs in technical English.

6. Research Methodology

The exploratory approach could certainly be appropriate to fit our action research objectives. To conduct this study a structured questionnaire is administered to forty five (45) postgraduate students of engineering at the University of Badji Mokhtar Annaba in Algeria. The structured questionnaire covers four (04) different themes and varied number of items as follows: the first theme is on postgraduate students' purposes of learning technical English, the second is on the significance order of major language skills, the third is on the significance of learning technical English, and the fourth is on the focused contents of different units of the designed technical English course. Besides, the interview is another research tool which is adopted in this study; the researcher administered two semi-structured interviews; the first one is administered to the two teachers of ESP at the faculty of engineering and the second is concerned with the dean of the same faculty as well. Finally, the classroom observation is the third research tool which is regarded very important in our study case, because it focuses on the teaching and learning process inside the ESP classrooms.

7. Structure of the Thesis

This research work is designed as the following; chapter one is devoted to the important concepts related to English for Specific Purposes (ESP) and needs analysis, identifies the main branches of ESP, and highlights the difference between ESP and General English. It also gives detailed information about needs analysis. Chapter two is concerned with discourse analysis definition and language issues in ESP, the third chapter deals with the review of ESP course design, its approaches and types. Chapter four, in which the researcher selected a descriptive approach, aims primarily at providing descriptions and clarifications of the target situation. It describes the situation and population under study, and presents the research instruments used to investigate the case. The aim of the fifth chapter is to illustrate how ESP teaching is carried out in the faculty of Engineering, it attempts to analyze both quantitatively and qualitatively the obtained data. Chapter six is devoted to design the suggested technical English course destined to postgraduate students of engineering along with some suggestions and recommendations proposed by the researcher. This course may improve the teaching of ESP in the Algerian university in general and in the faculty of engineering in particular.



Chapter One

Review of literature related to ESP and Needs Analysis

Introduction

Previously, English teaching was seen as a sign of prestige and a well-rounded education, now it becomes essential and a need. It is widely approved that English developed and flourished to become the lingua Franca, this was mainly due to the important role played by the USA in many domains including the technological and scientific ones. This emergence gave birth to the TEFL industry with its branch, like ESP which kept evolving and growing ever since. The promotion of ESP instruction is further motivated by the globalization process with its many necessities and progress including the occurrence and the large use of the information and communication technologies for short ICTs, the reason why ESP courses are almost designed and destined to researchers, scientists, engineers,...etc.

This chapter, then, is concerned with a literature review of ESP, its growth and characteristics; it is also related to needs analysis and the key notions about it.

1.1 Definitions of English for Specific Purposes (ESP)

There are almost as many definitions of ESP as the number of scholars who have attempted to define it. Many have tried to define ESP in terms of what it should and what it should not be, however, we would rather concentrate on finding out what ESP really means.

First, Mackay and Mountford (1978) define ESP as the “teaching of English for a clearly utilitarian purpose” (p. 2). The purpose they refer to is defined by the needs of the learners, which could be academic, occupational, or scientific. These needs in turn determine the content of the ESP curriculum to be taught and learned.

Mackay and Mountford also defined ESP and the special language that takes place in specific settings by certain participants. They stated that those participants are usually adults. They focused on adults because they are usually highly conscious of the reasons to

achieve English proficiency in a determined field of specialization, and because adults make real use of special language in the special settings they work. They also argued that there is a close relationship among special settings and adults and the role, usually auxiliary, that English plays in those particular settings for those particular people.

Second, Hutchinson and Waters (1987) consider ESP as an approach rather than a product and said that the base of ESP is the question: why does this learner need to learn a foreign language? In relation to this, Dudley-Evans and St John (1998, p.3) stated "the answer to the question relates to the learners, the language required and the learning context, and thus establishes the primacy of needs in ESP."

Third, Strevens (1988) defines ESP as containing 'absolute and variable characteristics. According to him, absolute characteristics of ESP comprises English language teaching which is designed to meet specific needs of the learner; related in content (texts and topics) to specific disciplines, occupation and activities; centred on language appropriate to those activities in syntax, lexis, discourse, semantics and so on and analysis of the discourse; and in contrast with 'General English'. On the other hand, the variable characteristics of ESP, in the scholar's view, may be restricted to the learning skills to be learned (for example, reading only); and may not be taught according to any pre-ordinate methodology.

Fourth, Robinson (1991), accepting the primacy of needs analysis, defines ESP as being based on two key defining criteria and a number of characteristics generally found to be true of ESP. The two criteria, she says, refer to the fact that ESP is "normally goaloriented" and ESP courses are produced on the basis of needs analysis (which aims to specify, as closely as possible, what exactly students have to do through the medium of English). Moreover, the general characteristics described by the scholar represent the key concepts as follows: ESP courses are taught to adults who are in homogeneous classes organized with respect to

professional background or field of specialization and the objectives of the courses should be met, even if there is a limited time period.

Fifth, even if it is, to some extent, like the above scholar's idea, Schleppegrell (1985) suggests that the common factor in all ESP programs is that they are designed for adults who have a common professional or job-related reasons for learning English, a common context in which to use English, content knowledge of their subject area, and well-developed learning strategies. Here it is possible to infer that the student brings to the ESP class a reason for learning and a context for use of English, knowledge of the vocational or professional field, and well equipped adult learning strategies.

However, all the definitions seem to have weaknesses. Dudley-Evans and St John (1998) assert that the emphasis on content in the absolute characteristics of Strevens' may confirm the false impression held by many teachers that ESP is always and necessarily related directly to subject content. At the same time, Robinson's statement of "homogenous classes" as characteristics of ESP may lead to the same conclusion. Strevens' definition appears to be the most inclusive of all the four.

Dudley-Evans and St. John (1998, pp. 4-5) have developed a complete definition of ESP which has revised the weaknesses of the above scholars and used absolute and variable characteristics in the definition as follows:

a) Absolute characteristics:

- ESP is designed to meet specific needs of the learner;
- ESP makes use of the underlying methodology and activities of the discipline it serves;

- ESP is centred on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities.

b) 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 used 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. (1998, p.4-5)

Here, Dudley-Evans and St John (1998) seem to make three definitions. In the first place, they explain that ESP teaching does not necessarily have to be related to content but it should always reflect the underlying concepts and activities of the broad disciplines. Moreover, Dudley-Evans and St John (1998) claim that ESP, linked to a particular profession or discipline, should make use of a methodology that differs from that used in General Purpose English teaching. That is to say, the methodology in ESP ought to refer to the nature of the interaction between the ESP teacher and the learners since the teacher sometimes becomes more like a language consultant enjoying equal status with the learners who have their own expertise in the subject matter.

Most importantly, Dudley-Evans and St John (1998, p.4) believe that language should be included as a defining feature of ESP. While the specified needs arising from needs analysis related to activities that students need to carry out (rather than language), a key assumption of ESP is that these activities generate and depend on registers, genres and associated language that students need to be able to manipulate in order to carryout activity.

To conclude, most definitions of what ESP is, correspond to three key topics: the nature of language to be taught and used, the learners, and the settings in which the teaching/learning process would occur. These three aspects of ESP are closely connected to each other, and can be combined to establish that ESP is the teaching of specific and unique English (specialized discourse) to learners (adults in their majority), who will use it in a particular setting (laboratory, police station, hospital, etc.) in order to achieve a utilitarian goal or purpose (communicate linguistically correct), which in turn will fulfil additional personal goals (promotional, economic, etc.). What ESP specialists do not seem to agree on, is what type of language should be taught (vocabulary, register, jargon, etc.) and how to teach it (in context with content knowledge, communicatively, collaboratively, etc.). However, even though there is agreement and divergence among ESP scholars, it is important to mention that their definitions are explicitly linked to how ESP has been developed since its first appearance the 1960's.

1.1.2 Origins of English for Specific Purposes (ESP)

Teaching languages for specific purposes (LSP) started to develop since the Greek and Roman Empires (Dudley-Evans & St John, 1998, p.1). Particularly, teaching English for specific purposes (ESP) occurred after the Second World War. According to Hutchinson and Waters “ESP was not planned and coherent movement, but rather a phenomenon that grew out of number of converging trends” (1987, p.6).

In brief, Hutchinson and Waters claim that ESP emerged due to three distinct reasons. First, the demands of new brave world. Globally, a new age of immense growth addressed activity in science, technology and economy in 1945. This significant expansion triggered a demand for international language to be used in communication. Additionally, English language took that credit, especially because of the economic power of the United States after the Second World War. As a result, it created a new generation of learners who knew precisely why they need to learn a language. (Hutchinson & Waters, 1987, p.6).

A second reason of the ESP emergence is a revolution in linguistics. As an illustration, a huge linguistic shift took place due to the changes of the world .In the traditional methods of language learning and teaching, linguistics targeted the study of language usage, structures and rules description. However, Widdowson (1983) claims that the focus shifted to the way where language is actually used in real situation (as cited in Hutchinson & Waters, 1987, p.7). Moreover, Lamri, Bouallah-Haddam and Ben Safa (2016) argue that thatlinguistic situations vary, thus discourse differ according to the context (p.1). Then, Nurses, engineers along with workers in other fields needs English that “could be identified by analyzing the linguistic characteristics of their specialist area of work or study, ‘Tell me what you need English for and I will tell you the English you need ’” (Hutchinson & Waters,1987, p.8).

The third reason is the focus on the learner, Educational psychology studies the nature of learning and teaching process. It highlights learners’ attitudes towards learning. Particularly in learning a foreign language, educational psychologists claim that students learn proficiently only if they are encouraged and motivated. Hutchinson and Waters assert that the motivation to learn can be influenced by the relevant courses to learners’ different needs and interests (1998, p.8). Basically, English teachers started to design specific courses that are relevant to learners’ needs and wants. To sum up, from these points, teaching ESP was born; it is considered as the direct result of the global evolution.(Lamri et al., 2016, p.2).

1.1.3. Types of ESP

Years after the ESP emergence, many linguists contributed in defining its types. Nevertheless, the recent studies of ESP subdivision rely on the Hutchinson and Waters well known tree (see the next page). Accordingly, in 1987, Hutchinson and Waters divided ESP into three main branches:

- English for Social Sciences (ESS)
- English for Business and Economics (EBE)
- English for Science and Technology (EST)

Each field is concerned with specific domain of knowledge, and is branched into further sub-categories: English for Academic Purposes and English for Occupational Purposes .As an instance, EST is diversified into English for Medical Studies, classified as EAP, and English for technicians as EOP.

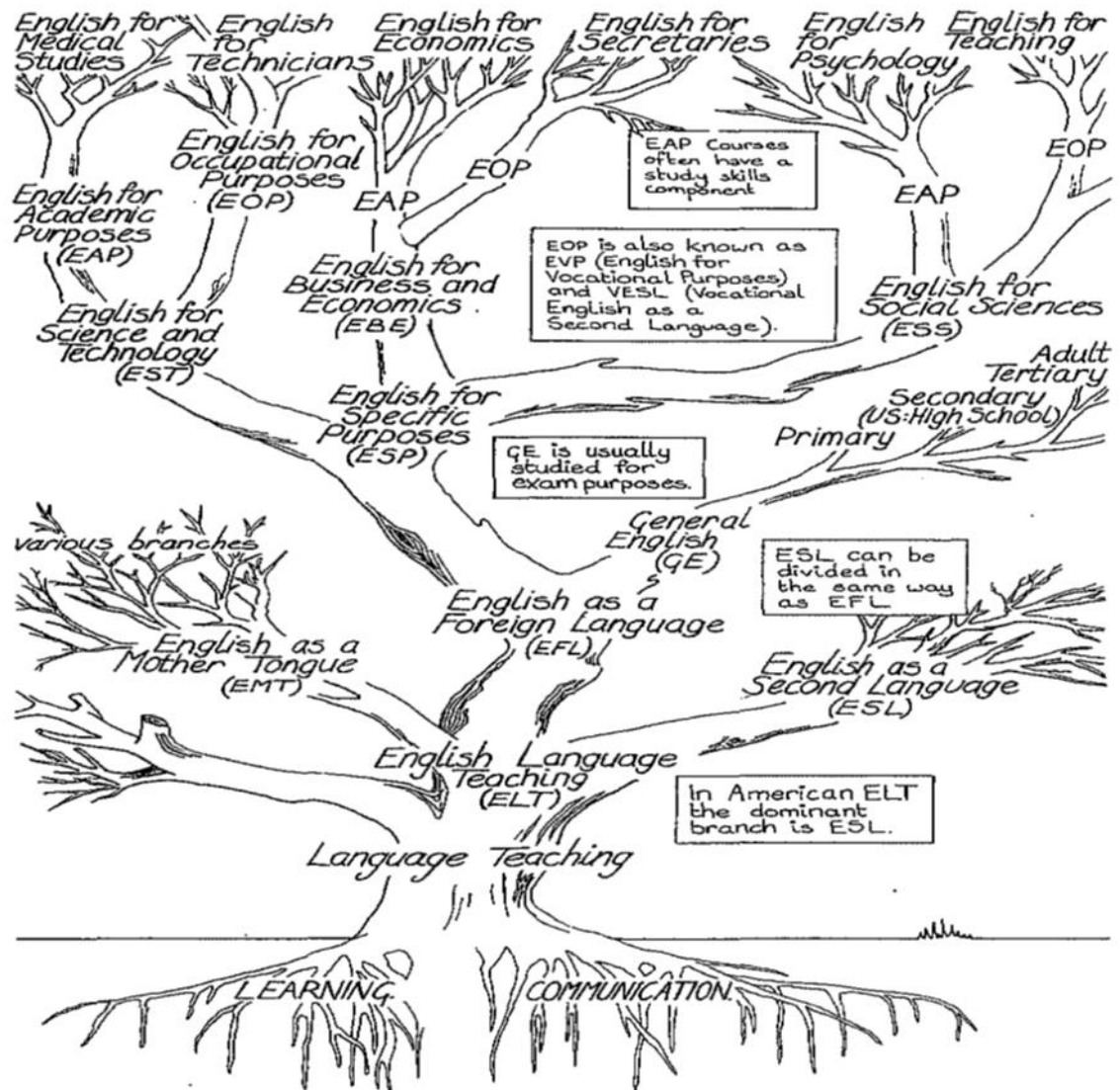


Figure 1.1: Hutchinson and Waters (1987) tree of ELT (p.17)

1.1.4 General English (GE) and ESP in Theory and Practice

1.1.4.1 GE and ESP in Theory

The definition of GE is vague, mainly because the meaning of English for general purposes is typically left unclear. A more helpful view is suggested by Strevens, who prefers the term « English for Educational Purposes » (EEP) to account for a school –based learning of a language as a subject element within the overall school curriculum.

However, according to Orr (1998) “English for Specific Purposes (ESP) is research and instruction that builds on GE. It is, also, designed to prepare students or working adults for the English used in specific disciplines, vocations, or professions to accomplish specific purposes”. It is obvious that ESP context must proceed by a considerable background of general English. As it has been argued, ESP is associated with mature learners, because it has a strong relationship with specialization in different fields of concern. Apart from the “rough separation” at definition level, there exists a relationship between them. To clarify their relations, Widdowson (1983) accounts for distinctive features of ESP and GE; the following ones are the most important:

GE:

- The focus is on education
- As the future needs of the students are impossible to predict, course content is more difficult to select.

ESP:

- The focus is on training.
- As the English is intended to be used in specific vocational contexts, selection of appropriate content is easier (but not “easy ‘in itself”).

Much of the discussion presented up to now was brief and needed theoretical arguments regarding ESP and GE. It is better to adjust the perspective so as to get rid of theoretical assumptions and concepts. The investigators emphasized on the role of GE and its effect in a typical ESP classroom, so that one can have a better understanding of their authentic connection in a real context.

1.1.4.2. ESP and GE in practice

Some important points about ESP classes and their comparison with GE ones:

1. Learners and purposes of learning ; ESP learners are usually adults who already have some knowledge with English language and they are learning the language in order to communicate a set of professional skills and to perform particular job- related functions.

In GE classes, age of learners varies from children to adults and learning English language is the focus of classes.

2. Based on the purpose of learning, aims of instruction are identified; in a GE class, as a general rule, four skills are stressed equally. But in ESP, it is needs analysis that determines which language skills are most important for the students, and the syllabus is designed accordingly.

3. In a typical GE class, there is concentration on teaching grammar and language structures (mostly in isolation). But in ESP, the focus is on context, because, to ESP, English is not taught as a subject separated from the student's real needs.

Language in context..... ESP.

Language in isolation.....GE.

4. Combination of subject-matter (which learners are familiar with) with English language creates an important and significant context which is highly motivating. This meaningful context increases motivation which results in a successful learning.

5. Regarding the term “specific” in ESP, it should not only mean English for specific purposes, i.e. English language at service of specific purposes, but also involves

specific purposes for learning English. In other words, it is the study of English that is related to a field of study or work.

The some following opinions express the relation between GE and ESP:

First, Hutchinson and Waters (1987) maintain that what distinguishes ESP from general English (GE) is an awareness of the need.

Second, Robinson (1991) suggests that in an ESP class, language is a “service” rather than a “subject” in its own sake.

Finally, Anthony (1998) notes that it is not clear where GE courses end and ESP courses begin.

All in all, ESP assesses and analyzes needs and integrates motivation and course content with the help of relevant language skills. For all the ESP curriculum design, it can be concluded that general English (GE) language content, grammatical functions and acquisition skills are important and dominant in curriculum development and course design. The problem concerning contrasting leading to emphatic separation of these two fields of study is sometimes because of ill-defined descriptions or ill-described definitions.

1.1.5 English for Academic Purposes (EAP)

What is EAP? English for Academic Purposes (EAP) is one of the major fields within ESP that focuses on teaching English specifically in order to facilitate learners’ study of research through English as a medium. (Flowerdew & Peacock, 2001, p.8; Hyland & Hamp-Lyons, 2002, p.1).

EAP highlights the academic contexts; this is what differentiates it from ESP or any related field. However, it has always been considered as a sub-discipline within ESP. both views are

correct since ESP and EAP are claimed to be “sister fields”. It is rare to find articles that focus on EAP in ESP journal pages, but it is very possible to find EAP work in Applied Linguistics’ works and also in ELT journals.

Hyland and Hamp-Lyons define the scope of EAP as “The linguistic, sociolinguistic, and psycholinguistic description of English as it occurs in the contexts of academic study and scholar exchange itself”. Furthermore, it is very logical to consider EAP as a branch within educational areas and within language education.

1.1.5.1. EAP and disciplinary variation

The concept of disciplinary variation stands for the point where EAP sits uneasily next to ESP. However, it remains confusing whether they are similar comparable or completely different concepts. Hyland and Hump-Lyons (2002), following Dudley Evans and St. Johns (1998), argue that EAP is the space where “the fundamental concern is the acquisition of knowledge by individuals”. This gives a new area to the learner as an individual to focus more on the text or the activity.

Previous works have shed the light on this topic, namely, Conrad (1996), Berkenkotter and Huckin (1995), Bloor (1998), and Woodward-Kron (2008). Some of them believe that the concept of disciplinary variation means focusing on the differences in genre and discourse behaviours between disciplines, and some others believe that this will make it more complex for novice members of the academy. (E.g. Spack, 1988).

We can, then, identify a common core of important skills; this does not impose students to take false direction from their disciplines beyond the first year and university. The suggested solution to the kind of contextualized problems that students face in the early stages is the “academic literacies’ position (as proposed by Lea and Street (1998) and Ivanić (1998). However, Johns (1995, p.55) claims that “students must...adjust somewhat to each academic

discipline they encounter”. Hyland (2002, p.385) adds that we have to “teach...the literacy skills which are appropriate to the purpose and understandings of particular academic and professional communities”.

1.1.5.2. Genre Analysis (GA) in EAP

Genre Analysis (GA) studies have dominated the field of ESP. Along with the development of both fields: ESP and EAP, the focus has gradually shifted away from its usual practical problem-solving and implementations research. This provided a fertile ground for EAP teachers. The definition of GA, as any other concept, can differ from one scholar to another as there is no general consensus that holds as reference for defining the term. Also, the way in which GA is understood can change over time due to successive contributions about this field of study which has been attracting a lot of attention. Hyland (1992) defines GA simply as “the study of how language is used within a particular context” (p.05). On the other hand, Bhatia (1991) prefers a more comprehensive definition in which he considers GA as:

“analytical framework which reveals not only the utilizable form-function correlations but also contributes significantly to our understanding of the cognitive structuring of information in specific areas of language use, which may help the ESP practitioners to devise appropriate activities potentially significant for the achievement of desired communicative outcomes in specialised academic or occupation areas” (p.154).

Previous studies have tackled highly obvious important aspects of academic genres. The apparent pioneer of this kind of studies was Swales with his early EAP work as a research article introduction (1981), and his explanation of “move analysis” in 1990 which was overlooked by many of his disciples and other following EAP researchers. The theory of genre has been approached by scholars differently based on their perception of the shared nature of genres that can vary according to the shared social actions that categorise the concerned

population, the communicative purposes or the common social processes that pertain to the members of that field (Devitt, 2015). In his pioneering work, Swales (1990) advocated the idea that genres are better conceived in relation to the communities in which they are used and that the produced texts are, therefore, the outcome of reflecting on the communicative purposes that correspond to the needs and choices of students in a given field area. Moreover, he introduced a revised model that can elaborate the typical rhetorical three moves that exist in various research articles from different scientific fields. This model is called Create a Research Space (CARS). Swale's typical moves can be simply presented as follows:

- **Move One:** establishing a territory by claiming centrality, providing topic generalisations and reviewing earlier research.
- **Move two:** establishing a niche by indicating a gap.
- **Move three:** occupying the niche by outlining purposes (Swales, 1990).

The first move, in this model, involves highlighting the importance of the research under discuss, describing the problem of the research, identifying the stances or the views of scholars concerning the topic, and reviewing the literature that has been introduced about certain relevant issues in relation to the subject. The second move usually comprises stating a research problem, indicating a gap in earlier research and then raising a research question or a hypothesis. Subsequently, the third move would generally consist of suggesting a solution for the problem along with providing the means of attaining objectives and outlining the fundamental purposes of research.

Swales' work has been seen as a catalyst for genre-based research as multitude of studies have been introduced, in the last three decades, drawing on the conceptualisation of those aforementioned moves as the embodiment of communicative purposes shared among specific communities (Cotos, Huffman & Link, 2015). Though Swales' model targeted mainly

research article genres, his analysis approach created an appeal for other scholars to adopt this core set of genre analysis in other academic and professional genres such as: grant proposals, dissertations, and company brochures (Samraj & Gawron, 2015). Eventually, this thrust in research led to the consolidation of the relationship between linguistic inquiry and EAP pedagogy (Cotos, Huffman & Link, 2015).

1.1.5.3. EAP Assessment

EAP assessment has lately been considered as the least-developed area of the field. Some of the most well-known tests such as TOEFL (Test of English as a Foreign Language), and smaller universities based-tests such as MELAB (Michigan English Language Battery) have recently become the useful area of EAP contexts. Furthermore, the Pearson Test of English-Academic is claimed to be the new test that has succeeded in solving placement questions within EAP unlike the big tests despite publicity claims. Assessment in EAP has to have the feature of creativity ; for instance, the EAP practitioner may place his/her learners into EAP course provision along with their specific needs, or to inform departments about the qualifications of their rising seniors and their adequacy of linguistic knowledge that enables them to be well-qualified future EAP teachers.

Assessment can be defined in general terms as a “systematic approach to collecting information and making inferences about the students or the quality or success of a teaching course on the basis of various sources of evidence” (Richards &, Schmidt, 2010, p.35).Assessing students is essential for numerous reasons since it allows the teacher to estimate the level of students and their achievements in order to decide on the nature of the course to which they should be exposed and to determine the efficiency of the teaching-learning process afterwards. Thus, assessment can take place either prior the beginning of the educational term or after a certain period of learning depending on the purpose of the

assessment. The former type refers to proficiency assessment while the latter pertains to achievement assessment (Fulcher, 1999). Brindley and Ross (2001) point out that “proficiency assessment aims to establish the extent to which learners can use the language for intended purposes” (p.149). That is to say, they serve EAP teachers in estimating the degree of proficiency that students possess which will permit the teacher to determine the linguistic and communicative capacities of students before integrating them in a specific course. Achievement assessment lies in the other end of the spectrum as they are often issued in a relatively late stage. In this regard, Brindley and Ross (2001) states that they are utilised to inquire about the amount of learning uptake that students have gained during a course of instruction.

Furthermore, assessment can take various forms as it can be provided through written or oral tests, questionnaires, interviews, etc... Yet, the way through assessment is offered for students is a controversial issue due to the effects it brings on learning and the changing international demands that requires from students to have a certain degree of competence in the four language skills, as it is the case for pre-sessional EAP course (Seviour, 2015). For the sake of asserting a kind of assessment that is supportive for the learning process, Seviour (2015) proposed a model that targets the writing skill of students and which alters the emphasis of assessment from being end-product focused toward being process oriented. Such a framework can increase the amount of formative feedback and scaffolding supplied to students which is beneficial for ameliorating the writing ability of students. The model is based on essays coursework and the engagement of students in the assessment process which would give them the opportunity to recognise and reflect on their progress. Saviour’s (2015) framework is illustrated in the figure below:

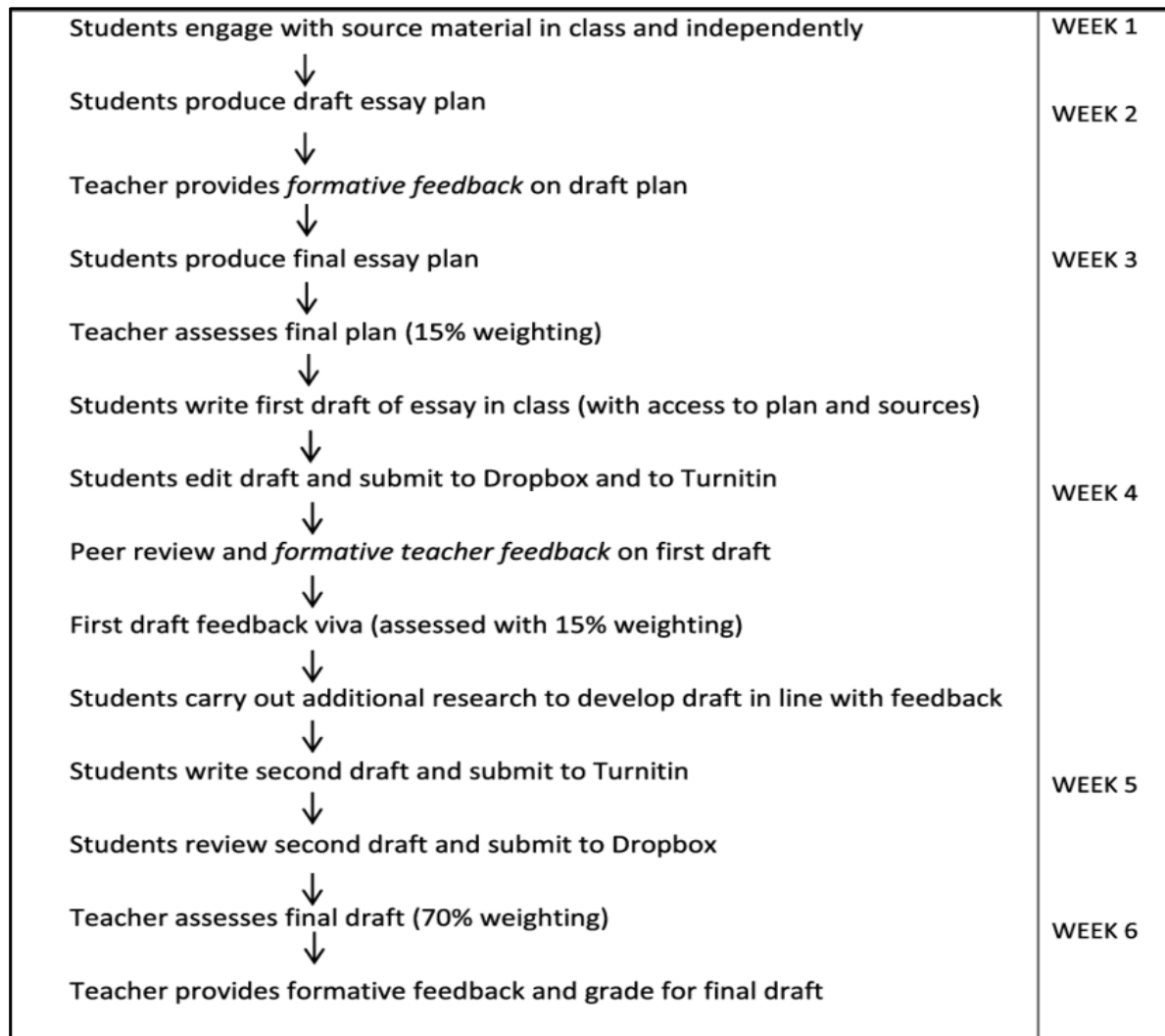


Figure (1.2): Stages in the coursework essay learning and assessment process (Saviour, 2015, p.86)

Though this assessment model targets only the writing skill of students, it offers an inspiring framework through which EAP practitioners can inspire how to consolidate the provision of feedback within assessment throughout the teaching-learning process. It also gives the teacher the opportunity to adjust the course objectives quickly according to the new perceived target needs by reflecting upon students' produced output.

1.1.5.4. Critical EAP

Critical EAP aims to relate between teaching English in academic fields and critical pedagogy. It seeks to bridge the gaps between theory and practice by accounting both for the academic demands and the subjectivities of students to which a given educational program is taught. Benesch (2009) puts much stress on the notion of praxis as a fundamental element that influences the outcome of pedagogy and methodologies due to the fact that when instructors and students enter the classroom, their social identities will be brought to the surface throughout classroom interaction. She points out to the mentioned core notion stating that “praxis, the reciprocal relationship between theory and practice, is central for all” (Benesch, 2009, p.81). Some departing premises from which critical EAP emerge are not exclusive to specific fields of education as similar views have been held by researchers in more general educational areas, because the purpose of research in education is eventually the enhancement of the quality and the outcomes of teaching learning process. Hyland and Hamp-Lyons (2002) claims that: “even though they arise from quite different sociopolitical contexts, proponents of academic literacy and those of EAP share a common desire to provide appropriate and effective education” (p. 05).

In her work, Benesch (2001) advocates the stance that pedagogy should not be practiced in isolation from the acknowledgement of the power relations that exist in the classroom box since there are several factors that can affect the progression of a given course. Some pertinent factors like race and gender are a part of the identity of both teachers and students and, as consequence; the content of the course needs to be accountable for the personality and affinity of discourse players. Also, the socio-political reality in which the teaching-learning process takes place should not be separated from the EAP course. That is to say, the EAP course designers have to take into consideration the social and situational context in order to be able select proper the content and educational materials.

After Benesch's (2001) has recently published his book "Critical English for Academic Purposes», the Journal of English for Academic Purposes (JEAP) has published a trickle rather than written papers that take a critical position. From then on, it started to appear in other journals (Abasi, Akbari & Graves, 2006; Morgan & Ramanathan, 2005). The influence of her work led some research to foster the idea of reconceptualising the relationship between the externally imposed demands on pedagogy and the actual practice of EAP. Morgan (2009) endorsed the stance that the content of learning needs not only to be targeted to predetermined requirements, but also needs to be subjected to the students' questioning of the objectives that lies behind the content being learned. This may promote integrative and collaborative knowledge generation and prevents the passive transmission of disciplinary content (Morgan, 2009).

1.1.5.5. Professional development of EAP

The need for EAP teachers led to the provision of professional education and training for future EAP teachers. Professional teachers with specific EAP skills training are rare; this pushed the university educational systems to provide professional EAP based programs in addition to private schools.

The process of teaching English for learners who need English in their studies is quite different from teaching English to learners who need it in a general way (General English). It is also observable that most of EAP materials represent a substantial support for participants (see, for instance, Hyland, 2006). Despite the progress in materials development, professional training courses for coming EAP teachers are still needed.

Since the emergence of the British Association of Lectures in EAP (BALEAP) in 1972, it has become the highlighted professional and educational focus of EAP in the UK.

BALEAP has worked on developing a set of “core competencies” for EAP teachers providing foundation of special skills on the basis of which EAP teaching calls upon. Despite the excellent efforts done by various countries such as those of Canada, New Zealand and Spain, professional EAP organizations are still limited and have not yet spread enough far around the world, and the document is still insufficient for designing professional training programs to prepare professional teachers for teaching ESP in academic contexts. An observable gap was found in an advanced research into the written, spoken, and public language of academics, and there still exist a need for delivering special courses for students provided that they need further preparation for academic study in English.

1.1.6. English for Occupational Purposes (EOP)

As we mentioned previously, English for Occupational Purposes is one of the distinctive brunches of ESP. Not only that it deals with teaching adult learners, but also it is “concerned with aspect of general training” (Din, 2008, p.2). In other words, EOP courses cover the language teaching and “the systematic process for developing work-related knowledge and expertise”, thus, improving the learners’ occupational performance (Swanson and Holton 2001 as cited in Din, p.2). As an example, if nurses have to communicate with foreign patient, they need to learn how to take symptoms’ notes or learn how to communicate with foreign doctors. So, EOP courses must fulfil the lack of language knowledge, skill and how to smoothly enhance their need proficiency.

1.1.7. EAP vs. EOP

Even though both EAP and EOP were introduced separately in the ESP brunches, Hutchinson and Water (1987) do not draw a clear distinction between the two fields. They argue that “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” (p.16).

EOP, as mentioned before, is the “language in a broad variety of work-related setting, Business English, English for Economics”, while EAP is the “language tailored to the needs of those who study in an English-medium environment at the level of higher education” (Kuchernko, 2013, p.4). To put it differently, Kennedy and Bolitho (1984) agree that “EOP is taught in such a situation in which learners need to use English as part of their work or profession “(as cited in Bracaj, 2014, p.43) whereas, EAP is taught generally within educational institutions to students requiring English in their studies. Furthermore, each of these types involve different subcategories. Dudley-Evans and St John (1998) divided EOP and EAP into the following diagram:

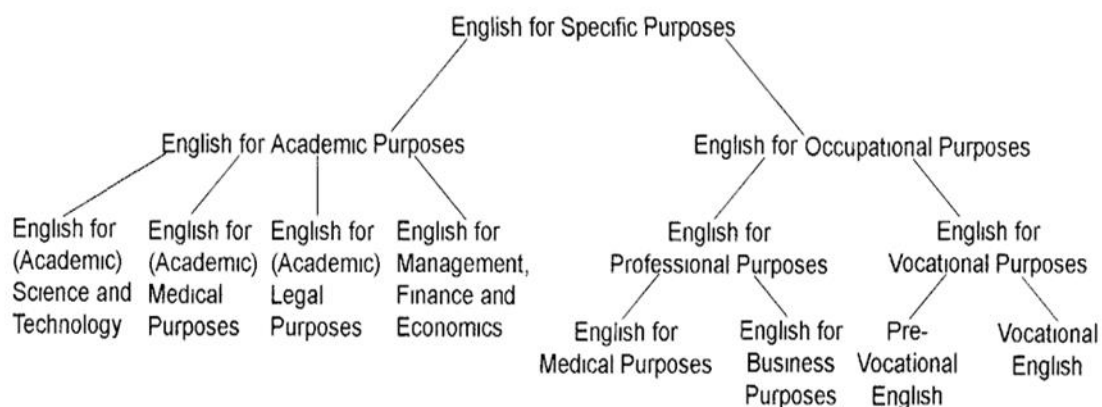


Figure 1.3: ESP classification by professional area (Dudley-Evans and St John, 1998)

Figure 1.3 presents the classification of ESP by professional area.. As it is shown, EAP involves four sections : English for Academic Science and Technology (EAST). English for Academic Medical Purposes (EAMP), English for Academic Legal Purposes (EALP) and English for Management, Finance and Economics (EMFE). While EOP includes two main sections: English for Professional Purposes (EPP) and English for Vocational Purposes

(EVP). Each section is subdivided into further branches. For the First section, English for Medical Purposes (EMP) and English for Business Purposes (EBP) are considered the two subcategories of the EPP. Uniquely, EVP are split into two different fields: Pre-Vocational English and Vocational English. The former Pre-vocational English is concerned with the language of training for specific trades or occupations. And the latter is concerned with finding a job and interview skills (Dudley-Evans, St John , 1998, p.07).

For the reason that our research focuses on the technical English for Engineering, thus, it is more than adequate to adopt the following diagram of Swales (1988). He rooted the mechanical, electrical, civil , chemical and....to the Engineering and Technology branch while he classified earth sciences , life sciences and physical sciences (which is subdivided into chemistry , physics and maths) in the science branch .Noticeably, these two main branches reflect our target field (EST).

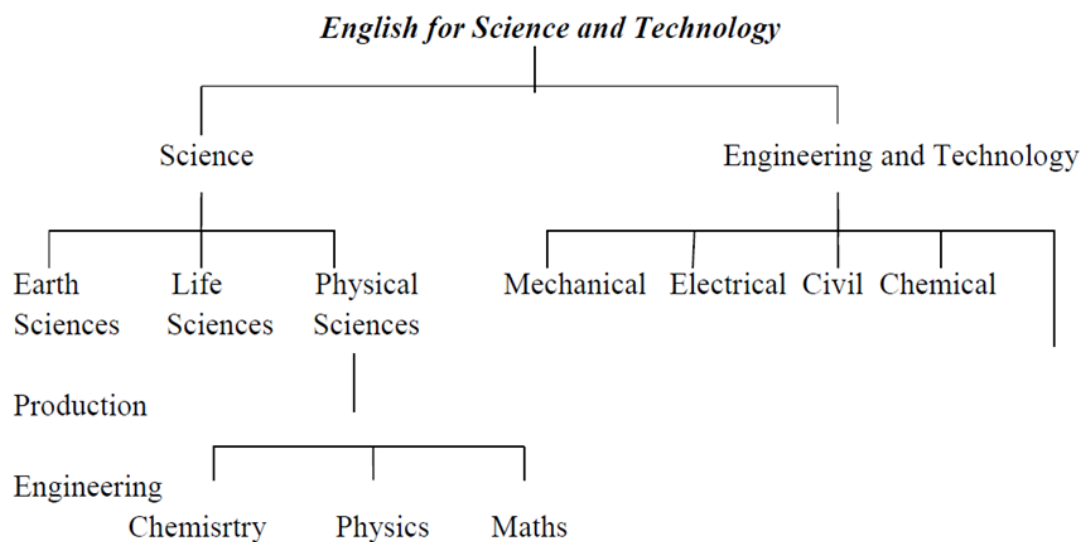


Figure 1.4: Subcategories of EST (Swales, 1988, p. 89)

1.1.8 English for Science and Technology (EST)

1.1.8.1 General overview about EST

English came into light as a predominant medium of knowledge especially when it comes to science and technology. The prominent development of the English language created a new generation of learners who think through English as a means to meet their specific needs. Consequently; English for Science and Technology (EST) was emerged within ESP, Kennedy and Bolitho (1990, as cited in Joné & Audron, p. 201) state:

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 specialisations. It is natural, therefore, that English for Science and Technology (EST) should be an important aspect of ESP programmes.

The purpose of teaching EST is to enable students of science and technology to use English effectively in the target situation by developing the required competences and skills. In this vein, Jameel (2009, p.2) states: “The role of English in EST scenario, professionally in engineering college is not only to impart linguistic skills to the engineering students but alsomany soft skills that are really required in their professional careers.”. Therefore, EST is an approach to language teaching/learning inwhich learners’ motivations, interests and needs to learning the language are the basic criteria of content selection.

EST is considered as one of the essential branches within ESP. the rapid development of science and scientific research has lead to the growth of the field of EST and so to the need of learning Technical English.

1.1.8.2 Learner Assessment in EST

Learner assessment in EST is meant to be made in a continuous way. The EST practitioner is therefore required to evaluate the level of his/her learners before the course would take place in order to have a clear idea about the level of English language the learner has reached so far. Another important task in EST assessment is to evaluate his/her learners during the course and at its end for the aims of improving the effectiveness of the course.

1.1.9 Activity Management in ESP

Preparing an ESP course is a highly challenging task because it is rewarding and suggests various questions and embodies different ambiguities at the same time.

The following five (05) key roles for the ESP teacher are adapted from (Dudley-Evans & St John 1998, Harmer 2011). They are as follows:

- **Teacher**

The methodology in the ESP settings is more specific. His role is to teach the language but not the students' specialty, and the methodology he uses changes as the teaching becomes more specific.

- **Course designer and material provider**

One of the ESP teacher's roles is designing the course and adapting materials for it when published materials are unsuitable, or writing his/her own materials in order to cope with the various levels of the students within the same class.

- **Collaborator**

It refers to collaborative teaching between a subject specialist and language teacher. It is also worth mentioning the possibility of team work between the English teachers themselves.

- **Researcher**

He must be able to conduct a research to find out the students' needs and interests in order to design appropriate materials to suit their target objectives. It is very often a language-based and content-based research

- **Evaluator**

Evaluation is mainly referred to testing in order to evaluate learners' progress and achievement. However, in ESP setting is also referred to course evaluation. As ESP courses are all too often 'tailormade', their evaluation is crucial. Dudley-Evans states that the evaluation should be 'on-going': while the course is being taught, at the end of the course, and after the course has finished.

They have also proclaimed that the ESP courses are "likely to be designed for adult learners, either at a literary level institution or in a professional work situation. It could, however, be for learners at secondary school level; and they are generally designed for intermediate or advanced students" (Dudley-Evan and St John 1998, p.4-5).

Teaching ESP requires going through essential phases. Dudley-Evan and St John (1998, p.121) state that "the key stages in ESP are needs analysis, course [and syllabus] design, material selection, teaching and learning, and evaluation." These elements represent steps which are " . . . overlap and are interdependent". But in this chapter, we will emphasize only on Needs Analysis (NA).

1.2 Needs Analysis (NA)

As being the foundation of any ESP course design, needs provided by learners are considered the most important phase. Hyland (2006) describes need analysis as the data gathering and assessing technique that identifies the "what" and the "how" of a course. Even

more, it covers as precisely as possible: learners' objectives, motivation and interests, their previous knowledge, language competence and their reasons for learning. In addition, it underlines where the learners' need to communicate in (as cited in Paltridge & Starfield, 2013, p.325). Needs analysis studies the gathered information in different ways. Furthermore, it involves distinctive types that differ according to the purposive nature of analysis. The three common types are the following :

- **The target situation analysis (TSA):** it is concerned with the objectives and product oriented needs.
- **The learning situation analysis (LSA):** it accounts for the subjective needs and interests of students in regard to the learning process.
- **The present situation analysis (PSA):** it identifies the deficiencies and strengths of students in the target language.

Needs analysis can be carried out on the basis of what the teacher perceives to be necessary for the development of language proficiency or relying on the learners' perspectives about what is to be considered conducive for development. It can cover even the interests of students in regard to certain elements of pedagogy. The process of needs analysis can proceed by building on the objective requirements and the subjective needs that may lead to better achievements at the end of the course, as it prepares students to be able to perform a set of tasks related to a professional context (Richards, 2001).

As it is said earlier, needs analysis is useful for collecting background knowledge and for the identification of the prerequisites that relate to the target situation in which the course will take place. It must encompass a number of variables that characterize the specific situation and which are partially determinant of the outcomes of a given ESP course. For the sake of fulfilling this purpose, Dudley-Evans and St John introduced the following model:

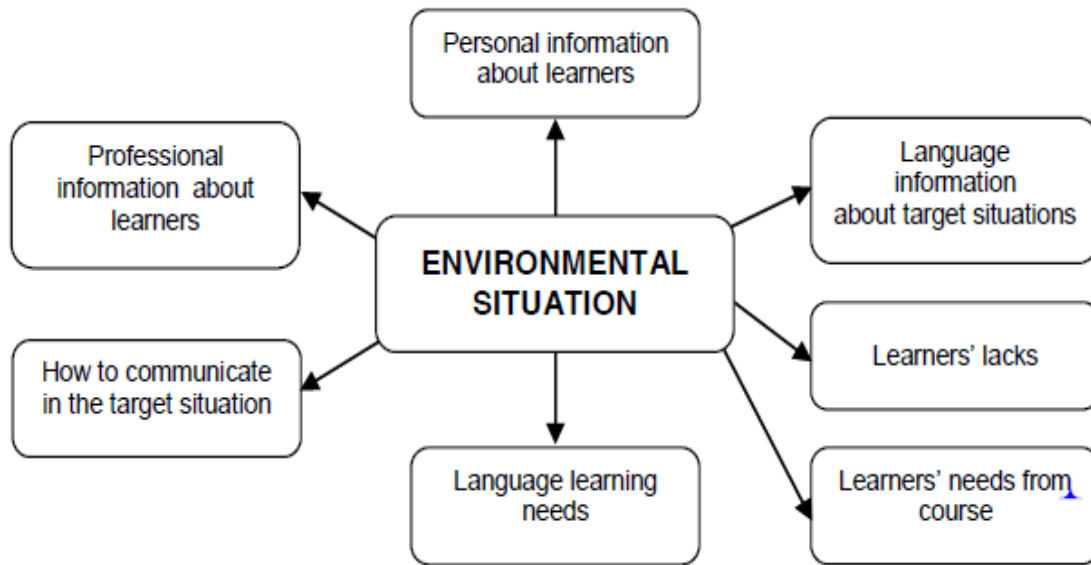


Figure1.5: a Model of Needs Analysis (Dudley-Evans & St. John 1998, as cited in Romanowski, 2017, p.152)

This model of needs analysis has become very popular since it takes into consideration of all the three types of needs analysis, mentioned earlier, and integrates them in one holistic model. It identifies the background knowledge about the target situation and students along with considering their objective and subjective needs to have a clear picture about the environmental situation in which the ESP course takes place. The aspects of this model are explained as the following:

1. **Environmental situation:** accessing information about the environment within which the course will be conducted.
2. **Personal information about learners:** gathering information about the factors that pertain to learners which have an impact on learning such as: motivations, experiences, gender, age, subjective needs, wants, etc...

3. **Language information about learners:** exploring the learners' present level of proficiency along with their educational background.
4. **Learners' lacks:** identifying the gaps that exist in the learners' repertoire in order to be addressed and compensated for in line with the professional expectations.
5. **Learners needs from course:** considering the learning needs, course objectives and expectation about the process.
6. **Language learning needs:** determining the skills and aspects of language that should be targeted based on the identified lacks.
7. **Professional information about learners:** determining the tasks and activities that are relevant to learners and pertinent for the field area.
8. **Communication in the target situation:** identifying the way language is used in relation to target situation based on means, such as: register analysis and genre analysis. (adapted from, Dudley-Evans & St. John, 1998; Esfahani, 2009)

1.2.1 Types of needs

To begin with, needs in ESP refer, generally, to those aspects of learning and qualities that have been acquired and fulfilled in order to enable an appropriate use of or functioning in the target language. The term can be used in a detached manner to denote: demands, wants, desires, motivations, requirements, etc... (Brindley, 1984 as cited in Richards, 1984) Accordingly, Hutchinson and Waters (1987) define two types of needs: Target needs and learning needs. The former implies "what the learner needs to do in the target situation" and the latter refers to "what the learner needs to do in order to learn" (p.54). These two types are discussed under the next headings.

1.2.1.1 Target needs

They indicate the linguistic competence needed to achieve communicative proficiency. Hutchinson and Waters (1987) subdivided target needs into: necessities, lacks and wants. They offer a simplified model for ESP needs analysis which includes the three components. It is illustrated in the next table:

Target needs	OBJECTIVE (i.e. as perceived by course designers)	SUBJECTIVE (i.e. as perceived by learners)
NECESSITIES	The English needed for success in Agriculture or Veterinary Studies	To Reluctantly cope with a 'second-best' situation
LACKS	(Presumably) areas of English needed for Agriculture or Veterinary Studies	Means of doing Medical Studies
WANTS	To succeed in Agricultural or Veterinary Studies	To undertake Medical Studies

Table 1.1: ESP target needs: necessities, lacks and wants (adopted from Hutchinson and Waters 1987, as cited in Rahman, 2015)

1.2.1.2 Necessities

They are the needs which discovers the demands of the specific academic or occupational situation, as Hutchinson and Waters (1987) describe it as “what the learner has to know in order to function effectively in the target situation” (p.55). In other words, they refer to the abilities and skills which are deemed necessary for students to possess a command over. They can also be considered as those capacities and features of language that need to be mastered in order to have an adequate level of proficiency and to operate effectively in a target situation. Therefore, Robinson suggests these distinctive needs are better to be described as objectives (1991, p.7). These objectives can cover both the professional knowledge that pertains to the target situation as well as the linguistic and communicative aspects which comprises of

having an appropriate mastery over grammatical, functional and lexical elements of English.

1.2.1.3 Lacks

They refer to the learners' weaknesses, i.e. the deficiencies which unable learners to perform in English. According to Hutchinson and Waters, we cannot discover the lacks without identifying their prior knowledge. It also refers to the gap between the current and the wanted proficiency (P.56). Hence, the identification of the language deficits is usually issued at an initial stage in order to find out their actual level of proficiency and the gaps that exist in their repertoire. This allows the teacher to select the appropriate linguistic levels that needs to be emphasized and to design suitable activities or tasks that aim to fill those gaps. The identification of lacks is an essential element of needs analysis because it gives objective information about the proficiency of students in target language.

1.2.1.4 Wants

It is the category of needs that entails what learners wish to learn along with their personal learning expectation. For that reason, it can be seen as the subjective needs of the learners. Moreover, fulfilling learners' wants positively affect their motivation, thus, achieving learning satisfaction. However, the needs and wants ,in most cases, conflict due to some circumstances(time restriction , financial issues or classrooms availability) which made west(1993) add constrains as last type of target needs (as cited in Lamri 2016, p.12). Benyelles (2001) relates "It involves the non- pedagogic limits that control a course planning process such as the role of the national policy, and financial restrictions, which the analysts need to be aware of once they start the process of NIA {Need Identification and Analysis}"(as cited in Lamri 2016, p12).

1.2.1.2 Learning Needs

Hutchinson and Waters(1987) claim that it is naïve to base the course design only on the target needs. They emphasized on “how learners will learn” and considered it a prime importance to determine the course content. In this sense, learning needs is a whole process which indicates how learners will be able to move from “lacks” to “necessities” (p.60). Therefore, we can say that it covers information related to learning situation. Lamri (2016) states that learning situation includes “learners’ type, cultural awareness and proficiency level in English, the available materials, the existing resources...etc.”(p.13)

1.2.2 Needs Analysis Approaches

Several approaches to needs analysis have been established. Nevertheless, Alsamdani (2017) points out that the most common includes “Deficiency Analysis , Sociolinguistic model, Learning-centred Approach , Target situation Analysis (TSA) and Present Situation Analysis (PSA)” (p.59). These approaches are discussed under the next headings.

1.2.2.1 Deficiency Analysis

It is defined by Brown (2005) as “the type of needs analysis which” accounts for learners’ present needs and wants as well as their target situation shortages” (as cited in Zohoorian , 2015, p.59) In other word, this approach covers students’ target needs and wants for the purpose of deciding on the course content that should be delivered in ESP classrooms. Jordan (1997) points out that deficiency analysis gives the basic foundation for setting up the language syllabus because it gives the designer an overall prospect about the present gaps of knowledge existing in the students’ repertoire and the target extra-linguistic knowledge. Such a procedure permits ESP professionals to have an objective prospect about the level of students’ language proficiency and the deficits that need to be dealt with. It also prevents ESP practitioners from forming the content of the course only on the basis of biased assumptions,

accumulative experience, or external authoritative descriptions about the unfoldings of the ESP course. Instead, it gives the ability to select content and design teaching techniques which are convenient to the needs of the concerned class itself. That is to say, deficiency analysis widens the lenses of teachers in regard to the pertinent aspects of language that need to be emphasised as well as those that may require reinforcement.

1.2.2.2 Sociolinguistic Model

It refers to Munby's (1978) model for communicative needs processor (CNP). This model emphasizes on the communicative competence as it aims to develop learners' linguistic demands for communicative purposes (Melrose, 2015, p.7). West (1994) criticised this approach and argued that it "collects data about the learner rather than from the learner" (as cited in Wang, 2014, p.78). Indeed, the sociolinguistic approach is currently perceived to neglect the target needs from the standpoint of teachers and students' perspectives about the learning process (Hutchinson & Waters, 1987), and it has been subjected to heavy criticism in the last few decades (Bygate, Baptista & Quintanilha 1985; McGinley, 1985; Hamp-Lyon, 2011). However, it is the most known model in the field and amongst the first frameworks that meant to open the gateway into considering the target needs of student as essential, despite discarding their extended involvement in the process.

The CNP framework assigns a lot of importance to the variables that impact the communication needs of students. CNP consists of the following main parameters:

- **Participants:** collecting personal and linguistic information about the students in order to determine their background and linguistic proficiency in the target language.
- **Communication needs processor:** collecting information about the communicative needs of students in order to enable them to operate effectively in

the target language, especially in terms of the mastery of the socio-cultural aspects of language.

- **Profile of needs:** compiling information about the needs of students based on the data derived from CNP.
- **Meaning processor:** assigning meaning or semantic values to the communication needs of students.
- **The language skill selector:** selecting the specific language skills that are meant to promote students' to perform CNP identified activities.
- **The linguistic encode:** determining the contextual appropriacy of the planned activities.
- **The communicative competence specification:** specifying the communicative competence of students. (Munby, 1978)

For the sake of elaboration, Munby's processing model for specifying communicative competence is demonstrated in the figure below:

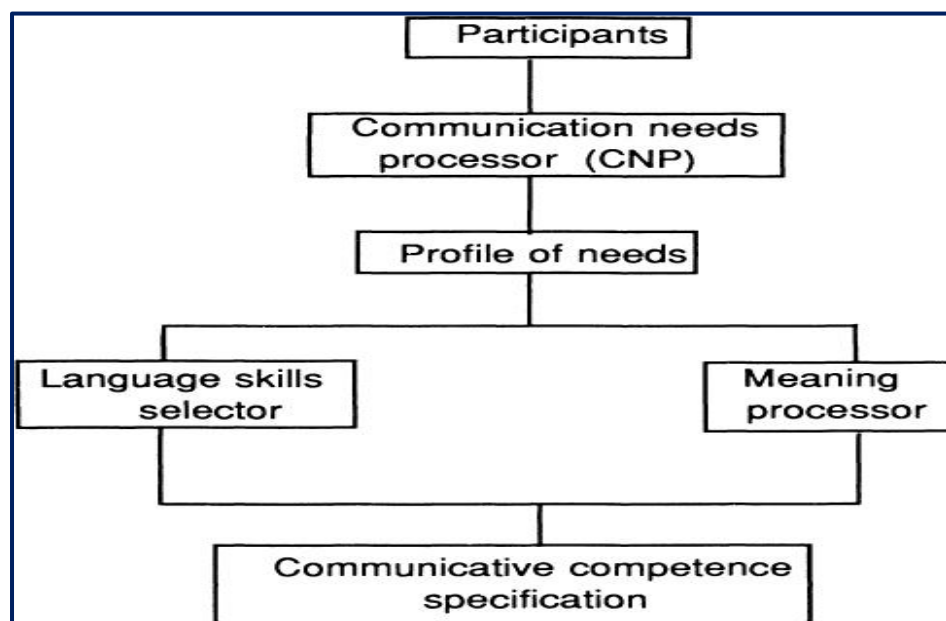


Figure1.6: a model for specifying the communicative competence (Munby, 1978, p.04)

1.2.2.3 Learner-centred Approach

As the name indicates that a prime focus was put on the learner, this approach ,according to Berwick(1989) and Brindley (1989), highlights the learners’ needs in the following categories: Perceived Vs. felt needs ; product Vs. process-oriented interpretation and objective Vs. subjective needs (as cited in Maley& Tomlinson, 2017, p.88). First, in discussing the felt and perceived need, Berwick(1989) and Brindely(1989) believe that felt needs reflect the personal view of the learners where the perceived needs represent the objective perspective of the experts. Second, process-oriented need covers how the learning is carried out while product-oriented needs encompass the final outcome of the course (Maley&Tomlinson, 2017 p.88). Next, Berwick (1989) and Brindely (1989) asserts that objective needs entails existing information about the learners, for instant, their concrete needs, their language skill and usage. While, subjective needs involve information associated with affective and cognitive aspects, for example, learners’ want, expectations and attitudes. (Wang, 2014, p.3).

1.2.2.4 The Present Situation Analysis

It stresses the gap between “what students are able to do with language at the beginning of the course and what they need to do at the end of the course i.e. learners lacks. (Paltridge& Starfield , 2013 p.327). This approach involves Target Situation Analysis (TSA) and Present Situation Analysis (PSA) that work hand in hand. In the light of TSA, it refers to the type of needs analysis that calls attention to learners’ language demands of the target situation .Robinson(1991) explains that a needs analysis, which focuses on students’ needs at the end of a language course, can be called a TSA. Whereas, PSA covers required language use and interests of the learners. Robinson (1991) also notes that “PSA seeks to ascertain what the

students are akin to at the start of their language course, looking into their strengths and weaknesses”(as cited in Rahman, 2015, p.27).

1.2.3 Methods for conducting (NA)

NA is a process of gathering data that are essential for how the knowledge, skills and abilities of each ESP learner can formulate distinct performances.

It has been agreed on that there are four (04) main methods for conducting NA which are, respectively: surveys, observations, interviews, and customer feedback.

a- Surveys

Surveys can be conducted with a sample of learners in which it helps the needs analytic to discover the performance deficiencies in a particular area. The needs analytic can conduct the survey by preparing a questionnaire and circulating among the participants.

One can use various types of questions such as open-ended, closed-ended, projective, and priority ranking questions. The requirements for conducting the survey is that all the questions prepared should be well-related to the specific tasks and needs of the concerned field of study/job. Using anonymous surveys would be the perfect way to increase the credibility of the survey.

b- Observations

Needs analytics that rely on this method usually watch the work of the participants in a regular working/ study situation. Therefore, the observation method gives enough information about the gaps of each participant’s performance. While observing, the needs analytic should consider technical, functional, and behavioural aspects. This step is very important for it results in qualitative and quantitative feedback on the existing performance.

c- Interviews

While talking to each participant, the needs analytic is afford to gather data on performance gaps. The interview may either be formal as it can be informal. The advantageous point about conducting NA is that one can make interviews in person or even at a distance using for example phone conversations, video calls for advanced social media users, or even at work locations, in or outside the classroom etc. in addition to that, the needs analytic can interview one person as a representative of a whole population.

d- Customer feedback

Although customers indicate in a more specific way the areas of improvement, the needs analytic is required to formulate each question in a feedback form as it is oriented to a particular performance or service.

Conclusion

ESP teaching is becoming more and more important in our globalized world with its many demands and requirements. It needs to be reformulated and developed to be closer in line with the challenges facing the Algerian society. In this chapter, we have dealt with the theoretical part concerned with ESP and Needs Analysis of an investigative case-study; we have tried to shed light on the related key-concepts used in this work. The second chapter will be related to the literature review related to discourse analysis and language issues in ESP, since this latter has its appropriate discourse type and requires a variety of language issues.

Chapter Two

Discourse Analysis and

Language Issues in ESP

Introduction

It is still difficult to give an appropriate definition of ‘discourse’ because of its introduction to modern science in general and to applied linguistics in particular. It has been linked to several meanings. The variation in linguists’ viewpoints is related to the fact that some use it in reference to texts while others argue that it designates speech. Crystal (1992, p.25), for instance, illustrated by the following definition: "Discourse: a continuous stretch of (especially spoken) language larger than a sentence, often constituting a coherent unit such as a sermon, argument, joke, or narrative" (Crystal 1992, p.25). Nunan (1993), as well, discussed the disagreement of views and the identical use of the terms ‘discourse’ and ‘text’. Hence, discourse represents a mixture of language, individuals producing it and the context in which it is used because communication may involve oral or written language. Accordingly, in this chapter, we will focus on both, discourse analysis and language issues in ESP.

2.1 Discourse Analysis Historical Development

Discourse analysis, mostly, is a linguistic study to the use of language functions and forms produced both in spoken communication and in writing. It also identifies the linguistic features of different genres required for distinguishing and understanding them in relation to the cultural and social aspects that associate its comprehension. Carter (1993:23) defines it as the branch of applied linguistics which deals with the examination of discourse and attempts to find patterns in communicative products as well as their relationship with the situations in which they take place, which are not clear at the grammatical level.

The preliminary point of discourse analysis started with Zellig Harris’s study of the existing relationship between sentences which, afterwards, stood for a whole branch of applied linguistics (Cook 1990, p.13).

This study was revealed not only because of linguistic research, but also because of researches conducted in a variety of disciplines; sociology, psychology, anthropology and psychotherapy (Trappes-Lomax 2004:133). Thus, discourse analysis takes different theoretical perspectives and analytic approaches: speech act theory, interactional sociolinguistics, and ethnography of communication, pragmatics, conversation analysis, and variation analysis (Schiffrin, 1994). In spite of the different approaches, each one draws attention to different aspects of language use; they all see language as a social interaction.

During the 1960s and 1970s, many researchers in the field of pragmatics, considerably, took part in the development of this study. Text grammarians and The Prague School of Linguists, when focused on organizing information in communicative events, they had impact on the study as well by indicating the link that exists between grammar and discourse (McCarthy 1991, p.6).

Recent researches have been focusing on the application of discourse analysis to second language teaching and learning. Hatch (1992), McCarthy (1992), McCarthy and Carter (1994), Celce-Murcia and Olshtain (2000) provide detailed introductions to discourse analysis and a special attention to the needs and experiences of language teachers.

2.1.1 Discourse Analysis and Second Language Teaching

The integration of discourse analysis to the field of foreign language teaching and learning may enable teachers to improve their teaching performance by examining authentic language use inside and outside the classroom. The fact is that learners cannot really enhance their communicative skills using a restricted contact with the language; it is not always available to have contact or communication with native speakers and exposure to the range of functions, genres, speech events, and discourse types that occur outside the classroom is limited.

Given all these restrictions, teachers have to look for further opportunities for student involvement and participation through a classroom research based on some discourse analytical techniques. For instance, a process of record-view-transcribe-analyze may help them study the interaction patterns inside the classroom and see how these patterns support or create opportunities for learners to practice the target language.

This technique may also let teachers control their students inside the classroom by observing their activities and tasks, such as student-to-student interactions during a role-play task and during a group-work activity. Using this kind of communicative tasks to evaluate learners' proficiency, give teachers the opportunity to better understand the influence of specific activities on learners' discourse. It would, also, motivate teachers and encourage them to select and look for other variety of tasks in order to gain a clearer picture of students' aptitudes, develop their communicative skills and motivate them to interact without difficulty as well.

Discourse analysis is established to be used in classroom research studies in order to identify the cross-cultural linguistic patterns that may lead to communicative troubles. A sample case can be presented is that some learners may involve in oral communication while another one is taking a turn-at-talk. For some linguistic groups, this discourse behaviour can be explained as a sign of participation while other speakers may view it as an interruption and unfair imposition on their speaking rights.

Consequently, discourse analysis in similar situations would be an important tool for making remarkable changes in instructional practices. Finally, discourse analysis plays a noteworthy role representing a fundamental element in programs of professional development, which include classroom-based research, for all teachers with the overall aim of improving the teaching process (Johnson, 1995).

2.1.2 Discourse Analysis and Second Language Learning

In foreign language learning, learners are likely to acquire not only the linguistic patterns of it, but also the discourse competence that governs sociolinguistic and interactional proficiency. They need to view the language from different approaches and understand it at all levels (Riggenbach, 1999; Young and He, 1998). Comprehending the socio-cultural patterns of the second language would help them comprehend the difference between it and their first language, and thus have less communication difficulties and misunderstandings.

One major problem for second language learners is their little acquaintance to almost all the communicative practices and real world interactions using the target language. In this case, it seems necessary to expose them to different discourse patterns in different contexts and communications. CelceMurcia and Olshtain (2000), McCarthy and Carter (1994), and Riggenbach (1999) view that the best way to include discourse is to allow the students themselves study language, that is, to make them discourse analysts. Their study of language would result in a better understanding of the discourse patterns of a given genre or communication event as well as the sociolinguistic factors that contribute to linguistic variation through different contexts. For example, students can study speech acts in a service meeting, turn-taking patterns in a conversation between friends or other aspects of speech events.

Riggenbach (1999) suggests a wide range of assignments that can easily be altered to suit many contexts of second language learning.

As a summary, the first implementation of discourse analysis in foreign language instruction would be for teachers not only as a research method to understand their own teaching performance but also a tool for studying interactions among language learners. The second is that learners can benefit from using discourse analysis to explore what language is and how it

is used to achieve communicative goals in different contexts. Thus, discourse analysis can help to create a second language learning environment which, more precisely, reflects how language is used and inspires learners toward their goal of proficiency in another language.

2.1.3 Discourse and Context

According to Cook (2001), language cannot be analyzed in isolation; there is a need to link it to the communicative context in which it is used. It is clearly explained in the following:

Although the main focus of discourse is on language, it is not concerned with language alone. It also examines the context of communication: who is communicating with whom and why; in what kind of society and situation; through what medium; how different types and acts of communication evolved and their relationship to each other.

(Cook,p.6)

He also argues that “...discourse analysis views language and context holistically” and defines context as:

- (1) Substance: the physical material that carries text.
- (2) Paralanguage: the meaningful behaviour accompanying language.
- (3) Situation: the properties and relations of objects and people in the vicinity of the text
- (4) Co-text: the text preceding or following the one under analysis.
- (5) Intertext: text which the participants perceive as belonging to other discourse, but which they associate with the text under consideration, and which affects their interpretation.

(6) Participants: their intentions, interpretations, knowledge, beliefs, attitudes, relationships and feelings.

(7) Function: what the text is intended for. The context and the language used in it are interrelated and act in a meaningful and unified way. The role of discourse analysis is to describe this interaction through the human cognitive processes and the features specific to a given culture. Taking context into account is a fundamental matter for the study of language because no communicative act exists without specific participants, paralanguage and function. (Cook: 2001)

2.1.4 Discourse and Communicative Purpose

Communication provides individuals with an access to a huge amount of information, and the Communicative context determines what each individual is supposed to say, at which moment, in which place, to which participants, the norms of interaction between them, about which subject matter and for which purpose. All these functions help foreign language learners achieve their general and social communicative purposes (giving or asking for instructions, inquiry, invitation, apology, request, etc) (Celce-Murcia & Olshtain, 2000, p.274).

The identification of the communicative purpose is also an important method to any kind of genre analysis. It is all about studying the goal of the text, as this establishes the rationale for the genre. It is, also, essential because it helps to control the discourse structure and content and check how that content is expressed. To understand the rationale behind the study of the communicative purpose, we should have a concise definition of the genre and its role within the study of discourse.

2.1.5 Defining Genre

‘Genre’ is a term borrowed by discourse analysis from literary studies. It has been used in rhetoric and literary theory to refer to a distinctive type of text. Then, it has been extended further than its traditional use in literary contexts to include all purposeful uses of language. It was defined by Swales (1990, p. 58) as ‘a class of communicative events which share some set of communicative purpose’:

These purposes...constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constrains choice of content and style...In addition to purpose, exemplars of a genre exhibit various patterns of similarity in terms of structure, style, content and intended audience. (Swales:1990, p.58)

Genres generally refer to social practices that have developed to allow to us achieve our goals (Martin 1985; Painter 2001). Our daily lives are marked by a wide range of situations which involve regular and everyday patterns of language use. Without these, our interactions would be random and confused. The social groups and cultures we belong to, help us identify the basic opportunities of various situations and make us able to react using the appropriate genre. Genres are found in literary works (poetry, prose, drama, etc.) or in modern media (films: action, romance, thriller; TV programmes: documentaries, game-shows, etc.). A given piece of discourse may represent several genres at a time. For example, in the words “movie”, “story” and “action” we can have one piece of discourse with the three genres altogether. And to identify a genre, we should take into consideration both verbal and non-verbal forms of communication. Movies, for example, may or may not include a verbal communication, but in both cases the explanation varies from a spectator to another as well as from a movie to another.

The example stated above is to clarify the significance of genres in communication. Also, the participants' distinct ways of identification make that discourse analysis is in need of the context to describe the text. In speech, Cook (2001) argues that identifying a genre may depend on "whether the language is shouted or sung, whether it is beamed down from a satellite on to millions of television screens or whispered in darkness to one person through the grille in a confessional". Then, in writing, it may depend on whether it "...is scribbled in pencil, embossed in gold...or flanked by linking instructions and icons on the World Wide Web" (Cook, 2001). He adds that a genre's description is largely linked to its social function just like when a society is analyzed through the genres people use, and "changes in genre are indicative of rapid social change".

Genres are, then, the essential identification of the communicative purposes. Their analysis is meant to explain socio-cultural, institutional and organizational constraints upon communication, and to identify conventionalized regularities in communicative events.

2.1.6 Genres and Learning

The study of genres and their role in language teaching has primarily been theorized in terms of learning a first language. According to Bakhtin (translation 1986), learning genres is a fundamental part of language development, it is our ability to predict the compositional structure and length of genres that enables us to communicate.

Few studies have been conducted, however, on developing a genre-based theory of second language learning, though functional linguists such as Lock (1996) and Melrose (1995) have sought to lay the groundwork. Lock argues that learning a second language means gaining progressive control over the systems of options in the new language, i.e. learning particular options to select particular meanings in particular contexts.

Beginners have very limited options (a few structures, some lexical items, some unanalysed chunks), but advanced ones have developed their abilities to make slight distinctions of meanings appropriate for different contexts. Thus, learning new genres is seen as extending the learner's meaning-making potential. Linguists view that language helps to meet various purposes, as there are different types of situations for using it, i.e. language serves different functions according to concrete situations.

This functional approach to describing language has its roots in the traditions of Firth (1957), who viewed language as interactive and interpersonal, as a way of behaving and making others behave. Halliday (1985) believes that language is what it is because it has to serve certain functions. In other words, social demands on language have helped to shape its structure. He provides one of the best explanations of language functions, using the term "function" to mean the purposive nature of communication and outlining various different functions of language.

2.1.7 Discourse as a Specific Input

Each field has its appropriate discourse type, and it also comprises of an entire collection of genres. We regularly find a variety of thoroughly related and overlapping genres, sometimes within but often across discourse communities, some of which may include: promotional genres, reporting genres, introductory genres, academic genres, letter genres, textbook genres, e-mail genres, etc. For instance, within the field of law, there is the discourse of lawyers and judges, and it involves such genres as prosecute cases, judgments, contracts, agreements etc. Public administration also has its typical discourse revolving around government documents, political communication, news reports, policy statements, international treaties, etc. As for mass media, it is a large field of editorials, News reports, review articles, advertisements, sports reports, letters to the editor, etc.

In recent years, ESP and professional communication have been influenced by the developments in the analysis of professional discourse, which associates text and context and encourages an integration of the discursive practices of various professions in the context of their typically preferred disciplinary practices.

The objective of all these areas (ESP, communication, discourse analysis) is to develop a deep understanding of how different professionals achieve their disciplinary as well as institutional goals. Based on research about genre analysis, this presentation will argue for an integration of discursive as well as disciplinary practices of professions within and across professional cultures in order to develop a shared understanding of the acquisition of professional expertise in specific ESP contexts, which will serve all the three areas of specialist application.

With the observation and the identification of the discursive structures of a specific input, learners find it easier to comprehend the content and the existing relationships within it. For instance, if learners have to be involved in a discussion group of native speakers or English speaking foreigners, the analysis of discourse in this context will offer them understandings as to the transactional and interactional nature of the group. (Bhatia 1993)

In the classroom context, teachers may provide students with samples of miscommunication between native and nonnative speaking learners to train them to communicate more efficiently in a professional setting. If we take the example of intonation in oral discourse, Halliday (1985, cited in Clennell, 1999:119) argues that native speakers of English change the pitch of lexical items within aspeech as they follow a system of hierarchical eminence or tonic stress, and Clennell (1997, p.117) sees that a successful use of discourse intonation is the key to effective cross-cultural communication. So, if a non-native

speaker of English fails to identify this prominence they can easily misunderstand the propositional content of an utterance and themselves give inappropriate messages.

Genre, as a communicative act within a discourse network, represents the repertoires of social responses in recurrent situations and is used to package speech and make it recognizable to the demands of the situation (Berkenkotter and Huckin, 1995). Genre analysis refers to the study of the structural and linguistic reliabilities of particular genres or text types and the role they play within a discourse community (Dudley Evans and St John, 1998). In ESP, genre analysis began with Swales' (1981, 1990) work on the introduction to an academic article. He (1990) analysed the development of the concept genre in the fields of folklore studies, literature, linguistics, and rhetoric. In the field of Language for Specific Purposes (LSP) there has been upward interest in the socio-cultural functions of disciplinary genres. Howe (1990; 1993) focuses on the "problem question" in law and analyzed the features of scripts from criminal law, public law, contract law, and tort. Bhatia (1993) has analyzed legal cases from two aspects- communicative purpose and structural interpretation.

Maley (1985) and Bowles (1995) also provided their versions of law report analysis from a structural perspective.

The analysis of discourse in general, and genre in particular, situates texts within textual and social contexts, underlining the social nature of the production and reading of texts. As well as locating texts within specific cultural contexts. Besides, this analysis offers a chance to see synthesis, looking at similarities and differences across works. Bhatia (1997) declares that there are at least four distinct, though related, areas of competence that an ESP learner needs to develop in order to recover his or her lack of confidence when dealing with specialist discourse. Genre analysis, thus, is a fundamental and practical means employed in the analysis of different discourses of professional communication for specific purposes.

2.2 Language Issues in ESP

The study of ESP requires a variety of language issues, including topics such as ESP grammar, ESP vocabulary and discourse analysis. Genre has importantly emerged as a powerful means of evaluating and interpreting texts in cross-disciplinary fields. The notion of genre emerged with a new perspective on the nature of language, which sees language as a practical resource with specific purposes to be accomplished. A genre-based approach to language learning has therefore established an important place in language learning and teaching. An emphasis on genre analysis provides the opportunity for learners to gain the basic relevant knowledge they can use in their field to perform oral or writing tasks.

2.2.1 Grammar in ESP

There are many misunderstandings about the role of grammar in ESP teaching. Actually, it is often said that ESP teaching is not about grammar, while much of the skills-oriented research in EAP is not based on grammar itself. It is mistaken to consider grammar teaching as outside the scope: grammar is always taught; it is not isolated from reading, debate and lecture. So, Grammar is connected to students ' knowledge, but rather needs to be viewed within language use contexts. The basic grammar points stated in Dudley-Evans & St. John (1998) are:

- Voice;
- Tense – aspect;
- Articles;
- Nominalization;
- Logical connectors (Discourse markers).

-Verb and tense:Which tenses should be taught?

A) Present simple

- The present tense is often used in English scientific and technical texts as they state facts in most situations. It is sometimes appropriate to use the present perfect and simple past.

B) Present perfect

- Use the present perfect for past actions with connection to the present and when the period of past actions is not. Use the perfect present of acts and activities recently completed beginning in the past and continuing in the present. Use the present perfect for actions in the past with a connection to the present and when the time of the past actions is not important. Use the present perfect for acts and activities which are newly accomplished, starting in the past and continuing in the present.

C) Past simple

- Use the simple past for actions that are not linked to the present and when the time of the past action is important or shown. Teachers should teach different tenses. They should give enough clarifications on when and why students should use one appropriate tense instead of another.

D) Voice

The passive voice appears very often in scientific texts. This is appropriate for an impersonal use of the language, where the acting person is not important and should not have to be written or stated. The passive is also used to describe a process or experiment.

- The active form is used only in practical descriptions.

E) Modals

Modals like: may, might, could, would.... are also important. They are used in order to show a degree of certainty.

F) Articles

Teachers should teach articles when their students should use a, an, or the‘.

Word Formation: the Suffix -able/-ible

Adjectives ending in -able/-ible are often used in scientific texts, as they can replace longer verbal phrases.

G) Nominalization:

It is the use of verbal nouns usually ending in suffixes such as: ation, ition, ity, ment, ness....

H) Logical connectors

Logical connectors, such as moreover, however, therefore..... have always had a high profile in EAP teaching. They are generally seen as a key device to understand the logical connections in texts and therefore relevant to the teaching of reading and writing in EAP.

I) Pre-modifying participle

Swales (1971) discusses the function of the pre-modifying participle "given" such as: a given component, a given reply..... He declares that these expressions are used in scientific writing and consequently they should be taught by ESP instructors.

When dealing with grammar in an ESP approach, the teacher, firstly, tries to ask his students to analyze a text and see if they can find the essential patterns within that text. Eventually, we are looking for patterns of language use. Next, he asks them to understand these patterns in

order to figure out how and why these grammatical structures are used in particular places within a text. Once this is done, we expect the students to be able to produce their own texts using the appropriate grammatical structures for that genre or content area.

2.2.2 Vocabulary in ESP

2.2.2.1 Types of vocabulary in ESP

In teaching and learning vocabulary, it is essential to distinguish between different types of vocabulary which need different focus.

2.2.2.1.1 Technical vocabulary (Jargon)

To some extent, vocabulary used by a specific group of learners or occupational class, is understood by foreigners. The specific terminology of architecture, medicine, law, science, and technology all fall under the notion of "jargon", so the term jargon means: special words or expressions used in a particular profession or by a particular group which are difficult for other people to understand. Like Technical, scientific, legal, medical, jargon, etc...

2.2.2.1.2 Sub- technical or Core vocabulary

ESP instructors and Applied linguists indicated that the distinction of vocabulary in technical registers into specific or general, is insignificant and insufficient the purpose of TEFL (Teaching English as a Foreign Language). Many ESP teachers and learners have claimed that the real problem they face is that understanding scientific/technical texts is related to the area of vocabulary generally referred to as "sub- technical".

The term "sub-technical" covers a whole range of items which are neither highly technical nor specific to a specific field of knowledge nor clearly general in the sense of being usually used in texts. "Sub-technical" vocabulary has proved to be indefinable and confusing for

many teachers. Besides, it is as insignificant as the specialized/ general division in that it tries to classify something which is neither specific nor general under the same caption. Common sense and experience indicate that this middle area between specific and general is itself made up of several different types of vocabulary which require different teaching techniques. To illustrate this, there are some types of items which have been referred to as "sub-technical" vocabulary by various linguists:

- 1) Items which express notions that are common to all or several specialized disciplines, e.g. factor, method and function.
- 2) Items which have a specialized meaning in one or more disciplines, in addition to a different meaning in general language; 'Bug' in computer science, for instance, is different from 'Bug' as in everyday use. 'Solution' has different specialized meanings in mathematics, chemistry, in addition to its general language meaning.
- 3) Items which are not used in general language but which have different meanings in different specialized disciplines.
- 4) Items which are traditionally viewed as general language vocabulary but which have restricted meanings in certain specialized disciplines. In botany, 'effective' simply means "take effect", it carries no evaluative meaning. In the same discipline, genes which are expressed have observable effects i.e. more apparent physically, as opposed to being masked. 'Expressed' in botany is therefore not associated with emotional or verbal behaviour as is the case in general language.
- 5) General language items which are used, in preference to other semantically equivalent items, to describe or comment on technical processes and functions. For example a recent examination of a corpus of biology in texts books (Holes and Baker) revealed that "photosynthesis", and other processes such as digestion, do not, apparently ever happen:

they overwhelmingly _take place‘ and occasionally “occur”, “Take place” and “occur” can therefore be regarded as sub-technical vocabulary.

6) Items which are used in specialized texts to perform specific rhetorical functions. These are items which signal the writer’s intentions or his evaluation of the material presented. Johns and Dudley-Evans (1980) give the following examples of expressions used in plant biology lectures "one explanation is....", "others have said".....and "it has been pointed out by....."

2.2.2.2 The Required Vocabulary in ESP Teaching.

Though it was claimed that ESP teachers should not teach technical vocabulary, there may be quite a lot of situations in which ESP teachers should offer a proper help.

Firstly, when ESP learners read texts related to a particular field of work or study, and this text includes many technical words which should be understood by the learners, because they are related to the topic being discussed. ESP teachers, in this regard, are called to help the learners to select the most useful ones to deal with or to focus on.

Secondly, when the learner is asked to do ESP tasks or exercises using a particular context with certain technical vocabulary, Dudley-Evans and St John (1998) "it is important that both the teacher and the learners appreciate that the vocabulary is acting as carrier content for an exercise and it is not the real content of the exercise." (p .81)

Thirdly, ESP teachers may help learners when learners find it in some way difficult to deal with the general words used as technical words. For instance, “Bug” in computer science is difficult from Bug as we know it in our everyday use. And “Solution” has different specialized meanings in mathematics and chemistry in addition to its general English meaning.

Fourthly, in case the technical term does not mean the same as its equivalent in the learner's mother tongue language, the ESP teacher, here, needs to give some clarifications and outlines to the vocabulary to be learned.

Fifthly, generally speaking, terms in English are coordinated in terms of meaning to terms of the learner's first language, but sometimes when these terms cannot be well understood by learners, the ESP teacher should guide and advise them to use technical dictionaries or other similar sources.

Finally, it is possible that the incorrect pronunciation of some technical words could lead learners to rapidly forget the learned words. ESP teachers can be of a great help in this respect.

Conclusion

To conclude, in this chapter, we have dealt with discourse analysis which deals with the target language in context, its types, and its role in achieving learners' communicative purposes. Genre study is another particular field in discourse analysis which is related to the study of linguistic regularities of a particular text type, ESP instructional discourse and language issues in ESP. These particularities of the language are taken into consideration in any ESP course design to fulfil the learners' specific needs. A review of the literature of ESP course design is dealt with in the following chapter.



Chapter Three

ESP Course Design

Introduction

The development of Applied Linguistics influenced the growth of the ESP movement which is a result of the rapid development of the world economy. In the early 1980's, the need to use language for particular purposes has emerged, and the process of learning skills required to be taken into consideration. (Dudley-Evans & St John, 1998). This led to the emphasis on the fact that teachers should design ESP courses to various groups of learners to fulfil their needs in their specific field (Hutchinson and Waters, 1987). Therefore the focus in this chapter is on the ESP course design, its approaches, types, content, material selection and assessment. In addition to another important part related to how to the teaching of ESP which is concerned with guidelines and suggestions to ESP teachers to deal with in their classroom activities.

3.1 ESP Course Design

Is the mechanism of constructing and planning the teaching process based on the interpretation of learners' needs to meet precise goals and objectives? Hutchinson and Waters (1987) define the course as "an integrated series of teaching-learning experiences, whose ultimate aim is to lead the learners to a particular state of knowledge" (p.65). Additionally, designing a course involves assessing learners' needs, setting the course objectives, forming the course content, teaching course and evaluating learners along with learning process. Nunan (1988) relates, "It is seen as being concerned essentially with the selection and grading of content" (1988, p.5). However, the selection and the organisation of content cannot be carried out on baseless foundations. There are many factors that have to be taken into consideration before designing an ESP course.

The designers of ESP courses have to account for the students' needs prior to the establishment of the content to which students will be exposed during a given educational

term. Munby (1978) stated that in ESP courses “the syllabus and the materials are determined by the prior analysis of the communication needs of the learner” (p.02). Unlike the designs which are often allocated for general English teaching, the design of ESP courses is not predetermined by the ministry of education, the administration, or any other recognized external authority. It is rather established by the teacher of that specific course and dependent on the needs of the students themselves. Hence, ESP teachers play a central role that constitutes performing several pedagogical steps. This procedure is fulfilled gradually as it extends from identifying the needs of students, arranging relevant teaching units, compiling materials, to the assessment and evaluation of the learning process.

Despite that the aforementioned practice is common for ESP designers, the focus of teachers concerning the way through which students’ needs should be approached can vary based on the nature of the course. Basically, such an emphasis is delineated by whether content is targeted to students engaged in a narrow angled or a wide angled field. In this context, Basturkmen (2003) stated that:

“Some courses are designed for a group of learners with almost homogenous needs targeting one particular discipline or occupation (narrow-angled) and some are designed for a group of learners with somewhat similar needs and interests targeting a broad field (wide-angled)...”(p.02).

Designing ESP courses requires an awareness not only about the peculiarities of the subject area, but also possessing an adequate linguistic knowledge and a command over the lexical and semantic aspects that concerns the way language is used in that specialized field. When dealing with a broad discipline like the case of teaching English for business or engineering, the course can be designed to cover only the fundamental features of that occupation which are shared by all the adherent members of the field. However, in other

situations, the course designer must opt to issue an in-depth analysis about the participant communicative needs because of the specificity of the occupation (Woodrow, 2018). This latter implies for the teacher to identify the specificities that characterize the course and the corresponding unique needs of students. In addition, there are many approaches that the ESP teacher can follow in order to design courses. These are discussed in the next section.

3.1.1 Approaches to ESP Course Design

There are three approaches to ESP course design defined by Hutchinson and Waters (1987): language-centred, skill centred and learning centred.

Firstly, language- centred approach, which is considered the simplest approach, seeks to “draw as direct connection as possible between the analysis of the target situation and the content of ESP course” (pp.65-66). Using this approach, ESP course designer creates the course based on the identification of linguistic features of the target situation.

Secondly, Skill-centred approach focuses on the learner more than the language-centred approach. It is characterized by:

- a. It views language in terms of how the mind of the learner processes it rather than as an entity in itself.
- b. It tries to build on the positive factors that the learners bring to the course, rather than just on the negative idea of 'lacks'.
- c. It frames its objectives in open-ended terms, so enabling learners to achieve at least something. (Hutchinson and Waters p.70)

Thirdly, learning-centred approach shed lights on both learner and learning process. They both (Hutchinson and Waters) claim that it looks beyond learner's competence, i.e. it emphasizes on the question "how someone acquires that competence"(P. 73) .

The following figure presents a comparison between the language-centred, skill-centred and learning-centred approach. Each of these approaches considers the learner at a distinct stage as it is clearly shown in the figure. While language-centred approach studies the learner at the very first stage, the skill-based approach looks at the learner in the: Identification of target situation, the analysis of target situation along with the analysis of learning situation stage. Moreover, the learning-centred approach studies the learner at every step of the course design process and this makes it the best approach to be working with for creating the appropriate ESP course.

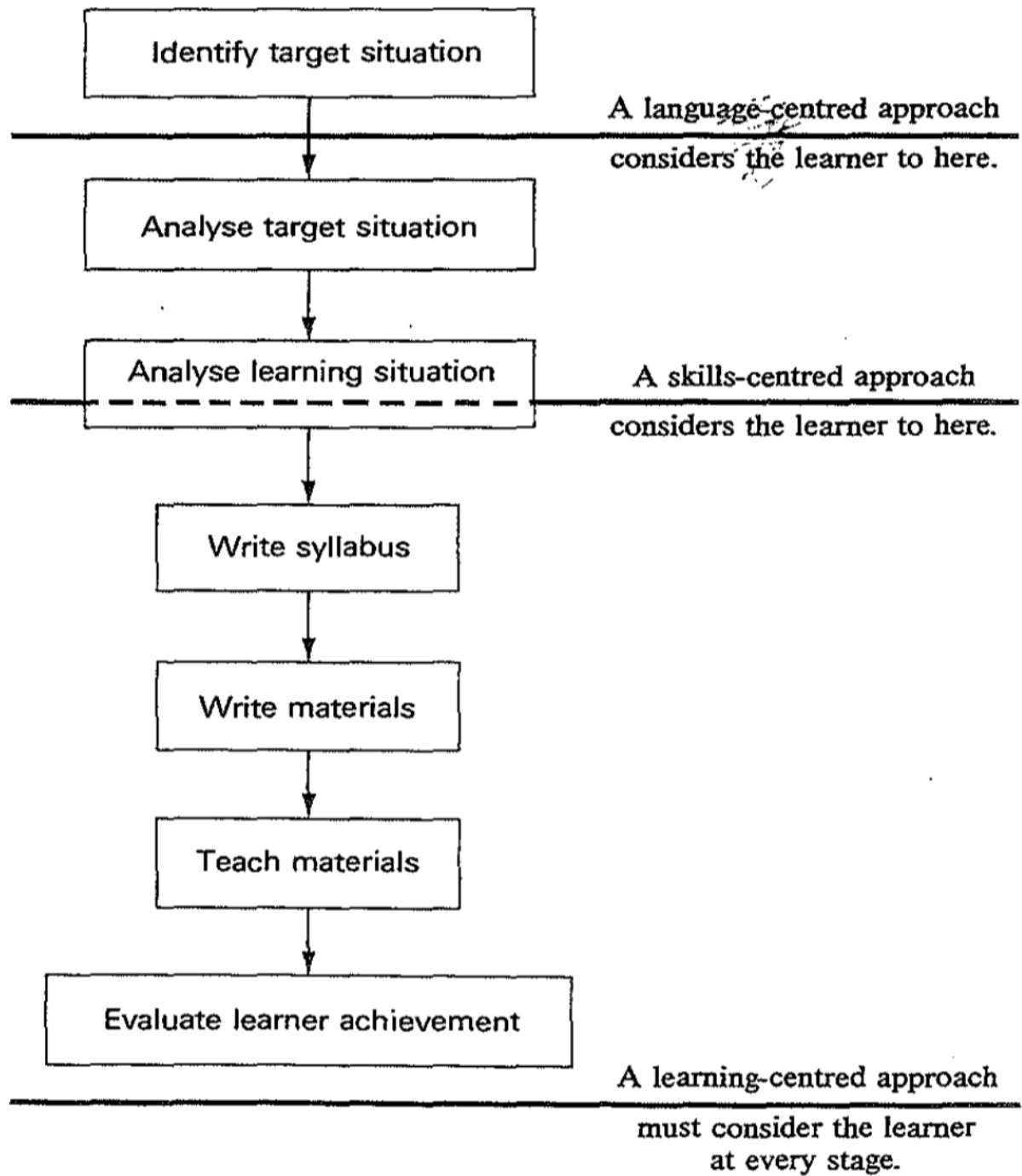


Figure 3.1: comparison between the three approaches introduced by Hutchinson and Waters 1987, p.73

3.1.2 Specific Approaches to EAP course design

In English for specific academic purposes (ESAP), the main focus is on the content because its role, in ESP, is very important. In this part, we will discuss the two main approaches to EAP course design which are: content-based instruction (CBI) (Snow and Brinton, 1997; 1988), also called “content and language integrated learning” (CLIL) (Airey, 2016) and academic literacies (Lee& Street, 1998). The role of the subject specialists is also addressed along with the specificity of students-as-researchers approach (Johns, 1997), where students are the ones who investigate the contextual influence on the educational language and tasks.

The role of specificity in EAP research is a common issue. Some institutions or universities often combine between teaching GE and ESP to EAP students. Hyland and Shaw (2016) taught two EAP courses differently in Hong Kong University. One is a general EAP course which is necessary for undergraduates and seeks to make a connection between secondary school English and university English. The other course is specific, ie. Technical English.

Regarding the “content and language integrated learning” approach (CLIL) to course design, it focuses on the language and the content which means teaching the specific content through the foreign language (Brunton, 2013). This approach is very common in Europe since English is always taught as an additional language in different specializations (Dalton-Puffer, 2011). However, this approach is disadvantaged in the point that it is only beneficial for the students who have a high level of English proficiency, because those who are with low level, they face difficulties to deal with the content (Brunton, 2013).

The approach of CBI has traditionally adopted in the United States (Brinton et al., 1989; Snow & Kamhi-Stein, 2002), it is originated in general English teaching. The basic principle of this approach is teaching the specific content is better than teaching the language only because learners will be more motivated and engaged in learning. There are two types of CBI; sheltered and adjunct. CBI approach emphasizes on content as the main feature in designing the course rather than focusing on skills and grammar tasks (Richard & Rodgers, 2001). Regarding the teaching of the content, whether it is the responsibility of subject specialists or the language teachers, CBI models of teaching EAP rely upon collaborating between both of them. Crandall (2012) shows three types of CBI models that reflect collaboration which are presented in the following figure:

3.1.2.1 Content-Based approach in teaching EAP

This approach views language as interactive and dynamic. It focuses on both the context and interactions to create the context. Murray (2016) suggests that EAP teachers align with subject departments in order to gain more knowledge and experience in terms of the subject matter.

3.1.2.2 Academic-Literacies approach

This approach sees that knowledge and literacies are varied and based on perceptions in the academic and professional domains.

3.1.2.3 “Students-as-researchers” approach

John (1997) uses the notion of students-as-researchers to indicate the important role of students in asking about their requirements in their field of study. Because, in this approach, students ask questions about the text, the context, strategies of teaching and learning,..etc.

3.2 The Syllabus

According to Merriam Webster dictionary, a syllabus is: "a summary outline of a discourse, treatise, or course of study or of examination requirements". Widdowson (1990, p.98) states that "a syllabus is an inert specification and can be actualized through activities in the classroom." He says that 'It is concerned of as a collection of atomistic linguistic elements which are functionally and formally defined. 'Furthermore, it is considered as an organizational program, a plan of teaching. According to White (1988), a curriculum is different from a syllabus. The curriculum is 'the totality of content' to teach to learners, and that is made within the setting of an educational system; while, a syllabus is the content of a given subject area. Syllabus design refers to the organization of courses. Furthermore, a syllabus involves a statement of content, methodology, aims and evaluation.

According to Johnson, k (2001), the most important thing is to know that a syllabus is a helpful guide in the teaching process; however, the teacher is required to find an appropriate methodology to make it alive. Hutchinson and Waters (1987, p.80) describe a syllabus "as a statement of what is to be learnt". Moreover, Yalden (1987, p.87) states that a syllabus is considered as 'an approximation of what will be taught and that it cannot accurately predict what we will be learnt. '

In ESP, syllabus design focuses on needs analysis. Bell (1981, p.36) brings crucial points in designing a syllabus: needs analysis, specification of skills, and the selection of teaching strategies, feedback and evaluation. It is very important to see that both syllabus design and methodology are fundamental components in the teaching process. The syllabus identifies what to be learned and methodology shows the way it will be learned. Methodology is only a way of transmitting the content of a syllabus. For example, learners acquire a language by using it to get the meaning. Therefore, activities and updated resources are required to

improve language use. One must go beyond language production. Activities such as role-plays, games, and problem-solving and transformation exercises are useful to produce language and use it in real- situations. Language in use pushes teachers to a better view at the content of the syllabus. He/she can change, adjust or even delete if necessary. It is necessary to think about practices that can improve communication, because learners are engaged in real situations with language in use, In this case and in order to use it properly in context, students generate vocabulary. Producing correct sentences is not enough. They are required to use that knowledge. Present continuous can be taught this way: What are you doing now? The students can respond 'we are writing'. Also students need to know the answer of the question 'what is the difference between the use of the present simple tense and the present continuous'. In this situation, by providing examples, teachers are able to show the difference clearly. Language programs are mainly based on a grammatical syllabus, and could be represented as communicative.

These types of syllabuses are actually based on patterns that can explain communicative functions. This should work because students of ESP in Algeria face difficulties in producing English sentences.

Most students don't know how to construct proper grammatical sentences. Consequently, it is quite important to concentrate first on grammar and vocabulary. We also ought to help them understand the most important grammatical elements, such as tenses, prepositions, linking words, the modals; the passive voice...etc. The best way is to focus the syllabus on presentation, practice and production. At the presentation level, the teacher can form a model or a sentence pattern; however, the students must produce that form. When it comes to practice, learners may use an appropriate form to answer the questions. And when it comes to presentation, the focus is on the form. It is difficult to see how activities can be regarded as

communicative. In Structural and grammatical the focus is on producing grammatical sentences; whereas, in communicative methodology the focus is on real communications. The main task of the teacher is to prepare their own grammatical syllabus. The question is ‘can students communicate without the production of correct grammatical sentences?’ An ESP syllabus cannot be constructed without the focus on grammar, and the latter should not be neglected. It is also important to analyze deeply the term ‘specificity of aims’ in ESP to understand the development of a syllabus. According to Widdowson (1983, p.7), “by aims I mean the purposes to which learning will be put after the end of the course”. He also makes a distinction between competence and capacity that we have mentioned before. He considers competence as the ability to create meaning, therefore; objectives are linked to the linguistic system and the social rules for appropriate use. Capacity means procedures and techniques used for communication; on the other hand, competence means rules and norms of language. Teachers have to develop a capacity in learners in order to achieve their learning objectives; where they use language for effective communication. Structural and functional views make a communicative view. The structural view is not enough. Consider the following sentence: Shall we go to the movies? Structurally speaking, it is an interrogative, whereas from a functional point of view, it could be a suggestion or a request. This kind of sentences implies a shared interpretation; thus, when speaking, the comprehension of the listener is assumed. This shared knowledge is cooperation between the speaker and the hearer, therefore; communication is also based on the cooperative principles, Grice Maxims (1975).

Learners’ needs must be considered, in the context of language programme in ESP, and also the context in which the language programme must be implemented. As said by Hutchinson and Waters (1987, p.81) “A syllabus refers to what is to be learnt with some indication of the order in which the items should be learnt.” Here, the core of a syllabus is determined by learners’ needs, and to show how to use the respond to the expectations of the

learners. Moreover, the syllabus will find ways to motivate the learners. The aim of this syllabus is to make students able to understand the language both spoken and written.

3.2.1 Types of Syllabuses

In this part we shall present the main different types of syllabuses used in ELT. In the last few years, the focus of syllabuses has moved from structures to situations; functions and notions to topics and tasks. In this sense, Nunan (1988:52) claims that “the traditional distinction between syllabus design and methodology has become blurre”. Whereas Prabhu (1984:96) states that “the function of a syllabus is to specify what is to be taught and in what order”. Furthermore, syllabuses are somehow related to each other.

3.2.1.1 Synthetic vs. Analytic Syllabus Types

Synthetic syllabuses divide the target language into discrete linguistic items. Each element of the language is taught differently. Here, language acquisition is a process of gradual accumulation (Long and Crookes, 1993). According to them, synthetic is a role of the learner who is required to re-synthesize the language that has been divided into structures and functions. Lexical, structural, notional, situational and functional syllabuses are synthetic. Alternatively, analytic syllabuses are ordered according to reasons for which L2 is being learnt. Procedural, process and task syllabuses are all samples of the analytic syllabus type. According to Wilkins (1976), a synthetic syllabus is related to a grammatical syllabus, despite the fact that many people may argue that it is not necessary the case; however, the analytic syllabus is linked to purposes of learning. The focus here is the communicative purpose for which language is used and not its structuring system. Wilkins (1976) also distinguishes between the product syllabus; which is a synthetic syllabus type A, and the process syllabus; an analytic syllabus named type B. In type A, the focus is on ‘what to learn’; whereas, type B

focuses on ‘how to learn it’ and this depends on a sort of an agreement between teachers and learners.

3.2.1.2 The Structural Syllabus

This type of syllabus is made up of a list of grammatical elements. Units are constructed and ordered in terms of complexity, not according to their use in communication.

-Simplicity and complexity.

-Sequencing: things are put together

-Frequency: forms that are used more frequently have to be given priority

-Utility: Things needed by learners and which are useful for them must be taught first

-Teach ability: To start with the easiest items whilst teaching before the hardest. (Wilkins 1976, p.98).

Furthermore, the structural syllabus has a formal content leading to linguistic competence. As Wilkins (1976) believes that a structural syllabus is ‘constrained to ordered items to be synthesized in the learners’ mind acknowledge.

Again, we can say that any sentence can carry a communicative function and a formal category. In this sense, we can deduce that a synthetic syllabus defines its units semantically and the analytic syllabus works pragmatically.

Communication is not guaranteed in the case of a structural syllabus via classroom activities. The fact that a learner acquires some grammatical rules and structures does not mean that he is able to communicate effectively. In ESP, the main concern will be the

learners' needs and their reasons behind learning this language.

3.2.1.3 The Notional/ Functional Syllabus

It is a set of items that has to be taught to learners of a second language. In order to perform communicative activities, learners practice different structures that refer to some situations and ideas (notions). The language structures are organized to express different functions that are possible for different acts. These functions include expressing sympathy, disagreement, or concern. Structures are arranged gradually to show different levels of interactions (registers), from polite to less polite, for example. In his book, Wilkins (1976) speaks about categories of communicative functions such as promising. The fact of teaching functions is necessary but not enough. Other items must be added to get a wider syllabus. The notional /functional syllabus (Van Ek and Alexander, 1975; Wilkins, 1976) is useful and helpful to learners to communicate effectively. Furthermore, the focus of a notional syllabus is on the content not the form. In order to make the distinction between language as a formal system and language use as effective communication. Widdowson (1978) defined concepts such as linguistic categories; usage and use; significance/ value; sentence/utterance; proposition/ illocutionary act; cohesion/ coherence; linguistic skills/ communicative abilities. The common concern of learners is the lack of communicative ability, therefore; the notional/functional syllabus gives a useful communicative dimension to their knowledge so that it can be used for doing things with language.

Knowing a language involves a grammatical knowledge and how it functions too. This knowledge has to be used in context in order to achieve meaning. We may define it as the ability to put knowledge in action. Thus, we are concerned with knowing a set of grammatical elements and lexis, and also how they are used appropriately in context. Learners are not only concerned with what they know, but also with what to do with language. However, the main

question is ‘are teachers concerned with competence or performance in ESP? In this context, Hutchinson and Waters (1987, p.28) state the following: “We need to make a distinction between the performance repertoire of the target situation and the competence required to cope with it. The competence providing as it does, the generative basis for further learning is the proper concern of ESP.”Competence is indeed more important than performance, for knowing a language can help the learner build grammatically correct sentences. Grammar is very useful to understand unfamiliar passages; however, when it comes to ESP; performance is a key point because learners need to know what they use language for such as dealing with different situation Grammar is not neglected in the notional/functional syllabus does not neglect, however it is not the same as the grammatical syllabus; for it has a communicative orientation. In ESP, researchers choose this kind because its main concern is language in use. The teacher works with materials that are able to show the generation of meaning.

3.2.1.4 The Task-based Syllabus

A task-based syllabus is an approach where learners perform practices like problem solving or activity planning. This requires linguistic demands that lead to learning the language.

Task-based syllabus is a special realization of communicative language teaching. That is to say, the most important task is to make a link between pedagogic objectives and real life situations. Therefore, instead of making lists of grammatical, notional-functional, and other items, the designer make a needs analysis, in order to get a clear idea of what learners will take with them outside the classroom in their real life and their jobs. The following are examples of the target tasks:

- Participate in a job interview.

- Filling in a different kind of forms and applications
- Find the way from the airport to the hotel
- Checking in/out a hotel.
- Returning a faulty item.

(Adopted from Nunan, 2001)

In order to better understand the notion of task, it must be clearly defined. In fact real-world tasks and pedagogical tasks are completely different as explained by Long (1985). A real-world task means the use of language in the real life, real world; whereas, pedagogical tasks are the different activities performed at school, in the classroom. Long (1985) says: “Real-world tasks or target task are a piece of work undertaken for oneself or for others; freely or for some reward. Thus, examples of tasks include painting a fence; dressing a child; filling out a form.....In other words, by task is meant the hundred and one things people do in everyday life, at work, at play and in between.” Long (1985, p.89). Tasks mainly refer to the different activities required from students to do in classroom. According to Long (1985, p.85): “Tasks are the things people will tell you they do if you ask them and they are not applied linguists”.

Breen (1987) suggests a different definition of pedagogical tasks. He believes that a task is: “Any structured language learning endeavour which has a particular objective, appropriate content, a specified working procedure, and a range of outcomes for those who undertake the task. Task is therefore assumed to refer to a range of work plans.” Breen (1987, p.23)

Not all activities in classroom can be considered as tasks, because they do not really represent the communicative aspect of language, such as reading texts for example. Therefore,

there may be a difference between tasks and activities. Ellis (2003) has another definition of task; he describes a task as follows:

“A task is a work plan that requires learners to process language pragmatically in order to achieve an outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed.” Ellis (2003, p. 16)

In fact, the main role of syllabus designers is to fulfil the learners’ needs to enable them interact in real-world situations. In this sense Breen (1987) proposed another definition of task showing that a task-based syllabus is realized in two kinds: “communication task” and “learning task”. “Communication task prioritizes the purposeful use of the target language in the negotiation of meaning; whereas, learning task aims to explore the workings of knowledge system”. Breen (1987, p.161). He then believes that the aim of the learning task is to help learners participate easily in communication, and solve different problems they face.

3.2.2 Criteria for Applying a Syllabus

There are many principles in organizing a syllabus; such as selecting, and sequencing or grading. Subdivision is a main principle; where the content is subdivided and sequenced. Subject-matters are divided into different units (division), and then developed (sequencing).

There are three crucial factors that are important to syllabus designers which are: discipline; students’ expectations, and the context itself. The syllabus, therefore; may be sequenced according to the learners’ needs, the discipline and the learning. Theoretically, the subject-matter seems easier to learn, so designers begin with, but the easiness of any aspect of syllabus is relative, so one has to be approximate in terms of fit. The syllabus must be tested by designers after drawing, and before implementing it. First the designer must draw a plan, then try it, evaluate it, and finally implement it; thus the syllabus can only be predesigned

initially. Johnson (2001) defines the syllabus as follows: "an organizational programme, a plan for teaching." Whilst making a syllabus, it is important to know that a syllabus is a statement of content, methodology, objectives and evaluation. The term planning means constructing the content of a syllabus, the materials and the activities for the sake of learning and teaching. Therefore, planning represents an important part of the syllabus organization. The level of the students and their expectations should be taken into account by designers, and this could be helpful for ESP teachers to design effective programmes. Furthermore, Breen (1984) defines a syllabus as "a plan of what is to be achieved through our teaching and our students' learning". On the other hand, Prabhu (1984,p.49) believes that the main function of a syllabus is "to specify what is to be taught and in what order." Moreover, Webb (1976) claims that "a syllabus is understood as the organization of the selected contents into an ordered and practical sequence for teaching purposes." He states the following criteria:

*Progressing from known to unknown matters

*A proper variety of teaching units

*Teachability

*Creating a sense of purpose for the students.

Shaw (1976), on the other hand, thinks that in the selection of content, the following must be considered:

-How much we can teach or how much learners can learn?

-The items that should be included.

While Pit Corder (1973, p.95) argues that “The ideal syllabus would be one which the sequencing of item taught logically derives from and presupposes the learning of some previous items.”

Harmer (2001, p.296), argues that a syllabus is based on the following principles:

*Learn ability: to teach easier things first. For example: to teach simple tenses before complex ones.

*Frequency: to teach the frequently used items. For Harmer, the word see, for instance denotes vision first (for the non-natives); however, it denotes understanding (for the natives).

*Coverage: Some words are more important than others (scope of use). Teachers must decide which items should be first introduced.

*Usefulness: to teach the most useful words; technical words for instance.

3.3 Course objectives and goals formulation

An important step in designing an ESP course is determining the course goals. After identifying learners’ lacks, wants and necessities, Nunan (1988) claims, “a necessary second step is to translate them {needs analysis} into instructional goals” (p.25). Therefore, decisions concerning the course will be more specified to the field of focus. It is highly emphasized to base the course design on the precise learners’ need. Whereas Nunan argues that this is not enough for the appropriateness of the course goals determination, he adds that various aspects have to be taken into consideration, for example: restriction from academic systems or occupational institutions, the duration and the scope of the course program...etc. (p.25).

Nunan (1988) illustrate how a course designer should state his objectives:

- Students will learn that ...
- Students will be aware of ...
- Students will develop ...

3.3.1 ESP Course Content Development

Since the course goals and objectives are already determined in the previous step, Daoud-Brikci (2011) points out that ESP practitioners now must, “conceptualize them {goals and objectives} into a coherent content introducing skills’ implementation according to weaknesses and preferences already assessed from the needs analysis” she adds “as well as vocabulary focus in terms of ESP specifications and to decide on language functions intended” (p.86). Additionally, needs analysis interpretation provides various needed information about the course content. To put it differently , ESP course designer when deciding about the course content , should cover : language skills to be developed , communicative competency to be improved, language usage and proficiency and /or vocabularies related to the specific field ...etc. of course these has to be based on the learners’ target and learning needs.

3.3.2 ESP Material Selection

Course materials involve two types: authentic and non-authentic material. ESP successful course designers has always interested in using authentic materials. It implies “any kind of material taken from real world and not specifically created for the purpose of language teaching” (Ellis &Johnson, 1994, p.157). Hence, if an ESP teacher is ought to be teaching mechanical engineers, he/she has to adopt material related to the mechanic field, forexample: instructional manuals, mechanical machines or videos entailing mechanical engineers conversations in a meeting or in work field. Certainly, the material should meet learners’

wants, needs and lacks. Thus, the relevance of the course will make language use easier and more understandable for learners. As a result, they will be more motivated to learn. Wallace (1992) suggests the following criteria when selecting ESP materials:

- a) **Adequacy:** the selected materials should contain appropriate language and information about the course.
- b) **Motivation:** They should present interesting content in order to help students be active and work hard in order to understand better. This criterion should be respected in order to make students' work more effective.
- c) **Sequence:** It is important to have materials that are related to the lecture. There must be a relation to previous texts, activities, topics not to miss the sense of a lesson.
- d) **Diversity:** The selected material should lead to a range of classroom activities, be a vehicle for teaching specific language structure and vocabulary, and promote strategies.
- e) **Acceptability:** It should contain acceptable cultural customs and language

(As cited in Benmakhlouf, 2013, p.30)

The priorities of scholars differ regarding the fundamental aspects that need to be considered in the selection of materials. Tomlinson (2011) focused on other principles that should be accounted for while making such pedagogical decisions. Woodrow (2018) also conforms to his view and considers those principles useful for evaluating ESP materials. Following Tomlinson and Woodrow's standpoints, the selection of materials need to fulfil the following main criteria:

- a) **Materials should achieve impact:** they should have a noticeable effect on learners in order for to increase the potential of learning. Hence, certain aspects of materials that

create a positive impact are to be considered, such as: novelty, variety, attractiveness, content appealing and challenging.

b) Materials should help students to feel at ease: they should be designed to decrease the level of students' anxiety and to make them feel at ease; like those that involve a supportive auditory stimulation that release tension in the case of implementing technological materials. Also, they should not be containing a sort of information that is alien to the students' background knowledge nor involving a content that may impact their self-esteem in negative way.

c) Materials should help students to develop confidence: the content of materials should be simplified to the students so that they would understand the nature and the purpose of the activity as it needs to push the students a little bit beyond their actual proficiency level. Though materials should be designed to be a bit challenging, the tasks included within must be achievable for the majority of students if they exert proper efforts to solve or perform those activities.

d) What is being taught should be perceived by students as relevant and useful: the teacher has to relate his/her material choices with the learners' perspectives and attitudes towards what is deemed to be important in terms of relevance and utility. This can be done by convincing students about the importance of the teaching points in correlation to the prior knowledge that he/she has about their objective and subjective needs. The selected materials should be convenient and embedded with pedagogical content and tasks that meet the expectations and the outcomes desired by students.

e) Materials should require and facilitate student self-investment: the materials should consist of activities that allow the students to discover what they can do on their own without the help of teachers. Hence, the teacher should occasionally give the students the

opportunity to invest their own resources in order to perform activities and to solve problems related to certain features of language based on learner-centered instruction. Such a procedure can foster certain important factors of learning which are believed to have positive effects on language achievements, such as: agency and autonomy. Also, if performed successfully, it would increase the students' confidence about their ability in the target language.

f) Learners must be ready to acquire the points being taught:the quality of the information provided within materials needs to be suitable for students and falling in harmony with their range of linguistic capabilities in order for the imbedded input to be understandable and for tasks to be attainable. This can be achieved by supplying materials that permits the students to acquire new variational features of language, to draw on their recently acquired knowledge to learn further developmental features, and to process that kind of input which is slightly beyond their current level.

g) Materials should expose the students to language in authentic use:the materials that a teacher provide need to include comprehensible input that simulate the way in which language is used in real life situations. It is important for of teachers to offer students the access to material resources that permit them to interact with the input (even on a merely cognitive level) rather than receiving it passively while diversifying the means of exposure. This can be done by exposing them to authentic materials that such as: radio broadcasts, renditions of stories, or filling forms in the case of writing activities.

h)The students' attention should be drawn to the linguistic features of the input: it entails that materials have to be designed to make the students conscious about the gaps that exist in their repertoire and to stimulate them to reflect on their actual state of language usage vis a vis to the target- like forms. It can be achieved, according to

Tomlinson, by inviting students to analyse conversation transcripts that pertain to native speakers for the sake of recognising how certain linguistic features should be correctly used.

I) Materials should provide the students with opportunities to use the target language to achieve communicative purposes: this criteria is based on the fundamental premise in second language acquisition that emphasise the important role of language output in prompting development. Hence, materials should include numerous activities that permit students to communicate and produce output in the target language, rather than focusing only on the passive reception of input.

J) Materials should take into account that students differ in learning styles: the individual differences of students need to be accounted for when selecting materials. That is to say, materials, like course books, should consist of diverse activities that foster and cover the differing learning styles of students. (Adapted from Tomlinson 2011, p.8-18; Woodrow, 2018)

Nevertheless, there are two main material problems that effect learning goals. First, the availability of the authentic material is an important factor that has to be taken into consideration. ESP teachers usually suffer from the lack of appropriate authentic material to teach specific group of learners need. Another issue ESP practitioner may face is the linguistic or content complexity of some used texts that hinder learning process. Under such circumstances, ESP teacher should develop, modify or create his own authentic materials that are relevant to the field of focus. (Basturkmen, 2010 ,p.64) .

3.3.3. Adapting ESP materials

In certain circumstances, the ESP teacher may face some problems with the available materials that he/she has at his disposal. Sources of problems can vary from one a given

context to another. In some cases, the teacher may change the materials because of perceiving a need to match the embedded content with the socio-cultural and the situational context in which the teaching-learning place take place (Yakhontova, 2001). In other cases, the reasons that drive the teacher to adapt materials would stem from his/her disposition to harmonise the included content with the objective and subjective needs of students so that they would be more convenient to the learning process. However, the adaptation of materials must be conducted in an appropriate manner and with obvious purposes to assure that the incorporated activities would embody real effective substitutions. McDonough and Shaw (2013) offer the following framework that can be used mainly for adapting course books which constitute the quite of often used materials in most of courses:

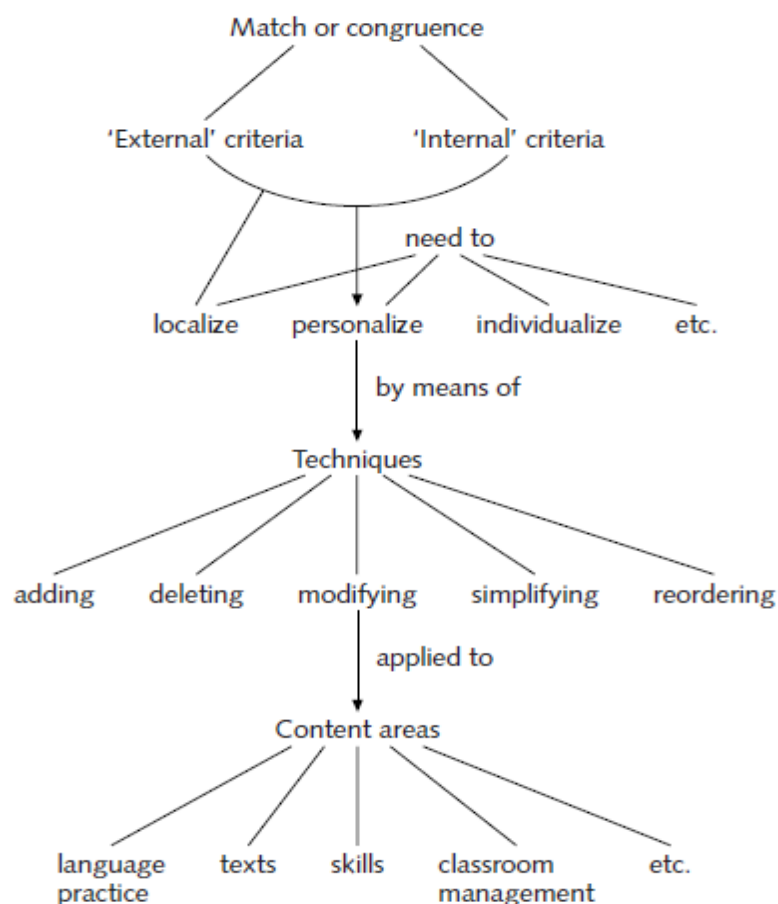


Figure 3.2: A framework for adapting materials (adopted from McDonough & Shaw, 2013, p.77)

Woodrow (2018) approves the techniques used in this model for adapting ESP course books. Their approach toward stressing congruence between external and internal criteria in altering teaching units is of prime importance. Such a framework can give ESP teachers' real insight about the principles upon which changes should be made and how they should be practically incorporated into materials. In this context, McDonough and Shaw (2013) states that "the focus is on what the materials contain, measured against the requirement of a particular teaching environment" (p.69). Therefore, the adaptation process must be made on the premise of matching the individual and personal needs that characterise students with the external criteria that establish the professional or academic objectives which students are expected to fulfil in their field area. Moreover, Woodrow (2018) provides the following model which can help in elaborating the techniques that were portrayed in the previous framework:

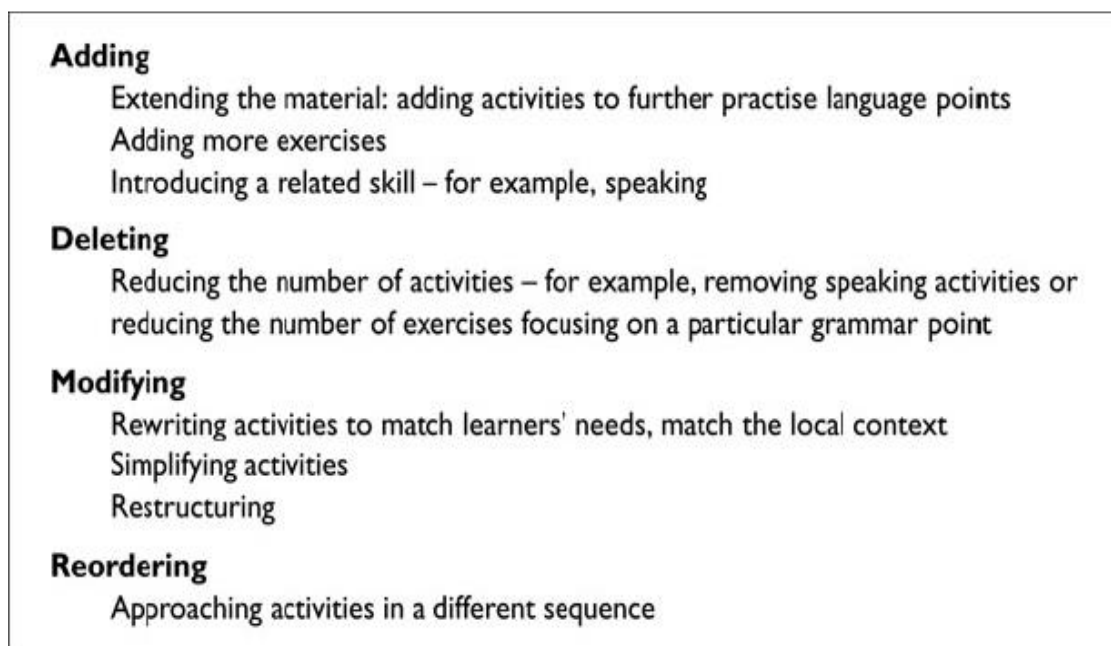


Figure 3.3: techniques for ESP material adaptation (as cited in Woodrow, 2018, chapter 14)

3.4 Collaboration between language teachers and subject specialists

Dudley Evans & Johns (1998) outline three types of collaboration depending on the level of contact between language specialists and subject specialists; they are: cooperation, collaboration, and team-teaching. Cooperation is the minimum level of contact, for instance, when the ESP teacher collects data about the target students and the target situation. In collaboration level, the language teacher and the subject specialist work more closely, i.e., their classes are linked together. In team teaching, the two specialists deliver the course together.

3.5 The Integration of Technology in ESP Teaching

Technology can have potential benefits on the process of ESP teaching and learning. ESP teachers use technology for different purposes, for example, technological tools are used to produce appropriate materials or significant contexts for language learning (Arnó-Macià 2012), to meet learners' needs and to achieve positive attitudes and psychological impact of the learners (Arnó et al. 2006). The fast-growing Internet provides ESP teachers with a new tool to engage students in real-life communication, to bridge the intercultural gap, to collaborate in their professional community and to access up-to-date information relevant to their discipline. Here, we will clearly spotlight on the various benefits of technology in ESP teaching and learning.

3.5.1 Technology and Language Learning

Macaro et al. (2012), in their review, presented some evidence that technology helps learners to acquire linguistic knowledge and develops their language skills. Besides, multimedia presentation, including graphics and video clips, has a positive effect on vocabulary acquisition (e.g., Kim and Gilman 2008; Silverman and Hines 2009). For example,

Rusanganwa (2013) examined whether the use of multimedia can facilitate technical vocabulary acquisition in physics undergraduates in Rwanda, and the results revealed that multimedia has a large effect on recalling the taught concepts. Apart from vocabulary learning, it has been claimed that technology improves writing (e.g., Mak and Coniam 2008), grammar accuracy and listening comprehension.

As far as the linguistic acquisition is concerned, developing the communication skills and competence is the main purpose behind learning English and one of the very central aspects in real-life situations. For instance, the email is becoming more important for communication than other methods, in order to communicate successfully and appropriately. Computer-mediated communication (CMC), such as online forums and synchronous and asynchronous communication tools, has become well-known to improve second-language learners' communicative competence. The use of CMC technologies like emails, online forums and Skype facilitated learners' real-life communication. Research suggests that technology encourages students to recognize that learning a foreign language is more than just learning vocabulary and grammar but a powerful medium for communication (Warschauer 2000, 2003). Of course, facilitating knowledge acquisition does not only stand for the linguistic level; research studies show, also, the benefits of technology in developing the intercultural awareness (MuellerHartmann 2000; Ware 2005), especially with CMC and network-based learning (Kern and Warshauer 2000). Blogs and wikis, for example, are not only considered as tools which help learners to communicate but also, a space to work together and publish their work.

3.5.2 Technology role in creating Authentic Materials

It is very likely that the development of digital and web materials has developed learners' experience in terms of obtaining more authentic input and finding how language is used in

particular contexts (Palfrey and Gasser 2008). This is practically useful for ESP, as ESP learners need to learn the authentic language that is appropriate to their real-life contexts. In language learning, many researchers give emphasis on the authenticity of teaching materials and tasks, and the use of authentic language materials is encouraged whenever possible because students need to know, also, to know how the learned language is used. The keystone theory is to experience rather than acquire the language.

The first mission faced by ESP teachers is designing suitable materials to satisfy students' needs, because teachers should become material developers when materials are not available or authentic. This tough task for many teachers can be easier when they use Internet because it serves well the authenticity of the text and the authorship of the language user—the two aspects of communicative language learning (Kramersch et al. 2000). In addition, the Internet is considered as a reliable resource for natural, context-rich and culturally specific materials (Herron et al. 2002). The provision of available up-to-date information and tasks in different discourse communities enables students to have access to the information they require to do their tasks and accomplish their projects on one hand, and teachers to have authentic language materials on the other.

3.5.3 Technology providing a Learning atmosphere for Interaction

In ESP teaching, interaction between learners can be encouraged through the use of technology, for example, a forum or an online discussion board. The kind of interaction in such a learning situation looks like the real-life situation, as the task is valid and the language is authentic. With the development of network-based learning, project-based CALL (computer assisted language learning) helps students to develop their interactional competence. For instance, in a German as a foreign language context, Chun (1994) has argued that the use of network-based activity facilitates interactive competence because learners

‘make and initiate different kinds of discourse, which in turn improves their ability to put across a greater variety of functions in many contexts as well as to play an important role in managing the discourse’ (p. 18).

3.5.4 Technology and boosting learners ‘motivation

Technology is a useful and effective tool to motivate and control learners. In particular, motivation is in the heart of any discussions or research about technology in language learning (Braine 2004; Schwienhorst 2007). This is due to the fact that it is a fundamental factor that pushes students toward attaining their goals whether in respect of short-term or long-term achievements. Since the implementation of technology is frequently claimed to have a role in increasing the motivation of students (Prensky, 2007; Roblyer & Doering, 2010), it becomes crucial for practitioners to account for the implementation ICT within ESP classrooms. Indeed, nowadays, teachers also suggest that the use of technology enhances student motivation (e.g., Li 2008). Such a stance toward advocating technology can bring about multitude of benefits to the learning process as it can foster the students’ individual needs that once could not be fully addressed through traditional means.

3.6 Types of evaluation in ESP

Bojovic (2006) pointed out that ESP is limited only to two types of evaluation: learner assessment and course evaluation.

3.6.1 Learner assessment

In all FLT settings, teachers are required to determine their learners’ efficiency at a strategic point, either at the beginning of the course, or by its end. As an effective tool for ESP practitioners to evaluate their students, placement tests serve as a diagnostic tool to reflect aspects that learners should work on in order to get the expected proficiency level. Those tests

should, of course, be related to the previously presented lectures, and the assessor has to avoid any kind of bias while preparing the tests. Students' language skills have to be measured in based on some criteria for them to possess proficiency in a particular task.

3.6.2 Course evaluation

Assessing the program and supplementary material is essential for estimating the usefulness of these materials along with the learners needs. Test results and questionnaires are the widely used tools for doing so.

Students are not considered as an authentic source in course evaluation for they be biased and may well integrate their feelings when evaluating their courses, as they may give false feedback about their courses and syllabus because they are afraid of their teachers' reactions towards their feedback, or they simply do not dare criticizing the authority.

ESP practitioner should be aware of how often a course evaluation should take place due to the fact that making a course evaluation too often or too rare is equally devastating.

3.7 ESP Teaching

Didactics of ESP is a fundamental question of what we shall do in class, then when, why and how we want it to be done. It is a question of planning, structuring, integrating and management of various activities for the purpose of enhancing the learners' skills.

Bell (2002) and Porcaro (2013) perceptively deal with the question of how much knowledge about the subject matter of the learners' field of study, the ESP teacher needs to have to be able to select, to adjust, simplify authentic texts and develop the course that would meet and satisfy his students' requirements, and then teach them. From our viewpoint, the best solution is to provide an ESP teacher having a technical background quite close to the field of study, which in many cases is not possible. The majority of ESP teachers are not experts in the

specific field of the learners and have to use great effort to identify with the materials they require in order to master the teaching/learning process. Such situations encourage ESP teachers to develop a special relationship with the students, which should be different from the learning situation of learning General English language. In this teacher-student interaction, both of them are consistent; they are essential to each other in order to create a successful teaching environment: while teachers are considered language experts, learners have related proficiency and expertise in their own fields of study.

The idea of practicing language learning in authentic environment is not new (Gregersen & Madsen, 2009; Offord-Gray & Aldred, 1998) and is in line with communicative language approach (CLA) that has been largely used for ESP teaching in recent years. According to practitioners of CLA its most major features are:

1. An emphasis on learning to communicate through interaction in the target language.
2. Introducing authentic texts and materials into the learning situation
3. Provision of opportunities for students to focus, not only on language but on the learning management process
4. An enhancement of the learner's own personal experiences as important contributing elements to classroom
5. An attempt to link classroom language learning with language activities outside the classroom.

Thus, in ESP classrooms in which the CLA is implemented, it takes the form of pair and group work involving negotiation and interaction between students, communicativeness-based activities that encourage them to develop their confidence, focused activities and tasks to develop GE and ESP language functions, as well as thoughtful use of grammar and pronunciation.

Conclusion

As a conclusion, ESP is acknowledged as a challenging field along with its teaching process. It is obvious that designing an ESP course involves: needs analysis, the course content and goals, material selection as deeply mentioned previously. Each stage is considered a must step for ESP practitioners to attain their essential goals. Moreover, it is agreed upon that without a good command of the English language, scientists, technologists, and economists are likely to miss their mission as researchers and constructors of knowledge bases. As in any research work, the literature review is always supported by a description of the situation and the sample population as well as an explanation of the methodological approach and research design. This will be the task of the next chapter.



Chapter Four

Research Design and Methodology

Introduction

In the Faculty of engineering, there is no implementation of ESP courses, and even if it exists, it is reflected through an optional course introduced by the associate teachers of English and offered to all the engineering post-graduate students. Thus, the present investigation attempts to focus on the ESP teaching/learning process in the Faculty of Engineering to remedy the lacks and insufficiencies from the starting point, and sort out the most important elements in designing a suitable technical English course for postgraduate students of Engineering. This chapter seeks to present the situation of ESP in the Algerian university by giving a clear idea about its teaching in the faculty with its different departments of specialization including electronics, electro-technique, mechanics, electro-mechanics, computer science, procedures engineering, and metallurgy and material engineering at Badji Mokhtar University in Annaba.

Based on the theoretical framework displayed in the three previous chapters, this chapter describes the practical side of the study; its main concern lies in the description of the ESP situation in the Algerian university, more precisely in the engineering field, and the reasons behind the teaching deficits and such negative outcomes. This study starts by a detailed explanation on the situation and population under study; it also defines the selected research instruments used in gathering data and conducting this research.

4.1 ESP Teaching Situation in Algeria

In most educational milieus, ESP is, usually, taught by general English teachers. Though demand for courses in language for specific purposes (LSP) has been emerging very fast, government and curriculum designers have not taken ESP teacher training very seriously. So training ESP teachers is slowly processing, or even it is considered as a far project to be implemented.

Nationally, English is studied in different syllabi at different departments. Apart from the department of English where it is the main subject, English is introduced as an additional but compulsory module in the other departments. Students from these departments are obliged to learn ESP courses related normally to their field of study and to their academic needs as well. Unfortunately, one may say that most of ESP teachers are originally general English teachers who are employed as part-time instructors to teach ESP courses. Regarding their students' proficiency level, these teachers are more translators than language teachers; the language used in the classroom being English, French or Arabic. The use of the three languages can be explained by the fact that students, who do not have a good command of the target language, oblige, in most cases, the ESP teachers to translate either into Arabic or French. In fact, this issue is a major problem faced by the majority of teachers who should have ESP trainings. It is generally acknowledged that the two known attributes of ESP instruction in Algerian universities are:

1. Time which is allotted to English teaching where it is only a period of one hour and a half per week for each teacher, and which is, generally, planned as the last session, or even the last session of the week. The second common feature is the nature of the job; ESP teachers, in most cases, are not qualified to teach ESP. Most of them are part-time teachers who received no special training as ESP teachers, who have a limited repertoire of the specific vocabulary related to the field they are teaching, who do not collaborate or coordinate with their colleagues or with the subject specialists. As a result, this led to many deficiencies and difficulties for ESP teacher which can be summarized as follows:

- No preceding training to ESP teachers
- The insufficient time allotted to the English course
- Mixed groups which create more difficulties for the teacher.
- The absence of a conventional syllabus as well as a programme to follow.

- The lack of specialized knowledge related to the field of study.
- The lack of collaboration between ESP teachers themselves, and between them and subject specialists.

4.2 Status of the Technical English course at the faculty of Engineering at Badji Mokhtar Annaba University

In the Faculty of Engineering, French language is used as a medium of instruction while the English language is purely useful; it is taught as a pedagogical support, for most of the documentation which is available in English (scientific books and resources). Consequently, ESP courses should be of a paramount significance; the Dean of the faculty declared that teaching technical English courses for the postgraduate student is greatly important because those students should be able, at the end of their doctoral study, to write their final doctoral article in English. But there are no specialised ESP course designers who can provide specifications for course content and methodology. The two available part-time ESP teachers, who are neither syllabus designers nor materials developers, are free to teach whatever they see applicable or suitable to their students.

It should, also, be mentioned that the administrative ignorance of what an ESP teacher should be; his competences and qualifications towards ESP as a field of teaching/learning is shown when handing over the teaching of English language module (ESP) to beginner instructors or to other teachers for whom the teaching of ESP is something supplementary, and not so important, only done to acquire some experience.

4.2.1 Period of Instruction & Time Allocation

One important feature of the learning context is that of time. In this respect, it is known that before designing any course, we should think about the number of hours allocated to the

teaching of this course along with the identification of aims and objectives, and achievement level. The period of instruction and the number of hours certainly determine the fulfilment of teaching goals and also the content of the course.

At Badji Mokhtar Annaba University, precisely, at the faculty of engineering, the time allocated to post graduation Technical English courses do not differ according to the field of study. Therefore, the postgraduate students belonging to the seven departments share the same time of ESP courses; they study English for two (02) sessions per week altogether in the Amphi theatre.

4.2.2 The Faculty of Engineering

The Faculty of Engineering of Annaba was established in 1975. It was called the faculty of sciences of the engineer.

The faculty comprises seven (07) departments which are the following

1. The Department of Electronics
2. The Department of Electro-Technics
3. The Department of Mechanics
4. The Department of Electro-mechanics
5. The Department Computer science
6. The Department of Metallurgy and material engineering
7. The Department of process engineering

Enrolled students come from different regions being Baccalaureate holders from Scientific and Mathematic streams; in all the departments of engineering faculty, they go through LMD system; a Licence curriculum of three (03) years in which the first year is a common core of science and technology. Then in the second year, the student can study some other modules of

the wanted specialization, after that, in the third year he/she is oriented to study in the department of his/her already chosen specialization. For the Master degree, it is of two (02) years. The administration classifies students depending on the needed number. This degree opens door for students to enter the professional life and become engineers in their field of study, they can also continue their post-graduation studies to have a doctorate degree to become permanent lecturers at the university if they want.

At the post-graduate level, students go through one (01) year of theoretical study and then two years of practical research in order to be able to submit their doctoral thesis within the fourth year and have their degree.

4.2.3 Sample Population

As in any ESP situation, the investigation should be supported by subjects on whom the study is built. Because of the complexity of needs analysis, having many data sources would be beneficial in order to obtain valid results as supported by Robinson (1991, p.11):

Who provides the information for the needs analysis?

The sources of information are the potential students, the language - teaching institution (teachers and administrators)....we might also want to consider past students. (Robinson, 1991, p.11)

Robinson (1991) claims that those who would provide valuable data for the needs analysis process are the target students, and the teaching institution including both teachers and administrators; thus, to obtain information regarding students' needs and the situation of the ESP course at the faculty of engineering, the investigator will deal with the following population:

- **Target Students**

They are postgraduate engineering students from different specializations. As it has been already mentioned, since postgraduates showed interest in the ESP course, the researcher chose them as subjects of the study because they are still students, but more advanced than the graduates, and therefore, more aware of the importance of the ESP course. Indeed, the degree of awareness is associated with the advancement in the target field, as supported by (Kennedy and Bolitho, 1984, pp.13-14) when they state:

“The older the learner is, the more likely he is to have his own definition ideas on what and why he is learning English. The utility of learning English is likely to be more apparent”.

That is why and for the above mentioned reasons; the researcher has chosen postgraduate engineering students and not graduates.

- **ESP Teachers**

The teachers of English at the faculty of engineering are only two (02), this may look a small sample but it covers all the ESP teachers at this faculty. One has been teaching in the faculty for three (03) years, and the other is new, she is devoted to teach grammar lessons to postgraduates.

- **Administrators**

The Dean of the Faculty of engineering was chosen by the researcher to check his opinion about the situation of the ESP course teaching and learning.

- **Target Students' Profile**

This study is concerned with first year postgraduate engineering students from Badji Mokhtar Annaba University, Faculty of engineering. The students involved in this investigation prepare

different specializations, but are enrolled in the same ESP course. Their age group ranks from 25 to 36 years old. Forty (45) of them were present to answer the questionnaires administered during the ESP course in the first semester of the academic year (2017-2018); all of them answered and returned back the questionnaires.

The subjects are:

- Eight (08) of them are from the department of electronics
- Seven (07) other students are from the department of electro-technics
- Five (05) other ones are from the department of mechanics
- Seven (07) others are from the department of electro-mechanics,
- Eight (08) other students are from the department of computer science
- Three (03) other ones are from the department of processing engineering,
- The seven (07) remaining students are from the department of metallurgy and material engineering.

Before entering university, these ESP students, come from government schools, which means that they share the same educational background. Arabic is their mother tongue, French is their first foreign language, and the language of instruction at university, while English is their second foreign language. They learned the English language during two years in the middle school and three years at the secondary level, which makes a sum of five years. At university level; however, they had never received any kind of English instruction. These post-graduates, before starting the ESP course, went through an evaluation test which revealed, according to the ESP teacher, that they are false beginners in the English language.

4.2.4 ESP Teachers' Profile

Both of the ESP teachers in the Faculty of engineering hold a 'Magister' degree and are postgraduate students. Both of them are part time teachers in the aforementioned faculty. One of them is specialized in Civilization, and has an experience of three (03) years in teaching ESP classes. Concerning the other one, she is specialized in Linguistics, and has no experience in teaching ESP, that's why her session is all about general English and Basic grammar.

4.2.5 Administrators' Profile

As it is important to have the opinions of people directly concerned with the management of all the departments of engineering faculty, the researcher focused on the Dean of the Faculty of engineering who is a professor specialized in metallurgy and materials engineering, he has been a teacher in the faculty for fifteen (20) years, and the dean of the same faculty for three (05) years.

4.3 The Case Study

Case study has many definitions. Mitchell (1983) believes that case study is a "detailed examination of an event (or series of related events) which the analyst believes or exhibits the operation of some identified general theoretical principles". Gall and Borg (2003) believe that case study is the approach which is commonly used to qualitative research in the field of education. Yin (1994) clearly defined a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident... and relies on multiple sources of evidence".

Thanks to Case Study, it is now possible to study a given phenomenon as it happens in its original settings, with detailed investigation. Therefore, the purpose of the case study is to apply a theoretical idea in real life. In an attempt to define case studies Stephen and Michael (1981, p.48) say: “Case studies are in-depth investigations of a given social unit resulting in a complete, well-organized picture of that unit. Depending upon the purpose, the scope... may concentrate upon specific factors or take in the totality of elements and events”.

Accordingly, Merriam (1988, p.16) claimed that: “The qualitative case study can be defined as an intensive, hold description and analysis of a single entity, phenomenon, or social unit. Case studies are particularistic, descriptive, and heuristic and rely heavily on inductive reasoning in handling multiple data sources”. In other words, the case study is an approach that describes the full studied phenomenon, or represents the particularities depending on a variety of data sources.

Yin (2003); on the other hand, defines of the case study, that addresses issues of scope, data collection, and analysis strategies, as an experimental inquiry that explores an existing phenomenon within its real-life context, he added that it:

- Deals with the technically typical situation in which there will be many more variables of interest than data points, and as one result.
- Relies on multiple evident sources, with data needing to join through triangulation, and as another result.
- Benefits from the prior development of theoretical intentions to conduct data collection and analysis.

4.3.1 Types of Case Study Research

There are many categorisations of the case study research; mainly according to different scholars' views. In term of style, Stenhouse (1985) claims that case study research has four main styles as illustrated in the following diagram:

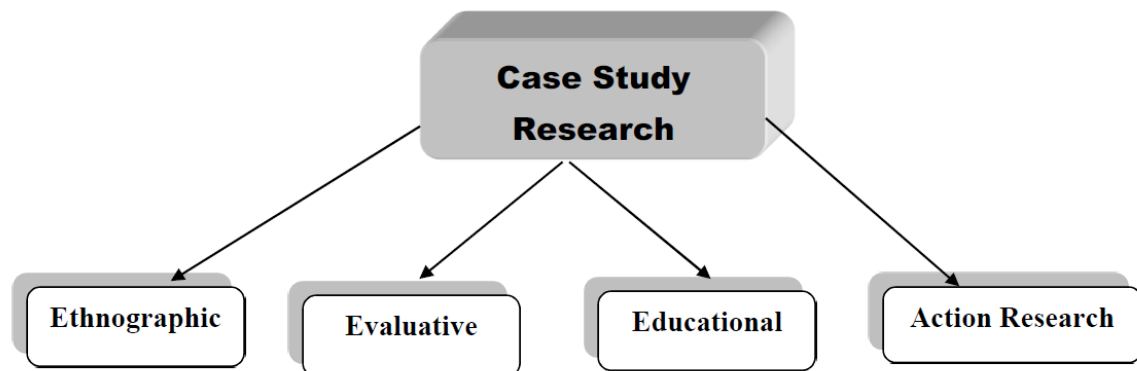


Figure 4.1: Types of Case Study Research (Stenhouse, 1985, pp.49-50)

- **Ethnographic Case Study:**

In the ethnographic case study, the researcher investigates individual cases in order to describe a given phenomenon. It is mainly concerned with constructing strong arguments regarding “cultural, group, or community formation or examining other sociocultural phenomena” (Schwandt& Gates, 2018, p. 344).

According to Stenhouse (1985) “...Ethnographic case study...calls into question the apparent understandings of the actors in the case and offers from the outsider’s standpoint explanations that emphasize causal or structural patterns of which participants in the case are unaware.” (Stenhouse, 1985, p. 49).

- **Evaluative Case Study**

This type of research involves the detailed study of one case or many cases in which the aim is to provide educational actors or decision-makers (administrators, teachers, parents,...) with facts that will help them judge the quality and value of policies, programmes, or establishments.

- **Educational Case Study**

The main concern in this type is to study and improve the educational action Stenhouse (1985) stated that educational case study is when many researchers use case study method in order to understand the educational action, to enrich their thinking and discourse, without being concerned with social theory or with evaluative judgment

- **Case Study in Action Research:**

The researcher, here, is involved and participates actively in its development; for instance, the teacher observes the classroom in order to be able to find an issue to study. Then, with further research, he or she tries to put an approach to apply within the classroom and later on discuss its effectiveness. According to Stenhouse (1985) “Case study in action research...is concerned with contributing to the development of the case or cases under study by feedback of information which can guide revision and refinement of the action.”

Yin (1993) has a distinct classification of the case study depending on different types. The following diagram shows them as follows:

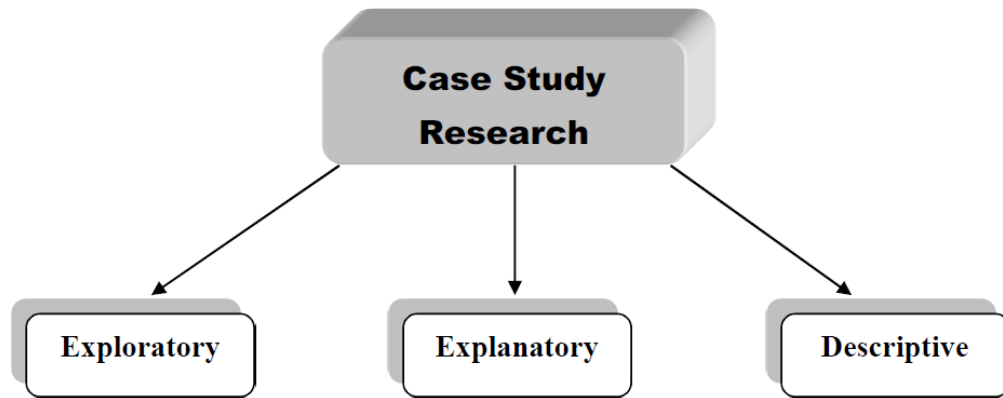


Figure 4.2: Other Types of case study Research

Adapted from Yin (1993, p. 5)

- **Exploratory case study**

This form is usually concerned with phenomena that have not been studied before explicitly, it represents the beginning or the introduction to a formal, more detailed research project, and to prove that further investigation is needed in order to come out with new theories and better ideas. According to Yin (1993) “Exploratory case study...is aimed at defining the questions and hypotheses of a subsequent(not necessarily case) study... It attempts to discover theory by directly observing a social phenomenon in its “raw” form.” (Yin, 1993, p. 5).

- **Explanatory case study**

The researcher undertaking an explanatory case study is rather concerned with giving explanations of what happened and why it happened. “...explanatory case study...presents data bearing on cause-effect relationships explaining which causes produced which effects” (Yin, 1993, p.5).

- **Descriptive case study**

According to Yin (1994), the researcher describes the entire study. He claims that he/she "...presents a complete description of a phenomenon within its context." (Yin, Ibid).

Stake (1995), made the distinction between intrinsic case study and instrumental case study, he focused on distinguishing the methods used to collect and analyse data, and these methods are different from one type to another. He said: "I am making the distinction....because the methods we will use will be different, depending upon intrinsic and instrumental interests." (Stake, 1995, p. 4).

In the intrinsic case study, he mentioned that the interest in research into a given situation is related to it and not for outside purposes. "The case is given. We are interested in it, not because studying it we learn about other cases or about some general problem, but because we need to learn about that particular case. We have an intrinsic interest in the case." (Stake, 1995, p.3).

Whereas instrumental case study, is devoted to research into one or more particular situations, not because of the situation itself; but to understand an outside concern. "This use of case study is to understand something else. Case study, here, is instrumental to accomplishing something other than understanding the particular case." (Stake, Ibid).

4.3.2 Features of Case Study Research

Because such types of case study, research exists and multiple methods are used in each type, the characteristics of this category of research are also multiple and mentioned by many theorists, Adelman et al (1980, 49) stated:

Case study research may be initially set up in one of two ways:

- i: An issue or hypothesis is given, and a bounded system (the case) is selected as an instance drawn from a class.
- ii: A 'bounded system' (the case) is given, within which issues are indicated, discovered or studied so that a tolerably full understanding of the case is possible. (Adelman et al, 1980, p.49)

In other words, one can equally begin with a theoretical hypothesis then choose a case study, and conduct an investigation to illustrate, prove, or disapprove that theory, or begin with exploring a situation that needs further research, and to support theory by clarifying all ambiguities.

Merriam (1988) wrote about the main characteristics of the case study as follows:

- The researcher takes one single or many units or even a situation for his study purpose
- This unit is studied deeply, and generally it takes long time in order to cover all aspects of the unit in the research.
- The study approach is rather qualitative not quantitative, in order to get a deep and clear view of the phenomenon to come out with remedial work.
- The results of the case study are very useful and rich, which leads to improving the research of the concerned field of study.

In these same lines, we have to mention that there is a variety of features characterizing the case study that differ from one researcher to another, each one according to his opinions and interpretations.

Despite the fact that researchers distinguish between the different features that characterize the case study research, they almost agree about the steps that the investigator should follow

to conduct a case study; in the same line of thought, Stephen & Michael (1981, pp. 48-49) list five steps in conducting a case study research which are:

1- Stating the objectives.

2- Designing the approach (What sources of data are available? What data collection methods will be used?).

3- Collecting the data.

4- Organizing the information to form a coherent, well-ordered reconstitution of the unit of study.

5- Reporting the results and discuss their significance.

4.4 Research Design

The researcher has identified the problematic situation or the case to be studied, asked research questions, and stated the objectives of the investigation in the general introduction, and has devoted the first three theoretical chapters to the issues and concepts related to the area of focus. In the fourth chapter, the researcher attempted to describe the target situation and population, as well as the research tools used to investigate the case, while in the fifth one, we reported the results to be analysed. The sixth chapter was devoted to the design of the suggested technical English course for the postgraduate students of engineering.

4.5 Data Collection

The process of data collection began by administering a questionnaire to the students under study , and two (02) interviews in which, one is administered to both ESP teachers and the other is directed to the dean of the faculty, then in the course of classroom observation, the investigator continues the plan to be used to collect data by a direct observation of the ESP

course in question and a whole description of it focusing on: the didactics and pedagogy of ESP, interaction and students' level progress vis-à-vis the ESP learning,

4.6 Data Analysis

Researchers consider case study as a qualitative research, because the focus is on the investigation of the case to be studied. But when it comes to data analysis, they use both quantitative and qualitative methods. The researcher analysed data gathered from the questionnaire quantitatively and for the data resulting from interviews and classroom observation, they were analyzed qualitatively.

4.7 Interpretation

We can state that sufficient evidence has been provided for the interpretations and conclusions gotten from our study. Firstly, we obtained data from the target students' questionnaire to categorize and classify their needs, lacks, difficulties and expectations in the language. Secondly, the ESP teachers' and the dean's interviews which helped the researcher to identify the whole situation of ESP teaching and learning in the faculty of Engineering. Thirdly, classroom observation was an efficient and effective way to check students' proficiency level in English, Their motivation and attitudes over the ESP course and their suggestions as well.

4.8 Triangulation

Triangulation refers to the use of various methods or data sources in research (Patton, 1999). Due to the difficulty of the situation of this study, and the considerable importance of the gained data in designing the recommended course, data collection instruments were meticulously selected. The obtained results aimed at providing evidence for the hypotheses

put forward; identifying the various types of needs of the population under study, and drawing the present situation lacks.

The researcher built his research on the basis of a triangular approach, which requires a multiple sources of data collection. It includes the use of a questionnaire for target students, two interviews, one is designed for teachers in charge of the ESP course and the other is for the dean of the faculty, in addition to classroom observation. This was done to confirm the validity of the results and to enable the researcher tackle the problem from different angles as Weir and Robert (1993, p.137) state:

A combination of data sources is likely to be necessary in most

Evaluations because often no one source can describe adequately such a diversity to features as is found in educational settings, and because of the need for corroboration of findings by using data from these different sources, collected by different methods and by different people (i.e. “triangulation”).

Therefore, we assume that “Triangulation” is a very effective procedure of gathering valid data, since a one-source-based study may be insufficient and may be misleading.

In the context of ESP, Hutchinson & Waters (1987, pp.58-59) believe that:

There are a number of ways in which information can be gathered about needs. The most frequently used are :Questionnaires; Interviews; Observation... In view of the complexity of needs which we have seen, it is desirable to use more than one of these methods.

For the purpose of obtaining more adequate and valid results, we adopted the triangular approach to use a variety of sources and research tools. Hence, the first instrument put into practice was the questionnaire.

4.8.1 Students' Questionnaire

Questionnaires are assumed to be one of the most common methods of data collection in foreign language research, as declared by Richards (2005, p.60): “Questionnaires are one of the most common used instruments. They are relatively easy to prepare, they can be used with large numbers of subjects, and they obtain information that is relatively easy to tabulate and analyse.

Definitely, the investigator has chosen the questionnaire as a research tool because it can be analysed in a shorter period of time compared to interviews, and it allows a large sampling. In effect, the interview is time-consuming since each question is dealt with in isolation for each informant. In an attempt to define the questionnaire, Brown (2001, p. 6) reports that the questionnaire is: Any written instrument that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answers.

In this study, only one questionnaire was designed to elicit data from the informants to investigate the research questions and hypotheses. It was administered to forty (40) engineering postgraduate students in the period of the first semester of the academic year (2017-2018). A pilot study was conducted in order to assess the validity of questions, their relevance and the appropriate wording as pointed out by Cohen et al (2005, p.260): The wording of questionnaires is of paramount importance and that pretesting is crucial to its success. A pilot has several functions, principally to increase the reliability, validity and practicability of the questionnaire.

The pilot questionnaire of the present study proved satisfactory, except for two questions, one of them was reformulated being misunderstood, while the other one was completely omitted. In this respect, Oppenheim (1992:48) says:“everything about the questionnaire

should be piloted; nothing should be excluded, not even the type face or the quality of the paper!”

In the aforementioned questionnaires, three (03) types of questions were used:

- Closed - Open - and Mixed.

A/Closed Questions

Consist of a range of possible answers; the informants have to choose the response that best fits their opinion without commenting as explained by Wilson and McLean, (1994:21): “Closed questions prescribe the range of responses from which the respondent may choose. In general closed questions are quick to complete and straightforward to code and do not discriminate unduly on the basis of how articulate the respondents are.”

e.g. Which type of English do you want to learn?

General English

Technical English

Both

B/Open Questions

In such type of questions, the informants are entirely free to express their own ideas and give judgement and opinion. Indeed as mentioned by Richterich and Chancerel (1980, p. 59): “Open questions do not call in advance for ready-made answers and therefore allow the person questioned more freedom of expression.”

e.g. What do you think about the collaboration between language teachers and subject specialists?

C/ Mixed Questions

These questions are more a combination of both closed and open questions, they ask the informant to choose one of the proposed possibilities, and then justify his answer.

1- e.g. Is ESP course time allocation satisfactory or not?

Yes / No

Why?.....

The three samples of questions have been taken from the ESP students' questionnaires, and ESP teachers' interview ("see Appendices A and B).

Target students questionnaire consists of many categories of questions, in the first category of questions, the researcher tried to represent the profile of the participants, to know about their educational background as far as the English language is concerned; we also attempted to identify their level in the four skills of English, and then we tried to examine their attitudes towards ESP and to check their viewpoints on the importance of learning an ESP course.

The second category of questions was devoted to discover students' English language specific needs and the degree of priority and importance the students give to different language skills in comparison to their future use.

The third category of questions aimed to draw students' lacks and know the difficulties they face in using the English language and the reasons behind their weaknesses.

The other category of questions was devoted to the ESP course in question, the researcher intended to get an idea about students' perspectives towards this course and assess their attitudes towards the current ESP course and their satisfaction degrees in terms of time

allocations and the number of years of instruction they want to receive, and the type of English they want to learn

The last question is devoted to students 'suggestions and comments about their needs in English language and the improvement of ESP learning in the faculty.

4.8.2 ESP Teachers' and the dean's Interviews

When conducting research in education, the interview is considered as a useful tool of data collection, it provides a more in-depth exploration of issues, as put by Duff (2008, p. 134): "Interviews are one of the richest sources of data in a case study and usually the most important type of data to be collected. Interviews provide the researcher with information from a variety of perspectives."

In the same line of thought, Yin (1994) highlights the crucial importance of using interviews specially when conducting a case study research which is concerned with human behaviours; those behaviours, he says, should be seen through the eyes of the interviewees, it is explained as follows:... interviews are an essential source of case study evidence because most case studies are about human affairs. These human affairs should be reported and interpreted through the eyes of specific interviewees, and well-informed respondents can provide important insights into a situation. (Yin, 1994, p. 20)

At this level, it is worth mentioning that in the wide range of approaches to language research and according to many researchers and applied linguists, different types of interview exist. For instance, Le Compte and Preissle (1993) give six types: standardized interviews; in-depth interviews; ethnographic interviews; elite interviews; life history interviews; and focus groups interviews. Bogdan and Biklen(1992) claim the use of semi-structured interviews; and group interviews. Lincoln and Guba (1985) add: structured interviews. Patton (1980: 206) outlines

four categories: informal conversational interviews; interview guide approaches; standardized open-ended interviews; and closed quantitative interviews.

In the present study, the investigator adopted a type of a semi-structured interview. In this type, the same sort of questions is asked as in the structured interview, but the style is rather more flexible and conversational. The interview process is not disturbed by some extra questions; instead, the researcher asks for explanations or clarifications, and makes remarks, depending on the responses of the interviewee. It is worth mentioning that while interviewing the informants, the interviewer tried to be as objective and neutral as possible in order not to influence the subject's views to get valid and truthful data.

Accordingly, two semi-structured interviews were designed. The first was administered to two ESP teachers in charge of the ESP course in the faculty of Engineering, and the second concerned the dean of the same faculty. (See appendix "B", and appendix "C"). They were addressed to them during the academic year (2017-2018).

ESP teachers' interview was designed to obtain some useful information about the different practices of technical English teaching in the faculty of engineering, in terms of syllabus, teaching materials, and course content, attempting at the same time to have an idea about their students' proficiency level in the language, their attitudes and motivation, and their perceived needs and difficulties. The investigator also tried to get teacher's views on how to design and conduct the ESP course and check their opinions and suggestions to improve the teaching situation. It was divided into four parts; the first category of questions was a sort of a warm up to collect information about the informants such as their qualification, their experience in teaching English in general and ESP in particular and if they received any previous training to teach ESP in the faculty. The subjects' answers were recorded by the researcher to be analysed later.

Regarding the second part of questions, it was devoted to the practice of ESP teaching in the faculty; the investigator tried to focus on the conditions in which the teachers in question work, attempting to know about the number of classes the teachers are in charge of, the number of students in each class, and the weekly teaching time.

As for the third category of questions, it was concerned with the students, their proficiency level, their attitudes and motivation towards the course, and their strengths and weaknesses in the language, this was on one hand. On the other, the investigator concentrated on both the ESP teacher and the course. The teachers were asked questions about the syllabus and materials they work with, and the importance they devote to each language skill. In addition to this, the researcher attempted to check teachers' views about the degree of relevance of the course content to their students, and know about the various problems encountered when teaching ESP.

The last part of the interview stressed on teachers' opinions about the current teaching situation with its advantages and drawbacks, and their suggestions to improve the ESP situation in the faculty. They were asked about the assessment of their students' level, the integration of the ICTs and the uses of translation while teaching.

As previously mentioned, the second interview was addressed to the dean of the faculty of engineering; its aim was to check the informant's view about the ESP course importance for postgraduates. It was divided into two main parts; the first one was concerned with drawing a profile to the subject, asking him about the degree he holds, his specialization in the field of engineering, in addition to his experience as an administrator, and a teacher as well. In the second part of the interview, the researcher tried to get his opinion about the ESP course being held in the faculty and its usefulness for postgraduate students of each engineering field of

study. The remaining questions revolved around the introduction of a technical English course designed by the researcher, and his suggestions for better ESP learning in the faculty.

4.8.3 Classroom Observation

This type of research method deals with teachers and learners class room practices. Regarded by researchers as an important component in any scientific investigation, observation is a procedure which allows the investigator to know many things about the area under study, to see the world of the subject group in its natural environment, and contributes to collect truthful information.

According to Yin (1994) observation in case studies is the sole tool that permits to see things as they occur naturally in their context, and to have an accurate picture of the situation, especially when we aim to get information about the interaction of individuals, he claims that

Observations are another important source of information in case studies. This is especially true in case studies involving classrooms or schools, because the interaction of individuals cannot be understood without observation. (Yin, 1994: 22)As the researcher's aim from directly observing the subject group is to know more about the students' attitudes and proficiency level and its progress during the ESP course, in addition to see the interactions that take place between the different participants, classroom observation was then a very appropriate mean to collect this type of data as supported by Van Lier (1988):

Many case studies in applied linguistics include the systematic, focused observation of case participants in their natural contexts (classrooms, homes, community centres, workplaces), especially if one of the objectives of the study is to examine people's linguistic performance or interaction in naturally occurring social situation. (van Lier, 1988, quoted in Duff, 2008,p. 138)

In this sense, it should be mentioned that throughout the different approaches to language research, various labels and types of classroom observation are proposed, such as the terms ‘direct observation’ and ‘Naturalistic observation’ which are used interchangeably by researchers. In fact, ‘direct observation’ or ‘naturalistic observation’; as their name implies; involve observing directly organisms in their natural settings. According to Mackey & Gass (2005), naturalistic observation has four defining principles:

The first and fundamental principle is that of non-interference. Researchers who engage in naturalistic observation must not disrupt the natural course of events they are observing so that to observe things the way they truly happen.

Naturalistic observation involves the observation of behaviour patterns or other phenomena that exist in the real world. The naturalistic observation approach is particularly useful for exploratory purposes, when we know little or nothing about a certain subject.

Finally, this type of method is basically descriptive; although it can provide a detailed description of a phenomenon, it cannot tell us why the phenomenon occurred.

Regarding the principle of non-interference; there are some theorists who make a distinction between two kinds of naturalistic observation:

4.8.3.1 Participant observation

Where the researcher; in addition to his role as an investigator; is part of the observation process, for instance in a learning context, he is either the teacher or one of the learners. In this case, the observer participates in the observation process.

4.8.3.2 Non-participant observation

In this type of observation; the investigator is someone stranger to the classroom, he tries to observe how events happen without any kind of interference. He can be a researcher; an inspector; or a colleague (a teacher).

Watching people, and writing down what they do, has certain ethical implications, especially when we are observing adults; it seems then obvious to ask for their permission. For this reason, a pre-observation briefing, which is considered as a fundamental step in the observation process, was held during which the investigator (the observer) and the teacher in charge of the ESP course identified the goals for the observation, the specific aspects of classroom practices the investigator will be focusing on during the classes, and the period devoted to the observation process. However; it is worth mentioning that during this meeting, the investigator wanted to be vague and general about the aspects she will observe and avoided to give details in order not to influence the ESP teacher and distort the image she has about her proper teaching.

The purpose of this meeting was also to make it clear for the instructor that classroom observation is used for formative and investigative, not summative purposes, and is in any case a judgment of the instructor's teaching techniques; styles, abilities, and knowledge. Rather, it is a developmental process in which the observer's role is entirely one of constructive observation designed to support the teaching of ESP.

As expected, the ESP teacher welcomed the researcher in his classroom (the Amphi theatre), and invited her to attend as much classes as needed to carry out the observation process attempting to answer the following research questions:

- What are the teaching lack sthat hinder the technical English teaching/learning?

- What are the requirements that should be taken into consideration for a consistent ESP course?

4.8.3.3 The classroom

The classroom (the Amphi theatre) we have observed, consists of forty five (45) students among whom 40boys and 05 girls; however, the instructor told us that at the beginning of the course they were 70 students. The ESP course is offered in the faculty of engineering twice a week; on Sunday from 9.30 to 11 am, and on Wednesday from 1.30 to3.00 pm. The course began in November 2017 and ended in May 2018. It is therefore programmed for seven (07) months. The teacher is a young man who holdsa ‘Magister’ degree and is a PhD student specialized in civilization. He has been teaching English in the faculty for approximately three (03) Years. Concerning the second teacher, she also holds a “Magister” degree and is a PhD student specialized in Linguistics and she is working as part time teacher of English for the first time in the faculty of Engineering, she is devoted to teach Grammar to the postgraduates. During the observation task; the investigator tried to shed light on the following aspects:

- ESP didactics and pedagogy
- Teacher-students interaction.
- Students’ learning process

4.8.3.4. Length of Observation

Since one cannot get a full impression of the teaching/learning practices from a single lecture and in order to get a broad overview of the situation understudy, it was important for us to negotiate the number of class sessions we would attend.

To collect the required data, we attended different class sessions, set in the desk of the teacher in order to be able to listen and observe the whole teaching/learning process, we really could

not be able to be as invisible as possible because of the huge number of postgraduate students and the vast location which is the amphi theatre. The observation was carried out through note-taking, it lasted for approximately two months where the investigator attended two(02) sessions in December 2017 and three (03) other sessions during the month of April2018 .

The investigator chose the review to be of such time frame for better examining the pedagogy being used, students' attitudes, motivation, and proficiency level and its progress during the course.

4.8.3.5 Types of Data collected

During this classroom observation, we tried to collect information about teacher's as well as postgraduate students' practices; we attempted to focus on observing the teacher and the students while doing several language tasks. While observing the classroom, the researcher used the **EMETT Observation Grid** with the elimination of the last part which is concerned with a backtalk with the teacher and the students.

Conclusion

This chapter was devoted to the description of the ESP teaching/ learning situation in the Faculty of Engineering at Badji Mokhtar University of Annaba; in this part, the investigator tried to give a clear picture on the ESP practices in that faculty. She also attempted to shed light on the sampling chosen, describe the methodology and the different research instruments used to gather data and; therefore, find out satisfactory answers to the research questions and test the hypotheses put forward. As acknowledged, needs analysis is the core of any ESP investigation. Indeed, before the design of our course, data collected from this study tools should be analyzed to discuss the results and interpret them adequately. For this, the next chapter is devoted to data analysis and results' discussion.



Chapter Five

Research Results and Data

Analysis

Introduction

This chapter represents the practical phase of the research work. At this stage, the researcher, tries to analyse the data obtained from the ESP students' questionnaire, ESP teachers' and the dean's interviews, and the information obtained through classroom observation. The investigator takes into account the practical importance of the identification of postgraduate students' needs, and sort out the teaching/learning lacks and deficiencies. Data analysis, as known, is a structured and organized process which allows any researcher to have more comprehension and insights from a big amount of data.

5.1 Data Analysis

Cohen et al (2007, p. 19) claims: "Data analysis is a body of methods that help to describe facts, detect patterns, develop explanations, and test hypotheses. It is used in all of the sciences." This means that the Data analysis process is not limited to a single method but rather has multiple approaches, including different techniques under a variety of names, of which the most known and highlighted approaches are the qualitative and the quantitative ones which the researcher adopted in her study in order to draw coherent conclusions because much educational research combines qualitative and quantitative methods in various ways and to altering degrees. In addition, it is generally assumed that any investigator may use a: "combination of qualitative and quantitative constructs which are often regarded as a matter of continuum rather than a clear-cut dichotomy" (Newman and Benz, 1998 quoted in Djebbari 2009, p.95).

5.1.2 The Qualitative Approach

The researcher used this approach in analyzing the ESP teachers and the dean's interviews, in addition to the data collected during the classroom observation process because in this type of analysis, data are collected and interpreted during the course of qualitative research and then expressed and described by means of verbal statements.

5.1.3 The Quantitative Approach

The researcher relied on this approach in analyzing the ESP students' questionnaire because this type of analysis is appropriate for presenting and interpreting numerical data which are measured or identified on a numerical scale and results can be demonstrated using tables, charts, histograms and graphs.

5.2 ESP Student's Questionnaire

In this investigation, a questionnaire (see appendix "A") was chosen for obtaining some required data from the postgraduate students of engineering which are regarded by the researcher as the most important participants in the investigation. Therefore, this part will deal with the methodology and analysis of ESP students' questionnaire.

5.2.1 Methodology of the Questionnaire

The questionnaire was submitted to forty-five (45) postgraduate engineering students during the academic year (2017-2018). They are from different departments of specialization. The questionnaire was essentially based on a needs analysis. It was used to investigate the research questions and hypotheses and to gather useful data about the students' needs and lacks and the results will help the researcher define course content and specify its objectives and goals. It focused mainly on checking the students' views and attitudes towards ESP teaching and analyzes their needs in this field.

The questionnaire consisted of eighteen(18) questions of different types: closed,mixed, and open (See Appendix “A”)

Questions 1 to 5: deal with general background information regarding the students’ age, gender, and specialization, together with number of years of studying English at the university, their English levels before and after being at the university. Question five seeks to self- evaluate their English proficiency in the four skills. The last question helps to know the learners motivation for learning an ESP course.

Questions 6 to 10: are designed to identify their needs in learning English. They were also asked to classify the four skills in terms of their importance in their field of study. The two last questions were set to categorize their language deficiencies and difficulties and the reasons behind them, for this reason, the researcher asked them to select from a list of options including grammar, vocabulary, communications, pronunciation, reading comprehension, etc.

Question 11: Aims at knowing whether students use the ICT’s or not.

Questions 12 and 13: Are devoted to the present ESP course, students are questioned about the usefulness and the degree of satisfaction of the present course and time allocation.

Question 14: is concerned with the students’ attendance to the current ESP course

Question 15: is about students’ interest in introducing an official Technical course appropriate to their field of study.

Question 16: Intends to know students’ opinion on the nature of the suggested ESP course.

Question 17: Is concerned with students’ suggestions about the needed time allocation for the technical English course.

Questions 18 is devoted to the different suggestions to improve the English language course, and aimed at identifying students' learning preferences by recommending for different learning styles, instruments and activities.

5.2.2 Analysis of the students' questionnaire

The obtained data were extremely significant and helped the researcher to gain information about the target situation and determine students' difficulties and needs in English.

The questionnaire was submitted to forty (45) students and all of them answered and returned it back at the end of the session.

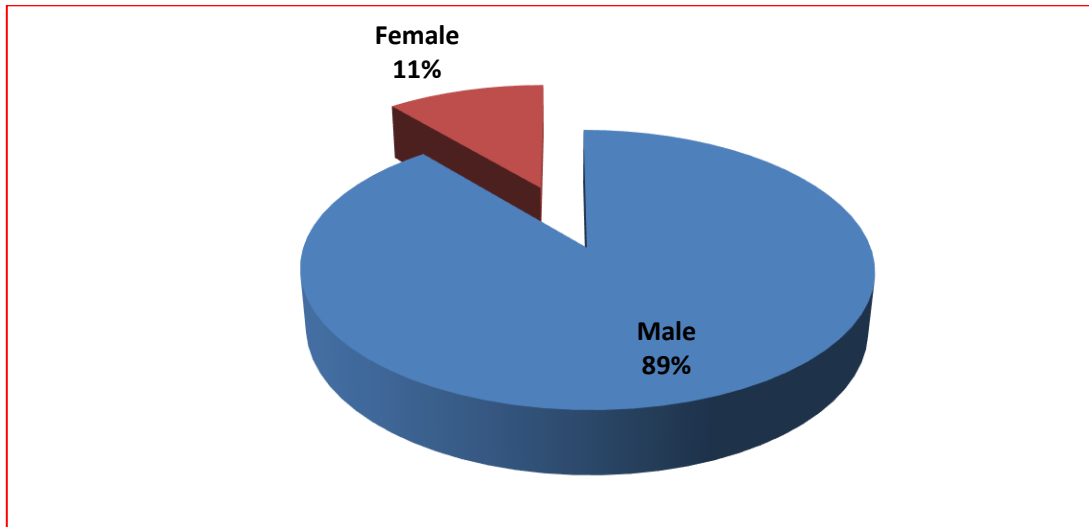
Question 1: is about Students 'Gender

Table 5.1: Students' gender

Gender	Number	Percentage
Male	40	89%
Female	5	11%

The above table gives a clear demonstration about the majority of the proportion represented by male postgraduate students about 89 % compared with female postgraduate students 11 %.

Figure 5.1: student’s gender



As it is shown in the above table and figure the majority of the postgraduate students are male (89%), whereas the female students represent 11% only.

Question2: is about Students’ age and specialization

Table 5.2: Student’s Age and Specialization

Number of Respondents	Age Group	Specialization
08	25-32	Electronics
07	26-30	Electro-techniques
05	27-36	Mechanics
07	28-32	Electro-mechanics
08	25-34	Computer science
03	28-30	Processing Engineering
07	25-29	Metallurgy and Material Engineering

The analysis of these two previous questions is presented in table 5.1 and table 5.2. As shown in Table 5.1, 89% of the postgraduate students of engineering were male and 11% were female aged between 25 and 36 as it is shown in table 5.2. Their specific fields of study are “Electronics, Electro-techniques, Mechanics, Electro-mechanics, Computer science, Processing Engineering, Metallurgy and Material Engineering”,

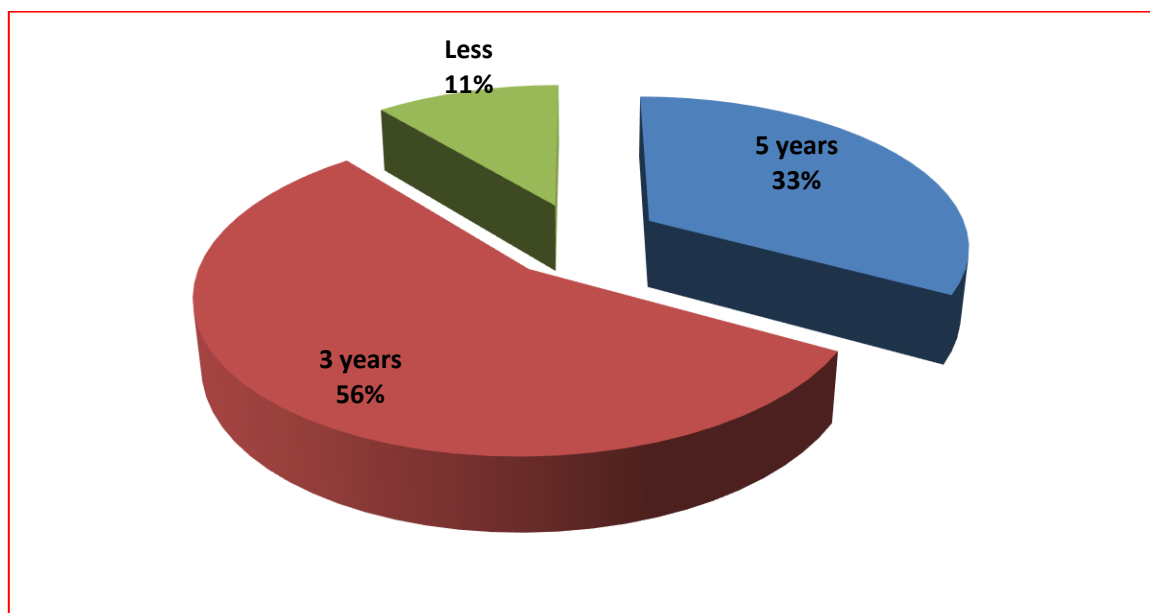
Question3: What is your previous experience in learning English at the university?

Table 5.3: Postgraduates’ learning experience in English

Years	Number	Percentage
5 years	15	33%
3 years	25	56%
Less	5	11%

Question number three shows that 56 % of the students have been studying English for only three years and 33 of them have been experiencing English for five years, the last portion 11 % concerns those who would be studying it for less than three years.

Figure 5.2: Postgraduates’ learning experience in English



This question revealed that most of the informants (56%) studied English for only three (03) years, while for the (33%) of them, their English instruction lasted for five (05) years. For the rest (11%) they studied English for less than three (03) years.

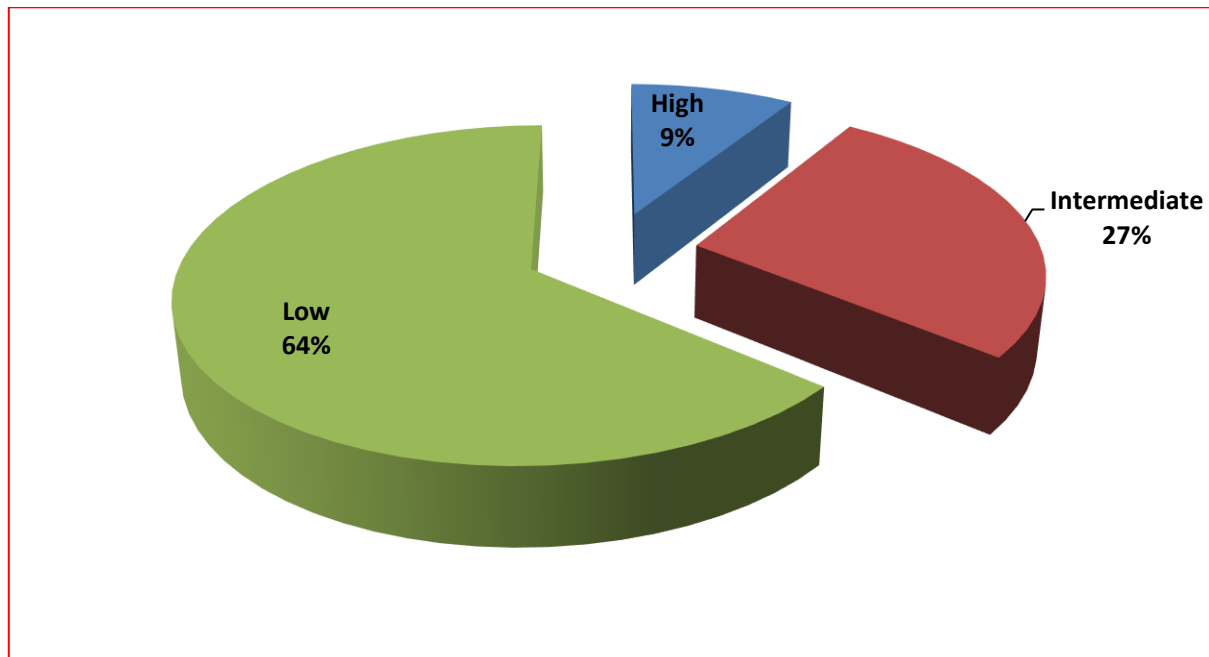
Question 4: Evaluate your level in English language before the doctoral studies

Table 5.4: Level of postgraduates in English before the doctoral studies

Level of English	High		Intermediate		Low	
Number/Percentage	N: 4	9%	N:12	27%	N: 29	64%

According to the table above, (09%) of the students have a high level of English, which represents the minority of the participants before the doctoral studies in the university. While 27% of the students have intermediate level and the majority represented by 64% of students having low level of English. It is noticeable that the high-level students have paid money to learn English in private schools to enhance their level. These results are related to the lack of students' motivation due to inadequacy of English courses in the faculty of Engineering as well as the lack of ESP language teachers and the period of the language instruction.

Figure 5.3: Level of postgraduates in English before the doctoral studies



As shown above, the majority of the participants had a low level in English before the doctoral studies in the university with 64%. However, the results show that the number of the students with intermediate English level is considerable with 27%. Regarding the students who have a high level of English (09%), they paid money to learn English in private establishments to enhance their level. These results are related to the lack of students' motivation due to inadequacy of English courses in the faculty of Engineering as well as the lack of ESP language teachers and the period of the language instruction.

Question 5: What is your self-evaluation in the four skills?

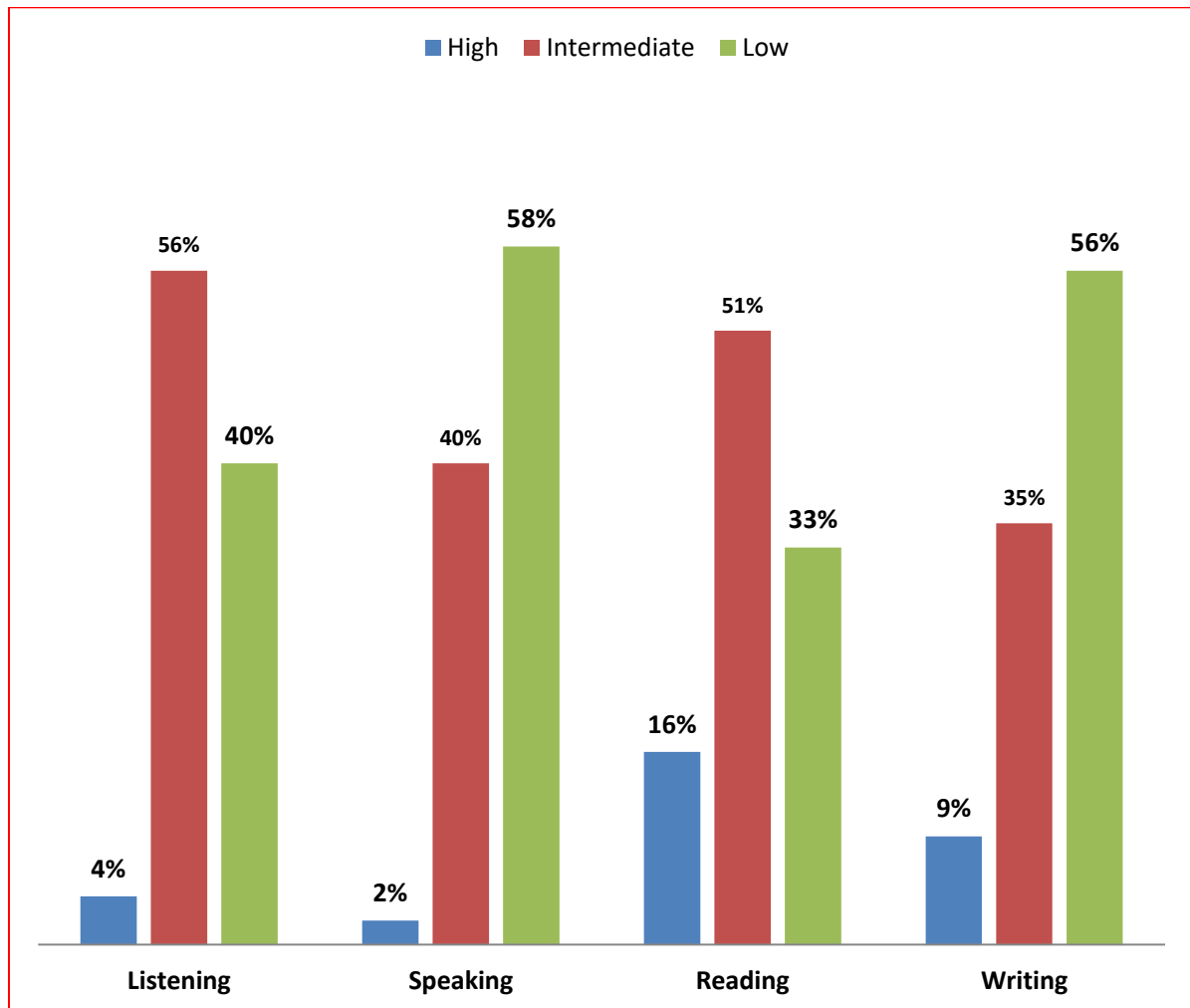
Table 5.5: Students' level in the four skills of English language

Language skills	High		Intermediate		Low	
	N	%	N	%	N	%
Listening	N: 2	4%	N: 25	56%	N: 18	40%
Speaking	N: 1	2%	N:18	40%	N: 26	58%
Reading	N:7	16%	N: 23	51%	N: 15	33%

Writing	N: 4	9%	N: 16	35%	N: 25	56%
Total number of students for each skill is 45						

The table 5.5 and graph 5.4 shows that the participants of “High”, “intermediate”, and “Low” levels have evaluated their own level of English-language proficiency in Listening, Speaking, Reading and Writing skills. As expected, many students saw themselves to be most proficient in listening and reading skills with the highest percentages of response frequencies (56%), (51%) respectively to the levels of English language proficiency were “intermediate”. As a conclusion, the postgraduates are dealing with the receptive skills only in their EFL learning situations. On the other hand, as English is not their first language and is generally taught as a foreign language in secondary and tertiary levels. The majority of the students reported that their level in speaking and writing skills is low with the highest percentages of response frequencies (58%), (56%) respectively and this was due to a significant lack of time and practice amid the lessons.

Figure 5.4: Students' level in the four skills of English language



As it is shown above in graph 5.4, the participants evaluated their own level of English-language proficiency in Listening, Speaking, Reading and Writing in terms of “High”, “intermediate”, and “Low”. As predicted, many students perceived themselves to be most proficient in listening and reading skills with the highest percentages of response frequencies (56%), (51%) respectively to the levels of English language proficiency were “intermediate”. As a result, the postgraduates are dealing with the receptive skills only in their EFL learning situations. On the other hand, as English is not their first language and is generally taught as a foreign language in secondary and tertiary levels. The majority of the students reported that their level in speaking and writing skills is low with the highest percentages of response

frequencies (58%), (56%) respectively and this was because of the lack of time and practice during the lectures.

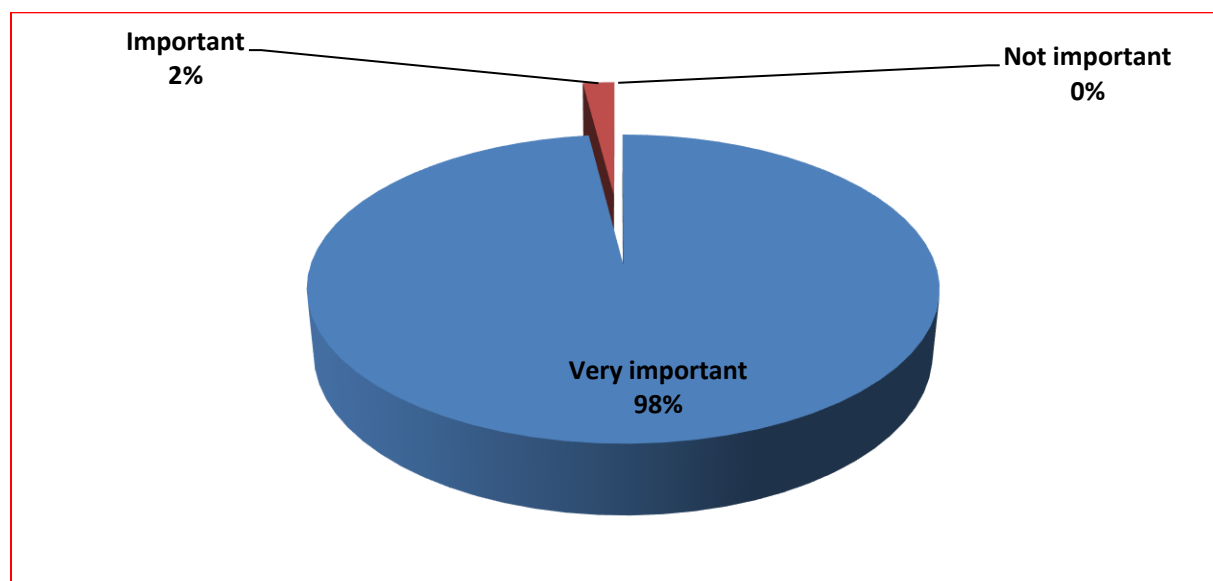
Question 6: To what extent are you interested in learning an ESP course?

Table 5.6: Students' interest in learning ESP

Options	Number	Percentage
Very interested	44	98%
Interested	1	2%
Not interested	0	0

Concerning the motivation that urged postgraduate students to learn an ESP course in the field of engineering studies, we find that the extreme majority about 98% claimed that the importance of the mastery of English is for one reason which is the ability to deal with scientific publication as English is a key factor. The unique student who represents 2% claimed that he is “interested” and the reason behind was that English makes people understand articles when reading them and speak to foreigners having the same field of study.

Figure 5.5: Students’ interest in learning ESP



Regarding the students’ motivation in learning an ESP course in the engineering postgraduate studies, almost all the students (98%) declared that the mastery of English is very important for them and justified their answers by saying that all scientific publications are in English. Only one informant (2%) qualified his interest in learning ESP as only ‘interested’ and added that it helps more to understand articles and speak with foreigners specialized in the same field of study.

Question 7: List your English language specific needs

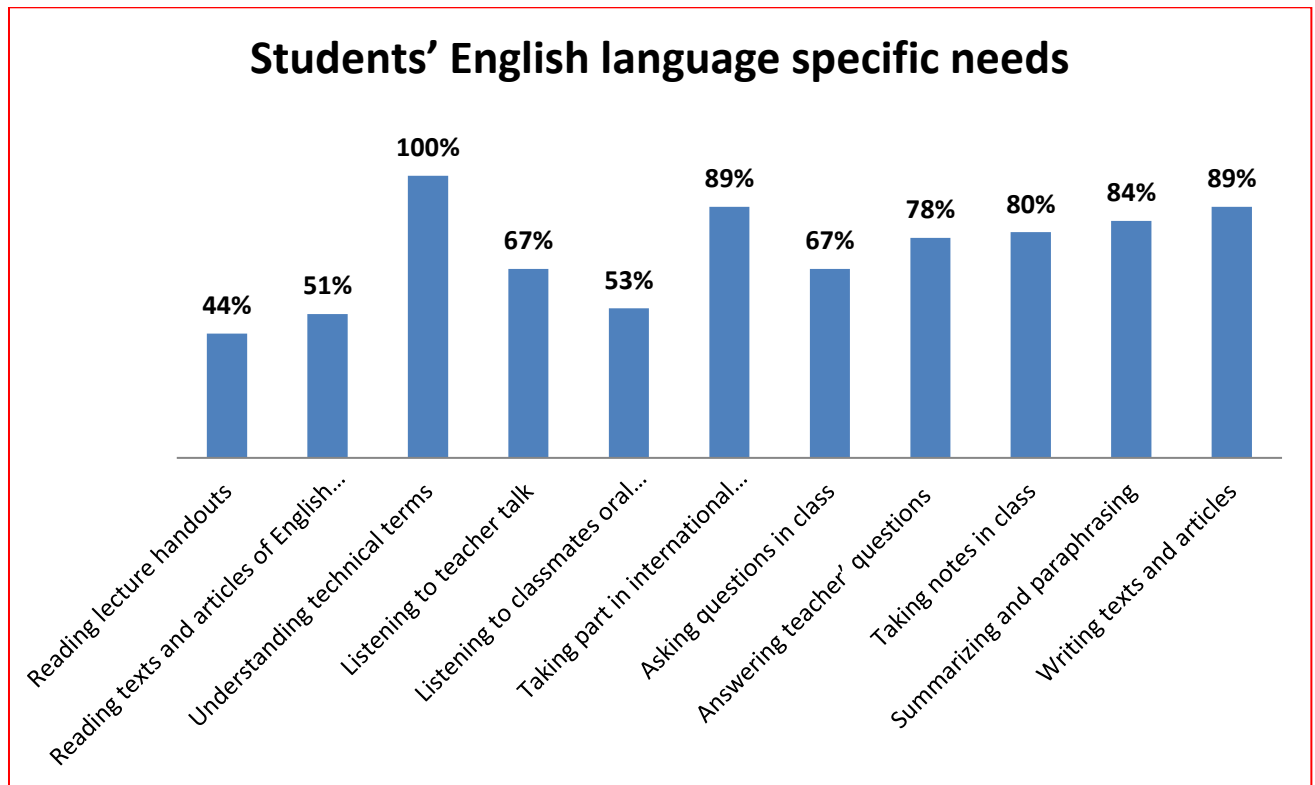
Table 5.7: Students ‘ English language specific skills needs

Objectives	Number	Percentage
Reading lecture handouts	20	44%
Reading texts and articles of English for science and technology	23	51%
Understanding technical terms	45	100%
Listening to teacher talk	30	67%
Listening to classmates oral presentation	24	53%

Taking part in international conferences	40	89%
Asking questions in class	30	67%
Answering teacher' questions	35	78%
Taking notes in class	36	80%
Summarizing and paraphrasing	38	84%
Writing texts and articles	40	89%

The Table 5.7 shows that the need of understanding technical terms (100%) is considered as the top need of all students. Partaking in conferences and writing texts and articles (89%) these two English language skills needs seem to be perceived as most important needs among this list. in addition, summarizing and paraphrasing (84%) and taking notes (80%) are highly perceived by the students. Also, the two listening skills including listening to teacher talk (67%) and listening to classmates' presentations (53%) are important needs to students. The two reading skills including reading texts and articles of English for science and technology (51%) and reading lecture handouts (44%) are also significantly considered by students. Also, two of Speaking Skills are additionally identified among the notable needs among this list of skill needs: answering teacher's questions (78%), and raising questions during the class (67%).

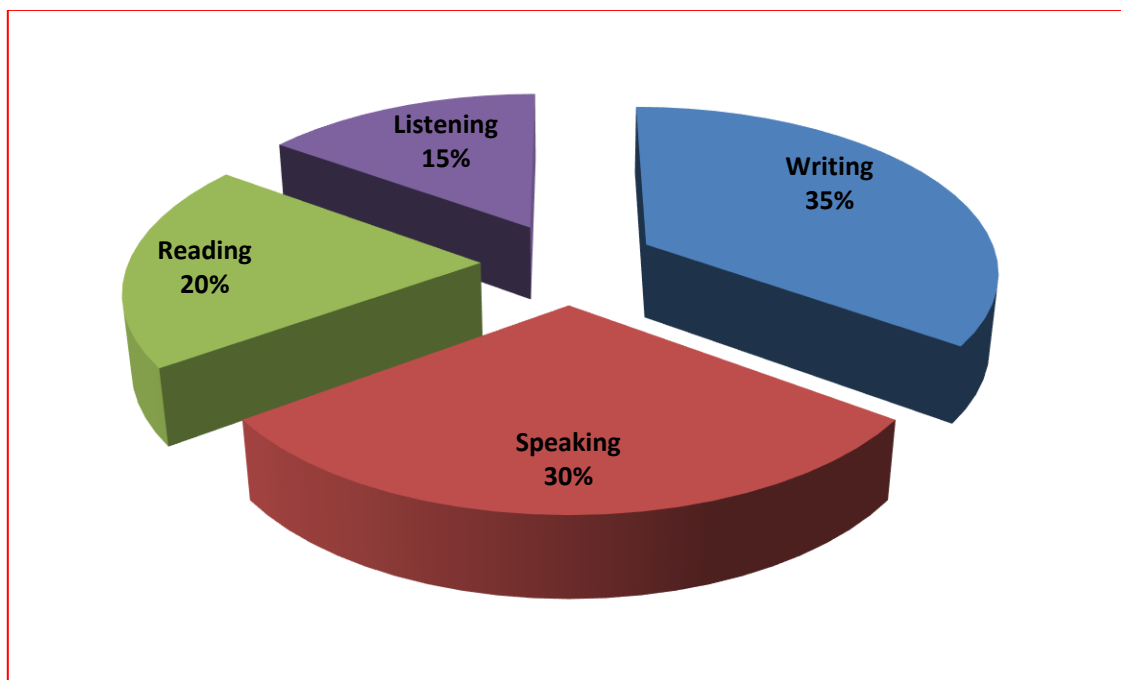
Figure 5.6: Students ‘ English language specific skillsneeds



As shown in figure 5.6, understanding technical terms (100%) is perceived as the top need of all the students. Taking part in conferences and Writing texts and articles (89%) both seem to be perceived as most important needs among this list of English language skill needs. In addition, summarizing and paraphrasing (84%) and taking notes (80%) are highly perceived by the students. Also, the two listening skills including listening to teacher talk (67%) and listening to classmates presentations (53%) are important needs to students. The two Reading Skills including Reading texts and articles of English for science and technology (51%) and Reading lecture handouts (44%) are also importantly perceived by students. Also, two of Speaking Skills are additionally identified among the notable needs among this list of skill needs: Answering teacher’s questions (78%), and asking questions in class (67%).

Question 8: Classify the four skills according to your priorities and specific needs.

Figure 5.7: Student’s classification of the four skills according to their priorities and specific needs



As shown in figure 5.7, the students rated the writing and speaking as their prior skills to be enhanced for their academic studies with 35% and 30% respectively, but for reading and listening, the rate is low; 20% and 15% respectively.

Question 9: Select the most encountered difficulties in the English language.

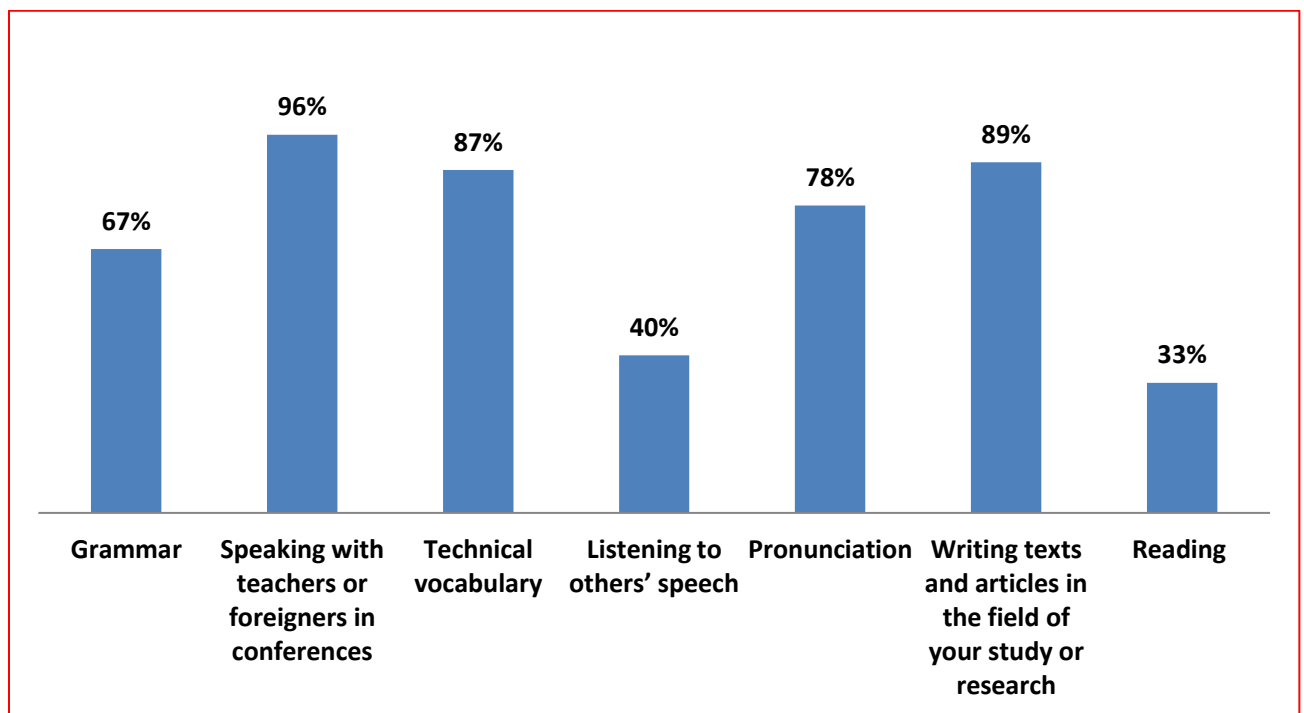
Table 5.8: Students difficulties in the English language

Options	Number	Percentage
Grammar	30	67%
Speaking with teachers or foreigners in conferences	43	96%
Technical vocabulary	39	87%
Listening to others’ speech	18	40%
Pronunciation	35	78%

Writing texts and articles in the field of your study or research	40	89%
Reading	15	33%

The above results which have been analyzed in question five (05) could be confirmed accordingly, that is when most students showed a negative belief towards their English competence in terms of speaking and writing skills. The majority of the students with 96% and 89% respectively, stated that they had learning difficulties in terms of oral communication, especially when they communicate with others in English and in writing their academic articles as well; the major lacks are pronunciation and grammar as seen by students with 78% and 67% respectively. 87% of the students described that they have a lack regarding technical English vocabulary in terms of quality and quantity, however, they considered listening and reading as the skills they master most with 40% and 33% respectively.

Figure 5.8: Students difficulties in the English language



From the results shown above, we can admit the confirmation of the analyzed responses in question five (05), when most students held a negative attitude towards their English competence in Speaking and writing. The great majority of the informants with 96% and 89% respectively, reported that they had learning difficulties in communicating orally with others in English and in writing their academic articles as well; pronunciation and grammar are also considered by students as major lacks with 78% and 67% respectively. 87% of the students admitted that they did not have satisfactory and enough technical English vocabulary, however, they considered listening and reading as the skills they master most with 40% and 33% respectively.

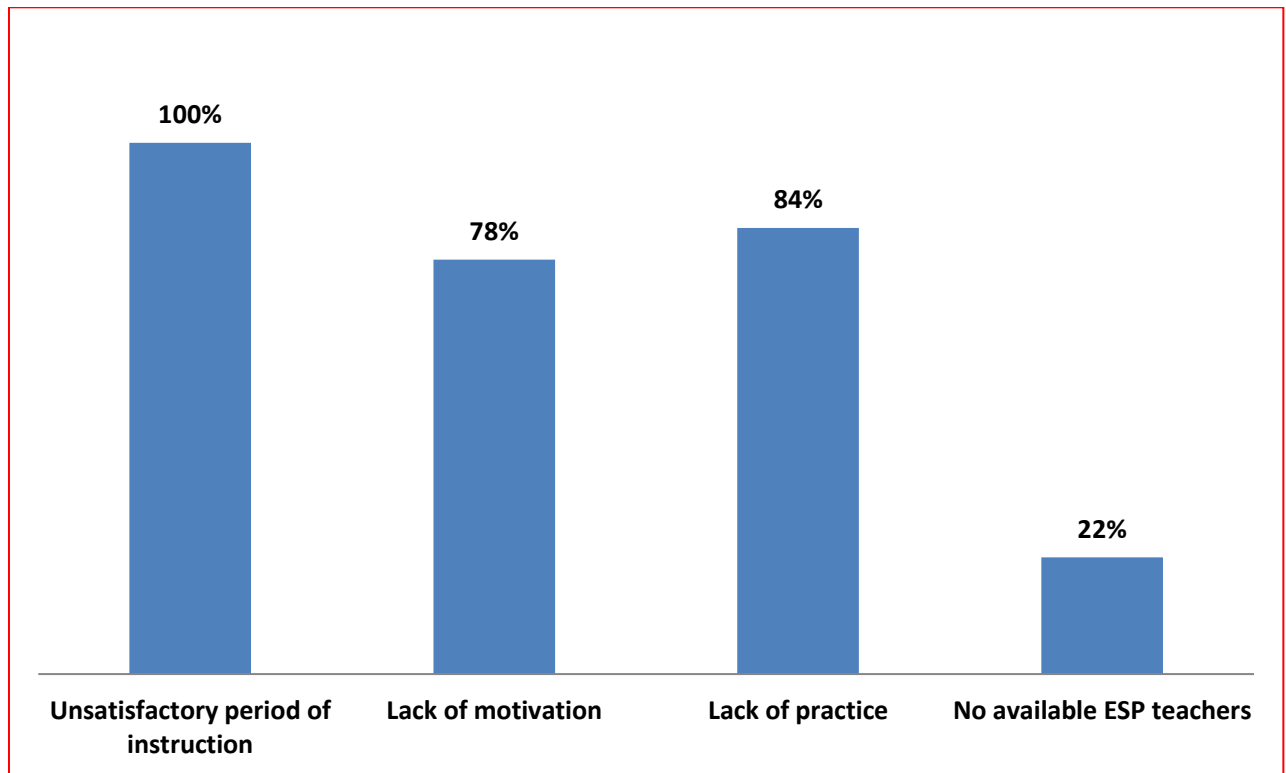
Question 10: What are the reasons behind your weaknesses in English language?

Table 5.9: Reasons for students' deficiencies in English language

Reasons	Number	Percentage
Unsatisfactory period of instruction	45	100%
Lack of motivation	35	78%
Lack of practice	38	84%
No available ESP teachers	10	22%

The students' weaknesses in English language are interpreted by several reasons, the main reason was the insufficient period of instruction which was claimed by all students, noticing that 84% of them assume that the reason behind is a lack of practice, while 78% of them consider that a lack motivation is a convincing reason, the rest of 22% think that the non-availability of ESP teachers is the main cause.

Figure 5.9: Reasons for students' deficiencies in English language



Regarding the reasons for students' weaknesses in English language, the total number of students reported that the insufficient period of instruction is the main reason, while 84% of them related the reason to the lack of practice, and 78% of them reported that the lack of motivation is another reason. The non availability of ESP teachers came last as declared by 22% of the participants.

Question11: Is ICT important for learning ESP

For all the students (100 %) the use the information and communication technologies is very important for learning English either in their studies or for their research works. It is worth helpful that the students' use of the ICT's is closely linked to the internet where they read and download lectures written English, articles, tests, and evaluations.

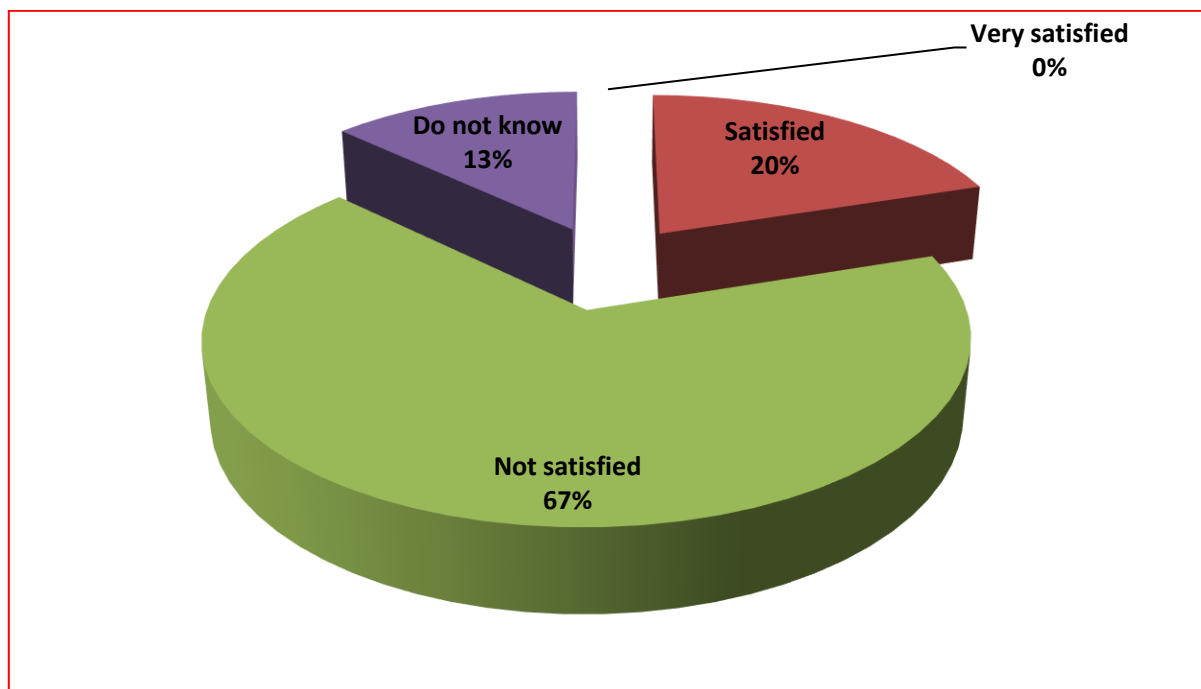
Question 12: Classify your degree of satisfaction for the present ESP course

Table 5.10: Degree of satisfaction to the present ESP course

Degree of satisfaction	Number	Percentage
Very satisfied	0	0%
Satisfied	9	20%
Not satisfied	30	67%
Do not know	6	13%

The table 5.10 shows that the majority of students approximately (67%) stated that the content of the present English course is not adequate since it contains technical terminology, translation and grammar. While 20% of them still think that the course meets their needs and relevant to their study. The rest which is estimated by (13%) still have no idea whether the content is pertinent to their specific needs.

Figure 5.10: Degree of satisfaction to the present ESP course



As shown above, the majority of the students (67%) reported that the present course of English is not satisfactory in terms of content as it is related to technical terminology, translation and grammar. Whereas, for the other 20% of the informants, they saw that the course is relevant and related to their specific study needs. And for the rest of the informants (13%), they have no idea about the content and the objectives of the course.

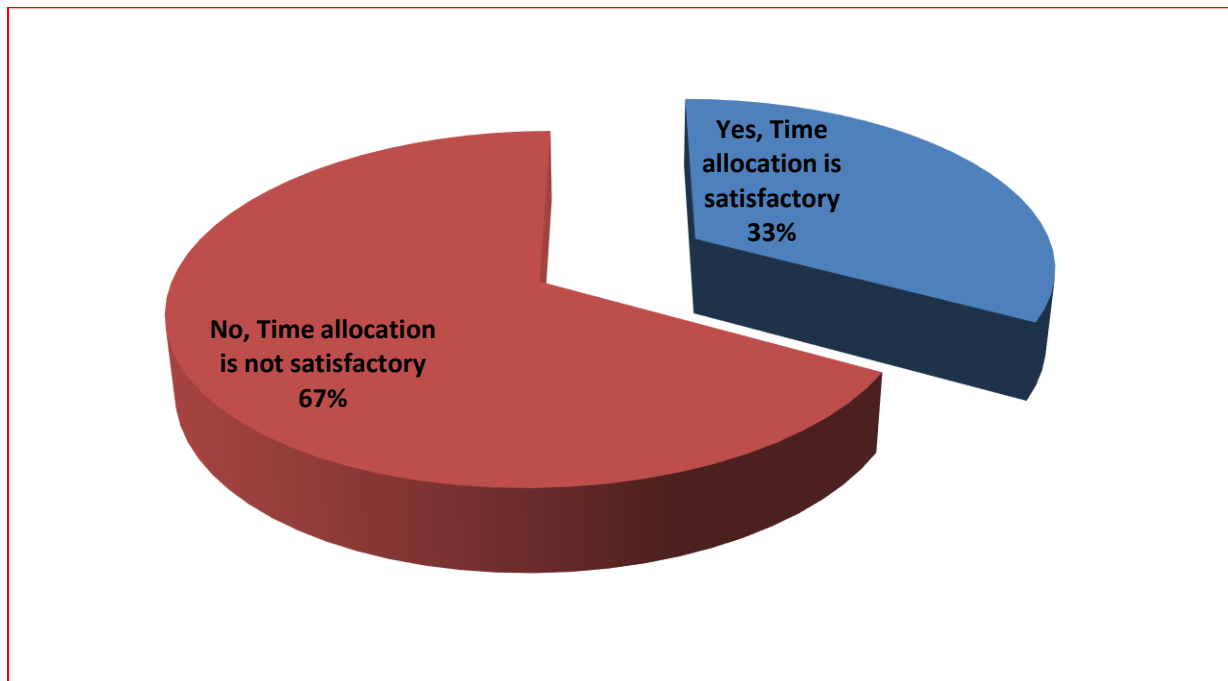
Question 13: Is ESP course time allocation satisfactory or not?

Table 5.11: Time allocation of the present ESP course

Options	Number	Percentage
Yes, Time allocation is satisfactory	15	33%
No, Time allocation is not satisfactory	30	67%

According to table 5.11 which demonstrates ESP course time allocation satisfaction, (67%) of the students were unsatisfied with the time assigned to ESP course, since they have only two sessions per week which seems to be insufficient for a good practice of the language instead they proposed to have six sessions per week. The rest of (33%) still think that the allotted time is quite enough.

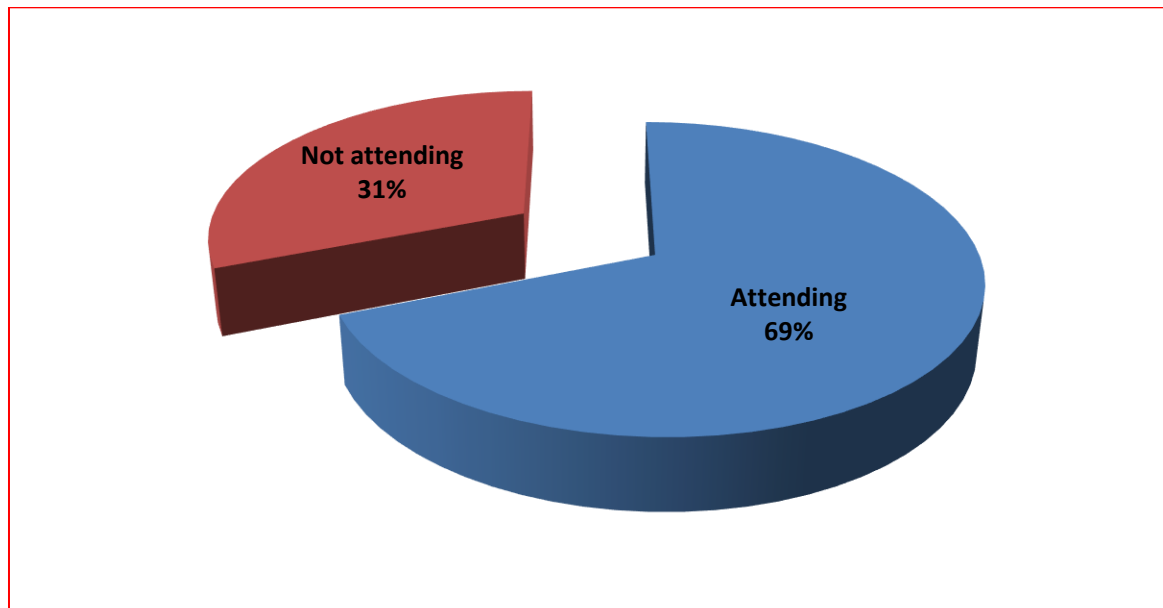
Figure 5.11:Time allocation of the present ESP course



The results show that the majority of the students (67%) were not satisfied with the time allotted to the ESP course, since two sessions per week are not enough for the good practice of the language, so they proposed six sessions per week instead. But for the rest (33%), the time span is satisfactory.

Question 14: Do you regularly attend to ESP sessions?

Figure 5.12: classroom attendance



The above figure demonstrates that the majority of the students (69%) reported that they regularly attend the English session despite the constraints. The rest of them (31%) declared not attending regularly the ESP course stating that by the end of the day (on Wednesday), they became tired or they could be kept in workshops.

Question 15: Are you interested in introducing an official ESP course? Why?

All the informants (100 %) answered positively to the questions and showed a great interest in introducing an ESP course in the official curriculum .They added that English is universal and it is the language of science and technology; others said that it will help them read and understand articles and texts relevant to their field of study or work in the future.

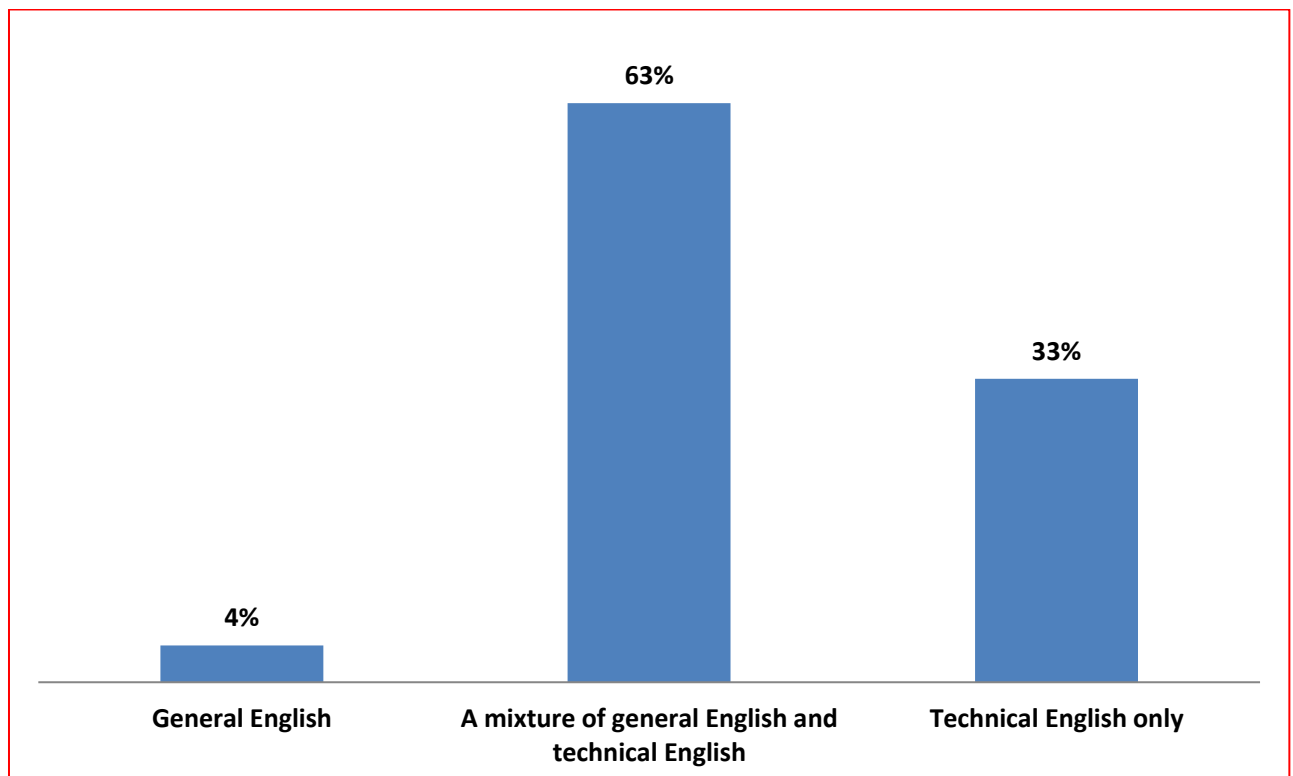
Question 16: What are your suggestions about the nature of the proposed ESP course?

Table 5.12: The nature of the suggested ESP course

Options	Number	Percentage
General English	2	4%
A mixture of general English and technical English	28	63%
Technical English only	15	33%

To answer the above question the majority of students about (63%) claimed that the content they need should not be single-based rather than double- based one, so this content should be based on both general and technical English to be meeting their specific needs. While the portion representing 33% of them focused on learning technical English as seen the most important part. The rest of (2%) could not ignore the importance of general English .

Figure 5.13: Student’s suggestions about the nature of the proposed ESP course



Regarding the nature of the suggested ESP course, the majority of the students (63%) declared that the needed content of the ESP course should be a mixture of general English and technical English in order to fulfil their academic needs. For the other 33% of them, they emphasized on learning technical English only. For the rest (2%), they thought that general English is preferable.

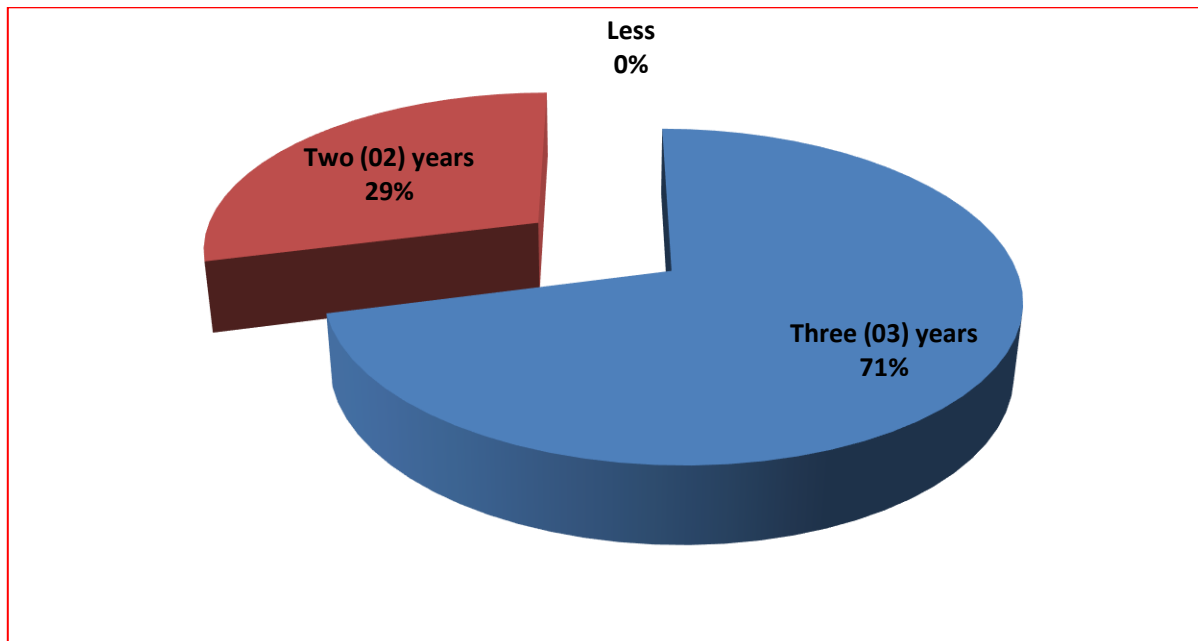
Question 17: How long do you need to study Technical English?

Table 5.13: Duration of the ESP course

Options	Number	Percentage
Three (03) years	32	71%
Two (02) years	13	29%
Less	0	0%

A significant majority of the students estimated by 71% shows their wish to be receiving English instruction for a period of three (03) years that covers Master studies till post-graduation, whereas(29%) of them think that the period of two years is satisfactory to acquire an adequate English knowledge.

Figure 5.14: Duration of the ESP course



The data revealed that 71% of the students wanted to receive English instruction for a period of three (03) years starting from the first year in Master studies till post graduation, while the rest of them (29%) claimed that two (02) years are adequate to acquire a satisfactory English knowledge.

Question 18: What do you suggest to improve your ESP learning?

All the students appreciated this part from the questionnaire which gave them the opportunity to put across their suggestions to enrich the Technical English course in particular and improve ESP learning at the Faculty of Engineering at Annaba University in general. Few of the students declared that they only need to learn more technical terms to improve speaking skills and grammar to improve writing skills. But the majority reported many other suggestions related to teaching/learning strategies and styles, they were summarized in the following points:

- The use of audio-visual aids in teaching and learning

- More written exercises
- Varied teaching/learning activities (learning through games, role plays,...etc)
- New learning styles and strategies
- Integration of phonetics activities to enhance pronunciation
- Increasing the time allocation for English instruction.

5.2.3 Summary of the students' questionnaire results

The purpose behind using the students' questionnaire in this study was to explore and investigate their needs in terms of language skills, their attitudes and perceptions towards English language and the ESP course. Furthermore, it was used to elicit their lacks and deficiencies in this field, and the reasons behind such lacks and difficulties. The results revealed that postgraduate students of Engineering showed a great interest towards learning ESP because they all know about its significance and importance for their academic career, that's why 100 % of them appreciate the implementation of an official English for specific purposes course arguing that English has become the language of science and technology, and the present taught courses of English are not satisfactory. From the data of needs analysis, it was clear that the students give a particular importance to improving first the writing and speaking skills, then the reading and listening ones. The majority of them assumed that they have issues in English language because of unsatisfactory content of the courses, the insufficient period of instruction and lack of practice. The difficulties they face start by the writing skill and the speaking skill as well, and then come reading and listening. The informants state that they are motivated to learn English and express their need for English instruction; 71% of them suggest 03 years of instruction and six sessions per week.

5.3 ESP Teachers' Interview

The interview was the second research tool used in this study to collect data about ESP teaching/learning process at the faculty of Engineering in Badji Mokhtar Annaba University. Thus, this part concerns the methodology and analysis of ESP teachers' interview.

5.3.1 Methodology and Analysis of the Interview

The researcher attempts, through this interview, to find out the positive and negative points in ESP teaching process. It aims at exposing teachers' used methodologies, strategies and techniques to conduct their lectures, teaching materials, and choice of course content. In addition to this, this interview is used to identify students' needs and lacks in the language, and get teachers' points of view about the effective ESP course and its components. The number of the concerned ESP teachers is two (02), they are the only two instructors of English at the faculty of Engineering. This interview, which consists of twenty one (21) questions (See appendix B), is analyzed as follows:

Questions 1 to 3: Are informative questions seeking to know teachers' personal information, their qualifications and experience in English teaching.

Analysis:

Both teachers hold a "Magister" degree in which one of them is specialized in Civilization and the other one in Linguistics. Both of them have not a considerable experience in teaching ESP, but the teacher who is specialized in Civilization has three (03) years of experience in teaching English at the faculty of Engineering, and the other one was newly employed. They also added that they didn't receive any previous training at the level of the faculty in order to teach ESP.

Question 4: Deals with the number of departments they are in charge of.

Analysis:

Both teachers are in charge of teaching 45 postgraduate students from seven (07) departments ie. Seven (07) specialties, they are the following: Electronics, Electro-techniques, Electro mechanics, Mechanics, Computer science, Metallurgy and Material engineering, Processing engineering.

Question 5: finds out the affect of class size on ESP teaching**Analysis:**

Both teachers are not comfortable with the number of the students. They teach all the postgraduates in one big amphi. Teachers see that a size of 22 to 23 students in one classroom would be helpful to conduct the lectures effectively and control their students

Question 6: Asks the teachers about the time allocation for English teaching and their satisfaction or dissatisfaction.**Analysis:**

Each teacher has only one lecture per week (one hour and a half), one lecture is devoted to teach grammar and Basic English, and the other one is an ESP session.

Question 7: Intends to know students' level in the language.**Analysis:**

Teachers declared that students' proficiency level is low; they are still beginners in spite that they are postgraduate students.

Question 8: is concerned with students' motivation and demotivation during the ESP session and the reasons behind.

Analysis:

According to teachers' responses, postgraduates' performance during English lectures is satisfying; because students show a great interest and intrinsic motivation in learning the language. Teachers mentioned that such motivation is due to students' want and need to enhance their level in English and their total awareness of its significance in their academic studies.

Question 9: Intend to know whether there is any conventional syllabus or teaching materials provided by the faculty.

Analysis:

Teachers reported that no syllabi or textbooks are provided from the faculty of Engineering and that they rely on internet or other sources to prepare the lessons.

Question 10: Asks teachers about their methodology and course content.

Analysis:

One of the teachers declared that she devotes her session to teach students only grammar since the students' level in English is low, so her session is considered as a warming up to her colleague's one. The other teacher reported that he deals with specific English and the teaching of technical vocabulary.

Question 11: Aims at knowing the time spent to cover a whole unit

Analysis:

The two teachers claimed that there is no precise unit, but they prepare their day-to-day lectures and courses depending on useful guidelines which help them conduct their teaching.

Question 12: is concerned with the designed tasks and activities for each lesson.

Analysis:

Both teachers reported that since the students' proficiency level is low in English, the type of tasks and activities focused on acquiring technical English vocabulary and the practice of grammar.

Question 13: Relevance of the course content to the subject matter.

Analysis:

Relevance of the content of the course to the subject matter is another problem faced by teachers; they both confessed that they cannot decide by themselves how to adapt the text in terms of subject matter because they are not specialized in the field, so, they emphasized on the importance of collaborating with the subject specialist to select the appropriate courses.

Question 14: Relevance of the course content to students' needs

Analysis:

Both teachers said that their course content is relevant to their students' needs and it is satisfactory, justifying their answers by adding that the majority of the students attend their sessions and participate. Also, there is an agreement among the two teachers that the course content is designed according to the students' level. It mainly emphasizes on reading comprehension, grammar and translation rather than speaking and writing.

Question 15: Asks how teachers assessed students' needs.

Analysis:

The answers of the teachers to this question were the same, they declared that they don't believe in needs analysis and they have never done it, because, according to them, students' level is low in English and they are not aware of their needs. Therefore, the teacher is the one who is more aware of their academic needs and can decide about the content of the course.

Question 16: Importance of the four skills

Analysis:

There was an agreement among teachers regarding the importance of skills, they claimed that all skills are important but regarding the student's level, they should , first, enhance their writing and speaking skills then emphasize on teaching listening and reading. They added that they couldn't teach listening because of the lack of materials and the absence of laboratories.

Question 17: Faced problems while teaching Technical English.

Analysis:

The teachers reported that understanding the technical terminology is the first problem they face in teaching ESP, since there is no collaboration between them and the teachers of the subject matter, so they feel limited and handicapped. In addition to this, the lack of materials is another problem pointed out by teachers since the only materials carried out in English lectures were handouts and articles in the field of study and even libraries are not equipped with specific English references that would help in designing technical English courses.

Question 19: The use of translation

Analysis:

The teacher who is devoted to teach grammar declared that she doesn't use another language in her sessions because students should understand the English grammar and practice the

language appropriately. The other teacher claimed that he uses French in explaining technical vocabulary because French is the language of instruction in the faculty of Engineering and, according to him, the use of translation helps to save time while teaching, so he prefers to give equivalents in French or, sometimes, in Arabic rather than to work out other techniques to explain technical terminology.

Question 20: the use of ICTs in teaching ESP

Analysis:

Both teachers insisted on the importance of using ICTs in teaching ESP, but unfortunately the administration did not provide technological materials to facilitate learning and motivate the students. One of the teachers uses his personal computer but the other one relies only on handouts and writing on the board.

Question 21: invites the ESP teachers to give suggestions on the technical English course for Engineering in post-graduation.

Analysis:

This last question was devoted to give further suggestions to improve the ESP teaching/learning process in the faculty of engineering. Since teachers were not satisfied by the time allocated to English instruction, they suggested two sessions, at least, for each teacher in order to achieve all course objectives and meet the students' learning needs because, according to them, the aims of the ESP course cannot be attained without more sessions of teaching in addition to this, teachers emphasized on the provision of audio-visual materials and syllabi or guidelines from subject matter professionals.

5.3.2 Summary of the teachers' interview findings

The findings of the ESP teachers' interview were really enriched by their interesting points of view and suggestions and despite their few experience in the field, they were trying to do their best to organize their lectures and plan their lessons properly. Moreover, they faced many problems in their ESP teaching, especially, the understanding of the technical terms and the way of teaching vocabulary, also the lack of materials, the non-provision of syllabi, and the absence of collaboration with the other subject matter teachers were other obstacles that inhibited their teaching.

As known, the needs analysis is in the heart of any ESP course, but the two ESP teachers did not rely on it as an important phase, they rather emphasize on grammar teaching and the acquisition of technical vocabulary and consider the designed activities and tasks as the appropriate ones for learning English and provide students with the necessary knowledge they need.

The ESP teachers, when talking about the importance of skills, reported that all skills are equally important but due to the level of students, the writing skill should be developed first, followed by speaking, then the teaching of reading and listening.

On the subject of the teachers' suggestions, they mainly focused on the time span, so they proposed two (02) sessions, at least, for one teacher which means six (06) hours per week for ESP teaching in general. They, also, insisted on the provision of technology materials and conventional syllabi.

5.4 The dean's interview

In this part, we are concerned with the methodology and the analysis of the interview administered to the dean of the faculty of engineering at Badji Mokhtar Annaba University.

The purpose of this interview was to check the administration point of view regarding the situation of ESP teaching in the faculty, the importance of English for the engineering postgraduates, and the introduction of a technical English course in the faculty.

The dean's interview consists of six (06) questions (see appendix C), and they are as follows:

Questions 1& 2: seeks to know about the dean's profile

Question 3: inquires about the existence of previous ESP courses

Question 4: Finds out the reasons behind the lack in ESP instruction

Question 5: asks about the collaboration between ESP teachers and those of subject matter

Question 6: is concerned with the informant's suggestions to improve ESP teaching in the faculty of engineering.

5.4.1 Interview Analysis

The interview revealed that the dean is a professor in electro-mechanics and has and an experience of five (05) years as an administrator and twenty five (20) years as a teacher. Regarding the dean's answer about the existence of former ESP courses, he declared that they didn't exist previously because there were no available teachers. And the teacher, who was teaching three (03) years at the same university, was in charge of other departments.

The dean of the faculty summarized the reasons behind the lack of ESP courses to the lack of teachers, who should be recruited and so paid, and the administration cannot, financially, support new salaries or charges. Also, the existing teachers are usually associated and have no experience in teaching specific English, so, they face problems in understanding the technical English and in organizing for proper lectures. Besides, the lack of materials like syllabi and

textbooks presented other obstacles for the language teacher and the non-collaboration with the teachers of the subject matter as well.

Concerning the collaboration between teachers of English and subject matter ones, the dean mentioned that it is very beneficial for ESP teaching/learning at the faculty, and he should inform all the teachers to organize for meetings and cooperate with each other for the good performance of the ESP courses.

The dean, at the end, suggested to the researcher, after accomplishing the research project, to collaborate with the existing ESP teachers if possible and to be in charge of ESP teaching at the faculty of engineering in post-graduation level and for the newly associated teachers, they can be in charge of graduates in the same faculty.

5.5 Classroom Observation Results

Classroom observation of teachers is an essential tool for education policy and research. By observing teachers in the classroom, it is likely to measure the impact of teaching programmes and other contributions on teachers and, in turn, on students' learning. Classroom observation can help education managers benchmark the performance of schools and school systems in important areas such as teachers' use of instructional time and educational materials, student engagement, and use of best-practice teaching techniques. It can provide observers with formative feedback for individual teachers. Classroom observation is an important element of a comprehensive assessment of the performance of individual teachers. However, in order to generate useful data, classroom observations must utilize standardized methods.

The chosen observation grid to be used in this observation process in this study is the **EMETT Observation Grid** (See appendix D) in order to obtain direct and truthful insights in the teaching and learning practices.

Having obtained permission from both teachers to attend their sessions with forty five students and observe the ESP teaching and learning process, the researcher took on the role of a non-participant observer during the six (06) sessions of observation starting from November 2017 till January 2018. Necessary information were collected prior to the observation process like the lesson's teaching objectives for instance. The collected information are presented according to the following aspects:

A/Didactics of ESP and pedagogy

The researcher noticed throughout the six (06) sessions that the teaching of ESP was not based on units but it was done through lectures of grammar-based and acquiring vocabulary via translation into French. All the observed lessons of the first teacher were on grammar, grammar rules and grammar tasks. Regarding the course conduct, the teacher started the session by writing the grammar rules and the examples on the board then distributed the handouts to students to do exercises retrieved from Internet websites. The practiced activities were grammatical, varied and equivalent to the content of what has been presented. Besides, there was no use for visual aids or technology items in teaching. The teacher explained the lessons in English without the interference of another language and this, according to her, is for the well understanding and the good practice of the English grammar. As for the second teacher, he focused on the acquisition of technical vocabulary via presenting, at random, words and expressions which are web-retrieved and then translated them into French and sometimes into Arabic, without relying on reading texts or listening to related contexts. As for the classroom management, it was based on individualisation, ie. Students were not grouped to work in collaboration or even in pairs, so each student did his task individually and for the shy students, they didn't participate.

The used syllabus was not based on the communicative approach; it was rather structural in which ESP learning is based only on grammar practice and vocabulary acquisition. Furthermore, the teaching approach was teacher-centred because the students' needs, wants and educational interests were not taken into consideration as it was reported by both teachers in question sixteen (16) p: ... in teachers' interview, and this indicated that the teacher was the only knowledge provider and not a facilitator or a guide.

B/Interaction

As we mentioned previously, the adopted approach in teaching ESP for the postgraduate students of engineering was teacher-centred, so, there was no total interaction between the teachers and their students except when the teacher dealt with the correction of exercises, some students raised their hands to participate in giving the correct answer, then the teacher wrote it on the board without inviting the student who gave the correct answer to write it by himself. In the other session with the second teacher, students interact between them in French to look for the correct meaning of the technical word. Regarding the students time talk and teachers time talk ratio, it was very clear that teachers minimized their students talk by not giving them the opportunity to discuss or share their points of view, and since the researcher was not equipped by the appropriate tool to measure time talk for all the participants, data of time measurement were not collected. But, it was really indicated that developing the speaking skill for the postgraduate students was totally neglected since the teacher was the only resourceful authority.

C/Students' learning progress

In the sessions of classroom observation, the researcher perceived that students had many linguistic and pronunciation problems because when dealing with the correction of exercises they couldn't structure a coherent sentence and pronounced the majority of words wrongly,

also, the interference of French was clearly noticed because the English language was not adequately practiced in the classroom; we heard some students saying to their teachers “ We can understand you, but we cannot answer in English”.

The researcher can summarize the main faced difficulties in English language as follows:

- The incorrect use of the simple past, the past participant like in: “I haven’t understand” instead of I haven’t understood, “Composite materials are maked up of two or more materials” instead of Composite materials are made up of two or more materials. “Computers gived more flexibility to the process” instead of computers gave more flexibility to the process.
- The mispronunciation of many technical words like the word “ machine”, the majority of the students pronounce it /mæʃi:n/ instead of /məʃi:n/. The word “industrial” is pronounced by them as in French ie, /industriel/ instead of / ind^striəl/
- The misuse of prepositions, also, was noticed by the researcher while listening to some students answering teachers’ questions; they said” each machine is different than another” instead of each machine is different from another. “The reason of the energy loss” instead of the reason for the energy loss.

By the end of the observation process, despite the structural mistakes and the misuse of tenses, the researcher noticed that the students were somehow interacting with each other in a relaxed atmosphere of learning; they understood all what is explained to them, did their tasks and participated to answer the questions.

5.5.1 Summary of the Observation results

During the observation process, the researcher noticed the following points:

- Despite all the language difficulties and issues that the postgraduate students of engineering face, they showed a great interest to learn an ESP course because they are aware of its academic importance in developing their language skills and competences in their field of study; they were motivated and had a positive attitude towards English.
- Both teachers did not conduct a needs analysis before deciding about their ESP course design
- The course was optional and not based on communicative objectives.
- The English language is taught as a system, in which the courses are grammar-based with the acquisition of technical vocabulary via translation.
- There were not much interaction between the teachers and their students, and this minimized students 'talk time.
- The adopted approach is not learner-centered, it is teacher-centered
- There was no use for the ICT; Teachers, generally, rely on handouts and teaching documents except one of the teachers, sometimes, uses his personal computer to present the course.

5.6 Main research results' Discussion and Interpretation

Throughout students' questionnaire, the researcher could examine Engineering postgraduate students' required language needs in the target situation; The researcher was able, by using this research tool, to check the participants' points of view regarding the importance of English in their studies and future carriers, on one hand, and the execution of a technical English course in the engineering studies, on the other hand.

- The researcher tried, also, to identify students' lacks and deficiencies in the language and obtain the reasons for such difficulties.

- The conducted interviews with the dean, and ESP teachers enabled the researcher to come across with the situation of ESP teaching in the faculty of engineering, teachers' methodologies and approaches in ESP course conduct, design and content.
- As for the classroom observation, the investigator wanted to use this research instrument to obtain direct information about the true practice of ESP teaching, evaluate students' attitudes and learning progress, and observe the teacher-Learner interaction.
- The results revealed that Engineering postgraduates have low level in the English language and face many problems and difficulties in acquiring the necessary knowledge, because the majority of them didn't have enough previous studies in English.
- The postgraduates are interested in learning English, they stated that English has become the language of science and technology, so they showed a positive attitude towards the language, and emphasized on adopting new strategies and establishment of a conventional ESP syllabus in the faculty of Engineering for better and successful achievements in English and in the whole learning process.
- The questionnaire results revealed that all the students agree that the four language skills are important and deserve to be developed all together; however, they see that the first skill which has the priority to focus on is writing followed by the speaking skill, after that comes reading and last listening.
- The students claimed their main encountered difficulties in English are in writing and speaking which is due to the unsatisfactory period of instruction and lack of practice. For this reason, the majority of them wish to have at least three years of English

instruction with six hours, which makes four sessions (1h.30 for one session), per week.

- The results of teachers' interview and classroom observation demonstrated that the ESP course is managed by inexperienced teachers who lack training in teaching ESP, collaboration with subject matter teachers and administrative supervision.
- Teachers claimed that needs analysis is not required, and since no syllabus is provided course content is optional and selected according to the teachers' perspectives. And the teaching materials are presented in the form of documents and resources retrieved from Internet.
- The presented ESP Course is focused on practicing grammar and acquiring technical vocabulary. Therefore, the students showed their dissatisfaction towards course content.
- All the students need to develop their English language competences in order to contribute in high-level engineering publications, and participate in international conferences.
- The dean has a positive attitude towards the implementation of a technical English course which will certainly be beneficial and help students to achieve their learning goals. This course would focus on teaching and developing the four skills mainly the productive skills and technical vocabulary.
- ESP teaching should be based on the communicative approach to give opportunity to students to speak more and share the pedagogical leadership with the teacher. Consequently, their interaction in the classroom will motivate them and enhance their learning also.
- The use of the educational technology is essential to maintain a high level of students' attention.

Conclusion

The researcher in the fifth chapter tried to discuss and interpret the obtained results from the students' questionnaires, ESP teachers' and the dean's interviews, and classroom observation. We achieved remarkable findings in terms of students' needs, wants, interests, and goals as well as teachers' perceptions, opinions, and suggestions. Through the use of interviews and classroom observation, the researcher was able to investigate and assess the real situation of ESP teaching in the faculty of Engineering in Badji Mokhtar Annaba university, the conditions of the teaching/learning process, and students' learning progress. It has been concluded that the postgraduates, the ESP teachers, and the dean who represents the administration are aware of the great importance of English for students' academic career and want to enhance ESP teaching in the faculty. Identifying and analyzing students' needs represent a phase which plays a paramount role in designing the ESP course and selecting the appropriate materials for teaching. In addition to this, the investigator identified through research findings, the ESP teaching/ learning obstacles and barriers in the faculty of engineering, and suggested a technical English course which will, hopefully, be beneficial to postgraduates and will realize the achievement of the required objectives.



Chapter Six

Suggested Technical English

Course

Introduction

The purpose behind analyzing the obtained data from the needs analysis chapter was to use and develop a set of objectives and goals and an outline for the suggested technical English course, as well as to decide on methodology, teaching materials, and assessment instruments. They were all put together to recommend an ESP course for postgraduate engineering students in the Faculty of engineering at Badji Mokhtar university in Annaba. In this chapter, we will discuss in detail the development and the organization of the lessons, the aims of the course, either short-term and long-terms ones, and the objectives which were well set at the beginning of the course for the four skills. Lastly, we will deal with the organization of the course itself.

6.1 Course Design

All ESP teachers should analyse the specific needs of their particular learner groups before designing the ESP course, in order to determine the ‘what-to teach’ and ‘how-to teach’ of the course. In this research, the conducted needs analysis takes into consideration the following different features and aspects in order to design a course that meets the needs of the postgraduate students in the faculty of engineering at the University of Annaba: Learners’ personal information, learners’ English language background, learners’ English language needs, learners’ lacks, information about the use of English language skills in the target situation and learners’ expectations from the designed ESP course.

Language issues should also be taken into consideration when designing an ESP course, like grammatical, vocabulary and semantic issues. They all represent fundamental parts of an ESP course. In addition to this, the aims and objectives of the course should be determined in the teaching/learning process in order to motivate learners and be realistic and appropriate to the goals (Nunan, 1988).

6.1.1 Course rationale

Postgraduate students of the faculty of Engineering face problems in using and understanding Technical English and in conducting their academic studies in English effectively.

6.1.2 Course objectives:

At the end of the course, postgraduate students of engineering will be able to:

- **Read** technical texts and write area- specific texts effortlessly.
- **Listen** and comprehend lectures and talks in their field of study successfully.
- **Speak** appropriately and effectively in varied formal and informal contexts.
- **Write** reports, summaries and scientific research articles.
- **Translate** into and out of English.
- Recognize the meaning and spelling of a huge number of technical English terms related to their specialization.

6.1.3 Course organization

The course will take place over one academic year during eight (08) months starting from the month of October till May. The duration of this period represents twenty eight (28) weeks. Regarding lectures, they should be four (04) sessions per week for each group(128 lectures in one year for each group). The target population is first year postgraduate students of engineering. They are split into groups of thirty (30) students and not grouped altogether in one Amphi theatre like it was the case in the faculty.

6.1.4 Materials used in the course

- Intensive and variant tasks related to their field of study
- Web articles on Technical engineering
- Cambridge English for Engineering- Series editor: Jeremy Day

- Oxford English for Careers. Engineering : Students' Book by Lewis Lansford and Peter Astley (2013)
- Dictionaries
- Visual aids: Slideshow

6.1.5 Testing and Assessment

- Quizzes, assignments and homework (formative assessment)
- A written test at the end of each unit
- Oral presentations (work projects)
- Final semester exam (S1+S2)

6.1.6 Course content

Unit content	Vocabulary	Languge points and Tasks	Skills to be developed
Unit 1: Introductory unit	-Tools -The content of a tool box -Computer devices -Measuring -Common units	-Present and past tenses -Active vs.passive -Subject/Object questions -Reported Speech	-Writing -Translation
Unit2 : Material Technology	-Types of Materials -Material properties -Metal processes	-Text comprehension -Description of materials (Orally) -Exchanging information about	-Reading -Listening -Translation

		<p>qualities of materials</p> <p>-A summary of the main types of materials</p> <p>-Grammar (present tense)</p>	<p>-Speaking</p> <p>-Writing</p>
Unit 3: Monitoring and control	<p>-Automated systems</p> <p>-Measurable parameters</p> <p>-Fluctuations</p> <p>-Approximating number</p>	<p>-Text Comprehension</p> <p>-Describing automated systems</p> <p>-Past tenses (simple past+ present perfect)</p>	<p>-Reading</p> <p>-Listening</p> <p>-Speaking</p>
Unit 4: Technical drawing	<p>-Technical drawing</p> <p>Tools</p>	<p>-Text Comprehension (manual drawing and computerized drawing)</p> <p>-Exercises on the production of different work pieces</p> <p>-Grammar (Adjectives vs.Adverbs)</p>	<p>-Reading</p> <p>-Writing</p> <p>-Translation</p>
Unit 5: Machinery	-Machine Tools	-Text comprehension	Reading

	-CNC (Computerized Numerical Control) machines	(features of machine tools) -Completing a table on main features of metal processes. -Grammar (active vs. passive)	-Writing
Unit 6: Computer Technology	-Computer Components -Hardware and software -Types of computers -Internet connections	-Text comprehension (types of computers) -Describing the features of your own computer -A summary of the different types of Internet connections -Grammar (present tense)	-Reading -Speaking -Writing
Unit 7: Automation and Robotics	Automation technologies Robot applications	- Advantages and disadvantages of automation; applications of automation technologies; -Describing automation technologies -Discussing the impact	-Reading -Writing -Speaking

		of automation on your life	
Unit 8: Theory and practice	<p>-Explaining view and perceptions.</p> <p>-Exchanging ideas on predictions and theories</p> <p>-Explaining tests and experiments (orally and in written)</p> <p>-Comparing results with hypotheses</p> <p>-Discussing causes and effects</p>	<p>-Words and phrases of stating assumptions and describing experiments.</p> <p>-Agreeing and disagreeing</p> <p>-Words to compare hypotheses and results</p> <p>-Words to link between causes and effects</p>	<p>-Listening</p> <p>- Reading</p> <p>-Speaking</p> <p>-Writing</p>

6.2 Sample Unit “Material technology”

6.2.1 Sample lesson in Grammar:

(Active and passive voice)

Aims:

- 5 To enable students to describe processing functions and report about technical performances
- 6 To develop students’ writing skill

Presentation: explanation of the rules through useful examples.

Practice: the context of tasks should be related to materials, their functions or production process.

Task: write the passive voice of the following sentences:

1. Most mechanical devices need oil as a lubricant
2. Excavators are removing rocks from the ground
3. The industry of chemistry develops processes to produce plastics, fibres, medicines, etc.
4. Natural gas has preheated air to high temperatures.

6.2.2 Sample lesson in Vocabulary

Technical Vocabulary

Aims of the lesson:

- Acquisition of vocabulary related to engineering
- To unveil the ambiguity /complexity of a technical jargon
- To develop the students' writing skill when they are asked to write down the definition of each term.
- To develop the students' speaking skill when they are asked to define the term orally.

Procedure:

- Presenting each definition in a lucid single sentence.
- Mentioning the classification of the term, its functionality and usage in a single sentence.

Example:

Jargon/term	Classification	Usage/ functionality
A generator	A device	Used to provide electricity
An induction motor	A prime mover	Supplies mechanical energy to run on single or three phase AC supply
A lathe	A machine	For shaping articles of wood or metal

Sentences:

1. A generator is a device which is used to provide electricity.
2. An induction motor is a prime mover which supplies mechanical energy to run on single or three phase AC supply.
3. A lathe is a machine which is used for shaping articles of wood or metal.

Practice

1. Match each term with its classification and functionality then write the definitions in single sentences:

Technical Jargon	Classification	Usage
A microscope	A car	used to loosen or tighten nuts
A spanner	A device	runs by battery
A Battery car	A tool	used to magnify tiny objects invisible to the human eyes

Definitions:

2. Match each word with its definition

Term	Definition
Steel	a type of plastic used for insulation
Ferrous materials	an alloy formed by mixing copper and zinc
PVC	an alloy formed by mixing copper and zinc
Ceramic	a metal not suitable as structural material
Brass	metals containing iron

Iron	a good insulator but brittle
Alloy	a combination of different metals

3. Select the appropriate term to refer to its correct definition

Word	Definition
1. Information technologies	a set of tasks performed to complete a procedure
2. Service jobs	the state of not having a job
3. Manufacturing	the time between the design of a product and its production
4. Goods	things that are made to be sold
5. Unemployment	the industry in which machinery is used to produce goods
6. Morale	jobs in transports, communications, hospitals, energy industry, etc.
7. Skilled	the amount of confidence that a group of people have
8. Handling	the state of not having a job
9. Work flow	the process of packing and distributing goods
10. Lead times	the industry in which machinery is used to produce goods

Homework in vocabulary

- Complete the following definitions using the words given below (types of drawing)

Elevation, note, schematic, cross-section, exploded view, specification, plan

- 1- An..... gives a view of all the panels, from the front.
- 2- A.....gives a cutaway view of the joint between two panels.
- 3- A..... gives a view of the whole deck, from above.
- 4- Agives a simplified representation of a network of air ducts.
- 5- Agives a brief description or a reference to another related drawing.
- 6- Agives detailed written technical descriptions of the panels.
- 7- An.....gives a deconstructed view of how the panels are fixed together.

6.2.3 Sample lesson in reading comprehension

Aims

- To make students able to skim and scan a text.
- To understand technical terms.
- Improving the writing skill.
- Practicing translation in case of ambiguous words.
- Practicing the proper pronunciation when reading out loud.
- Improving students' understanding of the engineering documents.

Strategy

- Activating prior knowledge about the content of the text.
- Clarifying how to skim and scan a text.

- Questioning.

Tasks

1. Read the following text then answer the questions:

When a machine or a tool is made, the most suitable material must be chosen by considering its properties, which can be classified as mechanical, thermal, electrical and chemical. The main types of materials used in mechanical engineering are metals, polymer materials, ceramics and composite materials. The most commonly used materials are metals, which can be divided into ferrous and non-ferrous. They can be used in their pure form or mixed with other elements. In this second case we have an alloy and it is used to improve some properties of the metals. The most commonly used ferrous metals are iron and alloys which use iron. Because iron is soft and pasty it is not suitable to be used as a structural material, so a small amount of carbon is added to it to make steel alloy. Non-ferrous metals contain little or no iron. The most common non-ferrous metals used in mechanics are copper, zinc, tin and aluminum. Some common non-ferrous alloys are brass (formed by mixing copper and zinc), bronze (formed by mixing copper and tin) and other aluminum alloys which are used in the aircraft industry. Other examples of materials used in mechanical engineering are plastic and rubber. PVC or polyvinyl chloride is a type of plastic and is used to insulate wires and cables: Rubber is a polymer and its best property is elasticity, as it returns to its original size and shape after deformation. Ceramic materials are good insulators: hard, resistant and strong, but brittle. Composite materials are made up of two or more materials combined to improve their mechanical properties. Concrete is reinforced with steel and is used in building engineering

Flash on English for Mechanical and Technical Assistance (2012, p.4)

Questions:

- 1- What are the main types of materials used in mechanical engineering?

- 2- Which type is the most commonly used?
- 3- What is the difference between the ferrous metals and the non-ferrous ones?
- 4- How is Bronze made?
- 5- Why are Ceramic materials considered as good insulators?

2. Reading comprehension

Technical drawing, also known as drafting, is the act and discipline of composing plans. The main purpose of technical drawing is to describe or explain all the characteristics of a product, giving all the necessary information that will help a manufacturer to produce that component. The visual image should be accurate in terms of dimensions and proportions, and should provide an overall impression of what an object is or does. It is a precise task requiring a high level of skill and suitable engineering tools. A drafter is the person who makes a drawing and who requires a wide knowledge of geometry, trigonometry and spatial comprehension and in all cases must be precise and accurate and give great attention to detail. People who communicate with technical drawings use a visual language and technical standards that define practical symbols, perspectives and units of measurement. What are the tools and instruments used by a drafter in manual drafting?

A T-square, a protractor, a compass, rulers, and triangles. Paper is also important and can be divided into layout paper, which is thin and fragile, and cartridge paper, which is heavier and more suitable for final drawings. Pencils used in drawing are graded from H to F depending on the hardness. The final drawing is made using a technical pen, graded according to the point, which must maintain the same line width. They are used with a range of stencils to add symbols, letters and patterns to the drawing. Rubbers remove pencils or pen writing when mistakes are found. Correction fluid is used to mask text errors. English for mechanical and technical assistance (2012, p.8)

Test your skimming skills by answering the following questions

- 1- What is technical drawing used for?
- 2- What does this task (technical drawing) require?
- 3- What are the two types of paper used by the drafter?
- 4- Why are pencils graded from H to F?

a) Read the text again and decide if the following statements are true (T) or false (F), then correct the false ones.

- 1- Technical drawing is used for practising pens, rulers and stencils. ()
.....
- 2- The drafter is the person who makes drawings. ()
.....
- 3- Paper is chosen according to the used pencil. ()
.....
- 4- When the drafter makes a mistake, it cannot be corrected. ()
.....

6.2.4 Sample lesson in Listening

General goals:

- Develop students' academic listening skill in order to understand classroom lectures
- Listen and recognize the meaning
- Learn correct pronunciation

Specific aims:

- Identify tools and their functions via listening to a tape recording or to teacher reading

- Ticking the correct answer
- Practicing bottom-up processing then match elements with their appropriate descriptions

Procedure:

- The teacher does a pre-listening task to teach students the correct pronunciation of machines and tools names, and some other technical terms related to the context of the recording or the read text.
- A post-listening task is also suggested in order to check students' comprehension through ticking rapidly the correct answer.
- Repeating listening for more than one time in order to enable students to recognize the functions of each tool effortlessly.

Practice:

1. Listen carefully to the following recording then do the tasks

A machine tool uses a power source to modify the shape of metal components of machines. It is a sort of machine used as a tool in the making of other machines. Machine tools were powered in the middle Ages by humans and animals, and later by the energy captured by waterwheels. After the Industrial Revolution, most machine tools were powered by steam engine and nowadays by electricity. Machine tools can be operated manually, or under automatic control. In the 1960s, computers gave more flexibility to the process. Such machines became known as computerized numerical control (CNC) machines. They could precisely repeat sequences, and could produce much more complex pieces than even the most skilled tool operators. Let's examine the main features of some of the most commonly used machine tools.

Turning machine: The engine lathe is the most important of all the machine tools. It is used to produce external or internal cylindrical surfaces. The piece is held by the machine and is rotated while a cutting tool removes excess metal from the external diameter. Internal turning consists of enlarging and finishing a hole.

Shaper: This is a metal-cutting machine used to produce or modify flat surfaces. The cutting tool moves cutting on the forward stroke, with the piece feeding automatically towards the tool during each return stroke. Shapers can be horizontal or vertical.

Milling machine: this cuts flat metal surfaces. The piece is fed against a rotating cutting tool. Cutters of many shapes and sizes are available for a wide variety of milling operations. Milling machines may be manually operated, mechanically automated, or digitally automated via computer numerical control (CNC).

Grinding Machine: This removes excessive material from parts that are brought into contact with a rotating abrasive wheel. Grinding is the most accurate of all the basic machining processes, but also the most time consuming.

Band Saw: It is a power tool which uses a blade consisting of a continuous band of metal with teeth along one edge. The band usually rides on two wheels rotating in the same plane. Band saws are used for woodworking, metalworking, or for cutting a variety of other materials, and are particularly useful for cutting irregular or curved shapes. A constant flow of liquid is poured over the blade to keep it cool and preventing it from overheating.

1. Tick the correct answer

- What does the Grinding machine do?

cuts metal

modifies flat surfaces

removes excessive materials

- What is a band saw?

a disc

a power tool

a generator

- Shapers can be?

Vertical or horizontal

Vertical

Horizontal

2. Listen again then match each machine with its appropriate description.

Machine Name	Functions' description
Turning Machine	It cuts flat metal surfaces.
Milling machine	It cuts the piece
Grinding Machine	It cuts various parts using a continuous band of metal with teeth
Shaper	It removes excessive material from parts.
Band saw	It uses a twist drill to make holes.

3. Listen to the following text about CNC then put the sentences in the correct order. (the teacher reads the passage and the students take notes whilst listening)

Computer Numerical control (CNC) refers to the automation of machine tools in manufacturing processes. The machines are controlled by computer software which carries out a series of operations automatically. The first NC machines were built in the 1940s and 1950s. They are used to cut and shape products, such as automobile parts that need precise specifications. Parts must be carefully planned and prepared by CNC programmers. First they view the three-dimensional computer aided designed part. Then they calculate where to cut, the speed and shape and select the tools and materials. The CNC programmers translate the planned machine operations into a set of instructions. These instructions are translated into a

computer aided manufacturing (CAM) program containing a set of commands for the machine. The commands are a series of numbers which explains where to cut and the position of material. The computer checks all the operations made by the machine tools.

- a. The planned machine operations are translated into a set of instructions.
- b. These instructions are translated into a CAM program.
- c. The program contains a set of commands for the machine.
- d. It is calculated where to cut and tools and materials are selected.
- e. The computer checks all the operations made by the machine tools.
- f. Programmers view the part in its three-dimensional computer aided design.

Homework:

- **Listen the text then complete the following sentences (audio recording)**

The Internet is a worldwide information system consisting of countless networks and computers, which allow millions of people to share information and data. Thanks to the Internet it is now possible for people all over the world to communicate with one another in a fast and cheap way. The Internet was first invented in the 1960s in the USA by the Department of Defence as an internal project to link computers. The Department wanted an extremely safe way of sending messages in case of nuclear attack. It was a British physicist, Sir Timothy Berners-Lee, who used it to make information available to everyone and created the most important media of the 21st century. In 1980 while working at CERN in Geneva - the largest particle physics laboratory in the world - he first thought of using hypertext to share and update information among researchers. Then in 1989-90 he produced a plan to link hypertext to the Internet to create the World Wide Web. He designed and built the first site browser and editor, as well as the first web server called httpd (Hypertext Transfer Protocol Deamon). Hypertexts are the words or chains of words in a text we can click on to be linked



to new sites whose content is related to the words. But how does this global system work? It is a network of people and information linked together by telephone lines which are connected to computers. The applications are based on a client/server relationship, in which your computer is the client and a remote computer is the server. All you need to join this system is a computer, a normal telephone line, a modem and an account with an Internet Service Provider (ISP), a company that provides access to the Internet. A user buys a subscription to a service provider, which gives him/her an identifying username, a password and an email address. With a computer and a modem, the user can connect to the service provider's computer which gives access to many services, such as WWW (World Wide Web), emails and FTP (file transfer protocol).

Flash on English for Mechanical and Technical Assistance (2012, p. 32)

1 Because of the Internet, it is now possible for people all over the world to

2 The Internet was first invented in.....

3 Thanks to Sir Timothy Berners-Lee.....

4 He designed and built the.....

5 How does this global system work?.....

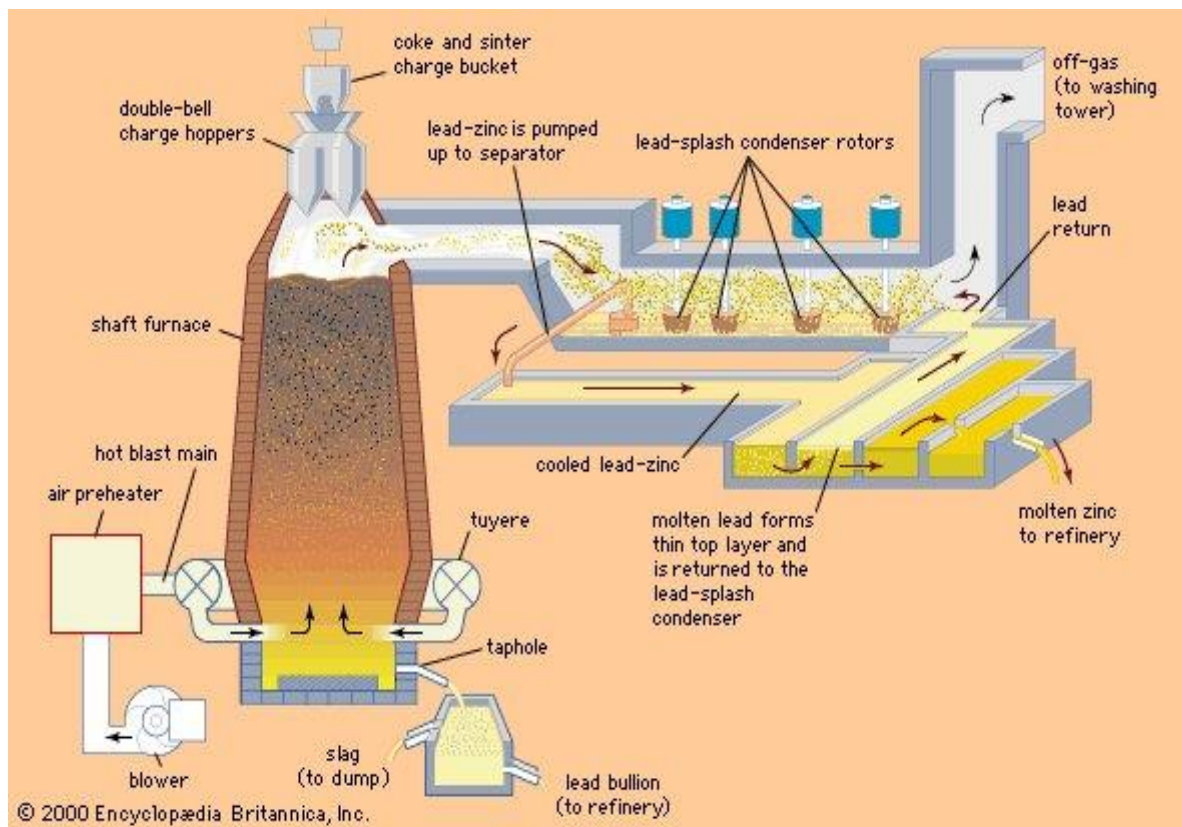
6 The ISP is.....

6.2.5 Sample lesson in writing

Aims:

- Using language to describe a production process or a sequence of events.
- Making time relations between actions using conjunctions.
- Writing a technical report.

- Summarizing processes.



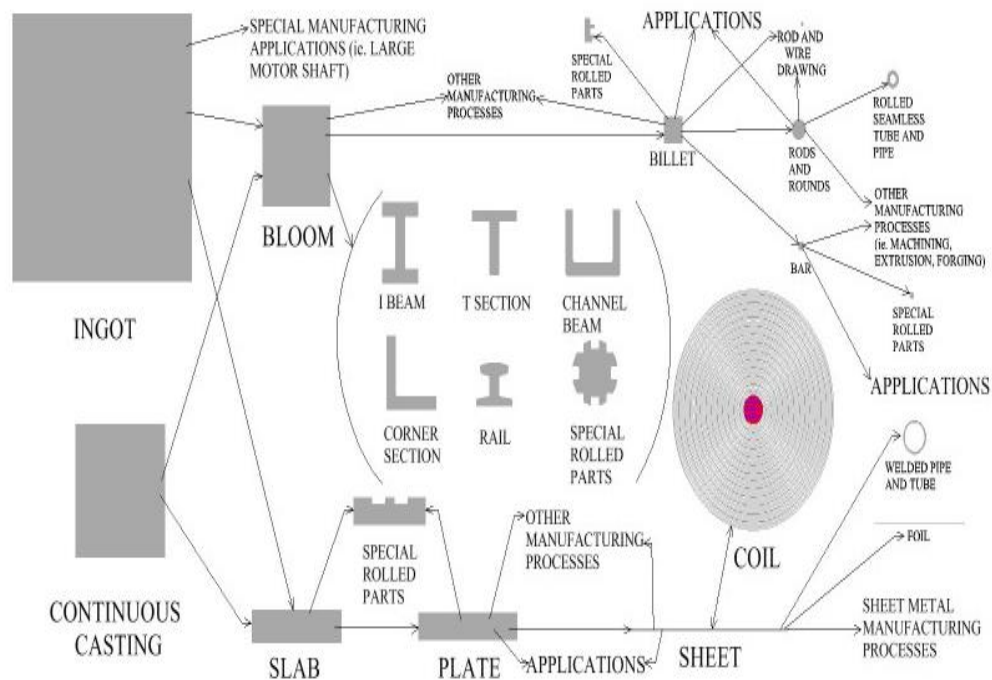
1. Write a description of the process by joining the appropriate half-sentences in the left column with those in the right:

<p>The furnace charge of iron-bearing materials, and flux descends through the shaft</p>	<p>is blown into the furnace through multiple nozzles located around the circumference of the furnace near the top of the hearth</p>
<p>Air that has been preheated to temperatures from 900° to 1,250° C (1,650° and 2,300° F), together with injected fuel,</p>	<p>while the stack is lined with high-quality fireclay brick to protect the furnace shell</p>
<p>The preheated air reacts vigorously with the preheated coke, resulting in both the formation of</p>	<p>sprays for circulating cool water are built into them.</p>

the reducing gas	
The hearth and bosh are thick-walled structures lined with carbon-type refractory blocks,	coke is ignited at the bottom and burned rapidly with the forced air from the tuyeres.
To keep these refractory materials from burning out,	that rises through the furnace, and a very high temperature of about 1,650° C (3,000° F) that produces the liquid iron and slag.
When the stack is kept full with alternating layers of coke, ore, and limestone admitted at the top during continuous operation,	where it is preheated and reacts with ascending reducing gases to produce liquid iron and slag that accumulate in the hearth

- 2. Look at the following picture then write a paragraph explaining The Metal forming process of rolling operations using conjunctions like as, as soon as, when, while and during:**

METAL FORMING PROCESS HIERARCHY OF ROLLING OPERATIONS IN MODERN MANUFACTURING INDUSTRY



Source: http://thelibraryofmanufacturing.com/metal_rolling.html

3. Summarize the following text about Mechanization and Automation

Mechanization refers to the process of providing human beings with machinery capable of assisting them with the muscular requirements of work. A further development of mechanization is represented by automation, which implies the use of control systems and information technologies to reduce the need for both physical and mental work to produce goods. Automation has had a great impact on industries over the last century, changing the world economy from industrial jobs to service jobs. In manufacturing, where the process began, automation has meant that the desired results can be obtained through a series of instructions made automatically by the system, which define the actions to be done. Automated manufacturing grants higher consistency and quality, while reducing lead times and handling. It also improves work flow and increases the morale of workers when a good

implementation of the automation is made. However, the purpose of automation cannot be seen only in terms of a reduction of cost and time; there are several more aspects to be taken into consideration. For example, while it is true that automation offers a higher precision in the manufacturing process, it is also true that it requires skilled workers who can make repairs and manage the machinery.

Flash on English for Mechanical and Technical Assistance (2012, p. 34)

6.2.6 Sample lesson in Speaking

“Oral Presentation”

Aims:

- To show class work.
- To present an early research.
- To get feedback.
- To allow students practice presenting.
- Enhance students’ speaking skill
- Increase students’ talk and participation by presenting and explaining some parts of the lesson.
- To enable students organize and present a technical and scientific research in classroom or in conferences.
- **Preparing for the oral presentation**
- The students should practice the speech at home or in front of their friends to gain confidence.

- The students have to appear confident even if they are nervous. Because body language is important in speaking, and the audience (teacher, students, or others) will be comfortable and show interest while listening.
- Enhancing students' grammar only won't develop their speaking skill.
- Read audio-books in which students' practice speaking, pronunciation while reading.

- **Choosing the presentation form**

In this stage, students are free to choose between posters or using Power Point slides (Data show) while presenting in the classroom or in a conference.

Posters/ PowerPoint Slides

Advice:

- The student should not read the poster/ PowerPoint slides while presenting, because they are visual tools.
- The student should be prepared because he/she has only few minutes to walk through in order to explain and answer viewers' / audience questions.
- Engaging with the viewer/ participants; lots of eye contact and interaction.

- **Other Tasks in speaking skill**

Task1: In pairs, ask and answer questions about different materials using the following phrases:

- What's.....made from?
- Where does.....come from?
- Canbe recycled?

Task 2: In pairs, discuss the key properties of the following materials:

Materials: Steel- aluminum-glass-gold-rubber-titanium-copper-plastic.

Properties: shock resistant- durable-elastic- heavy- thermally stable- water resistant- corrosion resistant- tough- brittle- light weight- abrasion resistant.

6.2.7 Translation

Aim

- To enable students be familiar with a huge a number of technical terms and translate them easily from French into English.

Glossary: Some technical words of Engineering are presented and translated into French:

English	French
Absolute pressure	Pression absolue
AC Power	Puissance de courant alternatif
Acceleration	Accélération
Acid	Acide- eau forte
Activated sludge	Boue activée
Adhesion	Adhésivité

Afocal system	Système afocal
Albedo	Albedo
Alloy	Alliage
Amplitude	Amplitude
Anion	Anion
Anode	Anode-pièce
Artificial intelligence	Intelligence artificielle
Baud	Baud
Beam	Faisceau-ensouple
Bending	Bombage-plier-cintrage
Block & tackle	Mouflage
Brittleness	Fragilité
Buoyancy	Force de flottabilité- poussée
Capacitor	Condensateur
Casting	Coulage-moulage
Chips	Copeau de forage- Perçure
Coil	Bobine- Couronne- Serpentin
Cold cracking	Cassure à froid
Compiler	Compilateur
Coulomb	Coulomb
Covalent bond	Liaison covalente
Creep limit	Limite de fluage
Deflection	Déviation-déflexion
Density	Masse volumique

Die	matrice
Diffusion	Diffusion
Doppler effect	Effet doppler
Ductility	Ductilité
Dyne	Dyne
Electric potential	Potentiel électrique
Endothermic	Endothermique
Exothermic	Exothermique
Escape Velocity	Vitesse de libération
Estimator	Estimateur
Freezing point	point de congélation
Friction	Frottement
Gluon	Gluon
Ground state	Etat de base- Etat fondamental
Hardness	Dureté
Hexapod	Machine hexapode
Hoist	Monte-charge
Hot Tear	Crique de retrait- Déchirure
Hot working	Formage à chaud
Inertia	Inertie
Insulating pad	Plot isolant
Joule heating	chauffage par effet Joule
Kinematics	Cinématique
Lever	Levier-Manette

Lumped element	Élément concentré
Machine code	Code d'un ordinateur
Machine learning	Apprentissage automatique
Mass balance	Bilan massique
Materials science	Sciences des matériaux
Mean	Moyen
Melting	Elaboration- Fusion-fonte
Molding	Moulage-moulure
Multibody system	Système multicorps
Nozzle	Ajutage
Osmosis	Osmose
Paraffin	Pétrole lampant
Pulley	Tambour de bande- Poulie de renvoi
Rotational speed	Vitesse de rotation
Scalar	Gradeur scalaire
Shear stress	Contrainte de cisaillement
Stress-strain	Tension-allongement
Tensile strength	Resistance à la traction
Toughness	Rigidité-Solidité
Truss	Charpente en treillis- contre fiche
Upthrust	Contrerail
von Mises yield criterion	Critère d'énergie maximale de cisaillement
Wedge	Clavette- Coin
Work hardening	Écrouissage- Durcissement

Yield	Ecoulement- Rendement
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Task one: Match the terms (1-6) to their appropriate translated ones (a-f)

- | | |
|---------------------|------------------------|
| 1) La fonte | a) To undergo |
| 2) Laiton | b) Cast iron |
| 3) Usinage | c) To improve |
| 4) Supporter | d) Brass |
| 5) Subir | e) Machining |
| 6) Améliorer | f) To withstand |

Task two: Read the following paragraph then find out the sentences that are translated into English in the below mentioned sentences:

La base de science de matériel implique de rattacher les propriétés désirées et la performance relative d'une matière dans une certaine application à la structure des atomes et des phases dans cette matière par la caractérisation. Les propriétés physiques de matériel jouent d'habitude un rôle important dans la sélection de matière pour une application particulière. Cela implique beaucoup de facteurs comme la composition matérielle et la structure, la fracture et l'analyse de tension, la conductivité, les propriétés optiques et thermales, appeler quelques-uns. Il implique aussi le design, le fait de modeler, la simulation, le traitement et les méthodes de production. La recherche dans le domaine de la science de matériel implique beaucoup de régions périphériques en incluant la cristallographie, la microscopie, la lithographie, la minéralogie et la diffraction en poudre.

From: http://www.issp.ac.ru/ebooks/books/open/Materials_Science_and_Technology.pdf

- 1. Physical properties of materials usually play an important role in the selection of material for a particular application.**
- 2. It also involves design, modeling, simulation, processing, and production methods.**
- 3. This involves many factors such as material composition and structure, fracture and stress analysis, conductivity, optical, and thermal properti**

6.3 Assessment and evaluation

It is very important to use diversified tools to measure and evaluate students' progress as well as their deficiencies and weaknesses. Nodoushan (2002) clarified: "If assessment can be seen as a movie, then a test is a freeze frame". This explains that assessment is an on-going process, in which the teacher uses various tools to collect information about students' needs and progress in order to adapt an adequate ESP course. Moreover, Hutchinson and Waters (1987, p. 147) commented: "Achievement test is the kind of test the ESP teacher is most likely to have to construct". More than that, it is also one part of our program assessment because from the test results, we can find out how much progress the learner has made and how successful the project has been.

So, evaluating students by tests can be of a paramount importance and value as a source of information for the teacher before the course starts in order to diagnose their interests and their proficiency level in English language skills and after the course in order to evaluate their achievements. As a further research, the researcher intends to implement the ESP course for postgraduate students of engineering at the same faculty to analyze their achievements and check the effectiveness of the suggested course and evaluate their progress before and after the academic year.

6.4 Challenges of teaching technical English for engineering

The different constraints that teachers encounter while teaching ESP may be the reason behind hindering the effective ESP teaching, namely those related to students' proficiency level, teaching materials, classroom activities, teachers' training, assessment and evaluation etc. In this study, the results revealed that the most challenging aspects of an ESP course are:

6.4.1 Vocabulary teaching

Vocabulary is at the core of teaching technical English of any field of specialization. And since teachers are not familiar with the technical terminology, they face problems when teaching vocabulary used in the field of engineering because in their previous mainstream education, they have not been exposed to such vocabulary. As a result, teachers generally use GE to teach students in order to avoid the anxiety of teaching specific technical vocabulary. This implies that boosting students' motivation to enhance their competences in learning technical English requires teachers' training on ESP to effectively teach ESP courses which are by definition based on learners' needs. These leads to students' engagement in reading, paraphrasing, summarizing texts and discuss the content of these texts in peer work, group work, and class discussion, and present a project work, etc. In this way, teachers can boost their students' motivation and help them to be autonomous learners. Likewise, Pastae (2009) stated that Internet is of a paramount importance in boosting students' vocabulary in their field of study, especially through the use of technical articles published in news papers, journals, and magazines in classroom activities. The teaching of vocabulary can be taught implicitly and explicitly. According to Wanpen, Sonkoontod and Nonkukhetkhong (2012) the most appropriate learning strategy is a meta-cognitive strategy like English language media, skipping or passing new word, testing oneself with word test, and continuing to study word over time. In addition to that, there are other techniques of teaching terminology, like the use

of pictures, videos, texts...etc. According to the results of this study, other constraints can be added to the list of challenges faced by the ESP teachers: First, the complex and difficult technical texts of engineering. Second, the time allotted to the teaching of English is not satisfactory since two sessions per week cannot cover the whole content and are not enough to meet all the students' needs in learning. Third, the students' low level in English after joining the university, so, the majority of them need a massive remedial work and huge effort before they become able to study in ESP.

6.4.2 Motivation

It is another common challenge that ESP teachers face especially among engineering students. Sometimes, motivation is related to other variables and one of the main factors is teaching materials because students' motivation will be low when the teaching materials do not satisfy their needs. In this respect, Kaosar (2014) points out that "it can be assumed that students will be more interested in topics and texts related to their work or study areas. If students are more motivated, then learning is more likely to occur (cited in Elkandoussi, 2017). Motivation is then one of the fundamental hindrances ESP teachers meet in their teaching process. Motivation also plays a crucial role in students' attainments. In this regard, students of engineering should be most of the time instrumentally motivated. Conducting needs analysis in ESP is the key element for a successful teaching and learning, because meeting learners' needs and wants improves their level in English and helps the teacher to select the appropriate teaching materials accordingly.

6.4.3 The lack of ESP teachers training

The diversity of specializations in engineering, the lack of well-trained teachers in ESP and the lack of ESP guidelines are other challenges in ESP teaching. In the faculty of engineering and in the majority of all other faculties, the responsible resort to part time teachers, who are

not qualified enough in ESP, to teach technical English, this implies that the ministry should assign a specific budget or a more financial support to ESP teaching and training in all universities in Algeria since it is moving to a globalized system that requires new demanding potentials. For instance, in the case of this study , only two part time teachers, who most of time are demotivated because of the lack of moral and financial support, teach the postgraduates of all the seven (07) specializations in the faculty of engineering, and this, would ,obviously, has a negative influence on their efforts to satisfy the students ‘needs. Hence, it is important to note that the hiring policy for part time teachers is not effective for ESP teaching and learning achievements. This leads to the need to recruit as many permanent ESP teachers as possible, is the proper solution for this problem because specialized and well qualified teachers in the field of ESP and needs analysis have solid background to design ESP courses suitable to students learning and target needs. Moreover, collaboration and coordination between subject matter teachers and teachers of technical English should be a fundamental practice.

6.5 Suggestions and Implications

- The time of instruction of English in all ESP classes in general, and in the faculty of engineering in particular must be revised by the decision makers and join efforts to enhance to quality of teaching and learning the technical English, for instance, four (04) sessions per week or more would be sufficient for an effective ESP learning. Also, increasing the time allocation to the ESP course will allow students to achieve their needs and progress through continuous assignments, homework and varied activities and tasks all along the academic year.

- Regarding students’ level which represents a real challenge that teachers encounter in the engineering field, we found that most of the difficulties and obstacles that hinder ESP

teaching are: students' low level of English in all the four skills of the English language, meeting students' needs, and teachers' contribution in needs analysis and ESP course design. So, before designing the technical English course, a diagnostic test should be taken into consideration to overcome this problem, in which the ESP teacher has to test students' level in advance in order to classify them and/or at least to design materials accordingly.

- Some other suggestions are provided to improve the teaching of ESP in general and English for engineering postgraduate students in particular, especially, at the level of needs analysis, teaching pedagogies, training, teaching materials, content,...etc. Firstly, teacher development is one of the ways to improve ESP teaching; teachers should evaluate their teaching so as to recognize their weak and strong points in order to make the necessary changes with respect to all the characteristics and components of the ESP course they teach. In addition to this, action research and effective practices are well recommended to solve pedagogical problems that teachers might face during the teaching process. This implies that ESP teachers should conduct action research as a must for their reflective teaching and their professional development in order to develop teachers' professional skills and students' learning. Thus, action research and reflective teaching could be very essential for successful ESP teaching.

- Organizing some seminars, conferences and workshops could help ESP teachers exchange ideas and share experiences and good practices in all what concerns ESP teaching. In fact, these events represent a great chance for teachers to develop their professional competences.

- Collaboration and cooperation with subject matter teachers increases teachers' awareness and understanding of the field of engineering. Thus, team-teaching is considered as the most effective strategy that bridges the gap and builds up communication and corporation between ESP teachers and teachers of the field.

- The ministry should recruit qualified graduates and offer them special training in pedagogy because it becomes a must for ESP teachers in order to enable them conduct needs analysis appropriately and teach ESP courses effectively.

- The ESP teacher should be eclectic in his teaching and can use many practical teaching methods in the classroom like: Project Based Learning, , Communicative Language Teaching, Task Based Learning , ICT or educational technology and Content Based Approach, ...etc. These teaching methods could help students to be involved in learning by doing activities and tasks related to their field of study, and so, they practice the language.

- The creation of an association for ESP teachers in Algeria is another effective solution which can help teachers communicate and listen to each other for the purpose to use up-to date teaching methods, techniques and strategies and introduce remedial plans for the challenging situation of ESP teaching in Algerian universities in general and English for engineering in particular.

- The coefficient allocated to the English module should be higher because the low coefficient of the English module in the faculty demotivates students to carry on ESP lectures.

To summarize, the alternative solutions are action research, teacher development, classifying students based on their levels, more time should be devoted to ESP courses, organize annual events and recruit permanent teachers.

6.6 Limitations of the study

In spite that our investigation confirmed the hypothesis of the value and utility of designing a technical English course for postgraduate engineering students, it has some limitations. The sample population consisted of forty five (45) postgraduate students of engineering, two (02) ESP teachers and one (01) administrative representative who is the dean, this small case does not represent the whole postgraduate engineering students or all the ESP teachers and all the

faculties of engineering in all Algeria. In addition to this, the students' questionnaire did not provide us with the students' real proficiency level in English, it only presented their needs, perceptions and suggestions towards learning technical English; but, if we supported this research tool with tests to assess the students' level at the beginning and at the end of the academic year, the questionnaire would provide us with detailed information about their real level in English. Also, we could not be able to implement the technical English course at the faculty of engineering to ensure positive learning outcomes, because when we have finished collecting data at the end of year 2018 and accomplished the design of the course in 2020, the postgraduate students finished their theoretical years of study at the university. For this reason, we intend to deal with further research in the same field study with the coming new postgraduate students of engineering in order to implement the course and so, maintain to our indicated goals and aims.

General Conclusion

The researcher, in this study, investigated the situation of ESP teaching/learning process in the faculty of Engineering at Badji Mokhtar Annaba University, the case of postgraduate students of engineering. This survey study is based on students' needs analysis and the identification of the issues and the deficiencies they faced throughout their learning process. The results in this research work revealed that the reasons behind the students' difficulties in using English effectively are the absence of an appropriate syllabus, the unsatisfactory period of instruction, the novice teachers, and the non-conduct of needs analysis. So, the teachers of English plan for their lessons individually and without the collaboration of any other teachers of the subject matter in the faculty. This usual attitude led to the non-progress of students' level of proficiency on one hand, and the development of the ESP course on the other hand. For that reason, the design of a technical English course for postgraduate students of Engineering was really needed in order to respond to students' needs and improve the ESP teaching quality in the faculty. In this respect, the researcher has suggested a framework of a ESP course that could be used as a guide to teachers to enhance their teaching and meet their expectations on one hand, and as a tool to satisfy students' needs and overcome their issues English language learning on the other.

The aim of this study was to analyze students target and learning needs, suggest appropriate materials, and design an effective technical English course.

To respond to the first question, the researcher suggested a technical English course to postgraduate students of engineering at the faculty of engineering in Annaba University because they are not satisfied by the presented ESP courses and they need to be able to write their final doctoral article into English. For this reason, a course in technical English will be efficient to develop their learning competences in English and meet their needs and wants.

As far as the second question is concerned, the framework for the technical English course is suggested to meet the students' needs in the faculty of engineering. For this regard, the researcher took into account their academic needs and focused on the language four skills with a great emphasis on writing, speaking and reading, because the students are postgraduates and they need to be able to read books and articles corresponding to their field of study and since the majority of up-to-date sources are written in English, they have to read and understand them effectively. In other words, when the researcher prepared and developed the course, the students' lacks, difficulties, expectations and motivations were taken into consideration.

Concerning the third research question, the best approach which seems to be suitable to ESP teaching for postgraduate students in the faculty of engineering, is the eclectic approach based on skills-centred and learner-centred approaches in order to develop students' specific skills, assure successful achievements and satisfy the requirements of learners in a short period of time.

For the last question, the selection of authentic and needs-specific materials is based on the needs analysis because it plays an important role in the process of developing ESP course and in the collection of the appropriate materials which are related to students' target needs. Since students require further practice in technical English, the researcher exposed a sample of credible and important activities and tasks that relate to students' needs for a better understanding of skills and elements involved in texts, videos...etc.

To sum up, this research work analyzed engineering postgraduate students' English language needs, lacks, issues and importance of skills. Also, we explored students' perceptions and attitudes towards the existing ESP course in their faculty and their expectations towards the needed course. In addition to this, it was noticeable to identify the

students' level of proficiency in English and in the four skills before designing the technical course in order to be able to recognize their learning needs and their progress during the period of instruction.

Regarding the structure of this thesis, the first chapter of the literature review is related to ESP and needs analysis, it provides many and different definitions of ESP, but we can mention the one of Mackay and Mountford (1978) who claim that ESP is "Teaching English for a clearly utilitarian purpose". In this chapter, we dealt with the historical background of ESP, its types, and needs analysis which is in the heart of any ESP course design.

For the second chapter, it is concerned with discourse analysis and language issues since discourse represents a combination between language and individuals producing it and the context in which it is used because communication may involve oral or written language.

The third chapter is concerned with ESP course design, and the teaching of technical English. The researcher, presented first the areas related to ESP course; its approaches namely language-centred approach, skills-centred approach, and learning-centred approach, also, it has been dealt with the comparison between the approaches presented by Hutchinson and Waters (1987), then we presented course objectives and goals, the importance of materials selection before the design of any ESP course, and the integration of ICT in ESP teaching.

As for the fourth chapter, it is devoted to the description of ESP situation in Algeria in general and in the faculty of engineering in Annaba University in particular, and to the sample population of this study as well as the research instruments used to conduct the needs analysis. Regarding the postgraduate students of engineering who are the most important participants in this investigation, they have provided the researcher with reliable data that have been analyzed quantitatively and qualitatively. Hence, their recommendations and comments should be taken into account before the course design and materials selection.

In The fifth chapter, the investigator analyzed the revealed results from the three tools of investigation; students' questionnaire, ESP teachers' interview and the dean's interview. The findings show that postgraduate students of engineering are highly interested in learning Technical English in order to enhance their four skills mainly writing and speaking. They, mostly, recommended for new styles and strategies in teaching ESP in the faculty of engineering and the provision of a suitable syllabus and authentic materials.

The sixth chapter is devoted to the design of the proposed technical English course on the basis of needs analysis since it is vital for piloting and designing any ESP course. Developing students' four skills is the major concern, that's why the researcher has emphasized on practicing the language through developing technical exercises related to the actual driving situation and based on the information provided from needs analysis. Because the teacher should always take into account his students' feedback to make new decisions on his teaching process and keep an eye on the target situation since ESP classes, subjects and students are different.

The problematic situation of ESP in the Algerian universities needs new strategies and beneficial contributions in order to understand ESP teaching and suggest new requirements. It is hoped that further research in this field will bring solutions and new aspirations to ESP practitioners and to the ministry of higher education and scientific research officials who are in charge of foreign languages in the educational system.

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Appendices

Appendix A

Students' Questionnaire

Dear Student;

I am currently conducting a research to identify the most important elements in designing a technical English course that meets your specific language needs in your field of study. To do so, you are kindly requested to answer this questionnaire as clearly as possible.

1- Gender:

Male

Female

2- Age and specialization:

Age:.....

Specialization:

.....

3- What is your previous experience in learning English at the university?

5 years

3 years

Less

4- Evaluate your level in English language before the doctoral studies.

High

Intermediate

Low

5- What is your self-evaluation in the four skills?

High

Intermediate

Low

6- To what extent are you interested in learning an ESP course?

Very important

Important

Not important

7- List your English language specific needs.

Reading lecture handouts

Reading texts and articles of English for science and technology

Understanding technical terms

Listening to teacher talk

Listening to classmates oral presentation

Taking part in international conferences

Asking questions in class

Answering teacher' questions

Taking notes in class

Summarizing and paraphrasing

Writing texts and articles

8- Classify the four skills according to your priorities and specific needs.

Listening

Writing

Speaking

Reading

9- Select the most encountered difficulties in the English language.

- Grammar
- Speaking with teachers or foreigners in conferences
- Technical vocabulary
- Listening to others' speech
- Pronunciation

- Writing texts and articles in the field of your study or research
- Reading

10- What are the reasons behind your weaknesses in English language?

- Unsatisfactory period of instruction
- Lack of motivation
- Lack of practice
- No available ESP teachers

11- Is ICT important for learning ESP?

- Important
- Not important

12- Classify your degree of satisfaction for the present ESP course.

- Very satisfied
- Satisfied
- Not satisfied
- Do not know

13- Is ESP course time allocation satisfactory or not?

- Yes, Time allocation is satisfactory
- No, Time allocation is not satisfactory



14- Do you regularly attend to ESP sessions?

Yes

No

15- Are you interested in introducing an official ESP course? Why?

Yes

No

Why?.....

16- What are your suggestions about the nature of the proposed ESP course?

General English

A mixture of general English and technical English

Technical English only

17- How long do you need to study Technical English?

Three (03) years

Two (02) years

Less

18- What do you suggest to improve your ESP learning?

.....

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Appendix B

ESP Teachers' Interview

Dear Colleague;

I am currently conducting a research to identify the most important elements in designing a technical English course that meets Engineering postgraduate students 'specific language needs in their field of study. I would be very grateful if you could answer these questions.

Thank you

Mrs. Amel AFIA

- 1- What is your degree?
- 2- In which field are you specialized?
- 3- How many years of experience do you have in teaching? And did you receive any previous training to teach ESP?
- 4- How many departments are you in charge?
- 5- Does the size of the classroom affect your teaching?
- 6- How many hours do you teach per week? Are you satisfied by this time allocation?
- 7- What is your students' level?
- 8- Are your students motivated or not?
- 9- Is there any provided syllabus or other materials to help you conduct your teaching effectively?
- 10- What is your methodology and course content?

- 11- How much time do you need to cover a whole unit?
- 12- What is the type of tasks and activities do you focus on in your teaching?
- 13- Is your course content relevant to the field of students' study?
- 14- Is the course content related to students' needs?
- 15- How do you assess your students?
- 16- Are the four skills given the same importance in terms of teaching?
- 17- Can you list some of the facing problems when teaching Technical English?
- 18- Do you use translation while teaching?
- 19- Do you integrate ICT in your teaching? And to what extent is it used in the classroom.
- 20- What do you suggest as further solutions or recommendations?

Appendix C

Interview au doyen de la faculté d'ingénierie

(The dean's interview)

Monsieur ;

Dans le cadre d'une recherche ayant pour objet de définir les éléments les plus adéquats pour la conception d'un cours d'Anglais technique qui répond aux besoins des étudiants en post-graduation d'ingénierie, vous êtes priés de bien vouloir répondre aux questions suivantes.

Dear Sir;

I am currently conducting a research to identify the most important elements in designing a technical English course that meets Engineering postgraduate students 'specific language needs in their field of study. To do so, you are kindly requested to answer this questionnaire as clearly as possible.

- 1- Diplome et specialité (*Degree and specialization*).
- 2- Experience (*Experience*).
- 3- Avant la programmation de ce cours d'Anglais, y'avait-il d'autres cours d'Anglais offerts au niveau de la faculté des sciences de l'ingénieur ?

(Did ESP course exist before at the level of the faculty of engineering?)

- 4- Quelles sont les raisons de ce manque de cours d'Anglais technique à la faculté ?

(What are the reasons behind the lack in ESP instruction in the faculty?)

- 5- Est- ce qu'il y a une collaboration entre les enseignants de l'anglais et les autres enseignants des spécialités ?

Do ESP teachers collaborate with those of the subject matter?

6- Que suggérez-vous pour améliorer l'enseignement de l'Anglais technique au niveau de la faculté ?

What are your suggestions to improve ESP teaching/learning in the faculty?

Appendix D

Classroom Observation

<u>Emett Observation Grid</u>			
<u>Training and teaching practices in EU Teacher Education contexts</u>			
Date	Time	Place	Observer
Subject		Topic	
Class	Students no.	Age	Teacher
Resources(tick/complete): PC/multimedia ___ Textbook ___ Handouts ___			
Visual aids ___ Other _____			
<p>Suggestion –Boxes below might be filled with any of the following:</p> <p>Yes/No - ticks - degree scales 1-5 (5 = highest degree) – short notes</p> <p>Necessary information to be collected prior to the observation:</p> <p>1.1 Pedagogical intentions: aims, position of the lesson in the progression, teacher's expectations, ... <u>Lesson's teaching objectives: Lesson's learning outcomes:</u></p>			
Didactics axis			
<u>Wording of lesson's learning outcomes:</u>			
<u>Tasks and activities</u>			
<u>Instructions (of work, organization, task of activity achievement)</u>			
<u>Choice of tasks</u>			
<ul style="list-style-type: none"> - Meaningful: - Varied: - Motivating: - Types: _____ 			

Activities of the students (group work, individual work, work relaunch, accompaniment,...)

Task achievement (guidance, control, auto-realization,... error processing, assessment type - diagnostic, normative, formative-)

Language used:

Teacher's questions – complexity, types:

Students' questions, frequency/complexity:

Teaching didactic methods/approaches:

- Communicative, task based, affective based, meta-cognitive, problem solving, course dialog (questions/answers) guided research, ...
- other: _____

Pedagogy axis

Teaching pedagogical situations choices:

- types of situations: frontal, questions, research-guided, problem-solving...
- types of tasks

- types of activities

- types of groups

Class management:

- students' grouping levels/mixed abilities)

- group/collaborative work management:

- class dynamics management/discipline:

- conflict management

Management of teaching-learning processes:

- feedback:

- monitoring of learning:

- regulations

- individualisation/differentiation of learning:

- sensitivity to pupils' learning in class:

- difficulty management

- negotiations, adjustments, anticipations

Interactions

- Teacher/student(s):

- Student/class :

- Student/student:
- Teacher talking time vs Student talking time ratio:
- Active involvement of students:

Teaching style:

Type of presence and authority :

Key episodes/events – Further notes

(Was it a good lesson? Why?)

Results: achieving lesson's aim, link between pedagogy and didactics, pupils' learning process and outcomes.

المخلص

تعتبر اللغة الإنجليزية لأهداف خاصة بمثابة توجه جديد في تدريس اللغة الإنجليزية. وفي اعتقادنا أن دروس الإنجليزية لأهداف خاصة تساعد الطلبة على أن يصبحوا أكثر كفاءة في تخصصاتهم. و توضح الدراسة الحالية شكل دورة اللغة الإنجليزية التقنية لطلاب الدراسات العليا في علوم الهندسة على مستوى جامعة باجي مختار عنابة. فمن خلال دراسة تجريبية ، عبر طلاب الدراسات العليا عن حاجتهم إلى الحصول على دورات في اللغة الإنجليزية لأهداف أكاديمية من أجل قراءة وفهم الأبحاث الصادرة حديثاً باللغة الإنجليزية ، حتى يتسنى لهم كتابة ونشر المقالات الخاصة بهم دون الرجوع إلى المختصين من أجل الترجمة من الفرنسية إلى الإنجليزية ، وكذلك للتعامل مع خبراء أجنبية في المؤتمرات الوطنية أو الدولية. وعليه، فإن من المتوقع أن تكون دورة الإنجليزية الأكاديمية مفيدة في مجال دراستهم وقد تساعد الطلاب على تطوير مهاراتهم. بعد الحصول على إذن من عميد كلية الهندسة ، تم جمع البيانات من خلال إعداد استبيان ومقابلات رسمية وكذا ملاحظات داخل الأقسام الدراسية

الكلمات المفتاحية: اللغة الإنجليزية لأهداف خاصة، اللغة الإنجليزية لأهداف أكاديمية، مقرر الإنجليزية التقنية، دراسات علوم المهندس، طلاب الدراسات العليا

Résumé

L'anglais à des fins spécifiques est considéré comme une nouvelle tendance dans l'enseignement de langue anglaise. C'est notre conviction que les cours de l'anglais à des fins spécifiques aident les étudiants à devenir plus compétents dans leur spécialité. La présente étude démontre le design d'un programme d'anglais technique pour les étudiants de post graduation d'Ingénierie au niveau de l'université de Badji Mokhtar Annaba. Par une étude pilote, les étudiants en post graduation ont déclaré qu'ils doivent avoir des cours en anglais à des fins académiques pour pouvoir lire et comprendre les recherches nouvellement actualisées en anglais, et être en mesure d'écrire et publier leurs propres articles sans référence aux experts pour la traduction du français en anglais et aussi communiquer avec les professionnels étrangers aux conférences intérieures ou externes. Ainsi, un cours en anglais à des fins académiques est attendu être favorable dans leur domaine d'étude et peut aider les étudiants à développer leurs compétences. Après avoir la permission du doyen de faculté d'ingénierie, les données ont été recueillies via un questionnaire construit, des interviews formelles et une observation de classe.

Mots clés : Anglais à des fins spécifiques, anglais à des fins académiques, cours d'anglais technique, ingénierie, étudiants de post graduation