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Workplace Needs Analysis For Electrical Engineering:

The Case Of Employees On BOOSTING PHASE 3 Project In SONATRACH HASSI R'MEL

DEPARTMENT OF LETTERS AND ENGLISH LANGUAGE

An Extended Essay Submitted in Partial Fulfilment of the Requirement
for a Master's Degree in Linguistics

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DEDICATIONS

I dedicate this work to:

- My parents, without whom nothing could be achieved and who have

  Walways stood by my side during all my studies.

- My lovely wife Hassiba, for her encouragement, advice and support

  during the two years of master.

- My reason of life & little princess, my daughter Maryem Zahra.

- My dear family, thank you for the unconditioned support you have always

  given me.

- Every person who appreciates the value of knowledge.

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Abstract

Since the oil crisis of the early 1970s, ESP has been developed to become as the main language for one of the most flourishing industries, which are the oil and gas construction projects. This phenomenon was accompanied with a revolution in linguistics and the focus on the learner. Thus, the researcher discusses theoretically the main concepts as the approaches, needs analysis, workplace and Electrical engineering. The main aim of the research is to discover the language needs for each category of stakeholders and to highlight the linguistics features and instances that govern the language of Electrical engineering. This nature of the study implies using deductive reasoning on investigating the situation of Electrical engineering students and employees. Therefore, a case study at Ain Temouchent University and BOOSING PHASE 3 project at Hassi R'mel has been conducted, besides a variety of research instruments namely questionnaires, and workplace observation to elicit the target and learning needs that lead to design the appropriate course. The findings of this study reveal that Teachers of technical English, and thus those of Electrical Engineering have often been criticized for lacking the specialist knowledge necessary. However, the problem is deeper and consists of lack of needs analysis and a misapplication of ESP approaches that are based on understanding the processes of language learning to go beyond the macro skills (listening, speaking, reading and writing) and analyse the varieties that distinguish the workplace communication, Considering these features, we could provide a useful course or guide the employees to the self developments. Finally, the researcher recommends more integration for language teachers at workplaces and a collaboration that involves broad category in charge as the organizational institutions, practitioners and course developers and learners.

List of abbreviations and acronyms

DA: Discourse analysis

EAP: English for academic purposes

EBE: English for Business and Economics

ELT: English language teaching

EOP: English for occupational purposes

ESP: English for specific purposes

ESS: English for Social Studies

EST: English for Science and Technology

EVP: English for Vocational Purposes

GE: General Electric

JGC: Japan Gasoline Corporation Company

LMD: Licence-master-doctorate

NA: Needs analysis

RA: Register analysis

SONATRACH: Société Nationale de Transport et de canalisation des Hydrocarbures

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General Introduction

- **Scope of the Study**

Previous research in the field of Electrical Engineering showed that English language is needed for scientific and technological purposes (EST) as a Langua Franca. As far as we are concern, this research work is an attempt to investigate the needs of Electrical Engineers for Algerian employees in projects and companies as foreign language. Needs Analysis is a process of gathering information about a specific group of learners in specific speciality. Our research is designed to investigate English language needs and use for both Electrical Engineering students and employees.

- **Statement of the Problem**

The main problem in English for Specific Purposes teaching at university is how to conduct a needs analysis compatible with the workplace requirements in matter of English use. The inadequate methodology in ESP course design where the needs analysis is ignored confuses teachers and creates learning difficulties for the majority of learners because it simply cannot suit their needs.

Students in electrical engineering field face lot of difficulties in consulting the scientific papers and literature studies since most of these works are written in English language, and most of the research papers contain the technical English that requires some skills to understand the specific terms.

Also, employees at companies find them self surrounded by different environment and different speech community which is based in its communication on the use of English language as the main and the primary at the workplace. These two stages in Engineers' academic and vocational life are considered as a handicap of their improvement whether to

complete high level studies or to develop in the workplace. This case is prominent among engineering students and employees in electrical field. Even if some of them are skilful in their subject matter but their poor English as consequence inhibit them from reaching proficiency. This is the motive that leads us to conduct an investigation about the needs analysis.

Aims of the Study

The present study aims to investigate the language needs of students and employees in multinational companies in Electrical engineering field in Algeria and more precisely for students in Ain Temouchent university and employees at Hassi R'mel Project "Boosting phase3" in order to help them improve themselves in their professional life. Also it reinforces the views of the course designers to meet the students and employees' particular needs.

Research Questions

This research attempts to answer the following questions:

1. To what extent do ESP needs analysis draw out the needs of electrical engineering students?

2. How could ESP satisfy employees' needs and students' target needs?

3. Why are training courses necessary to fit wants and needs of employees?

- **Hypotheses**

The above research questions lead to the following hypotheses

1. ESP design for students in Algerian universities is basic stage for a long process that doesn't focus on ESP techniques. Beside the poor Needs analysis does not relay study with the job market as target situation. ESP in matter of content and context is far to suit the needs of electrical engineering students and future employees.

2. ESP courses can satisfy student target's needs by conducting an investigation based on collecting data of learning needs and targets needs and analyse it. In order to provide these outcomes to the developers of ESP course. Students' expectations, vision and attitudes towards the learning of English are within short-term objectives. The target needs analysis will increase the awareness of students and employees toward the importance of English language in the workplace for their improvement.

3. Employees' proficiency is aligned with English competence. The more employees master English language, the more they are proficient in Engineering field. Lacks in English can slow down the improvement of employees in engineering. Also professional development of employees in workplace requires from them to follow specific training which is a fastest process compared with self development. Employees without special training or self development are not qualified to perform particular high level tasks.

- **Research Tools and Methodology**

Using a descriptive research method encompass two data gathering tools: a questionnaire for both teachers and employees and an observation within the workplace in different settings. Mix method was adopted to collect quantitative and qualitative data

- **Structure of the Dissertation**

The overall structure of this dissertation consists of a General Introduction, three chapters and a General Conclusion. The first chapter deals with the Review of the Literature related to the major theoretical concepts as well as definition of terms. The second chapter presents the Research Design in addition to the procedures of data collection and data analysis. The last chapter is devoted to the presenting and discussion of the Findings on the

basis of the theoretical framework in order to answer the research questions as well as to confirm or refute the hypotheses. Finally, the General Conclusion presents the summary of our work.

1.   Chapter One: ESP and Needs Analysis

1.1. Introduction

ESP has come out as a new trend in ELT to address certain group of learners with different learning needs and purposes in both academic and occupational settings. This chapter will introduce the ESP field with a brief introduction on its origins, the causes of its emergence and the stages of development. The chapter also aims at providing the reader with different concepts of the research as the needs analysis, workplace and Electrical engineering. It includes also an overview on the status of ESP teaching in Algeria. We come up then to spot the light on the needs analysis, which are at the core attention in the current research.

1.2. English as a Global Language

On the report of Cambridge English (November, 2016), around 1.75 billion people in the world speak English and that non-native speakers are the vast majority of people who use English language. This statistical reveals the usefulness of English as a lingua franca. In this respect (cook 2013, p. 191) explains

> Various terms have been proposed for this peculiar status of English, whether 'international English', 'global English', or 'world English' recent discussion has preferred the term 'English as a lingua franca' English as a means of communication between native speakers of other languages.

This means that English has been chosen to be the language of communication that takes place between people who do not share the same mother tongue.

1.3. Definition of English for Specific Purposes (ESP)

ESP is an acronym that stands for: English for Specific Purposes. It is derived from English language teaching system (ELT). Therefore, different debates have been conducted in order to come up with the conceptual framework at defining the nature of ESP.

In "A Learning-centred Approach" book, Hutchinson & Waters (1987, p. 19) note:

> ESP must be seen as an approach not as a product. ESP is not a particular kind of language or methodology, nor does it consist of particular type of teaching material. Understood properly, it is an approach to language learning, which is based on learner need. The foundation of all ESP is the simple question: why does this learner need to learn a foreign language?...ESP, then, is an approach to language teaching in which all decisions as to content and method are based on the learner's reason to learn.

They claim that ESP is a field of learning that can be considered as a branch of English language teaching, shedding light on the learner's needs as key concept of ESP. Influenced by the work of Strevens (1988) and Hutchinson & Waters (1987) and others; Dudley-Evans & St. John (1998, p. 4) made a distinction between three absolute characteristics and five variable characteristics. In terms of:

Absolute Characteristics

1. ESP is defined to meet specific needs of the learners;

2. ESP makes use of underlying methodology and activities of the discipline it serves;

3. ESP is centered on the language, grammar, lexis, register, study skills, discourse and genre appropriate to these activities.

Variable Characteristics

1. ESP may be related to or designed for specific disciplines;

2. ESP may use, in specific teaching situations, a different methodology from that of General English;

3. ESP is likely to be designed for adult learners, either at a tertiary level institution or in a professional work situation. It could, however, be for learners at secondary school level;

4. ESP is generally designed for intermediate or advanced students. Most ESP courses assume some basic knowledge of the language systems, but they can be used with beginners.

5. Most ESP courses assume some basic knowledge of the language systems.

From these definitions we can consider that ESP is an approach to English teaching as second or foreign language. It has been designed to meet learners' objectives and to fulfil their needs in matter of using English for specific tasks in specific contexts. As a result of the needs analysis, the teaching takes place in different contents and methods.

1.4. Origins of ESP

English for Specific Purposes (ESP) or English for Special Purposes is a concept that appeared in the 1960's. Most Pioneers consider the emergence of ESP was as a phenomenon and not as a planned or coherent movement.

The growth of ESP was a result of some factors that led eventually to "increased specialisation in language learning" Hutchinson & Waters (1987, p. 8). Hutchinson & Waters

(ibid) gave three reasons for the emergence of ESP: the demands of a brave new world, a revolution in linguistics and a new focus on the learner.

1.4.1 The Demands of a Brave New World

The end of the Second World War in 1945 is considered as a new age or the birth of English as international language of Business and technology. This interconnection of the world and expansion of the English language created a new generation of learners who according to Hutchinson and Waters "had to read instruction manuals, doctors who needed to keep up with developments in their field and a whole range of students whose course of study included textbooks and journals only available in English" (1987, p. 6). This entire new category of people willing to learn English provide it a considerable value worldwide. "This development was accelerated by the Oil Crises of the early 1970s, which resulted in a massive flow of funds and Western expertise into the oil rich countries", state Hutchinson and Waters (1987, p. 07). This appears clearly in Oil and gas companies which focus on the use of English language as standard language as well as the training programs such as Japan Gasoline Corporation Company (**JGC**) and General Electric (**GE).**

1.4.2 A Revolution in Linguistics

The ways language is employed in real communications conducted revolutionary pioneers to undertake studies Based on traditional linguists' research by describing the features of language.

Widdowson and Water defined the formal features of language usage in order to identify the use of language in real situation. The idea was to analyse the needs of certain learners by getting the "linguistics characteristics of their specialist area of work or study" Hutchinson & Water explained (1987, p. 08); in order to use these findings in the course design. In their book "What can linguistic approaches bring to English for Specific Purposes"

(2016, p. 21), C.Gledhill and N.Kübler try to answer this question by echoing the famously tongue-in-cheek question from the film Life of Brian:

> Well, apart from online dictionaries and term-banks, keyword searches, concordances and corpora, grammar checkers, style checkers and readability indexes, computer-assisted translation, subtitling and voice recognition software, not to mention knowledge engineering, the semantic web, the use of online grammars, training modules and other corpus informed materials for the language classroom and teacher training – in other words all the basic theories, tools and techniques that language learners, professional translators, language engineers, technical communicators and for that matter pretty much all literate people in the educated world who need to deal with language – it's true, what have 'the Linguists' ever done for us?

1.4.3 Focus on the Learner

Language teaching and learning which is a subject of study in psychology shared various theories in psychology which have attempted to explore the process of learning in order to offer guidelines for educators, like Rodgers' work in 1969 in his book "Freedom to learn: A view of what education might become". These approaches focus on learner in terms of needs, interests and motivation.

1.5. The Development of ESP

According to Hutchinson & Water (1987) ESP has undergone four main phases of development: Register Analysis, Rhetorical Discourse Analysis, Target Situation Analysis, Skills-Centred Approach, and he contributed in the emergence of the fifth phase, which is: Learning-Centred Approach.

1.5.1 Register Analysis (RA)

The use of Register analysis (RA) in ESP was introduced by Peter Strevens and later Ewer and Latorre (1969) by identifying the variety of registers being used in particular speech situation in the different fields of specialization, as Hutchinson & Waters (1987, p. 09) stated: "English of, say, Electrical Engineering constituted a specific register different from that of, say, Biology or of General English" , a focus on language at the sentence level lead to register of technical terms, phrases, expressions and constructions.

Robinson (1991), Peter Strevens, Jack Ewer, and John Swales contemplated two aspects during the study of register. The first aspect was the lexical analysis of the language i.e. to focus on the lexis being repeated and frequently present in the language used for a specific purpose. The second aspect was the syntactic analysis of the language, as the study the grammatical features in texts: as the present simple tense, the passive voice, nominal compounds and conditionals.

As Hutchinson (1987, p. 10) confirmed "The aim of the analysis was to identify the grammatical and lexical features of these registers". Many dictionaries use specifics registers as Technical words However, this approach failed to meet the desired outcomes because it is based on the grammatical and lexical features which cannot explain how we understand a discourse full of grammatical and lexical mistakes or when rules are neglected. Thus, new approach was founded.

1.5.2 Discourse Analysis (DA)

According to Crystal (1992, p. 25) a discourse is "A continuous stretch of language larger than a sentence, often constituting a coherent unit, such as sermon, argument, joke or narrative". From this definition we can consider that Discourse plays a vital role in the

language development process as it is mentioned in the context of Stephen Krashen's theory in his work about second language acquisition.

DA emerged in ESP in the early 1970s to meet the specific needs by analysing the language beyond the sentence. It focuses on the social aspects of communication and the ways people use language to achieve specific effects. We use different tools for Discourse Analysis; some of them are as under: Cohesion, Coherence, Speech events, Speech act, Conversation analysis and Background Knowledge. "The idea was of relating language form to language use" (Dudley-Evans and St John", (1988, P. 22). Allen and Widdowson (1974) are considered as the leaders of this approach assume that learners' difficulties are not a product of their "defective knowledge of the system" but a product of "unfamiliarity with English use». However the disadvantages of Discourse Analysis claimed by Dudley-Evans and St John (1998) in their book "**developments in ESP**" breathed life into another approach in ESP development called Target situation analysis.

1.5.3   Target Situation Analysis

Mike Brunton (2009) stated that Target situation analysis became dominant in ESP course design as the stakeholders and employees demand to meet the courses with their needs. The target situation approach or the language-centred approach as ESP course developers called it; was explained in detail by Munby (1978) in his Communicative Syllabus Design, as he worked on a model to explore every aspect of learners' needs by examining communicative purposes, settings, means, language skills, functions, structures, etc.

Mike Brunton provides an example of a textbook that use this approach is: Technical English (Pickett & Laster, 1980). This model was criticized by several linguists, among them Hutchinson and Waters (1987) who consider it "for being a static and inflexible procedure",

and assuming that "it appears to be systematic", concluding that **"**It reveals very little about the competence that underlies the performance".

The fact that all the previous approaches are concentrate on the surface of the language lead to moving on to another approach more coherent with less gaps and drawbacks, which gave birth to another major trend in ESP development: Skills and strategies.

1.5.4 Skills and Strategies

This approach unlike the previous ones focuses on the thinking process of the learner, as Hutchinson (1987, p. 13) confirm that it tries to: "look below the surface and to consider not the language itself but the thinking processes that underlie language use". In other words learner can recognize the discourse based on his skills and capacities. Hutchinson and Waters (1987, P. 70) note: "its aim is not to provide a specified corpus of linguistic knowledge but to make the learners into better processors of information", which mean that the addition of this approach is not in the language surface, but in the cognitive linguistics processes as Reasoning, Decision-Making & Problem-Solving.

Although the learner became the main focus on the process of this approach, Hutchinson and Waters (ibid) see it still considers the learner as a user of language rather than a learner of language.

1.5.5 Learning-Centred Analysis

Learning–centred approach was derived from Learner –centred approach at first, when Hutchinson and Water (1987, P. 67) argued: "the learner is used solely as a way of locating the restricted area. Thereafter the learner plays no further part in the process". They considered learner as part of identifying the target and the needs but not in the methodology of learning, and seeing learning as a product.

Actually Hutchinson and waters are considered as the pioneers who made a separate distinction between Leaning and learner approaches by sacrificing most of their work on the new concept Learning-centred approach and supported it to be adopted in real situations.

The fact of saying Learning-centred approach "is an internal process" (Hutchinson and Waters, 1987, P. 67) shows how deep this approach goes through the cognitive process of learner's mind in term of knowledge and competency.

One of its peculiarities pointed out by: "Feedback channels are created to respond to any unexpected situation and development", (Nunan 1987, p. 02 as cited in Meddour, 2014, p. 32). This will improve learning process and preventing it from any deviation far away from the target goal. Another feature of this approach is "Collaborative effort between teachers and learners" (ibid) .In some cases learner interferes in the course design and learning process or goes into maintaining certain orientations.

1.6. Branches of ESP

ESP was divided in many subcategories and still having new added to the list each year. Yet there are three essential branches:

A) English for Science and Technology (EST),

B) English for Business and Economics (EBE),

C) And English for Social Studies (ESS).

These fields are prominent because they are the most influential on our life since they impact the progress of the world. Each one from these branches falls into two categories: English for academic purposes and English for occupational purposes.

English for Medical Studies

English for Technicians

English for Economics

English for Secretaries

English for Teaching

English for Psychology

English for Occupational Purposes (EOP)

EOP

EAP

EAP Courses often have a study skills component

EAP

EOP

English for Academic Purposes (EAP)

English for Business and Economics (EBE)

EOP is also known as EVP (English for Vocational Purposes) and VESL (Vocational English as a Second Language)

English for Social Sciences (ESS)

English for Science and Technology (EST)

English for Specific Purposes (ESP)

GE is usually studied for exam purposes.

Adult

Tertiary

Secondary (US-High School)

Primary

various branches

General English (GE)

ESL can be divided in the same way as EFL

English as a Mother Tongue (EMT)

English as a Foreign Language (EFL)

English as a Second Language (ESL)

English Language Teaching (ELT)

In American ELT the dominant branch is ESL.

Language Teaching

LEARNING   COMMUNICATION

Figure 1.1: The tree of ELT (Hutchinson & Waters, 1987, p. 17)

1.6.1   EAP VS EOP

Hutchinson and water (1987, p. 16) recognize that ESP branches are: "divided into two main types of ESP differentiated according to whether the learner requires English for academic study (EAP: English for Academic Purposes) or for work/ training (EOP/EVP/VESL: English for Occupational Purposes/English for Vocational Purposes/Vocational English as a Second Language)". This determination was explored later by giving a professional classification based on the experience of the learner and from it "a

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useful division of courses according to when they take place" Dudley-Evans, Maggie Jo St John (1998:6).

The diagram (taken from: Robinson, 1991: 3-4, as cited in Dudley et al, p. 6) give a clear distinction between EAP and EOP
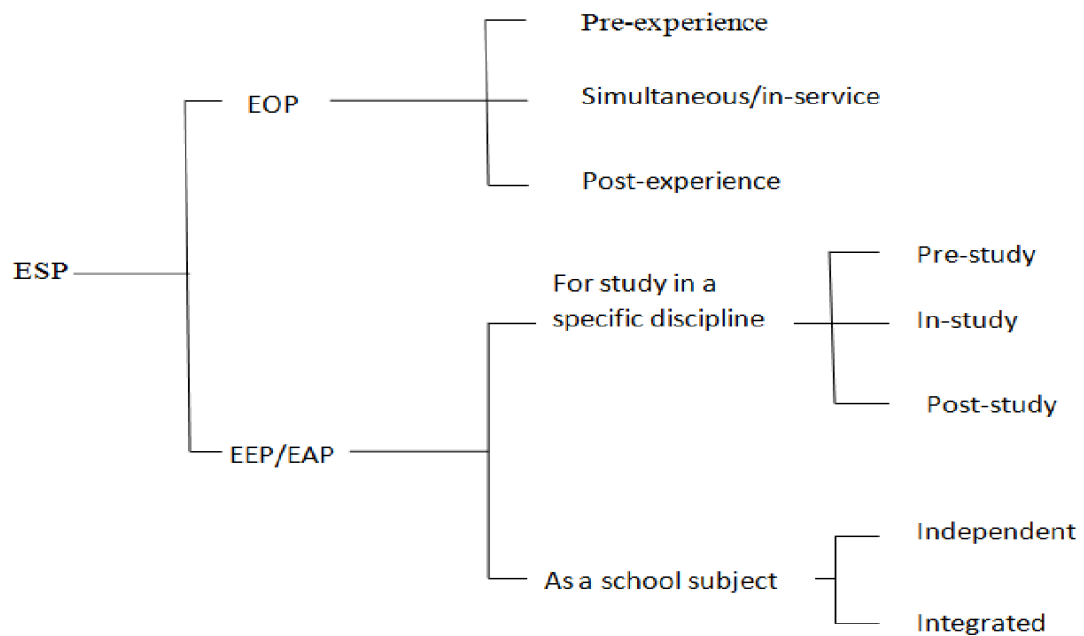
Figure 1.2: ESP classification by experience Robinson 1991. P, 3-4)

The difference between EOP and EAP courses depends on the target job that stakeholders could serve, where the former trains students to be better in performing their occupational tasks; the latter, EAP develops learners study skills like reading specialised materials, writing academically, comprehending recorded or live academic discourse and lectures, and finally produce formal presentations.

For instance Dudley et al (1998, p.7) distinguish between studying medicine for academic purposes which is conceived for medical student, and studying for occupational purposes that is planned for practicing doctors. Also for Electrical engineering we can classify

EAP for academic student and researchers and EOP for employees in workplace as in the industry sectors to perform some functions like maintenance.

1.6.2 English for Electrical Engineering

"Electrical Engineering is an engineering discipline concerned with the study, design and application of equipment, devices and systems which use electricity, electronics, and electromagnetism" (IEEE Global History). "Electrical engineering deals with the practical application of the theory of electricity to the construction and manufacture of systems, devices and assemblies that use electric power and signals" (Brieger and Pohl: 2002, p.37). It is obvious from these two definitions that electrical domain is one from multiple engineering fields that deal basically with electricity.

Researches in the field of engineering, in particular, assert that English plays a significant role in the academic and professional areas of engineering students and graduates. Roger H. C. Smith (2014, p. 194) provides some academic skills in his textbook (English for Electrical Engineering) that covers:

> writing topic sentences, summarising an academic text, reporting on research findings, reporting findings from diverse resources, paraphrasing, writing complex sentences, expanding notes into complex sentences, recognising different essay types and written discourse types, writing heterogeneous essays (e.g. argumentative, descriptive, analytical, comparison, evaluation essays, etc.), writing essay plans and writing short essays, writing situation-problem-solution-evaluation essays, employing direct quotations, compiling a bibliography or a reference list, deciding whether to use direct quotation or paraphrase, incorporating quotations,

writing research reports, and ultimately, writing effective introduction and persuasive conclusion.

These skills are the common core in the writing proficiency and it is not restricted range to specific domain, but the variety of the language use affords it a specific register. Whereas, the occupational skills differ from that of EAP where Rezaee and Kazempourian (2017, P. 2) reveal that "EE companies expected their prospective EE graduates to be more proficient in 'reading', 'study skills', and 'speaking' ...". Furthermore, the use of English in professional and workplace setting requires more reading and speaking skills, like reading and understanding datasheets, technical software, Manual book and most important safety instructions about electricity as an electric shock, hazardous area or electromagnetic exposure risk.

1.7. English at Workplace

The use of English today is not restricted for specific groups, nor it is limited for classrooms, but it is used in real world communication in different contexts, the workplace is one such context.

A workplace is a place where the people are connected to perform a job. It can be a real place as manufacturing, office, establishment or it can be considered as doing job remotely at home by using computer, internet or phones.

Researchers conducted Investigation about English in the workplace in the area of research: ESP. The use of one language that accommodates all users within the workplace was always a challenge since the differences in a heterogeneous group of people are not an easy obstacle to overpass. Furthermore, skills required by employers in different industries and countries around the world were for as long as under research. This will be amply

explained in the following chapter in the investigation at SONATRACH Company as a workplace prototype for needs analysis.

1.8. ESP in Algeria

The educational system in Algeria including university has always contributed in the development of the use of English in Algerian public and private companies. English language is taught as foreign language.

After adopting LMD system in Algerian universities, ESP was introduced in the program and become more demanded in the scientific fields as in EST domain. Actually many difficulties, challenges and requirements of the ESP teaching situation in Algeria are facing the decision-makers and teachers since most of them ignore the learners' personal interests and needs, moreover the courses designed do not meet the learners' goal.

1.9. Needs and Needs Analysis

Richards (2001, P. 33) express in words that needs "are often described in terms of performance, that is, in terms of what the learner will be able to do with the language at the end of a course of study". Brown (1995) simplifies the concept by stating that needs are students' linguistic requirements in a specific context of a particular situation that influence the general educational situation (as cited in ASSASI.T,2017, p. 36). Then the term need can refer to various terminologies that step in the same river to assert the same function, as the requirements to accomplish the expectations of learning or as the gap between the actual (present) situation of the learner and the expected (target) situation.

Therefore, Needs analysis (NA) is the process that "provides a basis for setting goals and objectives" (Nunan and Lamb 1996, p. 27). Thus NA is seen by pioneers of this domain as the corner stone in ESP that leads to course design. The starting of this whole process is

based on the NA by providing the authentic data that will enhance the decision of validating the course and determining the content of curriculum by focalizing on the learner's language, skills and methodology.

1.9.1 Types of Needs

John Munby is a dominant figure in needs analysis (NA) in his work Communicative Syllabus Design (1978), which was later discussed and extended by Hutchinson and water (1987). Most figures of ESP agree on the influence of NA in ESP approach. Hutchinson and Waters (1987, p. 63) classify needs in two categories: target needs and learning needs.

1.9.1.1 Target Needs:

The target needs are the answer of the question: "what knowledge and abilities will the learners require in order to be able to perform to the required degree of competence in the target situation" (ibid: 60).

In order to define it precisely, target needs are split to: Necessities, Lacks and Wants.

- Necessities: These needs are determined by the demands of the target situation. It means what the learner has got to know so as to function effectively within the target situation.

- **Lacks:** are considered as the gap between the target situation and the present one in which what the learner have already as the existing proficiency.

- **Wants:** are related to the learner's personal needs where he plays an active role to determine his target needs in a subjective sense.

1.9.1.2 Learning Needs

"How are we going to get from our starting point to the destination?" (ibid: 61). Hutchinson and water reveal that we should take into account the learning situation. They state that it is naïve to base the course design and the whole ESP program merely on target

needs. Learning needs are defined as "Factors that affect the learning like attitude, motivation, awareness, personality, learning styles and strategies, together with the social background" (Xiao,2007:2, cited in L.Bensafa & B.Heddam:2016-2017). Learning needs analysis inspects information about: the learners, their learning styles and strategies, language skills, selection of teaching materials, the setting and the time load. The answer of the previous question leads us to the learning centered approach which was discussed at the beginning in the development of ESP.

1.10. ESP Course Design

Hutchinson & Water (1987, P. 65) state that "Course design is the process by which the raw data about a learning need is interpreted in order to produce an integrated series of teaching-learning experiences, whose ultimate aims is to lead the learners to a practical state of knowledge". This means that course design is complementary steps of ESP which is based on the information obtained through learner needs.

Robinson (1991, p.34) sees course design as the product of NA, which means according to that as far as the NA are done properly the outcome will be acceptable. ESP course developers are looking forward to reach the inventive, innovative and effective solutions to the issues of learners and to include them in the process of teaching. It should be mentioned that this part is substantial and important and it requires asking basic questions in order to create syllabus, as Mike Brunton (2009: 9) argues that: "designing and implementing a successful ESP program is no easy straightforward task". This work focus on the learners' needs and aims to provide the NA to the practitioners, who will structure the course that will work properly with the learners needs.

Course design that carries with it others concepts as: Syllables, Material, learning theories and the evaluation. The framework of this investigation limits the scoop of research

on the NA. For this reason it was briefly mention the course design and without elaborating the practical applications of course design since this final stage of the ESP approach is out of my scoop of this research.

1.11. Conclusion

Giving a literature review about Origins and developments of ESP shows to what extent it had expanded to cover all specialities and became an approach of language learning.

ESP can be categorized to different classifications and branches, e.g. Hutchinson and Waters' " tree of ELT" and Robinson's classification of ESP to EST and others. Our intention was to present Electrical engineering within the EST as introduction to our case study in the next chapters. A key factor to design the course is Needs analysis which was discussed in terms of importance and types.

After elaborating the concept of ESP and needs analysis, we intend to conduct a research design and a methodology including the sampling, research informants and research instruments that is necessary to obtain the needed data.

2. Chapter Two: Research Design

2.1. Introduction

As it was revealed previously about ESP characteristics, it makes use of the underlying methodology and activities of the discipline it serves. Thus, it is highly recommended for researcher in needs analysis to adopt a methodical approach to clearly analyse the situation where the language is used, and to match the engineering field.

We will dedicate this chapter to deals with the methodology that will embed the study and attempts to investigate the appropriate research design for the needs analysis by presenting Electrical engineers and workplace employees as groups of the case study.

The nature of the needs analysis investigation requires the choice of specific method, population, sampling, and the instrument tool in order to determine the target needs and the learning needs.

2.2. Designing a Research

When conducting a study, researcher has from the beginning to identify the framework of his work in which he/she will integrate the different components of the study in a coherent and systematic way, in this context Robert K. Yin (2009, p. 26) states

> Every type of empirical research has an implicit, if not explicit, research design. In the most elementary sense, the design is the logical sequence that connects the empirical data to a study's initial research questions and, ultimately, to its conclusions. Colloquially, a research design is a logical plan for getting from here to there, where here may be defined as the initial set of questions to be answered, and there is some set of conclusions (answers) about these questions. Between "here" and "there" may be

found a number of major steps, including the collection and analysis of relevant data.

Actually many definitions were provided by assuming that research design is more than a plan, it is further a strategy that shows the path to reach the outcomes. The prominent experts in research methodology agree that without an appropriate research design it is impossible to draw the conclusion and therefore to fulfil the desired results.

At first level, we need to verify which research paradigm the research belong to from our point of view in order to determine the framework of the nature of the work. Kuhn considers that research paradigm is "the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed". (1962, as cited by M.V. Vinodkumar & A.K. Anoop, 2020, P.541)

Cohen (2007, p. 07) states that "The research paradigm defines the research purpose". Applying appropriate research paradigms help researcher to know how a problem should be solved. It can be viewed in Ontological, Epistemological or Methodological point of view.

Secondly, it is important to apply an appropriate approach between inductive and deductive. As Saunders et al (2007) distinguish the major differences between these two approaches; it is obvious that the deductive approach correspond with the movement of the work, which is processed from the hypotheses to data.

Finally, the method that will be used for collecting and analysing data has a direct impact on the study, since it will contribute to the credibility and reliability of the research. We may classify three types of methods:

2.2.1 Quantitative

It is a systematic empirical investigation of any phenomena via statistical, mathematical or computational techniques. J.W Creswell considers it as "a means for testing objective theories by examining the relationship among variables" (2009, p. 5). The objective of quantitative research is to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena.

2.2.2 Qualitative

In this research method when dealing with phenomena it is difficult or impossible to quantify it mathematically. "Is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem" (.W Creswell, 2009, p. 5). It seeks a better understanding of complex situations such as beliefs, meanings, attributes, and symbols.

2.2.3 Mixed Approach

In any research, it is better to vary the methods of data collection in order to acquire more reliability and objectivity when conducting an investigation. This necessity led to "the emergence of mix methods as third methodological movement [....].in the 1980's". Teddli (2003, p. 697). In parallel Brysman and Burgess (1999, p. 45) see this approach as the most suitable in conducting research since it takes advantage of the differences between the two previous while combining these two in a single methods.

In this work the data collected should provides us with the leaner's attitude about English learning. Through these data, we can analyse the various factors which motivate learners to behave in a particular manner toward English learning, or which make them like or dislike a particular approaches in learning process.

Also the aim of data collection is to quantify the outcomes of the analysis of the measurement tool in order to draw an approximation of the learning needs which necessitates the use of quantitative method. The use of mixed method to collect and analyze data became essential in providing an appropriate data.

2.3. Case Study

Cohen et al (2007, p. 253) argue that "A case study is a specific instance that is frequently designed to illustrate a more general principle". This instance could be individuals as subject of study, population or events. Yin (1984, p. 23) defines the case method as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used."Hence it examines real and contemporary people in real situations.

In this research and depending on the issue in questions inquired at the beginning, the research has adopted different groups of stakeholders: the first group is the engineer employees at BOOSTING 3 project in Hassi R'mel as subject of interest, and the second group consists of English teacher from Ain Temouchent University.

In defining case study, Stake (1995) distinguishes three types: the intrinsic, the instrumental and the collective. However our case studies are far from being intrinsic since this type examines the case for its own sake, and our aim is to generalize the result taken from our case to a bigger population. On the other hand, some researchers such as Yin (1984) focus on the techniques and the methods that form the case study by delineating three categories of case study: Exploratory, descriptive and explanatory. In fact our case study is Exploratory in which two levels are included: Electrical engineers and multinational project employees.

2.4.   Electrical Engineers Respondents

We will basically deal with Electrical students and postgraduate Electrical students who have never received any experience in the professional field, to prepare them for a long-term objective in their academic studies and later in their future job. The aid in employability chance presents in improving the stakeholders skills to become proficient enough in the specific English requirements for Electrical engineers.

2.5.   Multinational Project Employees

Multinational Corporation is a company whose activities are located in several countries and operates individuals of several nationalities. Like the Germany Company HENKEL that employs people from 120 nations in almost 80 countries including Algeria (Henkel AG & Co. KGaA, 2021), or JGC for oil and gas facilities' construction that implement over 20,000 projects in 50 countries (JGC Holdings Corporation, n.d).

JGC Company as contractor of the client SONATRACH signed a project contract to achieve a gas facility construction called BOOSTING PHASE 3 in Hassi R'mel. Our aim is to generalize the results obtained from our case study which deals with engineer employees at BOOSTING PHASE 3 to all engineer employees who target to work in multinational companies and who consider their English language level as a handicap for applying to this job.

2.6.   Sample Population

Dörnyei (2007, p. 96 cited in T.ASSASSI, 2017: 138) defines sample as "the group of participants whom the researcher actually examines in an empirical investigation", this sample is actually a small amount within the population that is "the group of people whom the study is about", which represents the case study of the research.

In order to produce a miniature cross-section, the respondents selected as sample survey were chosen carefully to be representative of the whole population. Therefore, the sample population was not selected randomly. A non Probability sampling was followed by excluding some individuals who do not fulfil the research objective. This technique is called Judgmental sampling, by employing our own expert judgment to include only people with specified characteristics in the sample frame, such as selecting graduate students and employees or excluding some job positions.

2.7.   Participants

In the first stage when to instrument research is used to pilot the study, participants were selected from Boosting phase 3 project with different Profiles and job positions, such as: Engineer, Technician, secretary, doc controller, managers.... At the final data collection, the real concern is in the engineering in general and more precisely in the Electrical speciality such as Quality Control engineers, Supervisors, Vendors (suppliers) and local maintenance technicians.

2.8.   Instrumentation of Data Collection

Data collection is the process by which the researcher gathers the information needed and then records it to answer the relevant research problem. Before broaching the subject of the various instruments used in data collection, it is pertinent to note that data collection of this study consistent of primary data that was taken from the original source.

In order to meet the research goal and objectives which is represented in collecting data about various linguistic features of the target situation and the learners' needs, different methods are widely used to collect data for NA in ESP. Instruments that will take place in this study are as follows:

2.8.1 Questionnaire

The commonly used tool to collect data related to the research is the questionnaire, which is of paramount importance in the research. It is list that consists of series of questions related to one topic. Richards (2005, p. 60) states that "Questionnaires are one of the most common instruments used. 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 analyze" (as cited in T.Assassi, 2017, p. 157).

2.8.1.1   Aim of the Questionnaire

Ellis (2004) believes that the questionnaire remains the best method that requires learners to self-report on some aspect of their language learning. According to Survey monkey website respondents tend to spend about 10 minutes to fill a questionnaire, despite its length. What means that asking fewer questions allow respondents to spend more time on each question. This led the researcher to limit both questionnaires to not exceed 20 questions.

The questionnaire must be valid, reliable and must not be bogus. Meanwhile the respondents may find themselves alone when responding, without explication for such questions may not be easy comprehensible, especially for individuals who have difficulties in English. This situation implies providing translated copies for the pilot questionnaire in both Arabic and French languages with simple vocabularies, in addition to our assistance for further explications when necessary.

2.8.1.2   Types of the Questions

Different types of questions are used:

A. **Close-ended questions:** The respondent is limited to fixed responses that best suits his judgment. The question can be designed as:

- **Dichotomous questions:** they require yes/no answers.

- **Multiple choice questions:** it is a question with various possible answers/options.

- **Rating scales:** It gives a range of options to the respondents, who must pick up one answer since the choices range from one extreme to another.

- **Rank ordering:** it is to ask the respondents to order items by identifying priorities by using the numbers.

B. **Open-ended questions:** The respondents are free to answer the question in own words and manage what they want to say and how they wish to say it.

C. **Mixed questions:** it includes a close-ended question with a further extension of an open-ended question.

In many cases the respondents of the questionnaire might be misled by misinterpreting the questions, this leads us to use a preliminary questionnaire to pilot the study before embarking to the final version that should be distributed to participants.

2.8.1.3   Pilot Questionnaire

In order to open the door for further examination of the phenomenon a prior examination of the fieldwork and small-scale data collection should be conducted.

Yin (1984) and McDonough (1997) suggest using a pilot study as an example of the exploratory case which helps in determining the protocol that will be used. Before having the final questionnaire, a prior version was administered to 14 participants who have randomly selected (Sample population). The pilot questionnaire was given to participants from different speciality in a hard copy.

The pilot questionnaire was done to check its validity and to obtain a feedback on its structure and content, this is in order to pay attention and considers its inconveniences in the final questionnaire. (Appendices 1&2)

2.8.1.4   Final Questionnaire

Since it was impossible to meet all the participants to deliver them a paper copy of the questionnaire, the online questionnaire became a necessity to gather the required information. Online questionnaire is described as a tool or a website that use internet to get a feedback of the questions delivered to the respondents. It has many advantages: it ensures the anonymity of the respondents; it overcomes some negative feelings, e.g. the embarrassment to answer particular questions, it facilitates the collection of large amounts of data in relatively short period of time and reduce the expenses, and it may also plays a role in analyzing data in graphs and figures automatically, in fact, this is of great help for the researcher.

It should be noted that the choice of the respondents in this step was done carefully to cover only electrical engineers who were among the staff participating in the project of Boosting 3 at Hassi R'mel.

Most of time the instrument used to collect data as questionnaire is to identify to target needs from the stakeholders, since they obviously have an idea about what do they want to become and to accomplish. In contrast identifying learning needs is not that simple and cannot be obtained by using questionnaire from stakeholders, since even employees ignore most of time their learning needs. In this case conducting a linguistics investigation via the analysis of linguistics features and concepts in the target situation is preferred.

2.8.2   Workplace Observation

Unlike questionnaire that rely on the respondents tender, the observation involves the researcher as part of the action by the perception of the situation, and it seeks to obtain information on the linguistics features and characteristics in special area of work in order to understand behaviours in the workplace by analysing it and understanding its role.

A report was published in April 2020 by Steelcase business interiors untitled "Workplace observations discussion observational need", where it highlights some common challenges and situations employees experience often by categorising them in three steps: observational need, insight and discussion, as a method to realise a workplace observation.

One should mention that participants did not know they were taking part in an observation; this in itself is an advantage, because it eliminates the observer interference and its effect on an unexpected reaction or behaviour of participants.

2.8.3 Corpus-Based Analysis

Still now, the instruments were used to collect data from a small amount as a sample, and then generalize the results on the whole population. Unlike the previous data collections, language feature analysis is a corpus-based analysis that aims to study a large-scale computational of whole text and speech collections.

A survey was published in the journal (ASp – for Anglais de spécialité: 2016) contains most linguistics features to be retrieved from corpus, presented in the table (appendix 3). The contribution of linguistics' features in development of ESP course is considered as a tool of data collection, it can be seen as list of discreet items (technical terminology, grammar, impersonal expressions...), and use it for few instances just for showing the outcome and effectiveness of this method.

2.9. Field Work Procedure

A plan designed has been mapped out in order to have all the necessary information through the data collected. The observation lasted for days, that is because the purpose was to cover all the formal settings, surrounding places and situations as: offices, workshop, meeting room, phone calls, email reports, documentation rooms and communication that will be used.

The informants were busy most of the time, so it was better to choose the appropriate moment to address the participants and distribute the pilot questionnaire, which was done early to analyse it and design a final version according to the former results. Later on, a final one has been submitted and delivered, giving more than week for the participants to reply.

2.10. Data Analysis

The data collected is still not readable; it requires a transformation into useful information. It is now time for data to be processed and statistics to be calculated. Data analysis is the step when the researcher probes the data collected into a shape that helps interpret the findings in order to draw conclusions.

The use of computer is of importance in this stage since it is powerful, fast, and contains a huge amount of storage. The operation of interpretation data is called data processing cycle. It goes through a series of steps:

To sum up, data processing cycle presents in converting raw data to machine-readable form (numbers) by selecting software tool that help to convert data into reports, dashboards, figures or other visualizations. For instance, tools that are most used are: SPSS, N-Vivo and Excel. Therefore Excel and Google forms were selected to analyze questionnaires.

2.11. Conclusion

It has been showed that research design is more than just a methodology; it is a way of thinking, a point of view that will frame the work boundaries. It was also shown how to collect data, which instrument to apply, and what software to use in data analysis. We have opted for the methodological triangulation to tackle the subject matter in all sides as it will be revealed in the next chapter.

3. Chapter Three: Presentation and Discussion of the Findings

3.1. Introduction

The data collected and analysed in this chapter will stand as numerical data, and will provide answers to the research questions. The findings are gathered through questionnaires and observation. Questionnaires' data will be elicited from 10 teachers at Ain Temouchent university and from 19 Electrical engineering employees at Hassi R'mel project "Boosting Phase 3". A workplace observation will be conducted in different main context from the project. After collecting data, close-ended responses will be gathered easily and will be translated into graphs and charts to obtain statistical facts and quantitative data, whereas open-ended questions and observations will be analysed differently.

At the end, we will tend to answer the research questions developed at the beginning of this study whether by confirming or refusing the hypotheses conducted.

3.2. Description of the Questionnaires

The description will include the teachers' and the employees' questionnaires:

3.2.1 Employees' Final Questionnaire

An online questionnaire of 8 questions in English was used to collect data from 19 electrical engineering employees; questions vary between closed-ended and open-ended to gather quantitative as well as qualitative data (see the appendix 4). The focus is more on learning needs and the subject is the items of electrical. This questionnaire is considered to be a complementary part of the previous one. All employees as it was revealed before are Electrical engineering holders.

3.2.2 Teachers' Questionnaire

The aim of this questionnaire is to collect data about teachers of English who were engaged in ESP before to reveal the present learning/ teaching situation of technical English,

and to propose a better practice in the department of electrical engineering at Ain Temouchent. It should be noted that teachers were chosen according to their academic and experience profile by focusing more on teachers who have more interest in ESP field. (See the appendix 5).

3.3. Analysis of the Questionnaires

Using MICROSOT EXCEL and GOOGLE FORM, a process of analysing is to be conducted in order to transform the data collected into graphs and figures.

3.3.1 The Employees' Questionnaire

When piloting the employees' questionnaire. The questionnaire was subjected to adjustment; we have determined the present situation of the employees and considered their needs as a general concept, whereas in this final version the needs are divided in two sections: target needs and learning needs.

The two last questions are open-ended that provide different issues encountered when the communication fail in different situations. Besides, they tackle the respondents' opinion about professional development. Among 19 participants, 3 participants skip responding these two questions.

Part 1: Target needs

Question 1: The English level requirement when applying to the current job is:

Two assumptions to answer this question: some of respondents treat the administrative requirements by the employer in order to apply for the job, others reflect to the requirement of English use in the actual environment.

1.The English level requirement when applying to the current job is:
19 responses
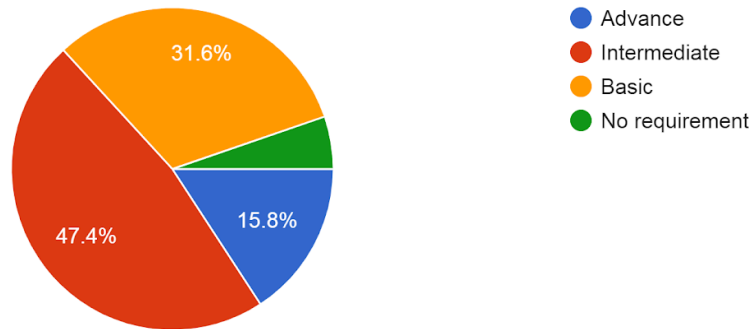
Figure 3.1: The English level requirement when applying to the current job

Almost half of respondents chose intermediate level by (47.4%); others (31.6%) see the level required is basic, less than 16% of employees think that the level required is advanced, whereas the rest think there is no level requirements.

Question 2: Why language is needed?

This question is designed to determine the purpose of learning and using English language by employees.

2. Why language is needed?
19 responses
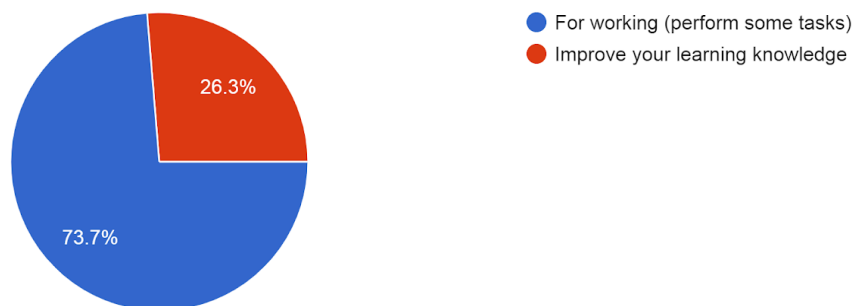
Figure 3.2: The purpose of language needed

More than three quarters (73%) of employees claimed they need English to accomplish and perform their work perfectly. Even though employees are in an atmosphere of profession, some of them (26%) may need English for academic purposes.

Question 3: To what extent are these notions important in a course?

For each item the respondents should give the usefulness scale of some notions related to their task and activities in their significance to the course of ESP.

3. To what extent are these notions important in a course?
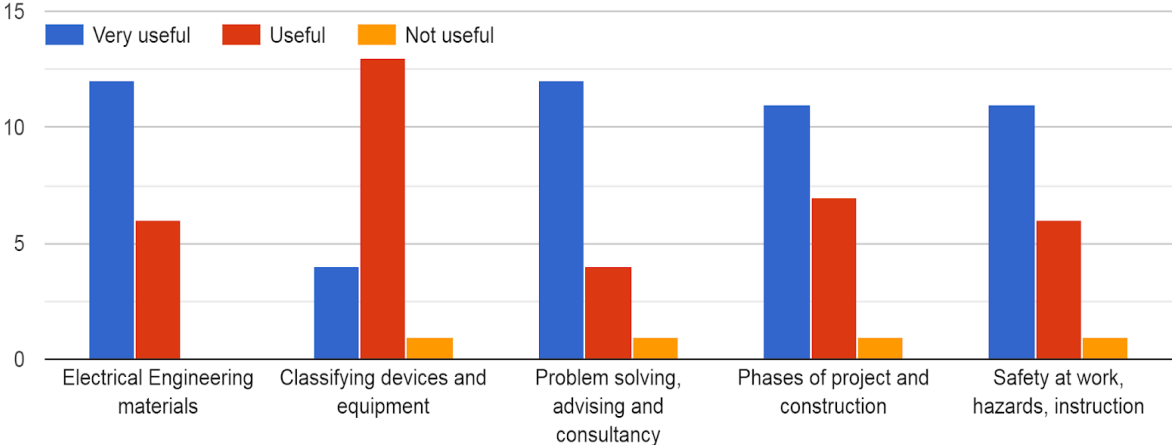
Figure 3.3: The importance of certain notions in a course

Commenting on one item which is the problem solving, advising and consultancy that belong to creative thinking, and decision-making skill, it involves finding a solution to a problem by thinking of ways to achieve the opposite effect to the one you are looking for. 12 respondents saw it very useful in the course, 4 settled for more or less useful and one seaw it without significance by ticking the option (Not useful).

The rest of items will be included in the result.

Question 4: How often do you perform these tasks in your work?

The figure bellow reports participants' frequency of practising a range of tasks, each task is related with one skill:

4. How often do you perform these tasks in your work?

Figure 3.4: The frequency of performing some tasks at work

- One participant has never read instruction documents in English, eight participants said that they sometimes read instruction documents in English and 10 respondents often do so.

- 14 respondents often write e-mails/reports, five respondents sometimes do so.

- Explaining procedure of work is a general task done by all participants in different frequency which requires mastering the speaking skills. 12 respondents claim that they sometimes do this task, seven often perform this task.

- Attending meeting requires listening as the most skill used, from 19 respondents we found most of them (13) attend meeting from time to time, others (5) often take part and 2 informants never do.

Part 2: Learning needs

Question 1: Do you think that learning special vocabulary (Technical words) and grammar in electrical engineering is enough to reach proficiency level?

5.Do you think that learning special vocabulary (Technical words) and grammar in electrical engineering is enough to reach proficiency level?
19 responses
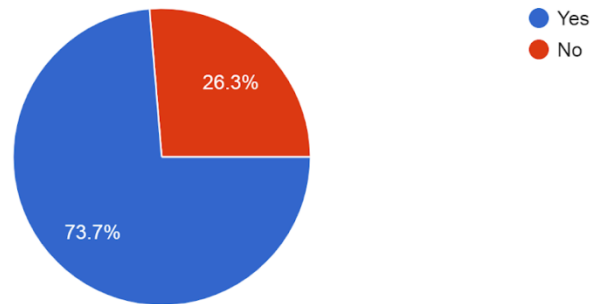
Figure 3.5: Employees view toward vocabulary and grammar to reach proficiency

When asking if engineering terminology is sufficient to reach the proficiency level that allow to perform all kind of activities most of participants (73%) stated that technical terminologies were the most important component which they needed to study in ESP.

Question 2: Where would you prefer the course of English to take place?

The purpose of this question is to determine the leaning needs settings: which place employee prefers to learn? Should the course be in combination with practice? Is there any interference when training in workplace as: noise, high temperature, vibration …

6.Where would you prefer the course of English to take place?
19 responses
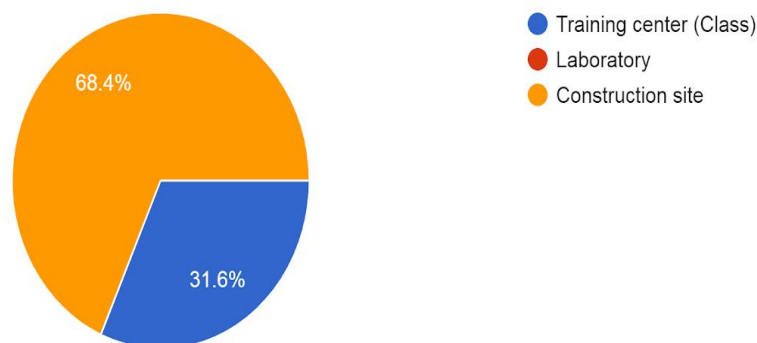
Figure 3.6: Employees' favourite course place

Findings show that 86% of participants preferred taking a course in site construction, others (31%) see learning center as the required learning environment, while no one has opted for the laboratory choice.

Question 3

In order to answer this question the respondents should remember a real situation happened to them, or they witnessed it or even hear about it. Some of participants avoided responding by commenting anything to fill the box, others ignore completely the question.

These current statements are part of answers provided by respondents based on their experience:

- "... There was a problem with how to pronounce the word **ladder**. I did not understand what he meant so I used my **toolbox** as a ladder, which led to my punishment by the HSE supervisor".

- "... I've fined some difficulties about the procedure of starting machines but with the PI&D [diagram] I was able to overcome those difficulties".

- "The big problem is when you want to isolate or energize some electrical equipments with tag e.g."I and e, g and j ......".

- "At the beginning of the project it was difficult to identify zones and area because the poor English".

- "Installation of equipment in the wrong area".

Question 4

The notable suggestions given by the respondents are compiled as follows:

- "Reading and writing".

- "Obviously you have to learn the basics in the classroom, but nothing beats learning by immersion. To be surrounded by English speakers and to make efforts to improve your level".

- "It's clear that learning a language takes time and effort. And yet it's equally clear to any language teacher that learning is far from a linear process. Then it's essential to learn technical English to develop the professional field in Algeria by creating specialized schools for the latter".

- "So you should be practice your speaking and listening and watch a movie and use the english in your life".

- "Learn a new world every day and try to apply it correctly".

- "more communication ...".

- "my advice is to study technical books in english and try to use english in your thoughts every day...".

- "It is very important to learn engineering English".

3.3.2 Teachers' Questionnaire

The purpose of conducting teachers' questionnaire is to divulge the awareness of teachers concern the needs of students in engineering domain, to what extent they could satisfy students' and workplace demands as well. We would like also to determine to what extent teachers may have experience in technical domain to contribute in the course design.

The questionnaire involves 10 participants to answer 10 questions, actually one respondent skip all questions and submit the survey blank!

Question 1: How long have you been teaching English?

1- How long have you been teaching English?
9 responses
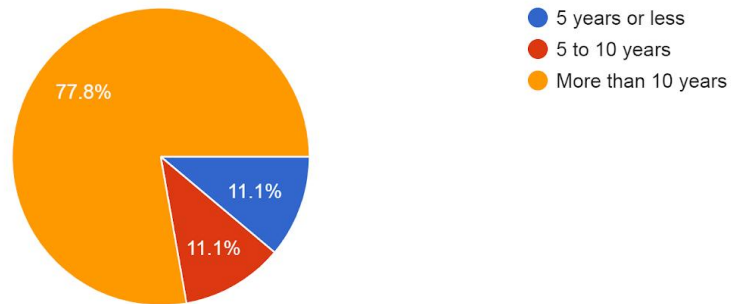
Figure 3.7: Teachers' experience in English teaching

First figure show the high rate (77%) of total respondents have practised teaching for an average of more than 10 years, the rate of the other ranges is equal to 11.1% for each one.

Question 2: Have you taught ESP before?

2- Have you taught ESP before?
9 responses
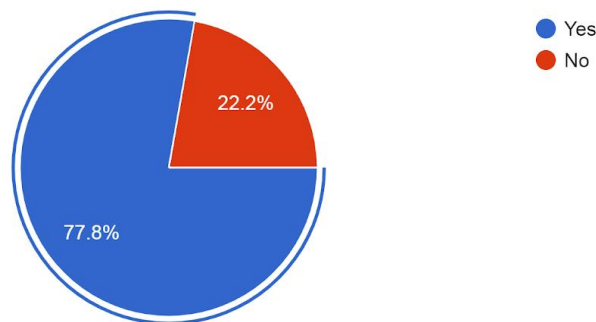
Figure 3.8: Teachers' experience in ESP

What is interesting in this figure is the dominance of teachers who have taught ESP before by 77 % compared with teachers with no ESP teaching experience (22%).

Question 2-a: If yes, have you received training prior to teaching ESP?

In this question, we have asked the teachers if they had benefited from any kind of training before.

2a- If yes, have you received training prior to teaching ESP?
8 responses
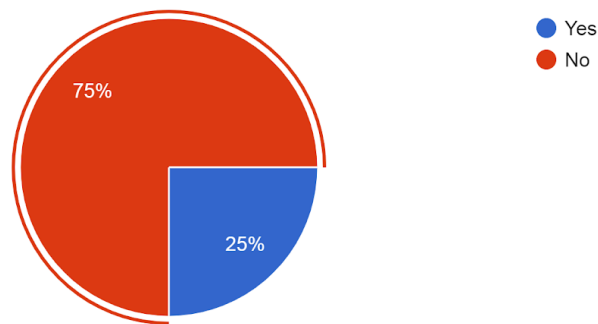
Figure 3.9: Teachers' training in ESP

What can be clearly seen in this figure is the high rate of non trained teachers which present three quarter of the sample population. It appears that six (06) teachers have never received any training in teaching ESP, while 25 % of respondents stated that they have received a prior training.

Question 3 Which branch of the following are you ready to teach?

The figure bellow illustrates which branch of ESP teachers feel ready and to teach.

3- Which branch of the following are you ready to teach?
9 responses
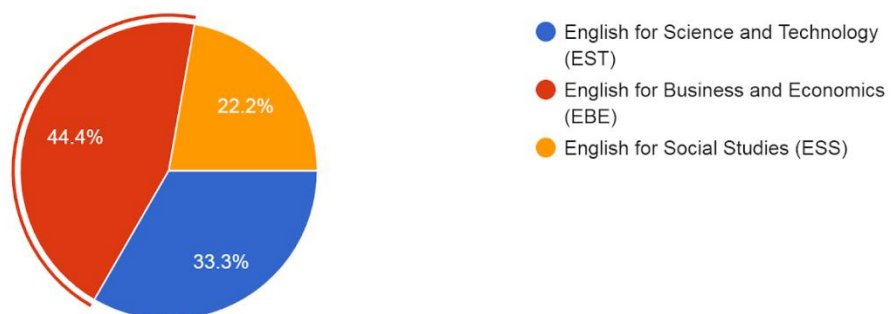
Figure 3.10: Favourite branch of ESP in teaching to the teacher

As expected the EBE has the greater rate by less than half of respondents (44%), the surprising and encouraging result is that EST is more likely by 33% than ESS by 22%, while it was expected that ESS is favourite by teachers in contrast with technical branches since most teachers learn and use English in parallel with ESS subjects.

Question 4: Do departments of specialized disciplines provide any syllabus?

The aim of this question is to confirm whether the institute provides more or less detailed document about what it thinks is more appropriate as content for special English,

4- Do departments of specialized disciplines provide any syllabus?
9 responses
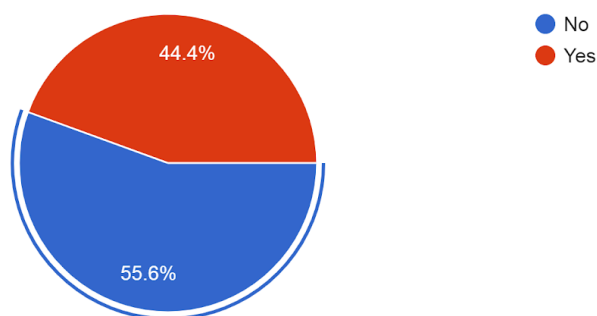
Figure 3.11: The role of specialised department in providing syllabus

More than half participants (55%) indicated that the departments of special disciplines do not provide any syllabus, whereas the rest (44%) on the contrary answered by "Yes".

Question 5: Have you worked at a company/workplace or been in such environment?

5- Have you worked at a company/workplace or been in such environment?
9 responses
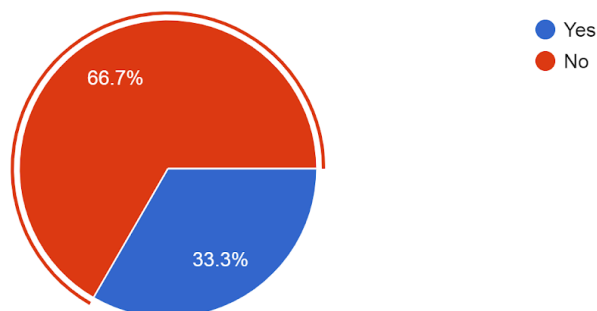
Figure 3.12: Teacher's experience in workplace

As shown in Figure 3.12 a negative correlation was found from about 66% English teachers towards workplace/company which confirm the expectations, this positive outcome will significantly help in going deep to tackle the ESP in workplace.

Question 6: Do you think that ESP teachers take into consideration the target workplace environment in their teaching?

6- Do you think that ESP teachers take into consideration the target workplace environment in their teaching?
9 responses
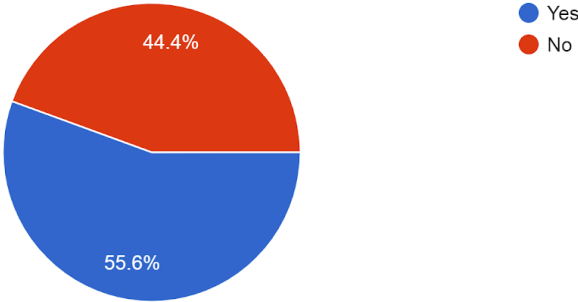
Figure 3.13: The use of target workplace in teaching

The result of these questions shows that more than half of participants (55%) have a positive attitude toward the workplace as target situation when teaching compared with 44% of teachers who did not expect including workplace as target situation in ESP courses.

Question 7: Which approach fit more with teaching/learning process?

7- Which approach fit more with teaching/learning process?
9 responses
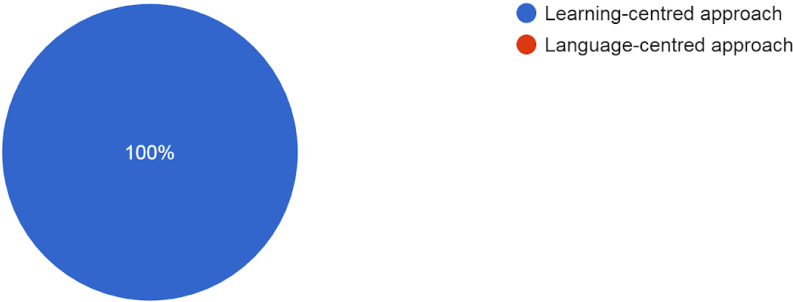
Figure 3.14; The appropriate approach to the teaching/learning process

All the teachers answered that learning-centred approach fits with the teaching/learning process. An excellent result need to be confirmed if the choice is fully understood.

Question 8: Should ESP course be based on

8- Should ESP course be based on
9 responses
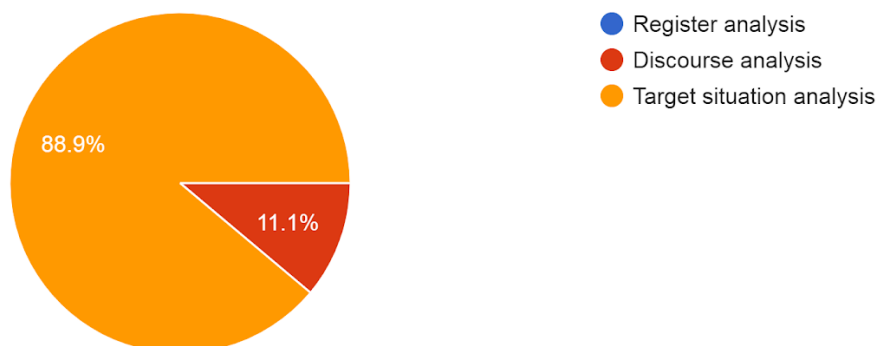
Figure 3.15: The framework of the course to be designed.

Actually this question is a multi-choice, that allows teachers to select more than one answer, but all respondents have based on a single choice. The results tip on target situation by 88%, few teachers (11%) voted for discourse analysis and no one choose register analysis.

Question 9: Do you consider the collaboration between language teachers, the subject specialist and the workplace is necessary?

9- Do you consider the collaboration between language teachers, the subject specialist and the workplace is necessary?
9 responses
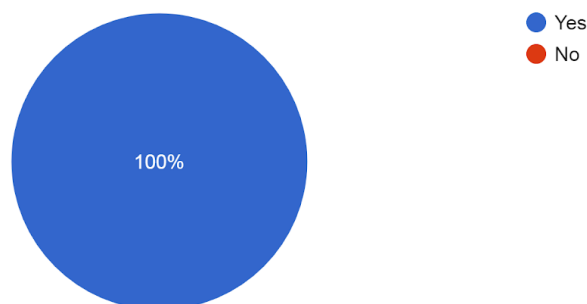
Figure 3.16: Collaboration between language teachers, subject specialist and the workplace

The positive result is that all the participants agreed on the necessity of collaboration between people in charge of ESP and the professional domain as workplace. The insights gained through this question may be of assistance to train teachers for further techniques in ESP. For further progress in developing a full picture of a good coordination between higher education, the workplace and subject specialist a research question could be asked to include teachers' point of view as follow:

*"*Both the content teachers and the workplace provide useful data to be considered in course design. Language teacher will provide language in use".

- "This is necessary to create an adequate and purposive learning environment".
- "ESP Practitioners should collaborate with specialty teachers to design their programme or syllabus".
- "For better teaching and learning".
- "It's all about the word "Purpose" in english for specific purposes. We should prepare students to be ready to use the language in their specific positions".
- "i think that it will be a great advantage and an important feedback for the two domains".
- "because ESP is all about the link between the lge and those two areas".

Question 10

Participants were asked to give their recommendations to use it in the analysis:

- "The responsible of higher education should organize study days with coordination with the workplace available in the university environment or other cities. Teachers should establish equilibrium between the wants and needs of students".

- "To revise the syllabi proposed. Take the students' needs as a priority. Teaching them how to use the language for specific needs and purposes instead of teaching them what to know about the language".

- "Making workshops Interviews with specialists Attending conferences"

- "Authorities engagements and decisions for the sake of improving ESP"

- "More collaboration between both sides"

- In my opinion, fruitful communication, well structured, well studied, and well laid out beforehand, will be a major asset for the economic world (in its vast purpose) as well as for the world of research, but the success of this ambition remains conditioned by good will, and sincere transparency, in order to avoid repeated research and studies and without any "outcome" (the term in its Anglo-Saxon and French-speaking sense.

- (refer to the original version in the appendix 6)

3.4. Results of the Questionnaires

During the interpretation of the participants' answers, valuable results were obtained that appeared from each questionnaire:

3.4.1 Employee's Questionnaire

Target needs:

The requirement of the company in term of Language use should help to improve predictions about the needs; findings of question one have shown that the use of English in SONATRACH is more required for the managers whereas the use of English is broadly in Hassi R'mel project for most job positions.

The second question results are likely to be related to the professional objective of the employees. Some of them have long term objective are those who tip to the academic choice for the future needs, in contrast employees who lean on occupational choice have a short term objectives as the immediate needs.

The third question's findings are about Electrical concepts and safety in workplace. English training for manufacturing improves safety and potential for employees, increase their awareness and decrease accidents, protect material from damage, save lives and health care, security, and preserve environment from pollution, therefore miscommunication can be fatal. Although the safety at work remains most important item, in language context it's not always of paramount importance since most employees manage their safety learning regardless the English level by using others techniques or skills, like using symbols and pictures (figure 3.17).

Figure 3.17: Symbols and signs

When piloting the questionnaire we have obtained inappropriate result that opposes the real situation and what is observed. As consequence, a reformulated question (4) was done in the final version by conducting same question in different way to confirm the result, what lead to the reading and writing skills as most required and used.

The next section of the survey was concerned with learning needs. The disappointing result of question 1 which shows that technical terminologies are the most important component in ESP according to the participants may be due to that most of them have not reached the proficiency yet, they may think that knowing the necessary technical terminologies is enough to reach proficiency which proves that they do not possess the learning strategies and they are not aware of the approaches of English language learning that lead them to the target situation.

Through question two, it appears that employees do not consider the negative effect of noise, vibration and the instable climate on the site while learning. Besides, they see themselves as controller of the course content since they can orientate it according to the workplace settings. In contrast the construction site seems to be incomplete milieu of learning because there are no materials to record the findings, neither the tools, Hence classes need to be supported by practice in the ESP course, because it enhances the engineer employees' motivation and makes them more satisfy and help to achieve quickly and effectively learning.

Asking employees about their suggestions and recommendation about learning Engineering English will include them in the process of needs analysis and next to the course design. Henceforward these suggestions will be highlighted during the observation and more concentration about the language features mentioned in both difficult situations and recommendation will be explored and elaborated, such as: spelling and vocabulary.

3.4.2 Teachers' Questionnaire

Being limited by the absence of the students in this study was compensated by teachers' questionnaire which aims to gather data about teachers, teaching and students since teacher is in first contact with students.

It is obvious through question 3 findings' that EBE speciality meet with the profile of teacher as well as the job position, this is why it has lot of interest from teachers. Furthermore, the teachers in their academic development receive notions about social aspects associated in the English curriculum in kind of modules and topics unlike EST that is less common in English courses, but EST meets more interest for the teachers! A possible explanation for this result is that EST provides a better professional experience and salary incomes in the light of English demand in the multinational companies.

Comparing between question two and five we have extracted that among seven teachers who taught ESP only two have been in company whereas the others have not been in such environment, this result leads us to the answer six and we can conclude that even if ESP teacher takes in consideration the workplace he/she cannot succeed unless he/she integrate in the professional environment.

ESP and workplace experience	ESP teaching & workplace experience	Only ESP teaching	Only workplace experience	neither ESP teaching, nor workplace experience
Numbers	2	5	1	1

Table 1 : Teachers' experience in ESP and workplace

A positive correlation was found through the answer of question seven, by teachers who demonstrate a good conception about the appropriate teaching approach. In order to confirm their statement a tricky question (eight) was asked by giving options that cannot stand individual without mixing it to combine a better approach. The fact that all respondents select just one answer is that they think that one approach can meet the students' needs. However, target situation "in its analysis of learner need it still looked mainly at the surface linguistic features of the target situation" as Hutchinson & Water (1987, p. 13) claim. In this case different situation various approach must be used together.

Questions seven, eight and nine show that teachers demonstrate a basic knowledge and awareness from employees about the occupational needs as well as the academic needs in ESP, but it must be deeply tackled and adequately applied.

The last question aims to elicit the teachers' suggestion about technical solutions; even if most answers were useful but it all pour for the organizational and methodological side.

Overall, this questionnaire strengthens the idea that the institutional organizations are not playing a significant role in developing ESP and Electrical Engineering in our university.

Whatever the background and the current level of each student, the course content should cover all the useful elements of the language that students may need in the short term as well as long-term objectives.

These results do not approve completely the first hypothesis which claims that ESP is far to suits the learners needs as claimed since teachers have demonstrated a basic knowledge about ESP, but they are still on the surface and need more or less knowledge and expertise that allow them to engage in this process.

The questionnaires support the hypothesis of the second research question that tends to answer how to meet students' future needs by focusing on teachers who should be trained in investigating the needs and analyze it with the use of the target workplace. But, since teachers are willing about their duty and they demonstrate good qualifications and aptitudes, the findings have provided further information by guiding the research question to "who can satisfy students' needs?". For employees, findings have involved broad category in charge represented in work practitioner, institutions and course developers as well as learner who is the essential piece in this whole approach.

3.5. Workplace Observation

This study supports evidence from previous observations along two years of contact with different categories of employees in all workplace settings.

3.5.1 Description

The unfolding of the observation was done in several main settings: meeting room, briefings, open space, toolbox talks and on the site of construction where linguistics features analysis was conducted. A daily toolbox talk take place on the site of construction; its aim is to inform the men-power about all activities and its location in order to avoid any interference between different disciplines at same time and same location. For instance, a training session was the subject of our observation where a tape recorder was used to analyze the events that were not observed in the real time, since the group was large and lot of people were talking at same time.

As it was revealed in the methodology chapter, the use of linguistics' feature analysis remains of paramount importance to gather better information about learning needs, meanwhile this technique is not effective without involving corpus-driven approach which is not the case of this study for some reasons mentioned in the limitations.

It is necessary to notify that all communications has faced radically changing between two periods of time resulted in modification of the organization size and its combination.

- First period: Before the pandemic the company's organization were Large in size and mixture of employees from several countries. The use of language was restricted to English.

- Second stage: During the pandemic when a decision of expats' evacuation was made by their governments, the use of English language decreased, French and Arabic became dominants. Whereas in other companies and others circumstances the findings may give

different result, since large size organization requires communication via letters and reports (reading skills),while for small size organization the communication is done directly (speaking skills) (Cambridge English, 2016, p. 17).

The employee's routine can be summed up in these two categories of employees:

- First employee's category: The progress of the work begin from the morning at 6 AM, when employees go to the office using computers to prepare the daily work by reading documentation and instructions ,writing emails and last printing the paper's work. After that, they go to the site, using the papers to describe the work and supervise activities at construction site. At the end they assist in the meetings.

- Second employee's category: Employees start from construction site by assisting in the talk box (defined previously), and then they proceed in the work directly.

3.5.2 Analysis

The observations will be analyzed independently according to the setting and linguistics characteristics

3.5.2.1 Meeting Observation

During a meeting planned by a subcontractor who is responsible of new equipment to train a group of SONATRACH for complicated operation of maintenance, with assistance of JGC members, it has been noticed that: all participants in this observation were non-native speakers; Korean vendors group, SONATRACH members are Algerian, and the trainer from Philippines. The complicated situation in this meeting is that the vendor master just the mother tongue (do not speak or understand English at all), the trainer masters but not fluent of English and half of SONATRACH members do not understand English well. While explaining, trainer was doing whatever is needed to be understood. It has been noticed:

- Using body language.

- Using photos and data show.

- Using material and real equipments.

- Depends on fluent Algerians to translate in Arabic.

- Seek for help by using some phrases: "how to say?", "Could you remind me?"...

- Using references by saying: "according to the vendor, according to the procedure ...., to avoid the misunderstanding due of the poor English used.

- Use Arabic words learned during staying in Algeria: نشاله , شوية شوية /ʃwɪɒ/ /nʃələh /.

- Using minimal responses and repetitive words like: No, good, yes, correct, basically; when understanding Algerians, even when they use french cognate.

- Most Algerian participants have weakness in using frequent phrasal verbs such as: Push-up, pull down, put off ...

The other findings of workplace observation are analyzed in these sections:

3.5.2.2   Register Observation

We have conducted an identification of the grammatical and lexical features of the specific instances:

- The issue of abbreviations and acronyms when reading documents and instructions which may take deferent meaning. For example: The first result of the term ESP in Google stands for **E**xtra-**S**ensory **P**erception.

- Non native may use to pronounce and spell some words and letters differently like Indian's pronunciation of the letter "L" as "YAL" and V as W. For example: the verb "avoid" is pronounced "AWOID". This mispronunciation causes a problem to understand them at site or when following their tutorials, since the Indians are leaders in electrical engineering field.

• As it was revealed in the questionnaire some employees depend on the French cognate to understand meaning, moreover in speaking, reading and listening. For example confusing between letters E, I and A which happens to lead to misunderstanding as it was affirmed by the previous questionnaire's respondents in many situations.

3.5.2.2.1 Grammatical

1‑Active voice: in plans when identifying employee concerned with the task.

2‑ Passive voice: in plans when focusing more on the nature of the task.

4 ‑ING forms: the use of ING to create nouns from familiar verbs. E.g. BOOSTING whether in speaking, writing or in instruction documents.

5‑Past tense: most common when reporting activities

3.5.2.3 Discourse Observation

• The language use varies according to the context. Example of two different situations: telephone VS live conversation; In live communication the speaker has the power to use body language to explain some actions and to refer to the objects which reduce the use of the register and simplify the utterance produced, example of a comparison between instruction in manual text and video tutorial or real situation: "Put this here and turn it like this" VS "bring the crank and put it in the hole of the switchgear, then turn it in clockwise position". Using context reduce the sentence by omitting its structure and replacing it by the body language.

• Some words have multiple meanings, example: Tie-in, Socket, Live (cable), and bus bar, men power. If the employee is familiar with a word in specific domain he/she will understand it or relate it to the meaning concern. This does not mean necessary that this meaning fit with the appropriate sentence. The table below shows some instances.

Term	Electrical Special meaning	Other special meaning
Socket	An object into which something is plugged or fitted	an opening or hollow that forms a holder for an equipment
Tie-in	Overhead power line connection	connecting a new line or branch to existing line
Outlet	A source of electrical power	a place or opening through which air is let out
BOLT	a single ray of lightning	a type of metal fastener

Table 2 : Different technical meanings of same word

3.5.2.4   Skill-Based Observation

The aim of this observation is to identify the current cognitive and communicative skills for engineering workplace as global and specific skills of electrical engineers and their limitations. The findings show:

- Lack of coherent ideas in writing and speaking

- Critical thinking differ from one to another according to the cognitive skills

- Make an intelligent guess at some of the words or sentences

- **Speaking:** some employees trying to make a coherent structural sentence fail to convey the meaning, in contrast employees who focus on the meaning and use all means possible to deliver the message succeed in the communication.

- **Writing:** when writing a report we cannot ignore the syntactic and grammatical rules even if we feel that the meaning is clear especially in the official transactions.

3.5.3   Solutions

- Vocabulary focus: there are few words need to be really checked and understood because these kinds of words are blocking the employee from understanding the basic meaning of the whole text. Refer to corpus documents word frequency in (Appendix 7)

• The possibility of reducing the register and as a result the content of English course for people who have lack of time or for old people who cannot start from the beginning. This will serve in reducing time of learning (when learning ESP in comparison to general English) and money (rather than recruit translators).

• Be aware of the existing of false cognate and avoid reliance totally on it, because it can lead to confusion or in worse cases to incidents. e.g.: location (rental) ≠ location (place), questionnaire (survey) ≠ questionnaire (investigation), especially for those who master French language.

• Speaking skills: The use of informal discussion for enhancing the trust and maintaining the relation between employees, that is to acquire knowledge much more than other ways.

3.5.4   Results

• The use of the International radiotelephony spelling alphabet in order to distinguish between letters when identifying equipments or objects. (Appendix 8)

• The challenge is to understand the meanings of words we have never met before by predicting the meaning from the context.

• The necessity of promoting leaner autonomy which will lead the employee to self development independently from teachers and trainers guidance.

• The four basic skills are essential to achieve proper and effective activities :

Reading is essential to maintain and increase professional with the ultimate knowledge, especially for quality control employees.

Speaking is most important for the foreman employees, who their fundamental role is to explain procedures and supervise men power.

Writing skills is the most important for researcher to publish their paper research in journals.

60

<u>Listening</u> is just as important as the other skills, it help to eliminate conflict, and it is the key to acquire more knowledge from teachers, trainers and colleagues.

- The course of the students of Engineering should be designed with different content for each level. For instance, junior students have to study more or less elementary courses to acquire a basic knowledge about the language. All the chosen topics should be about grammatical and syntactic aspects at first stage, while the content designed for senior students should be based on specialized texts as Engineering and precisely in Electrical field, because it is supposed to provide the learner with more technical terms (Figure 3.18). The course developer has to design the appropriate activities for each theme to help students improve their written and reading skills.
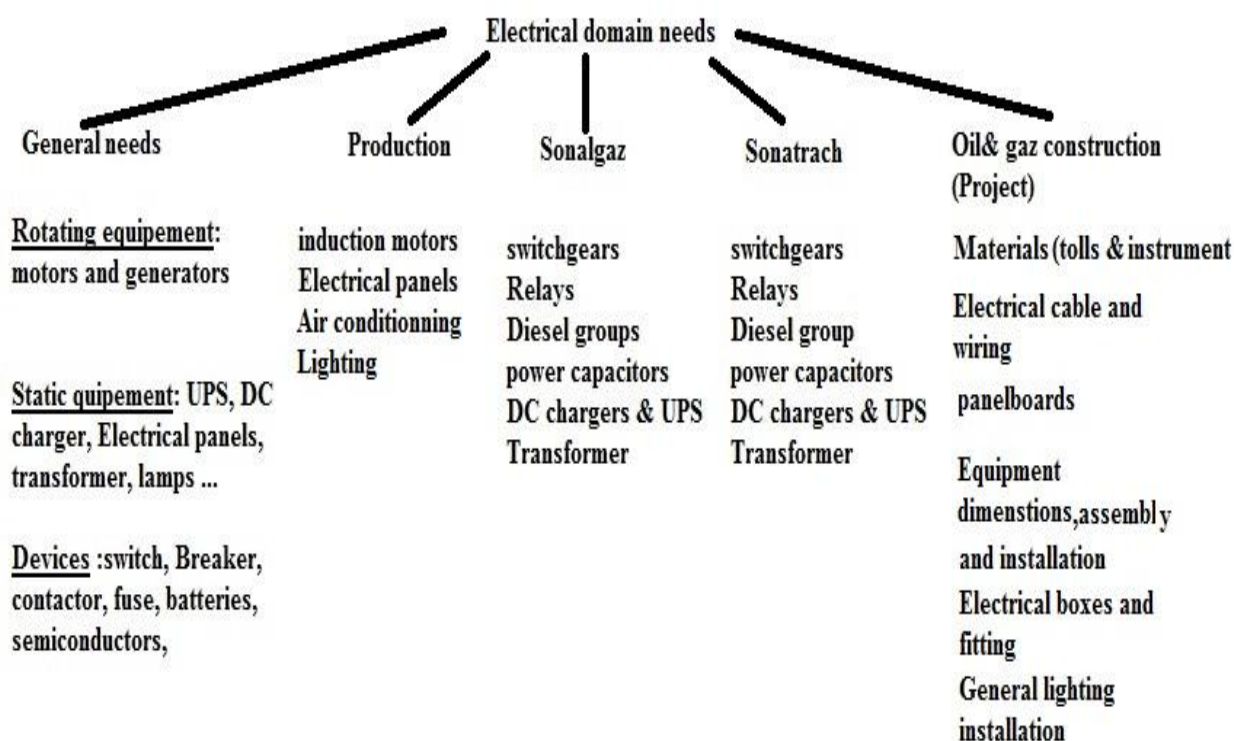
Figure 3.18: Researcher views of Electrical field needs

These observation results support the hypothesis of the third question which claims that mastering technical English go in parallel with professional development, and training sessions are of paramount importance for employees to accomplish activities and to boost

their motivation at the workplace. Furthermore it gives an orientation of how to use training courses that help employees to achieve tasks and to become proficient in their Engineering field.

3.6. Limitation of the Study

Many restrictions took place in many forms. These potential limitations and its effect are related to the following points:

- Limited access to the classical book and fundamentals literatures as well as the Modern Scholar and contemporary authors especially the Influential Books that are considered as rare pearl as well as the first source of the information, even when using SNDL.

- The result obtained cannot be generalized for other population that does not fit with the one under study in terms of (size, Domain, significance of English …).

- Due to corona-virus pandemic circumstances that obliged universities to open for just fundamental modules. It becomes impossible to gather classroom observation for English as technique language module from engineering departments neither the students' questionnaire that was prepared but hasn't seen the light.

- Due to the corona-virus pandemic it was difficult to make an observation of group of people because the social distancing firstly and also because of the emergency departure of foreign workers. As consequence the atmosphere of multinational and the use of English as standard language has been converted into the use of Arabic and French languages.

- We were planning to "Give the audience a comparison between workers ESP trained and non-trained" but this was not possible since all the participants of the survey were not trained in term of ESP.

- A limited period of time cannot allow using corpus analysis.

3.7. Recommendations

In reference to the results obtained from the three research tools, we would like to forward the following recommendations which encompass learners, teachers and course designers.

- Teachers and course designers should integrate themselves more in workplaces and work situations and environments in order to analyze language used in different contexts.

- Teacher of ESP should acquire both English skills and basic knowledge of the specialty they are involved to teach.

- As it was illustrated in chapter two Corpus-based analysis, the use of corpora play an importance role in identifying the linguistics features and characteristics that distinguish particular purposes as in electrical engineering, Actually the availability of a large amount of instances in forms of speech and text can help to create a corpus-based descriptions of ESP in order to use it for workers needs analysis

- The current research is far from being an exhaustive one. In order to obtain more in-depth information, other types of instruments should be included in further studies, such as individual or focus group interviews.

- In order to go deeper and further in the linguistics features analysis a corpus of large scale data need to be gathered from the actual and target population and use an appropriate tool to discover some facts about the nature of electrical English language used in specific context.

- It is better to include in the sample population high level managers and employees as subject of study since the requirement activities for such level introduce other skills, and take in consideration base level of non educative workers who are obliged to use English.

- In order to improve self development and autonomous learning, ESP techniques should be dedicated for learners who do not possess time to follow trainings.

3.8. Conclusion

This part of the paper was an attempt to answer the research questions through the data collected by discussing the results obtained from the questionnaires and workplace observations. The questionnaire was administered to both teachers and employees in order to identify the target needs. The observation conducted in the workplace was done in order to produce a learning experience and to determine the learning needs. Some hypotheses were proved, others are refuted or guided to admit the research question.

Based on the analysis conducted in the questionnaires and observation, the findings grasped from each technique will contribute in the needs analysis outcomes. The methods used for this needs analysis may be adapted to be applied in other workplace elsewhere in the Algerian companies and universities to investigate the special English needs at the workplace.

General Conclusion

The role of English as means of communication has expanded to become a means of integration and development whether in academic or vocational fields. The raison of this expansion is due to the globalism because the demands of a brave new world, a revolution in linguistics and applied linguistics and focus on the learner**.**

The main concern of this research is the needs analysis which is the first step in designing any ESP course. For that reason, the present study has been conducted to investigate the needs of Electrical engineer students and workers in SONATRACH Company and BOOSTING PHASE 3 project.

To do so, the study is conducted under the theoretical framework of Hutchinson and Waters (1987) which is Learning- Centered-Approach. It provided various definitions about the main concepts of ESP and Needs Analysis as reported by many scholars. Furthermore, the stages of development and approaches were discussed clearly to apply it in the practical chapter.

In order to fulfil the objectives of the present study, a research design and a methodology consist of mixed research method was adopted for the analysis of the data gathered by adopting both quantitative and qualitative methods. Besides, a field work procedure was followed at workplace in order to extract the maximum data.

The current research made use of workplace observation and questionnaire as data collection instruments. For this reason two stakeholders' categories were involved: English teachers from Ain Temouchent University and electrical engineer employees from BOOSTING 3 project. Thus, the first questionnaire was developed based on employees target and learning needs and the second questionnaire seeks to teaching environment, teaching approach, methods, and techniques in addition to teachers' viewpoint on the linguistics

requirements. The observation was carried out within Algerian workplace SOANTRACH for the purpose of investigating the use of English by Engineer employees and identifying the language features that govern the workplace of electrical engineers.

It is revealed through the research that students' Target needs are difficult to fix due to the various branches of electrical engineering which require different concepts, but adopting an approximation by researcher help determining the general needs. Whereas the needs for employees were easy to identify according to job position, duty and workers' objective. Moreover, learning needs for all stakeholders' categories require using all approaches differently.

The obtained results revealed that students' low proficiency level is due to the inappropriate ESP courses that are not predetermined by their needs. Moreover, it was deduced that reading and writing skills have priority in academic purposes and speaking and listening skills have priority in occupational purposes. This humble research has changed the perspective and expectation on the willingness of English teachers toward teaching ESP in engineering domain.

However, the current research could not be generalized to all projects employees' without adaptation due to the different job positions and different activities. Therefore, the current limitations may call for a further future investigations in the field of ESP.

Finally, as far as the suggestions are concerned the researcher recommended conducting Needs Analysis before designing courses for Electrical students and an ESP training for employees to become more proficient and able to accomplish different tasks. Teachers who have no initial training would take training courses and seminars. If possible, teachers will have the opportunity to assist at workplace which leads to developing ESP course that meets learners' needs.

References

- ALLAL. R (2008). ESP Syllabus Design: A Case Study of First Year International Commerce Students Djillali Liabes University- Sidi Bel Abbes. (Magister's Thesis). Tlemcen University: Tlemcen.

- Brieger, N., & Pohl, A. (2007). *Technical English: Vocabulary and Grammar* (1st ed.). MC/Summertown ELT.

- Brunton, M (2009). An account of ESP – with possible future directions. Journal of: English for Specific Purposes Issue 3 (24), Volume 8,

- Cook, V. (2013). Second Language Learning and Language Teaching (4th ed.). Routledge.

- C.Gledhill and N.Kübler. (2016). Online since 01 March 2017« What can linguistic approaches bring to English for Specific Purposes? », ASp [Online], connection on 10 December 2020. URL: http://journals.openedition.org/asp/4804; DOI: Retreived from https://journals.openedition.org/asp/4804.

- David Crystal (1992). Introducing Basic Linguistics (Penguin English Linguistics). Penguin Books Ltd.

- David, N and Clarice, L. (1996). The self-directed teacher: managing the learning process. Cambridge: Cambridge University Press.

- Dudley-Evans, T. (1998). DEVELOPMENTS IN ESP: A MULTI-DISCIPLINARY APPROACH . Cambridge University Press.

- Dudley-Evans, T., & John, S. M. J. (1999). Developments in English for Specific Purposes: A Multi-Disciplinary Approach (Cambridge Language Teaching Library) (1st ed.). Cambridge University Press.

- E. H. Barney Smith, "What is electrical engineering? [The Way Ahead]," in *IEEE Potentials*, vol. 38, no. 5, pp. 52-52, Sept.-Oct. 2019.

- Ewer, J. R. and Latorre, G , (1969) A Course in Basic Scientific English, Longman.London.

- H.M.Khairy (2017). Designing an ESP syllabus framework based on conducting of an effective target situation needs analysis a case study of abu dhabi police traffic officers. Retreived from: https://platform.almanhal.com/Files/2/103968:.

- Henkel, (2021) https://www.henkel.com/company/diversity-and-inclusion.

- Hutchinson, T., & Waters, A. (1987). English for Specific Purposes (Cambridge Language Teaching Library) (1st ed.). Cambridge University Press.

- JGC HOLDINGS CORPORATION, (n.d) https://www.jgc.com/en/projects/.

- Korich. H (2018). The Workplace a Perspective to the University : The Impact of the Workplace on Designing a Syllabus for Business English The Case of Three Companies in the West of Algeria. (Doctorate Desertation). Djillali Liabes University. Sidi Bel Abbes.

- MEDDOUR, M (2014). Integrating web-based teaching in esp: a case study of computer science students at biskra UNIVERSITY. (Doctorate dissertation). Mohammed Kheider University Of Biskra : Biskra.

- Mundy, J. (1978). Communicative Syllabus Design. Cambridge University Press.

- M.V. Vinodkumar, A.K. Anoop,(2020). Review on comparability of classical' and 'contemporary' research methods in the context of Ayurveda. Journal of Ayurveda and Integrative Medicine.

- Rezaee .A.A. and Kazempourian.S (2017). English Needs Analysis of Electrical Engineering Students, Graduates, and Companies: A Step toward Employability. Journal of Language Horizons, Alzahra University, Volume 1, Issue 1, 2017.

- Rogers, C. R. (1969). Freedom to learn; A view of what education might become (Studies of the person) (Later Printing ed.). C. E. Merrill Pub. Co.

- Roger H. C. Smith. (2015). FOCUS ON ELECTRICAL ENGINEERING IN ESP. Garnet Publishing Ltd., 2014, 132. THE JOURNAL OF TEACHING ENGLISH FOR SPECIFIC AND ACADEMIC PURPOSES Vol. 3, No 1, 2015, pp. 193−195

- Saunders, M., Lewis, P. and Thornhill, A. (2007) Research Methods for Business Students. 4th Edition, Financial Times Prentice Hall, Edinburgh Gate, Harlow. Retreived from:

  https://www.scirp.org/(S(czeh2tfqyw2orz553k1w0r45))/reference/ReferencesPapers.aspx?ReferenceID=1571834

- T, ASSASSI (2017). The Effect of Formulaic Language on ESP Learners' Conversation Competence: The Case of Aviation Professionals in Algeria. (Doctorate dissertation). Tlemcen University: Tlemcen.

- Widdowson, H. G. (1978). Teaching Language as Communication (Oxford Applied Linguistics) (1st ed.). Oxford University Press.

- Widdowson, H. (September 2017). The emergence of EAP interview, 50th anniversary BAAL Annual Meeting, University of Leeds. [Video] YouTube

  https://www.youtube.com/watch?v=ebfxQV-zoWs

- Yin, R. K. (2009). Case study research: Design and methods (Vol. 5).Los Angeles.

Appendices

Appendix 1

Pilot Questionnaire

Dear employee:

This questionnaire aims at identifying the English needs and requirements of engineer employees in companies in order to develop themselves professionally. We would appreciate your collaboration if you could answer this questionnaire. Please, tick (×) the appropriate answer or make a full statement when necessary. **Your answers will be kept confidential**. We thank you in advance for your cooperation.

HADDOU Yasser

Department of Foreign languages

University of BELHADJ Bouchaib, Ain Temouchent

Section One: General information

1. What is your gender?

   Female ☐   male ☐

2. Your age is :

   25 years or under ☐

   26-30 years ☐

   31-35 years ☐

   Over 36 years ☐

3. Would you, please, specify your degree:

Licence ☐

Master ☐

Ph.D ☐

Other (specify, please) ☐   ....

4. What is your Job position?

Manager ☐

Supervisor ☐

Technician ☐

Operator ☐

Secretary ☐

5. How would you describe your level in English?

Beginner ☐

Intermediate ☐

Advanced ☐

Section Two: Needs analysis

1. Do you need English at work?

Never ☐

Rarely ☐

Sometimes ☐

Always ☐

2. Does the use of English affect your performance at work?

Yes ☐   No ☐   I don't know ☐

3. Which skills you need most to perform your job?

Skills / Ferequency	Listening	Reading	Speaking	Writing
Never				
Rarely				
Sometimes				
Always				

4. What are the most frequent tasks you perform at work?

Frequency / Tasks	Never	Sometimes	Often
Accomplish the activities or describe the procedures to the workers			
Communicate to the foreign colleagues			
Manual documents analysis			
Read Reports			
Hold telephone conversations			
Write emails and letters			
Attend Meetings			

5. Which skills do you face problems?

Reading ☐

Writing ☐

Listening ☐

Speaking ☐

6. What do you do when you encounter a difficult or uncomfortable situation using English?

Use dictionary ☐

Guess the meaning from the context ☐

Relate the French cognate ☐

Use the knowledge background ☐

Seek Help or translator ☐

Use Body language ☐

Others...

7. Did you take courses of English before? (If yes state where)

Yes ☐ .... No ☐

8. Do English courses reflect your language needs?

  Yes ☐ No ☐ I don't know ☐

9. Best courses should be based on:

General English ☐ Specific English in your domain (ESP) ☐

THANK YOU FOR YOUR COLLABORATION

Appendix 2 (Pilot questionnaire's; Arabic version)

<div dir="rtl">

أعزائي العمال

يهدف هذا الاستبيان إلى تحديد احتياجات عمال الهندسة للغة الإنجليزية في الشركات، و هذا من أجل تطوير أنفسهم مهنيا.نقدر تعاونك بإجابتك على هذا الاستبيان.يرجى وضع علامة (X) على الإجابة المناسبة أو الإدلاء ببيان كامل عند الضرورة.إجابتك ستبقى سرية . نشكرك مقدما على تعاونك.

حدو ياسر

معهد اللغات الأجنبية

جامعة بلحاج بوشعيب، عين تموشنت

الجزء الأول: معلومات عامة

1. ما هو جنسك ؟

ذكر ☐   أنثى ☐

2. عمرك :

25 سنة أو أقل ☐

30-26 سنة ☐

35-31 سنة ☐

36 سنة فما فوق ☐

3. هل من الممكن تحديد شهادتك ؟

ليسانس ☐

ماستار ☐

دكتوراه ☐

أخرى (حدد) ....

4. ما هو منصبك في العمل ؟

مدير ☐

مشرف ☐

تقني ☐

عامل ☐

</div>

إداري ☐

5. كيف تصف مستواك في اللغة الإنجليزية؟

مبتدئ ☐

متوسط ☐

متقدم ☐

الجزء الأول:

1. هل تحتاج إلى اللغة الإنجليزية في العمل؟

أبدا ☐

نادرا ☐

أحيانا ☐

دائما ☐

2. هل يؤثر استخدام اللغة الإنجليزية على أدائك في العمل؟

نعم ☐   لا ☐   لا أعرف ☐

3. ما هي المهارات التي تحتاجها لأداء عملك؟

الكتابة	التكلم	القراءة	الإستماع	المهارة / التواتر
				أبدا
				نادرا
				أحيانا
				دائما

4. ما هي أكثر المهام التي تكررها في العمل ؟

غالبا	أحيانا	أبدا	المهام / التواتر
			إكمال الأنشطة أو صف الإجراءات للعمال
			التواصل مع الزملاء الأجانب
			تحليل وثائق العمل
			قراءة التقارير
			عقد محادثات هاتفية
			كتابة رسائل البريد الإلكتروني والخطابات
			حضور الاجتماعات

5. ما هي المهارات التي تواجه فيها مشاكل؟

القراءة ☐

الكتابة ☐

الإستماع ☐

التكلم ☐

6. ماذا تفعل عندما تواجه موقفًا صعبًا أو غير مريح باستخدام اللغة الإنجليزية؟

تستخدم القاموس ☐

خمن المعنى من السياق ☐

تربط مع الكلمات الفرنسية المشابهة ☐

تستخدم المكتسبات المعرفية القبلية ☐

تطلب المساعدة أو مترجم ☐

تستخدم لغة الجسد ☐

أخرى ....

7. هل أخذت دورات في اللغة الإنجليزية من قبل؟ (إذا كانت الإجابة بنعم ، اذكر أين)

نعم ☐ .... لا ☐

8. هل دورات اللغة الإنجليزية تعكس احتياجاتك اللغوية؟

نعم ☐ لا ☐ لا أعلم ☐

9. أفضل الدورات يجب أن تستند إلى:

إنجليزية عامة ☐ إنجليزية متخصصة ☐

شكرا لتعاونك

Appendix 3

Corpus of linguistics features

Linguistic features of a genre/text type (conference presentation, presidential debate, email list announcement, headline, film review, letter to the editor, mission statement, military operation order, press release, research article, etc.) or field (astronomy, economics, finance,the law, medicine, etc.)
Argumentation, discourse modes/sequences, rhetorical moves
Bundles, clusters, collocations, lexical phrases, phraseological units
Metaphor, conceptual metaphor (cognitive approach)
Morphology in terminology (abbreviation, affixing, blending, composition, derivation)
Terminology of a domain (in LSP and/ or LGP)
Theme/Rheme analysis, information / thematic structure
Cohesive markers of reference ('this, that', etc.)
Terminology in translation, translation problems (false friends)
Cohesive markers of conjunction, discourse markers ('that is to say...', etc.)
Modality
Aspect, tenses
Cohesion across a whole text
Clause-level structure (if-conditionals, clefts, extraposition, coordination)
Lexical association, complexity, density, comprehension, reading level, AWL
What can linguistic approaches bring to English for Specific Purposes?
Lexical distribution, keywords, "notional networks"   Terminological creativity/neology

Translation processes, specialised translation
Voice (= active, medio-passive, passive, etc.)
Error analysis
Grammatical metaphor
Hedging
Interrogatives (direct/indirect)
Multimodal aspects of oral and written interaction (images, symbols, non-verbal gestures, etc.)
Rhetoric, style, voice (= strategy of communication)
Verbal group syntax, causatives, phrasal verbs Verbal semantics (process types – participant roles, transitivity) Adverbs of intensity, modal adjuncts
Aphoristic phrases, formulaic language, speech acts, sequences with specific rhetorical functions
Denomination, proper nouns, names
Nominal group, adjectival group (compound pre-modifiers)
Pronouns, relative pronouns
Quantifiers
Reformulation
Citations, quotations
Collocational networks
Intercultural rhetoric, politeness
Language learning/Acquisition
Non-standard language (slang)

Appendix 4

Employees' questionnaire

This Questionnaire is designed to reveal Electrical engineering workers' needs of English language in order to help practitioners in preparing a course that meet the workers' needs in the field of Electrical engineering. We would be grateful if you could answer the questions. Your participation will be of a great help for this research. Thank you for your collaboration.

Part 1: Target needs

1. The English level requirement when applying to the current job is:

Advanced ☐

Intermediate ☐

Basic ☐

No requirement ☐

2. Why language is needed?

For working (perform some tasks) ☐

Improve your learning knowledge ☐

3. To what extent are these notions important in a course?

	Not useful	Useful	Very useful
Electrical Engineering materials			
Classifying devices and equipment			
Problem solving, advising and consultancy			
Phases of project and construction			
Safety at work, hazards, instruction			

4. How often do you perform these tasks in your work?

	Never	sometimes	often
Reading instruction documents			
Writing emails and reports			
Explaining procedure of work			
Attending meeting			

Part 2: Learning needs

1. Do you think that learning special vocabulary (Technical words) and grammar in electrical engineering is enough to reach proficiency level?

   Yes ☐   No ☐

2. Where would you prefer the course of English to take place?

   Training center (Class) ☐   Laboratory ☐   Construction site ☐

3. Could you mention a situation at work (communication) where the misunderstanding because of English led to serious issue?

   ....
   ....
   ....
   ....
   ....

4. What are your suggestions about learning Engineering English and Electrical English?

   ....
   ....
   ....
   ....
   ....

Appendix 5

Teachers' questionnaire

This questionnaire aims at collecting data to elaborate and extend essay as a partial fulfilment for master 2 degree. We would be grateful if you could provide answers which will enhance this research

1- How long have you been teaching English?

    5 years or less   ☐

    5 to 10 years   ☐

    More than 10 years   ☐

2- Have you taught ESP before?

    Yes ☐   No ☐

If yes, have you received training prior to teaching ESP?

    Yes ☐   No ☐

3- Which branch of the following are you ready to teach?

    English for Science and Technology (EST) ☐

    English for Business and Economics (EBE) ☐

    English for Social Studies (ESS) ☐

Other……………………………………………………………………………..

4- Do departments of specialized disciplines provide any syllabus?

    Yes ☐   No ☐

5- Have you worked at a company/workplace or been in such environment?

    Yes ☐   No ☐

6- Do you think that ESP teachers take into consideration the target workplace environment in their teaching?

Yes ☐   No ☐

7- Which approach fit more with teaching/learning process?

Learning-centred approach ☐

Language-centred approach ☐

8- Should ESP course be based on

Register analysis ☐

Discourse analysis ☐

Target situation analysis ☐

9- Do you consider the collaboration between language teachers, the subject specialist and the workplace is necessary?

Yes ☐   No ☐

Why?
……………………………………………………………………………………

10- What do you suggest as effective procedures to make the coordination between higher education and the worplace possible?

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.........................................................................................................
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Appendix 6

Teachers' suggestion in French language

- "(désolée pour la réponse en langue française): à mon avis la communication fructueuse, bien structurée, bien étudiée, et bien tracée au préalable, sera un atout majeur pour le monde économique (dans son vaste propos) ainsi que pour le monde de la recherche, mais la réussite de cette ambition reste conditionnée par la bonne volonté, et la sincère transparence, afin d'éviter les recherches et les études répétées et sans aucune "issue" (le terme ds son sens anglo-saxon et francophone)".

Appendix 7

Frequency of technical words in instruction documents

ENGLISH	Explication	FRENCH	العربية
Lightning	/	Foudre	برق
Cooper	/	cuivre	
Clamp	/		مشبك
Ceiling light	/	éclairage plafonier	
Pendant lighting	/	Pendatif	
Brachet lighting	/	éclairage par support mural	
Stand type	/	Support à la terre ou platforme	
Breakdown	/		
Vaccum	/	le vide	
Name plate	/	Plaque signalitique	
Handle	/	Manipuleur	مقبض
Knob	/	Bouton	
Dummy	/	Maquette	نموذج
Shifting	/		نقل تحويل
Recessed / Emberdded	/	Encastré	
False ceiling	/	Faux plafond	
Bay	/	Baie	
Grout	/	Ciment	
Exchaut	/	Echappement	
Scubber scid	Remove trace liquid droplets from gaz streams		
Stanchion			دعامة ركيزة
Braid		Tresse	ضفيرة
Termination lug		Cosse	

Tape		Ruban	شريط
Sealing washer		Rondelle d'étanchité	
Withstand (V)		Résist	
Out going		Sortant	
Kit			
Enclosure		Boitier	
Expel		Expulser	طرد
Sand		sable	الرمل
Coat		Couche	طلاء
Erection		Construction/ mise en œuvre	تشييد /بناء / إنتصاب
Scafold		Echafant	
Wool		La leine	صوف
Smooting		Lissage	تنعيم
square washer		rondelle carrée	
shortage		pénurie	نقص
BUSHING			
CHIMNEY		CHEMINÉE	
ratio		rapport	
Crank		manivelle	
Truck			دولاب صغير
Plug		Fiche	
Drawer		Tiroir (cassette)	الدرج
Tie-in			الربط
socket		Prise	
LOTO	Lock out / Tag out		
HMI	Human machine interface		
HVAC	Heating, Ventilation and Air Conditioning		
UPS	Uninterrupted power supply		

Appendix 8

OTAN phonetics Alphabet

code			Code	
A	alpha		N	november
B	bravo		O	oscar
C	charlie		P	papa
D	delta		Q	quebec
E	echo		R	romeo
F	foxtrot		S	sierra
G	golf		T	tango
H	hotel		U	uniform
I	india		V	victor
J	juliett		W	whisky
K	kilo		X	x-ray
L	lima		Y	yankee
M	mike		Z	zulu

Appendix 9

Tables of cognates

Term	General Meaning	Special Meaning
questionnaire	A research instrument consisting of a series of questions	Questioning worker for suspicion of employee wrongdoing
Live	(V) to be alive /(N) at the actual time of occurrence	A cable carrying an electric current
Corona	Covid-19 disease	An electrical phenomenon due to the high frequency in electrical cables
Bus bar	A bus transformed into a fully functioning bar,	A metal bar used to carry large amounts of current
CURRENT	Something that is modern or happening now	the direction and speed of flow of electron that form electricity

False cognate between general and special vocabulary in English

Term	English Meaning	French Meaning
mechanic	engineering	mechanical
Actual/actuel	real	refers to something "at present" or "in the present time"
location	a position or site or area	Hiring or renting
conductor	a person who directs the performance	driver

English / French false cognates

Appendix 10

Meeting observation
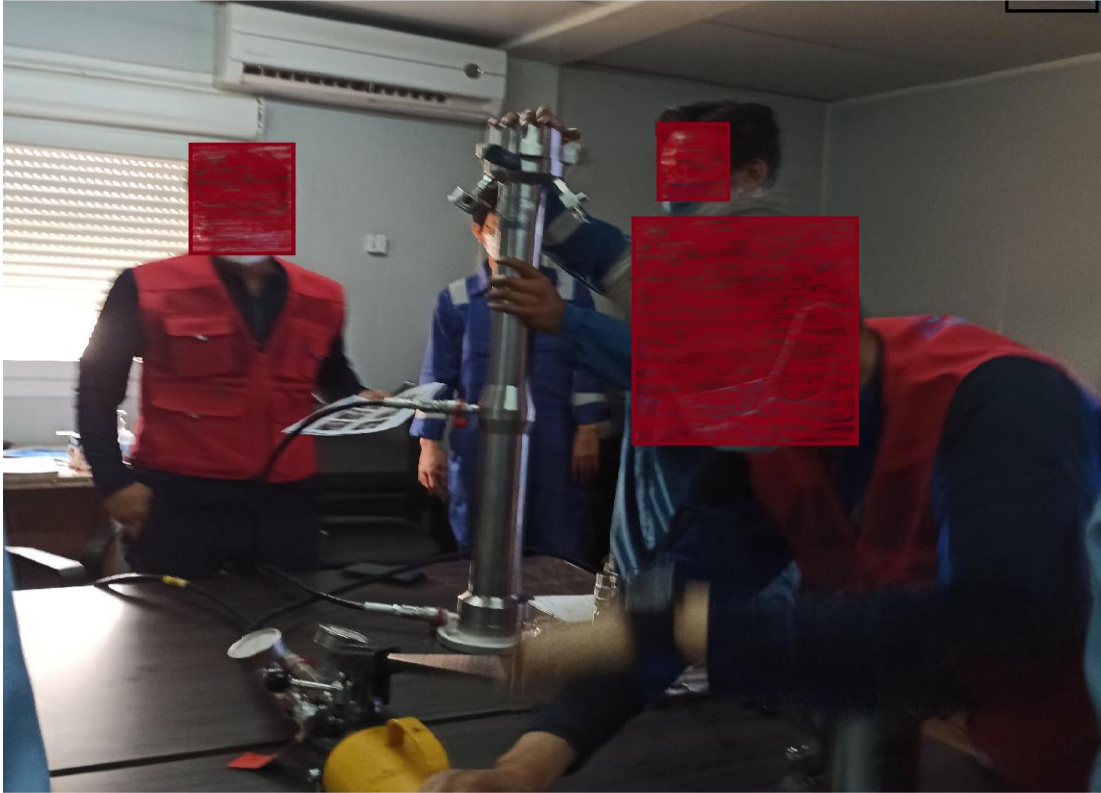
Appendix 11

Training schedule

Speciality training

	Days Times	Saturday Apr 4th	Sunday Apr 5th	Monday Apr 6th	Tuesday Apr 7th	Wednesday Apr 8th	Thursday Apr 9th	Friday Apr 10th
Morning	7:00 To 8:00	Working at Height	Working at Height	Working at Height	Working at Height	Working at Height	Working at Height	NA
	08:00 To 10:00	Full HSE Induction & Working at Height	Full HSE Induction & Working at Height	Full HSE Induction & Working at Height	Full HSE Induction & Working at Height	Full HSE Induction & Working at Height	Full HSE Induction & Working at Height	NA
	10:10 To 11:00	Confined Space	Commissioning Induction	Electrical Safety/LOTO	Fire Watch	Confined Space	Radiography	NA
Afternoon	14:00 To 15:00	Construction PTW training	HAZMAT & Chemical Spill Response	Commissioning PTW training	Supervisor Role & Responsabilities	Grating removal	Hand/Power Tools	NA
	15:10 To 16:30	PTW Assessment		PTW Assessment		Flag/Banks man	Defensive driving	NA

HSE training

Appendix 12

Training Materials