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**Ministry of Higher Education and Scientific Research**  
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**Faculty of Letters and Languages**  
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**Identification and Analysis of the Students' Target  
Language Needs in Academic Scientific communication:**

*The Case of Biological Environmental Science Department at Bejaia University*

A Dissertation Submitted in Partial Fulfillment of the Requirements of a  
Master's Degree in Applied Linguistics and English Language Teaching

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## **Dedication**

I dedicate this work to my beloved parents, my mother for her prayers and her best wishes. To my dead father who would be proud seeing the success I accomplished during these 5 years of study at University.

I also dedicate this dissertation to my sisters and brothers, specially my sister Kahina and my brother Leg-hel and his wife who encouraged and motivated me during these whole years study.

A special thanks to all my friends Siham, Tiziri, Sonia, Amel, classmates for their support and help in accomplishing this work.

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## **Abstract**

The present study investigates the target needs of Master I Biological Environmental Sciences students at Bejaia University as regarding the learning of English for Specific purposes. The participants of this study include the stakeholders (teachers, students and administration staff) of the department of biological environmental sciences at Bejaia University. The aim of this study is identifying the target needs of the students as regarding the learning of English for specific purposes. To reach this aim, a case study based on both quantitative and qualitative methods are regarded as appropriate methods that give an insight on the phenomenon under investigation. The qualitative method consists of conducting an in-depth interview with 7 participants. The quantitative method consists of a questionnaire delivered to 14 participants. The findings revealed that the participants are aware of the importance of the English language in the future academic or professional careers for master I BES students, however, the students are not well prepared to use this language effectively in their target communicative situation. Moreover, it is showed that the students will need to use English in different communicative situation such as seminars, conferences, lectures, and workshops with different interlocutors such as, teachers, students, and researchers speaking English as native or non-native language. Finally, from the results of both the questionnaire and interview confirm that English is very crucial in the academic or professional careers.

**The key words:** English for specific purposes, scientific English, target needs, English for science and technology.

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## Chapter one

### Theoretical Background and Literature Review

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### **The list of abbreviations:**

BES: Biological Environmental Sciences

BU: Bejaia University

CNP: communicative needs processor

DA: deficiency analysis

DBES: Department of Biological Environmental Sciences

EAP: English for Academic Purposes

EBE: English for business and Economics

ELT: English Language teaching

EOP: English for occupational purposes

EVP: English for vocational purposes

ESP: English for specific purposes

EST: English for science and technology

LN: learning needs

NA: Need Analysis

PSA: Present Situation Analysis

SE: Scientific English.

TN: Target Needs

TSA: Target Situation Analysis

## **Definition of the key terms:**

### **English for specific purposes:**

ESP is a branch of ELT; it is based on teaching English for a specific group of learners who needed it to function in a specific discipline. According to Hutchinson and Waters, ESP is *“an approach rather than a product, in which no particular methodology, kind of language, teaching materials are involved during the teaching process. They suggested that the foundation of ESP is a simple question: why does this learner need to learn a foreign language?”* (1987, p: 3)

### **English for science and technology:**

It refers to one variety of English usage and a particular linguistic realization of communication used in order to express the concepts and procedures which characterize different technologies and scientific disciplines (Widdowson, 1978, p. 54).

### **Needs analysis:**

It is a process of gathering and collecting information about what the learners know and what they need to know and how and which techniques and methods to use in a target situation. Nunan, (1988) claimed that needs analysis is “a family of procedures for gathering information about the learners and about the communication tasks”.

### **Scientific English:**

Scientific English is a way of using English in order to realize universal notions, concepts and procedures associated with a specific scientific inquiry. That it is to say, scientific English is not defined in terms of its formal properties, but as a kind of discourse which serve a particular discipline (Widdowson, 1978).

# **General Introduction**

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## **General Introduction**

### **1- The Background of the Study**

The enormous expansion in the field of science and technology after the Second World War urged the use of English in all the domains of life and society. This expansion led to the rise of English as an international language, used in all the domains of life and mainly in the fields of science and technology. This emergence had significantly affected the areas of education. The demand of non-native speakers to learn English in order to communicate in their transitions generated the growth of a new approach which is English for specific purposes. Hutchinson and waters (1987, p. 6) reported that with the increase of English as a international language of science and technology, the learners became more aware of the way they need to use the English language and in which situation they need to use it. Thus, these rapid growths lead the ESP approach become a major part in English language teaching and research.

As to cope with the raise of English as a Lingua- Franca like any other country around the world, it was necessary for the Algerian ministry of Higher education and Scientific Research to introduce and promote the status of English in its educational system. It became significantly important for Algerian under-graduation and post-graduation students in scientific and technological fields in general, and in Biological environmental Sciences in particular, to learn English language since they are compelled to read recent articles and other scientific texts in that language and to be able to produces different pieces of scientific writing during either their master degree or their PhD studies.

The teaching of English in the Department of biological Environmental Sciences (henceforth DBES) at Bejaia University (henceforth BU) has a major importance for Master and PhD students. ESP needs of the biology students of using this lingua franca effectively in their target academic communicative situations inside or outside the country. Hence, the present study is an attempt to identify the English language target needs of master one DBES students at BU.

### **2- The Statement of the Problem**

As it has been previously mentioned, the Algerian Ministry of Higher Education and Scientific Research have given considerable importance to the teaching of ESP at university level. The introduction of the teaching of English in the Algerian universities led many

researchers to focus on highlighting the different English language needs of the students. Thus, ESP courses have been programmed in order to promote the English language needs of the students in different departments such as computer sciences, food sciences, biology in general and biological environmental sciences in particular.

However, few works have been conducted in the Algerian Universities in general and in the faculty of biology at BU in particular in order to identify the English language needs of the students. Thus, very little is known about the English language needs of the students and how efficient is the present ESP course regarding their perceptions, expectations and necessities that help the function effectively in their future target communicative situation.

Therefore, through this present study a needs analysis is conducted in order to identify the target English language needs of master 1 BES students at BU.

### **3- The Purpose of the Study**

The main objective of this present investigation is to conduct a needs analysis in order to identify the different target needs of master 1 BES students regarding the learning of ESP. In addition, it is an attempt to highlight the importance of the ESP course for the students' academic future communicative situations.

### **4- The Research Question**

This present study is guided by the following questions:

- 1- To what extent is the English language needed in the department of Biological Environmental Sciences?
  - a. How important is English for M1 Students in the Department of Biological Environmental Sciences?
  - b. In which context is the English language needed in the Department of Biological Environmental Sciences?
- 2- What language contents are needed by the Students of Biological Environmental Sciences?
- 3- Are the administrators, teachers and researchers satisfied with the students' academic preparedness in terms of English language ability?

### **5- The assumptions of the research**

In an attempt to solve the problem aforementioned, we assume that:

- The ESP course is very important for master 1 student in the DBES at BU. English is used for various academic reasons among which publication of research articles, international conferences and seminars, reading research works and productions, writing research theses...etc.
- On the basis of previous research, it can be assumed that the stakeholders (teachers, students and administration staff) would not be satisfied of the current situation of the teaching of the ESP course. In fact, the students, still find difficulties in using the language correctly, and are not prepared to face the communication challenges of the target communicative situation.

#### **6- Methodology and Research Design:**

This present study is based on a descriptive/ exploratory research design, applying a mixed methodology. This kind of research design aims to describe characteristics of populations based on data collected from the use of a ramified sampling. We followed a case study as to describe extensively English language needs of specific population (Master 01 students in the DBES) from diverse points of view. Consequently, the researcher has opted for an e-mailed questionnaire and an in-depth face-to-face semi-structured interview. These two instruments were designed on the basis of Target Situation Needs Analysis Approach, whose framework was developed by Hutchinson and Waters (1987) in order to investigate the different target needs of the learners.

#### **7- Population and Sample:**

The population of the study consists of the teachers, administration staff, and master 2 students enrolled in this academic year 2015/2016 at the D of Biological Environmental Sciences (DBES) at Bejaia University (BU). The questionnaire sample was selected among expert language users in the DBES. This concerns 14 teachers working in this department. The interview respondents concerned five teachers and two (2) master students preparing for their graduation in the DBES at BU.

#### **8- The significance of the study:**

This present research is an attempt to highlight the ESP teaching situation in Algeria, and more precisely that of Bejaia University. Through this work, the researcher aims at evaluating the current situation of the teaching of ESP in the department of biological environmental sciences and shed light the importance of this module as regards the future academic carriers



of these master I students. Moreover, as previously mentioned, this study will provide an insight on how the ESP course is taught and how this course should be improved in order to help the learners effectively function in their target communicative situations.

#### **9- Structure of the Dissertation:**

The present work is divided into three main chapters. The first chapter includes the theoretical background and literature review of the study. It is divided into three main sections which are: The first section deals with the theoretical background about English for science and technology. The second section deals with the theoretical background about needs analysis. The third section is devoted to the literature review of previous studies in needs analysis and English for science and technology needs analysis.

The second chapter in this present dissertation is devoted to methodology and data analysis. It is composed of three main sections. The first section defines and introduces the research methodology and research instrument we used in order to collect data. The second section is devoted to the analysis of the data gathered from the questionnaire and interview. Finally, the third section deals the interpretation and discussion of the findings.

The third chapter includes the limitations and constraints that hinder our efforts to collect data. Then, the implications of the study and suggestion for further research have been highlighted.

**Chapter one**  
**Theoretical Background**  
**And**  
**Literature Review**

# Chapter one: Theoretical Background and Literature Review

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## **Chapter one**

### **Theoretical Background and Literature Review**

#### **I- Introduction**

The purpose of this present chapter is to review the theoretical knowledge and frameworks, and the different research works and productions relevant EST and ESP Needs Analysis. In order to achieve this purpose, this present chapter is divided into three main sections.

The first section reviews the field of EST. It deals with the emergence of ESP, definition as provided by different scholars and the different types of ESP. After that, a brief definition of EST is provided. In addition, a review of the EST discourse is discussed in reference to two main scholars who are Trimble (1985) and Widdowson (1987). At last, EST tasks and Activities are highlighted.

The second section deals with the issue of Needs Analysis. It first deals with the definition of Needs Analysis and its different taxonomies. Then, the emergence of the concept of Needs Analysis and its different approaches are discussed. Also, the importance of this concept to ESP and a number of examples of EST students' needs are exposed.

The third section describes some previous studies in needs analysis. It first sheds light on previous studies that have been conducted in non-EST fields. Finally, some previous studies in EST Needs Analysis are showed

#### **Section one: English for Science and Technology**

##### **Introduction**

ESP is an acronym which stands for English for specific purposes. It refers to the teaching and learning of English in particular disciplines. Through this chapter, a brief overview on

how ESP emerged is presented. In addition, the definition of the concept of ESP and classification provided by many scholars are given with special focus on EST. Then the definition of EST and two major views of EST discourse are highlighted.

## **1- The Emergence of ESP**

According to Hutchinson and Waters (1987) many factors led to the emergence of the ESP movement in the 1950's. Hutchinson and Waters (1987) stated that "*ESP was not a planned and coherent movement, but rather grew out of a number of converging trends.*" (P. 6).

The main factors were identified as following: the Demand of the Brave New World – a Revolution in Linguistics – the Development in Educational Psychology.

**1-a- The Demand of the Brave New World:** according to Hutchinson and Waters (1987, p. 6) a remarkable expansion in the field of Science, Technology and Commerce had occurred after the end of World War II. This growth had led to the raise of new viewpoints on an international level. This expansion has generated the growth of English as Lingua Franca. The development facilitated the international changes in commerce, science and technology all around the world. In the 1970's the oil crises caused a sudden increase in the need for learning the English language.

**1-b- A Revolution in Linguistics:** Widdowson (1978) cited in Hutchinson and Waters (1987, p. 7) claimed that the emergence of English as a Lingua Franca led to the appearance of new divisions in the English language teaching in different fields such as English for science and technology (EST), English for business and economics (EBE) and so on. During the 1970's some researchers such as Swales (1971), Latorre (1969), Selinker and Trimble (1976) as cited in Hutchinson and Waters (1987, p. 7) focused their research on the description of scientific and technical features of the scientific discourse.

**1-c- Development of Educational Psychology:** Hutchinson and Waters (1987, p. 8) claimed that the development of the ESP approach yield to the appearance of an interest to know the different needs and wants of the learners in their learning process. Thus, specific courses were designed according to learners needs in order to allow them effectively function in their different communicative situations.

Consequently, the demand of the brave new world and the emergence of the USA as an economical power, the revolution in linguistics and the shift of focus on the learners' needs and wants helped in the emergence of ESP as an approach to English language teaching and learning.

## **2- Definition of ESP:**

English for specific purposes is an approach to teaching and learning English for specific disciplines. Many scholars and researchers regarded English for specific purposes as one of the prominent areas in the EFL teaching. Among these scholars Hutchinson and Waters (1987), Dudley Evans and ST John (1998), Robinson (1991) and Strevens (1988) cited in Dudley Evans (1997).

Hutchinson and Waters (1987) cited in Dudley Evans and St John (1998, p. 2- 3) claimed that ESP is seen "*as an approach rather than a product*". Hutchinson and waters (1987) claimed that "*The foundation of all ESP is the simple question: why does this learner need to learn a foreign language?*" (P. 19) which means that ESP has not to be related to any particular methodology or to particular teaching materials, but it is rather an approach to language learning which is based on the learners needs. Therefore, "*ESP is an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning*" Hutchinson and Waters (1987, p. 19).

Strevens (1988) cited in Dudley Evans (1998, p. 3) made a distinction between *Absolute Characteristics* and *Variable Characteristics*, this distinction is showed in the table below:

absolute characteristics	The variable characteristics
<ol style="list-style-type: none"> <li>1. ESP is designed to meet specific needs of the learners.</li> <li>2. It is related to in content (that is in its themes and topics) to particular disciplines, occupations and activities</li> <li>3. It is in contrast with general English</li> <li>4. It is centered in language appropriate to those activities in syntax, lexis, discourse, semantics and the analysis of the discourse, and so on.</li> </ol>	<ol style="list-style-type: none"> <li>1- ESP may be restricted as to learning skills to be learned (for ex: reading only)</li> <li>2- It may not be taught according to any pre-ordained methodology</li> </ol>

**Table 01: Strevens (1988) distinction between absolute and variable characteristics**

However, Robinson (1980, p. 13) cited in Widdowson (1983, p. 15) argued” *An ESP course is purpose full and is aimed at the successful performance of occupational or educational roles. It is based on a rigorous analysis of student’s needs and should be tailor-made*”, that is to say, the ESP teachers started to take into consideration the different needs of the learners. However, in her recent work Robinson (1991, p. 3) cited in Dudley Evans and ST John (1998, p. 3) claimed that ESP course is based on two key defining criteria and a number of characteristics that make a true ESP course. These criteria are goal oriented and Needs Analysis based courses. Her characteristics are narrowed down to the homogeneity of ESP classes and limitedness of time in which the adult learners are taught in terms of specific register which will be used either for academic or professional purposes.

Subsequently, Dudley Evans and ST John (1998, p. 4) has modified and reviewed Strevens (1988) definition of ESP. They developed a new distinction between *the Absolute and Variable Characteristics*.

Variable characteristics	Absolute characteristics
1- ESP may be related to or designed for specific disciplines 2- ESP may use in specific teaching situation 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 professional work situation. It could, however, be used for learners at secondary school level. 4- ESP is generally designed for intermediate or advanced students. Most ESP courses assume basic knowledge of the language system, but it can be used with beginners	1- ESP is designed to meet specific needs of the learners 2- ESP makes use of the underlying methodology and activity of the discipline it serves 3- ESP is centered on the language (grammar, lexis, register) skills, discourse and genres appropriate to these activities

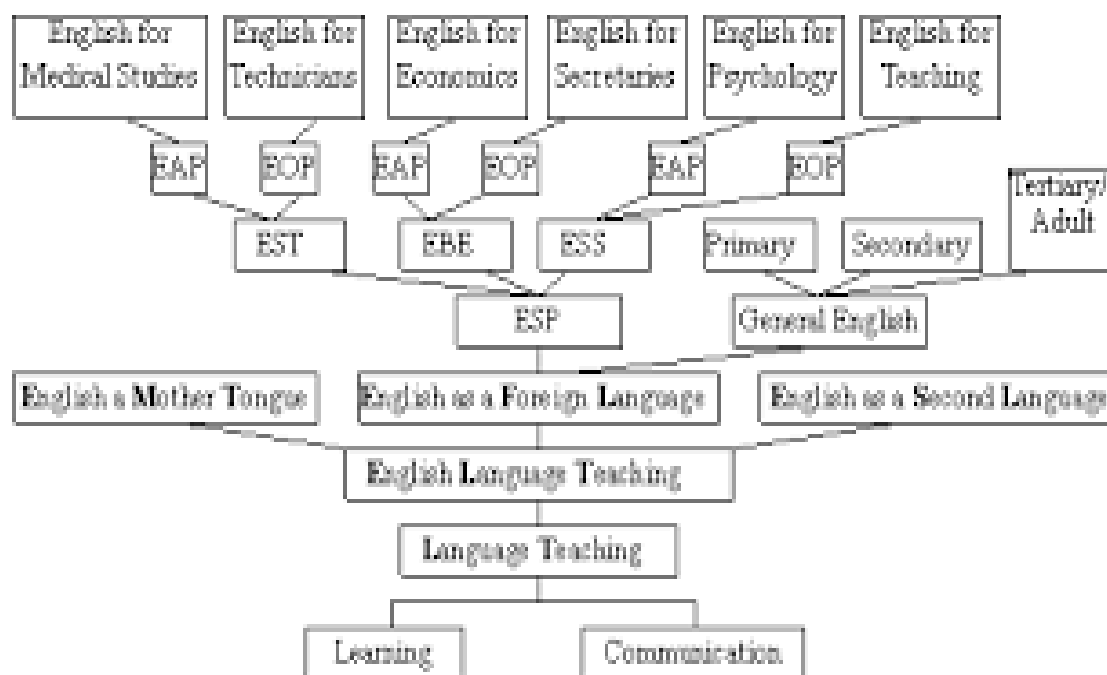
**Table 02: distinction between absolute and variable characteristics (Dudley Evans and ST. John, 1998)**

### **3- Types of English for Specific Purposes:**

Many divisions have been given to the English for specific purpose. Among the researchers who made a distinction of the types of ESP, Hutchinson and Waters (1987), Swales (1985), Dudley Evans and ST John (1998), Carver (1983) cited in Al-Hummaid (2011) and Gatehouse (2001).

Hutchinson and Waters (1987, p. 17) developed an ELT Tree diagram in which they broke down ESP into three branches: English for science and technology (EST), English for business and economics (EBE) and English for social sciences (ESS). Each one of these branches is divided into two main branches which are: English for academic purposes (EAP), and English for occupational purposes (EOP). An example of English for occupational purposes for the English for science and technology (EST) branch is English for technicians, where as English for academic purposes for the EST branch is English for medical sciences.





**Figure 01: Hutchinson and waters (1987) ELT tree diagram**

Another type of classification of English for specific purposes is provided by Carver (1983).

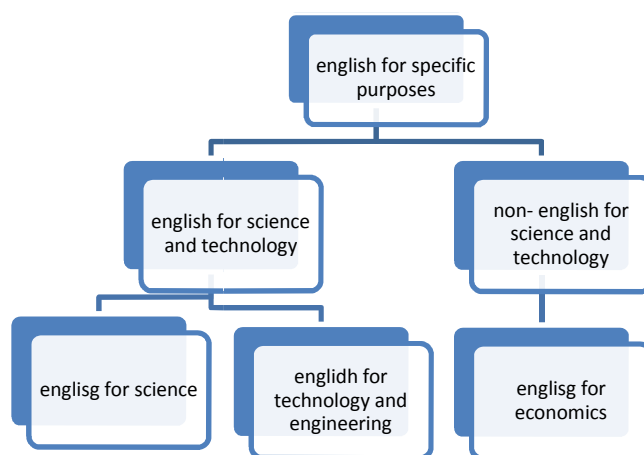
Carver (1983) cited in (Al-Hummaid, 2011 & Gatehouse, 2001) distinguished between three types of English for specific purposes:

- English as a restricted language
- English for academic and occupational purposes
- English with specific topics (EST)

The first type is English as a restricted language, according to Carver (1983, p. 131, 137) cited in Al-Hammaid (2011) is the language used in order to communicate effectively in a very specific setting. Mackay and Mountford (1978, p 4-5) cited in Gatehouse (2001) illustrated the difference between restricted language and common language referring to the specialized register used in the air traffic control. English for academic and occupational purposes (EAOP), Carver (1983) cited in Al-Hummaid (2011) claimed that the English language should be at the heart of the ESP course and pointed out that English for Academic

and Occupational Purposes serves professional and vocational purposes, such as, English for medical technician, engineers or business executives. The third distinction is English with specific topics. It differs from other types of ESP in the sense that the focus shifts from purpose to topic. Which means that *“the focus is on topics that are in agreement with the anticipated future English needs of learners such as scientists requiring English for postgraduate reading studies, attending conferences or working in foreign institutions”* Carver (1983) cited in Gatehouse (2001) & Al-Hummaid (2011).s

Stevens (1977) and Swales (1988) cited in Kittidhaworn et al (2001) presented a division in terms of subject matter which is based on English for science and technology (EST) branch as the main branch of ESP and non- EST branch. The English for science and technology (EST) includes two main groups which are “science” and “engineering and technology”. Both branches are related to two main branches which are English for academic purposes and English for occupational purposes.



**Figure 02: Division of ESP by Swales (1988) and Stevens (1977)**

From the 1960’s to late 1970’s, a great focus was based up on the branch of English for science and technology. Within this branch, the researchers’ emphasis on the different ways

the learners need English language in the science and technology disciplines either for academic or professional purposes.

#### **4- Definition of English for Science and Technology:**

After the emergence of the ESP movement, many scholars such as Swales (1971-1985), Ewer and Latorre (1969), Selinker and Trimble (1976), Widowson (1974) has given much importance to the field of science and technology. Most of their researches works were in the area of English for science and technology with purpose to identify the linguistics and discourse features which dominate the disciplines.

Swales (1985) cited in Hutchinson and waters (1987, p. 9) highlighted the importance of English for science and technology in the development of ESP by saying: "*with one or two exception.... EST has always set and continues to set the trend in the theoretical discussion, in ways of analyzing language and in the variety of actual teaching materials*". Widowson (1978, p. 43) stated *that*:

*"EST is at one and the same time a variety of language usage and the particular linguistic realization of a mode of communication which is neutral in respect to different languages. That is to say, EST does indeed manifest the system of English in a certain way but the significance of this is that it does so in the expression of concepts and procedures which characterize different technologies and scientific disciplines."*

In other words, EST is an approach to teaching and learning scientific English needed by the science and technology student either for academic or professional purposes.

#### **5- Scientific English**

Stevens (1977) cited in Lowe (2009, p. 2) claimed that “*scientific English is simply English used by scientists or for the purpose of those engaged in science*” which means the English language is used as a tool of communication. It has the same grammar, pronunciation, and spelling. The use of these language aspects is similar to the other categories of English. But, it includes the use of specialized items, words and vocabulary related to a specific area according to the requirement needed by the scientists.

In her turn, Halliday, McIntoch and Stevens (1964) cited in Widdowson (1978) pointed out that :

*“language scientific English and its various sub-divisions are represented as a distinct register of English varieties of language behavior (parole) which can be characterized in terms of how language system is manifested (langue). This approach can be only described them as text. For example, the universal present tense, the passive voice, the collocation of lexical items like sulphur, oxygen, and vessel and so on characterizes the language register as belonging to the register of scientific English”*(p: 54).

That is to say, scientific English according to these authors is a variety of English language characterized by the difference in the lexis and vocabulary.

## **6- English for Science and Technology Discourse**

In recent years, the field of ESP, especially EST went through a potential development in its scientific, technical register and its scientific or rhetorical discourse. The development of the scientific discourse has gone through many stages. Among these stages, there is the register analysis, discourse analysis as being the two important stages in the analysis of the scientific discourse.

### **1- Register Analysis: (word and sentence level)**

In 1962's, an important work presented by C.L Barber, Ewer & Hughes- Davie (1971-72) which were later published in Swales (1985) "Episodes of ESP" as cited in Hutchinson and Waters (1987) highlighted the variation in the English register of different disciplines such as biology, physics, chemistry and engineering and so on. That is, grammar and scientific vocabulary used in their scientific writing didn't differ much from the one used in general English, since, much of these items were used more frequently in the students writings. In addition to that, Ewer & Latorre (1969) cited in Hutchinson and Waters (1987, p. 9) revealed that there was a tendency to favor particular forms of grammar over other forms. These consist of the frequent use of the passive voice and the present simple tense and the nominal compounds (Scientific language has been described in terms of lexis and syntax), i.e. the studies at that time gave high priority to the language forms student need in their studies.

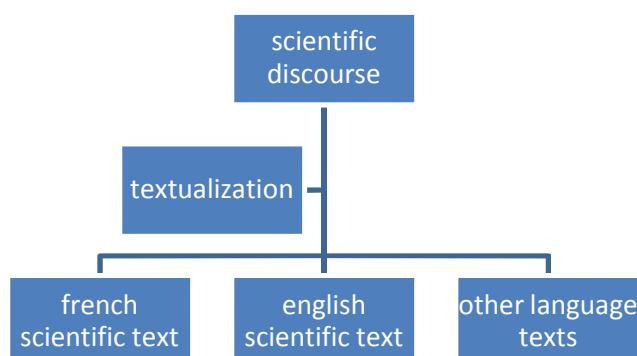
## **2- Discourse Analysis ( Beyond the Sentence)**

In its early development ESP course designers focused more on linguistic and grammatical features of the scientific language. However, in the late 1970's many linguists shifted their analysis of the scientific language from register analysis "sentence level" to a new perspective which is discourse analysis or also called rhetorical analysis "beyond the sentence". Henry Widdowson (1978) and Louis Trimble (1985) as cited in Hutchinson and waters (1987, p. 10) were among the pioneers to focus their researches on the scientific discourse.

### **a- Widdowson's View of Scientific Discourse**

Widdowson's view to scientific discourse was interpreted in his theory of "Universality of the Scientific Discourse" in 1978. He defined the scientific discourse by saying that "*scientific discourse is a mode of communicating or a universal rhetoric. This is realized by scientific text in the different languages by the process of textualization*" (p. 52), that is most

of the language usage in the world are based on universal concepts, methods and procedures which are recognized in a scientific text as “Textualization“.



**Figure 03: Widdowson (1987) Diagram of Textualization**

Widdowson (1978, p. 45) claimed that in the scientific discourse can be realized by a text in terms of definition, hypothesizing, exemplification, description, generalization I.e.

*“Scientific discourse is realized only by a text, which is by definition verbal. The English textualization of it can be expressions of statement, universal on the one hand and particular on the other hand. Neither serves as an act of description of how the law that is stated can be exemplified by experimental procedures.”(P. 53).*

However, the communication mode can be non- verbal, when being presented in diagrams, charts formula, and graphics. Widdowson (1978, p. 54) indicated that

*“Diagrams are also an example of scientific discourse and like the formula to which they relate are independent of any particular textualization. Such non- verbal modes of communicating can be said to bear witness to the universality of scientific discourse and the independence of science from primary culture as reflected in different languages. One might indeed argue that non- verbal modes of communication ( formula, diagrams, charts, graphics and so on) to some degree at least represent the basic elements or the deep structure of the scientific discourse of which different linguistic textualization are surface variants.”*

That is to say the non-verbal language represented in the diagram, charts and so on are in itself a language that is unique to the scientific discourse and independent from other languages.

## b- Trimble View of Scientific Discourse

Trimble (1985) cited in Hutchinson and Waters (1987, p. 11) viewed the scientific discourse on the basis of the rhetorical concept which makes the scientific discourse different from other forms of writing in the English discourse. Trimble (1985) cited in Ahmed (2009) indicated that “*rhetoric is the process a writer uses to produce a desired piece of text. This process is basically one of choosing and organizing the information for a specific set of purposes*”.

Level	Description of the level
<b>a-</b> The description of the total discourse	Examples: 1- detailing an experiment 2- making a recommendation 3- presenting new hypothesis or theory 4- presenting other types of EST information
<b>b-</b> General rhetorical functions that develop the objectives of level A	Examples: 1- stating purpose 2- reporting past research 3- stating the problem 4- presenting information on apparatus used in an experiment <b>a)</b> Description <b>b)</b> Operation 5- presenting information on experimental procedures
<b>c-</b> The specific rhetorical function that develop the general rhetorical functions of level B	Examples: 1- description: physical, function, and process 2- definition 3- classification 4- instructions 5- visual- verbal relationships
<b>d-</b> The rhetorical techniques that provide relationships within and between the rhetorical unites in level C	<b>I-</b> Orders <b>1-</b> Time order <b>2-</b> Space order <b>3-</b> Causality and result <b>II-</b> Patterns: <b>1-</b> Causality and result <b>2-</b> Order of importance <b>3-</b> Comparison and contrast <b>4-</b> Analogy <b>5-</b> Exemplification, <b>6-</b> Illustration

**Figure 04: Rhetorical Process Chart by Trimble (1985)**

For that, Trimble referred to the specificity of language in the English discourse by representing it in the form of a chart consisting of several levels. In his book entitled “EST: an approach to discourse” Trimble (1985) cited in Hutchinson and Waters (1987, p. 11) had

divided the scientific discourse into four level which are based on the rhetorical functions an rhetorical techniques commonly used in EST. Level A consists of a general description of the whole experiment by starting from the hypotheses, research question to arrive to the final results of the experiment. Level B is the representation of the different general rhetorical functions commonly used in EST which help in developing the total description of the discourse in level A. level C represent the specific rhetorical functions such as description, classification, exemplification which develop the general rhetorical functions of level B. level D refers to the different rhetorical techniques which links between the rhetorical unites in level C, these rhetorical techniques such as space, time, , cause/effect, order of importance, exemplification, illustration help to maintain the cohesion and the coherence of the different rhetorical functions.

## **7- EST Tasks and Activities**

Widdowson (1978, p. 27) defined the English for science and technology “*As a particular linguistic realization of language uses in general sense to express the concepts and procedures which defines these areas of inquiry discipline*” Which means that in each of the sub disciplines of science and technology a specific language register is used in order to convey the communicative needs of the learners? According to Blue (1993) cited in Dudley Evans and ST John (1998, p. 41) there are some skills very important for the students to develop in order to convey their scientific communication either oral or written through using English language as a medium of communication. Through this, the students are going to have a set of tasks and activities in order to have a better understanding of their scientific disciplines.

Among these tasks, a teacher can provide students with text describing an experiment, a mechanical device or a piece of equipment. And arrange them in forms of diagrams, graphics.



In addition to set some activities which help the learners develop their language skills. For example in the reading skills, the activities are mainly related to extensive or intensive reading of text, articles, reports, research papers, skimming and scanning of these text in order to have an idea specific information in the text, text comprehension activities.

Writing skills is considered as the basic skill that the learners should develop, the teacher provides the student with some key tips on how to write for example an essay, a laboratory report, a research abstract, about a given topic related to the field of study. The students will attempt to use the learned knowledge and try to apply it during exams or in their academic graduation.

To sum up, the development in the field of ESP helped the rapid growth of the field of English for science and technology. This growth, lead many researchers to have an interest in identifying the different components of the scientific discourse and how to make a distinct between scientific discourse and general English discourse, among these researches , we find Widdowson and Trimble who made distinct between the rhetorical function and techniques and textualization and deep structure of the discourse of EST

## Section Two: Needs Analysis

### Introduction

In this second section, a brief theoretical introduction about the concept of Needs Analysis is given. The different definition and views of different researchers and scholars are illustrated with reference to the development of this concept and its importance in the field of English for specific purposes (ESP). In addition to the different approaches to needs analysis and the EST needs analysis. As a final element, previous studies made in the field of needs analysis and EST needs analysis is highlighted.

### 1- Definition of Needs Analysis

Needs analysis is an important mean needed for designing and evaluating course, materials, syllabus and it helps to draw a profile of students in order to determine the needs for which they learn English. Several researchers and scholars such as Hutchinson and Waters (1987, p. 55), Dudley Evans and ST John (1998, p. 122); Brown (1995, p. 36) acknowledged its importance in designing any ESP course.

Needs analysis is a study conducted by the teacher in order to know what the learners need to learn in order to function effectively in any given situation. Richard et al (1992) cited in Alfehraid (2011, p. 63) defined needs analysis as

*“The process of determining the needs for which a learner or group of learners requires a language and arranging the needs according to priorities. Needs analysts gather subjective and objective information about the learner in order to know the objectives, for which the language is needed, the situation in which the language will be used, with whom the language will be used, and the level of proficiency required”*

that is to say needs analysis determines what is the suitable teaching method and techniques which will help to develop the needed skill, and level of proficiency that help the students effectively function in their communicative situation. Al-Hamlan and Baniabdelrahman

(2015) defined needs analysis as “a *Specific ground for future development of the academic activities of a particular group of students*”. In this turn, Brown (1995, p. 36) focused on Nunan’s (1988) distinction and defined NA as

*“the systemic collection and analysis of all the subjective and objective information necessary to define and validate defensible curriculum processes that satisfy the language learning requirements of the students within the context of particular institutions that influence the learning and teaching situations”.*

Brown focused on 3 main points:

- The first one is the decision making (who will be involved? i.e. the target group and audience, the need analyst responsible for conducting the needs analysis)
- Second refers to what types of information should be gathered.
- Third refers to the essential points that should be taken into consideration such as linguistic content, learning process, language needs, etc.

In their turn, Dudley Evans and ST John (1998,p. 121) claimed that “Needs analysis are the process for establishing the how and what of an ESP course”; i.e. NA involves what the learners already know, what they don’t know and / or what they need to know and which techniques and methods are going to be used in the classroom.

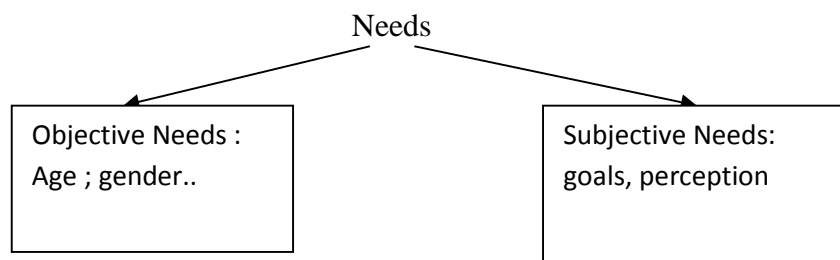
## **2- Needs Analysis Taxonomies**

Many researchers and scholars such as Berwick (1985) as cited in Dudley Evans, (1998), Richterich and Chancerel (1980) cited in Wettergen (2005), Hutchinson and Waters (1987)

Richterich and Chancerel (1980) cited in Wettergen (2005) had divided needs analysis into categories in which each one of them focused on one side of what and how the learner need to learn in English. Richterich and Chancerl (1980) cited in Wettergen (2005) & Fatihi (2003) made a distinction between subjective and objective needs.

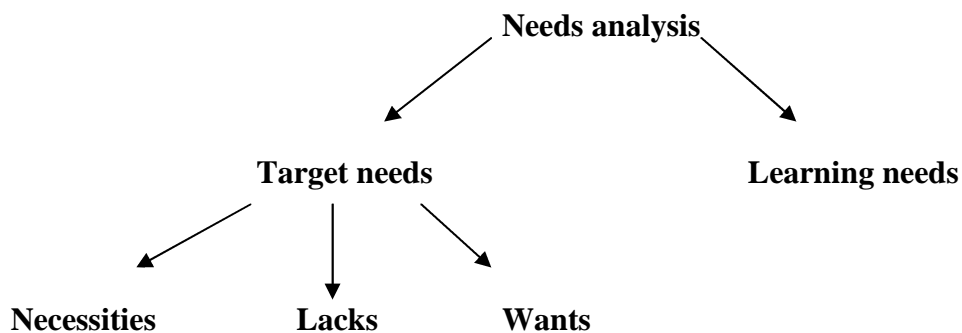
The objective needs are diagnosed by the teacher on the basis of factual information which does not require any attitude or view of the learners to be taken in to account such as the bibliographic information on age, gender, nationality, and previous background of the learner will allow the teacher to select and plan a suitable syllabus.

On the other hand, the subjective needs reflect the perception, goals and priorities of the learner and he have to learn a second language and the classroom activities which he prefers.



**Figure 05: Richterich and Chancerel (1980) Needs Analysis Model**

However, Hutchinson and waters (1987, p. 53) proposed a simpler categorization of the needs. He made a distinction between target needs and learning needs



**Figure 06: Hutchinson and Waters (1987) distinction of the needs**

**The target needs:** They argue that target needs are an umbrella term which includes a number of important distinctions. They look at it in terms of *necessities*, *lacks* and *wants*.

- **Necessities:** needs determined by the demands of the target situation i.e. what the learner's should know in order to function effectively in that target situation example;

in order to write a business email or letter a business man should know first the linguistic and discourse features of a business email or letter.

- **Lacks:** there is a need to know what the learners already know in order to decide which of the necessities the learner lacks in that target situation
- **Wants:** it refers to what the learners feel they need to know that is the needs on which they put a higher priority to be acquired in a limited period of time.

**Learning needs:** what the learners need to do in order to learn. What knowledge and abilities will the learners require in order to be able to perform the degree of competence in the target situation in terms of language items, skills, strategies and the knowledge about the subject?

### **3- The Emergence of Needs Analysis:**

Needs Analysis have an important role in the process of designing and carrying out any language course, whether in English for specific purposes course or general English course. This later had gone through many stages.

According to White (1988) cited in Alshumaimeri (2009), needs analysis procedure started first with Michael West experimental project published by the Indian educational system in 1926. These procedures had a long tradition in other areas of adult learning. In their earlier period (1950- 1970), needs analysis was mainly concerned with the linguistic and register analysis, needs were seen as discrete language items of grammar and vocabulary. Their use in field of language teaching became widespread with their adoption by The Council of Europe's modern language project. This group intended to promote language learning of Europe and offer a guidance and support for their partners in order to have an effective learning process relevant to the needs of the learners as well as the society. In 1971, the council had recognized the importance of dividing the different task of language learning into smaller units with the focus on the needs of the learners rather than on the language structures as it was the case before. In 1978, the publication of Munby's Communicative

Syllabus Design through which he introduced the communicative needs processor CNP. Based on this work, Chambers (1980) as cited in Songhori (2007) introduced the term Target Situation analysis as the first approach to needs analysis. From that time several approaches had introduced: present situation analysis, learning centered approach, pedagogic Needs Analysis, deficiency need, and strategic analysis or learning needs analysis, means analysis.

#### **4- Approaches to Needs Analysis**

##### **a- The Target Situation Analysis (T.S.A)**

According to Hutchinson and Waters (1987, p. 54) the beginning needs analysis was defined in terms of Target Situation Analysis. With the publication of Communicative Syllabus Design in (1978), Munby introduced the Communicative Need Processor which contains different elements (participants, communicative needs processor, language skills selector, profile of needs, linguistic encoder, meaning processor, and the communicative competence specification (cited in Senghori, 2008). Hutchinson and Waters (1987, p. 54) argued that” *it with the development of the CNP it seemed as if ESP had come of age. The machinery for identifying the needs of any group of learners had been provided: all the course had to do was to operate*”. In his turn, Jordan (1997, p. 23) claimed that Munbian approach to needs analysis focused on the students needs at the end of a language course, and the target level performance. That is to say, Munby’s CNP was based on finding the linguistic forms that ESP learners will use in various target situations. And by this, the focus shifted from the language structure to the language use in the different communicative situation. The out coming of this model according to Hutchinson and Waters (1987, p. 54) was based on what the learners need to know in order to function effectively in the target situation. However, West (1994) cited in Jordan (1997, p. 24) criticized Munby’s model by saying” *munby’s attempt to be systemic and comprehensive inevitably made his instrument inflexible, complex and time consuming*”. In addition, Dudley Evans and ST John (1998, p. 122) claimed

that Munby's provided detailed list of the micro functions in his CNP but he did not include how to prioritize his micro functions or any affective factors as being important.

### **b- Present Situation Analysis (P.S.A):**

As members in council of Europe of modern language Richterich and Chancerel (1979-80) cited in Jordan (1997, p. 24) proposed Present Situation Analysis. The focus of the approach was based on the students themselves and what they are able to do with language at the beginning of the course and which skills and competences to develop within this course. According to the background information such as years of studying English, level of education... about the student which can provide the teacher with enough information about the present abilities and lacks of the learners (Jordan, 1997 p. 24).

### **c- The Learning Centered Approach:**

Hutchinson and waters (1987) as cited in Jordan (1997, p. 25) advocate learning centered approach. They made a distinction between learner- centered and learning centered. Learner-centered infers that learning is totally determined by the learner, whereas the learning centered involves learning as a process of negotiation between the learners and the society which includes the materials, syllabus, methods of teaching and the different techniques to use during the learning process. Through this, they advocated the process- oriented approach rather than product or goal oriented approach as it was in the previous periods, i.e. what the learners should be taught will help them reach the needed knowledge, and the process of learning and motivation should be considered as well as the fast that the learners learn in different ways. Through it, they made a distinction between target needs (what the learner need to do in the target situation) and learning needs (what the learners need to do in order to learn). Hutchinson and waters (1987, p. 55) cited in Jordan (1997, p. 25) sub-divided it into necessities, wants and lacks. The first sub-division is necessities which refer to the objective needs proposed by Chancerel and Riterich (1980) cited in Jordan, (1997 p. 25). which

means what the learner has to know in order to function effectively in the target situation (which includes obtaining information about the situations in which the language will be used ex: lectures, lesson, seminar...etc The second sub-division is lacks which represent the gap between the target competence and what the learners had already acquired during previous experiences. The third sub-division is the wants which refers to the students perception, perspectives, and views about why the need to learn a language. They reflect the subjective sense of the learners which might be a problem to the course designer, sponsors and the teachers.

The learning needs according to Hutchinson and Waters (1987, p. 62) are based on the following questions:

- Why are the learners taking the course?
- How do the learners learn?
- What resources are available
- Who are the learners?
- Where will the ESP course take place?

#### **d- Deficiency Analysis:**

Hutchinson and waters (1987) define DA in terms of lacks. It is a combination of learning needs in target situation and the present situation i.e. DA forms the basis of a syllabus because it provides us with data about the gap between the present and the target knowledge, the language skills, learning strategies and the level of the mastery of the English language (Jordan, 1997).

#### **e- Strategic Analysis:**

It focuses on the methods and strategies learners uses in order to learn another language. Allwright (1982) cited in Jordan (1997, p. 27) was a pioneer in the field of SA. Allwright made a distinction between *need* (the relevant skills), wants (needs on which



students put their higher priorities), and lacks (the difference between the student present competence and the desired competence). Allwright's (1982) major priorities were to help the students identify the strategies which will facilitate the achievement of the needed skill in a given learning situation. This distinction was later adopted by Hutchinson and Waters (1987). Dudley Evans and ST John (1998) cited in Songhori, (2008, p. 12) claimed that what the learners need to be taught are the skills which enable them to reach the target knowledge. The process of learning and motivation should be considered as well as the different learning styles of the learners.

#### **f- Mean Analysis:**

According to Dudley Evans and ST John, (1998, p. 124) & Jordan (1997, p. 27-28) means Analysis provides information about the environment in which the course will take place and attempt to adopt the ESP course to the cultural environment in which it is presented i.e. the learning environment should be taken in to consideration while designing the course in order to know whether this course is going to be successful in that environment or not. The main issue of means analysis is concerned with the acknowledgment that what works well in a situation may not work in another (Dudley Evans and ST John, 1998, p. 124).

#### **g- Task Based Needs Analysis**

Long and Crookes (1992) Sorin Huh (2006) proposed task based syllabus. The task-based syllabus was believed to facilitate individualized learning in the course by adapting tasks for the individual student's needs and interests as well as proficiency level. Task based needs analysis is assumed to enhance the real world relevance of the course and increase student interest and motivation. Robinson (2001, p. 292) cited in Sorin Huh (2006) noted that "adopting task as the unit of analysis helps to ensure a high degree of real world relevance, since they are based on a needs analysis of the target performance objectives, thereby most

likely increasing student interest and motivation in classroom pedagogic activities, and the possibility of direct transfer of the abilities developed to similar situational context.”

Long (2005) cited in Sorin Huh (2006) claimed that “TBNS has advantages over the traditional needs analysis approaches’ since the tasks are adopted as analytic units while the latter used the linguistic categories (functional, notional and structural functions) as the units of analysis. Furthermore, it provides more valid data on the target task and the results of the analysis can be used as input for the task based or content based course design

### **5- The Importance of Needs Analysis:**

Needs analysis is considered as the cornerstone of ESP course. It is one of the ESP course bases which make it more effective and efficient. In any course design process, the language and skills that learners need to develop and use in that target situation are taken into account according to the present knowledge of the learners, the perception of their needs and the constraints of the teaching contexts (Dudley Evans and ST John, 1998). Bowers (1980, p. 67) quoted from Clark (1978) claimed the importance of needs as a guide in syllabus development, materials and examination. He said that: *“The first step in any language teaching project must surely be to design a syllabus that will reflect the language needs and wishes of the learner concerned”* (p. 67). This information gathered from NA could help the teacher focus on some issues and find the suitable solution to overcome these issues. For Richards (1990 - 2002) cited in Rehouma (2013) NA in language teaching may be used to fulfill various aims and purposes such as ascertaining if the existing course addresses effectively the needs of students i.e. it will help the teacher decide on what are the main points the course should focus on and what content to include in terms of language and skills. In addition to the methods and techniques used in order to convey these needs. Furthermore, it helps to determine the cultural, political and personal characteristics of the students and examine what cognitive and academic skills they have acquired in the EL.

Thus, NA has a considerable importance in all kind of language learning and teaching situation and it make the learning program more relevant to the learners' real life needs.

## **6- EST Needs Analysis:**

With the emergence of the ESP movement, a huge demand for the learning and teaching of English for specific purposes had come to birth. Scientists and technicians needed to use English as communicative tool either in their academic or professional settings. The EFL learners needed English in order to express and be able to read or decode the knowledge available in the scientific article, manuals, research papers, and etc. Many scholars investigated the learners' needs in the target situation among them, Berwick (1989) cited in Brown (2016, p. 61-62) provided suggestions on what are the target needs of biology learners, these suggestions consist of:

- Learners should be able to gather information about any given topic or instruction in relation to their field of study or profession and analyze the
- Learners should explore what biologist need to be able to do in different context and situation like out in the field, in laboratory, or in the classroom
- Learners should be able to write articles, lab reports, research papers etc...
- Learners should be able to socially interact with other biologist in their field and find out how they deal with problems or issues they face using the English language i.e. they will be able to take part in a interaction with biologist in the field of work, in laboratory, or in the classroom.
- Learners need to know what skills they need to learn in their field of biology example:
  - Develop the speaking skill in order to communicate with their lab partners, colleagues, professors
  - Develop their writing skill in order to be able to keep a well- regarded and accurate lab notes

- Develop the reading skill in order to decode or read manuals, articles, lab reports.

To sum up, Needs Analysis is considered as the cornerstone of ESP (Dudley Evans and ST John, 1998). It helps the course designer determine the different needs that should be highlighted during the course elaboration. In addition, it helps the learners know what they should learn and how to acquire a certain level of proficiency in a certain field. Through this section some point concerning the definition of needs analysis, emergence and different approaches that syllabus designer refers to when elaborating an ESP course were highlighted. In the following section, some previous researches conducted in the field of EST needs analysis and non- EST needs analyses were presented.

## **Section three**

### **Previous Studies in EST Needs Analysis**

Several Researches were conducted in order to investigate the different needs of the English language learners in the classroom or in their professional careers when learning English for specific purposes. This section illustrates several researches made in the field of English for science and technology and some others in others non-EST fields such as nursing, marketing... etc.

Dakhmouche (2008) has conducted an investigation concerning the students' needs in learning English for specific purposes at the department of computer sciences in Mentouri University Constantine. The aim of the study was to see whether the strategies of predetermined objectives would enhance students' achievements in ESP. two questionnaires were administrated: one for the language teachers at the department and the second to the fifth- year students. The findings revealed the absence of predetermined objectives when teaching English.

Meghit (2012) conducted research entitled "English language teaching survey among biology students in the faculty of science at Djillali Liabes University in Sidi Bel-Abbes. The aim of the study was to know the current situation in which English language is taught in the department of biology. In addition to how the lack of the ESP teachers and syllabus affect the level of proficiency of the biology students. The sample of this study was 456 student of biology (86 males, 370 females) registered for the academic year 2011/2012. The sample of this study was taken from different level in the department of biology and which belongs to both classical and LMD system. In order to investigate the phenomenon, the researcher used a survey based on questionnaire, semi-structured interview, and an observation of the English course. The questionnaire was administrated for both teachers and students in the department. The semi-structured interview was administrated for 3 ESP teachers. The findings in this

study showed that the teachers are part-time teachers and un-experience ones. The ESP teachers did not have any ESP training even if they taught for more than 5 years. The results from the student questionnaire showed that 45% of the students were partially satisfied of the English course. However, 40% of the students were totally dissatisfied and the rest of them were confused. Furthermore, more than 2/3 of the student stated that the time allocated for the course (one hour and a half) per week was not sufficient for both graduate and postgraduate students to learn the needed English. By these results, all teachers and students suggested that the English module should be taught annually and allocate more time in order to enhance the student motivation to learn English for biology.

Belala (2015) made a needs analysis study in order to highlight some issues facing Algerian master marketing students. The aim of the study was to identify and analyze the use of English in the department of commercial sciences within the doctoral school at EL-BEZ University. Questionnaires and interviews were given to both teacher and students. The findings showed that the students were aware of the importance of English in their studies but they have a low proficiency level in English. They needed a mixture of both GE and ESP in order to a satisfactory mastery of the fur language skills with focus on the reading and listening skills through marketing English courses.

Kittidhaworn (2002) conducted a research investigating the EL needs of 182 undergraduate engineering students in public university in Thailand. He administrated 2 types of questionnaires; the first one is based on knowing the gender, years of studying English and the English proficiency in the fourth skills. The second one is dealing with the items of the EL needs such as language structures, rhetorical categories, language functions and skills. The finding showed that the majority of these engineering students have equal perceived English needs concerning the four skills.

Dabaghi, Moinzadeh, & Moslemi, (2011) conducted a research in order to investigate the learning needs of Iranian MA student. The participants in this study were students majoring in biology, psychology, physical training and west philosophy. A total of 80 students from the five majoring studying at Isfahan University participated in the study. In order to investigate the ESP needs of the students, a qualitative and quantitative research design methods were used. As data gathering techniques, Dabaghi, Moinzadeh, & Moslemi, used an interview, questionnaire, and a chi-square test. This test was used in order to investigate the different points of view of the participants in the study. The results obtained through this research showed that the majority of the students were dissatisfied from the current use of the ESP course. In addition, they urged a revision and a reconsideration of the English course. The participant suggested and recommended a joint teaching of the ESP course and an exam entrance for the MA level in order to increase the student's level of motivation and improve their level of performance in the ESP course..

As a conclusion, in this present chapter, the researcher has reviewed the theoretical background of the different variables involved. The first section was devoted to English for sciences and technology. The second section dealt with needs analysis. As the last section, the researcher reviewed some studies in the field of English for sciences and technology. The following chapter deals with the methodology and research design used in order to investigate the different target needs of the learners.

# **Chapter two**

## **Methodology, results and discussion**



**Section one**

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## Introduction

This present chapter is devoted to the practical part of the research. It is composed of two main sections. The first section is the methodological section. It gives details about the participants in the research, the research design and research methodology used in order to investigate the given research question. In addition to the different tools used in order to collect the data. The second section is devoted to the analysis and discussion of the data the different findings gather from the different tools that have been used.

### Section one: Methodology and Research Design

#### Introduction

The present study is mainly descriptive. It provides information on how students in the DBES at BU would use English language in order to effectively function in their target communicative situation (academic or professional). In other words this investigation is an attempt to describe English target needs of the students in their academic and professional communicative situations. Hence, the descriptive nature of this research determined the methodological research design which is implemented all along the study. The following elements describe the sampling, method and instruments for data collection, which are given to the teachers working in DBES at BU.

#### 1- Population and sample

Statuses of the participants	Sample (participants)		
	The data gathering tool	The size of the sample	The number of Participant s
The stakeholder: content teachers, ESP teachers, administration staff and master two students	Interview	/	7
	Questionnaire	29	14

**Table 03: population and sample**

The present research was carried out in the DBES at BU. It aims at identifying the target language needs of the Master one student enrolled in the academic year 2015/2016 in DBES at BU. The population of this research includes all the stakeholders, i.e. The English language users and people having a wide knowledge on the student's needs. Thus, the present population consists of teachers, administration staff, the researchers and the students.

Hence, a ramified sampling approach is applied in order to gain a wide and deep knowledge from the expert users of the English language in the DBES. The present sample is composed of two master students, the head of the department, and two ESP teachers and eleven content teachers.

### **1- The Research Design and Methodology**

The current research highlights the BES students different target needs susceptible to achieve the needed level of proficiency in their academic communicative situations. Consequently, a descriptive research was selected for the collection and analysis of the data.

This design also makes use of both qualitative and quantitative methods for the collection of data as to answer to the research question. In fact, the nature of this study which describes, explores and explains the “what” and the “how” Master students would use the English language in the target context, implies the most appropriate research method which is the case study. According to Yin (1984, p. 23) cited in Zainal (2007) and Soy (1996) the case study research method is *“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.”*

Therefore, the complex framework of sociolinguistics needs analysis proposed by Hutchinson and Waters in 1987, called the Target Situation Analysis (henceforth TSA) is adapted as a model framework for the design of our research instruments (interview and questionnaire). A detailed description of the two instruments is provided subsequently.

## **2- Instruments and procedures for data collection**

Jordan (1997, p. 30) indicated that there were many types of instrument that might be used in order to conduct an analysis of the different needs of the learners. Two methods are used in order to collect data about the study under investigation. These tools consist of survey (mailed questionnaire) and a semi structured interview. Thus, a triangulation of the research instruments is used in order to have a deeper understanding of the phenomenon and give strength and validity to the different results found from one single research instrument (Denzin, 2010).

### **a- Semi Structured Interview**

Interviews are particularly useful for getting the story behind a participant's experiences. The interviewer can pursue in-depth information around the topic. It may be useful as follow-up to certain respondents to questionnaires, e.g., to further investigate their responses. (McNamara, 1999) cited in Valenzuela and Shrivastava, (N.D). Richards (2005) claimed that "*interview allow for a more in-depth exploration of the issues than possible with a questionnaire*" (p. 61). In fact, according to Dawson (2002) the interview is considered as an essential tool of gathering and obtaining more information about the quality of the instruction or phenomenon.

In this present study, a semi-structured interview is used as one of the most research instrument in order to collect qualitative data about the phenomenon being investigated. It is used in order to have an insight about the students' target needs which could help them communicate effectively in any given communicative situation.

This interview was administrated to seven stakeholders at the department of environment sciences. The stakeholders consisted of two ESP teachers, two master two students; one teacher specialized in the field of environment sciences, one PhD students and

the Head of the Department. The interview was prepared previously by the researchers in order to get more detailed information about the subject of the study.

In the beginning, the researcher introduced the purpose of this research to the teacher, students and administration staff being interviewed. The interview is composed of two parts; in the first part, the interviewees were asked some general questions as about their degrees, years of experience teaching the English language, and the importance of English for Biology students. The second part includes a range of questions related to the topic under investigation.

### **b- The Questionnaire**

As a second tool for data collection, an e-mailed questionnaire was used. The questionnaire is seen as consolidating tool in order to reinforce the information that has been already gathered through the use of the interview. Brown (2001, p. 06) defines a the questionnaire as *“any written instruments that present respondents with a series of questions or statements to which they are to react either by writing out their answers or selecting from among existing answer.*

This questionnaire was used as an attempt to discover the different target needs of master I BES students at BU. The researcher based his questionnaire up on Hutchinson and Waters (1987) classification of the target needs. This questionnaire attempts to highlight the different, necessities, lacks and wants of biology study which could help the learners to function effectively in any target situation.

This questionnaire was sent via email to 25 specialised teachers in the field of biological environmental sciences in addition to 3 ESP teachers in the DBES at Bejaia University, because most of the teachers could not answer immediately and needed to take time in order to answer. However, only 14 responded to the distributed questionnaire.

The designed questionnaire consists of two parts. In the beginning of the questionnaire, the researcher introduced the purpose of this research and claimed that the answers for this questionnaire was totally voluntary and would be used for academic purposes. The first part of the questionnaire was devoted for general information about the teachers. Three questions were asked about gender, status of the teachers in the department and years of experience. The second part of the research is composed of twelve questions about the topic under investigation. The questions were both close ended and open ended questions based on Hutchinson and Waters (1987) distinction of the target needs. These questions are asked to have a clear idea and reinforce the information previously gathered from the semi-structured.

### **Conclusion**

To sum up, while administrating the data gathering tools (questionnaire and interview) to the participants, the researcher informed them that the present tools are used as instruments to collect data which are used exclusively for academic purposes as a part of a research for the fulfillment of a master degree. The answers to the proposed questions were used anonymously and none of the participants name would be included while interpreting the results.

## Section two: Analysis of the Results and Discussion

### I- Introduction

The present section deals with the analysis of the data collected through the mail questionnaire and the interview. The analysis and discussion of the present findings progresses in relation to the research questions. Thus, the answers to each research question are attempted through the analysis and discussion of related interview and questionnaire responses.

### II- The analysis and discussion of the findings

#### Part one: Background information

##### 1- The participant in the interview:

The participants	The task	The Rank
Participant 1	ESP teacher	Professor
Participant 2	ESP teacher	Professor
Participant 3	Head of the department	Professor
Participant 4	Content teacher	Assistant lecturer
Participant 5	Content teacher	Assistant lecturer
Participant 6	Student	Master 2 student
Participant 7	Student	Master 2 student

**Table 04: The different Task and Ranks of interview respondents**

The table 4 above summarizes the different statuses (tasks) and ranks of the participants who responded to the interview.

##### 2- The participants in the questionnaire

###### 1- The participant gender

Gender	Frequency	Percentage
Male	11	79%
Female	3	21%
Total	14	100%

**Table05: the participant gender**

From the table 05 above, we noticed that 79% of the participants were males and 21% are females.

## 2- The status of the participants:

Status	Frequency	Percentage
Professor	2	14%
Senior lecturer	4	29%
Assistant lecturer	8	57%
Total	14	100%

**Table 06: the status of the participants**

The table above shows the different statuses of the participant. 57% of the participant consist of assistant lectures, 29% of the participant are senior lecturers. 14% of the participants are professors.

## Part two: the needs analysis according to research questions

As mentioned previously, the analysis and discussion of the results progresses from a research method to another. Besides, interview responses and questionnaire items are grouped according to their contents and in relation to the research questions raised for this study. The discussion also relates to particular research questions and come directly after the analysis of each item or response.

**Research Question 01:** *“To what extent is the English language needed in the department of Biological Environmental sciences?”*

**RQ 1-a- How important is English for Master 1 BES Students?**

### **1-a-1- Importance of the English language**

After, the researcher interviewed the seven participants about the importance of the English language to biology students. The entire participant definitely stated that English has a major importance on the student learning process. They highlighted this importance through different justifications which are: learning English in the first year master prepares the



students for their second year master, academic and professional careers, since English is used as the lingua franca of Science and Technology all their document, scientific articles, books, needed by these students are only available in English versions.

In this context the head of the department justified this reason by saying” *English is very important to master one biology student because the entire documents used by these students are written in English, so they need to study and develop their critical thinking in order to deal with such documents*”. Similarly, the PhD student explained:” *it is compulsory for master one student to learn the English language this because English is nowadays the language of communication and most of the document , they need to study in their academic year specially in master two are available only in English*”

Another participant answered to this question by saying” *students need to acquire restricted amount of knowledge about the technical English +since they are exposed to read texts articles and comprehend and be able later to redact essays, paragraphs when needed during exams, exposes and other situations*”.

Another reason that was provided; consisted that the importance of English is showed when the students are asked to communicate with other foreign researchers, students, colleagues, teachers in national or international conferences, seminars, webinars and workshops.

The results gathered from the analysis above showed that the English language had a crucial importance for the academic and professional careers of Master I BES students. In this context Hutchinson and Waters (1987, p. 6) said “*as English became the accepted international language of technology and commerce, it created a new generation of learners who knew specifically why they learn English;..., mechanics who had to read instructions manuals, doctors who needed to keep up with the development in their field of and a whole range of students whose course of study included textbooks and journals only available in*

*English. All these and many others needed English*". Thus, the students need to learn in order to effectively function in their academic and professional target situation in which the language is the basic language of communication.

## **2. The main purposes of learning English by biology students:**

The majority of the seven interview participants stated that biology students needed English in their academic and professional communicative situations. Since, they needed English in order to be able to read and to comprehend the different documents that they dealt with in their second year master studies without facing difficulties or resorting to translation. One of the respondent who was the master 2 student said " *we need English in order to read English text books, scientific articles, online courses without encountering difficulties or using translation to the French language in order to understand the content of these documents*". In addition, English was found to enable students to communicate orally and effectively during conferences, seminars and debates, through asking questions and debating. Also, it allows them comprehend speech through listening to spoken presentations, TV documentaries, recordings of presentations and debates.

In this context, the PhD student said " *student employ English when communicating (orally) with other foreign researchers, teachers and specialists in the field of research. In addition to that students need to watch different documentaries, listening to recordings of previous presentations, or while attending seminars and conferences*". Furthermore, it was reported to be of important for them to learn the different structures and principles of scientific writing which they used while producing their master theses, research papers and scientific articles. These writing productions are mainly expected to be published in different scientific reviews.

The ESP teachers and content teacher, pointed out this latter purpose through saying " *English is needed by student in their academic carriers, since they employ it while writing*

*bibliographies, scientific articles, research papers, and master thesis and other documents that are required for obtain their degrees in additions these writings are in many cases published by the researcher in different scientific reviews”.*

That is to say, biology students are in a need to acquire the English language since it helps them function effectively in different situations.

In comparison with the first instrument used in order to collect data, the following table highlights the different results subtracted from the questionnaire administrated to the 14 participants

The Needs	Frequency	Percentage
a- For academic purposes	12	85%
b- For Professional purposes	9	64%
c- For a training purposes	6	43%
d- For general purposes	5	36%
Total	14	100%

**Table 07: the reasons for studying English**

The table above shows the reasons why BES students needed to learn English. The majority of respondents (85%) have reported that they need English language for their academic purposes, while 64% of respondents affirmed that they need English for professional purposes. However, not more than 19% of the respondents have reported that they needed English for training purposes and only (8%) of respondents said that they need it for general purposes.

As a conclusion, the results of the analysis of both instruments showed that it is very crucial for BES master one students to learn English for specific purposes, since it is much needed in their field of study either in academic or professional target communicative situations. Similarly, in her investigation on the second year business students’ needs regarding the ESP learning, Rahouma (2013) had identified and shed light the major importance of the English language in the academic and professional usage of business

students. Thus, most of the students were found to be in need to learn the English language in order to effectively deal with the different communicative tasks in which they are asked to handle either in their academic or professional target situation

**RQ 1- b: In which context is the English language needed in the department of Biological Environmental Sciences?**

**1- The interlocutors with whom the students will use English:**

The seven interview respondents claimed that the DBES students might use English with different interlocutors. These interlocutors are the supervisor or research tutor in the case that master students. These latter were found to be asked to write their master dissertation in English. The students were also reported to interact with foreign researchers, scientists around the world and students at the same level and field of study...etc. Master two students asserted that they used English with their classmates and the research tutor.

In his turn, the PhD student answered by saying” *biology students need to use English while communicating with different persons, it might be with professors, ESP teachers, and also foreign researchers, specialists in the different domains of biology*”.

As the second instrument interpretation of the findings to this question, the following table highlights with whom these students are going to use this lingua franca.

The different interlocutors	Frequency	percentage
with Algerian students	1	7%
with Algerian teacher / researchers	3	21%
With foreign students having English as a foreign language	11	79%
With foreign teachers/researchers having English as a foreign language	13	93%
With foreign students having English as native language	8	57%
With US, British, Canadian or Australian students	4	29%
With US, British, Canadian and Australian teachers/researchers.	5	36%
Total	14	100%

**Table 08: The English language interlocutors’ usage**

It is noticed from the table above that 7% of the DBES students might use English with Algerian students. 21% of the responses showed that student might use English with Algerian teachers / researchers. 79 % of the responses showed that DBES master students will need to communicate with foreign students having English as a foreign language. 93% the respondents claimed that the students will need to use English with foreign researchers/teachers having English as foreign language. 57% of the respondents reported that DBES students will need to use English with foreign students having English as a native language. 29% of the participants revealed that students need to use English with US, British, Canadian or Australian students. 36% of the participants' answers revealed that DBES master one students will need to use English with US, British, Canadian and Australian teachers or researchers.

From the results of the analysis of the questionnaire and interview, it has been noticed that DBES students will need to use English with different interlocutors. The usage of English language differs from one situation to another. The findings highlighted that the master students will need to practice the English with Algerian researchers, teachers and students in order to share and exchange information related to the different elements included in the syllabus. In addition, in some situation, the students will tend to use this language while interacting with the foreign (native- non- native) language users such as US, British, Canadian and Australian teachers, researchers and or students. Comparable with a pervious investigation on the learning needs of business students at Ouargla University, conducted by Rehouma (2013). Her findings reported that most of times the student will tend to use this language with different recipients such as students, native and non native teachers, and researchers. Thus, we can deduce that these students are likely to use EST while communicating, and debating with different persons.

## 2- The different moments of English language use by DBES students:

From the answers of the interviewed participants, we found that DBES students most of the time needed to use English when contacting their teachers, foreign researchers, specialist via email in order to ask for documents. Also, they might use English when attending conferences, seminars, training periods abroad. Furthermore, they can employ it as a mean of communication when debating, answering to questions, during exams.

In this context, ESP teachers claimed that *“there are many situations where the students can use English to communicate. They utilize English as a mean of communication while debating with foreigners in seminars, asking and or answering to different question when debating”*.

In this the content, teacher pointed out that *“master DBES students may use English in different communicative situations; the usage is mainly during seminars, conferences, through asking and or answering questions. They may also use it in classroom debates with their classmates, teacher”*.

Thus, master students might use English at different moments. The way they use English differs from one moment to another and this depends on the need of that specific communicative situation.

Possibilities	Always	Often
a- During lectures/ seminar sessions	1 (7%)	13(93%)
b- During exams	11(79%)	3(21%)
c- During lab sessions	3 (21)	11(79%)
d- In national conferences	00	14(100)
e- In international conferences	14(100%)	00
f- During international competitions/ contests	14(100%)	00
Total	14 (100%)	

**Table 09: The different moments of the English use by DBES master students.**

Identical to the results that were found during the interview analysis, the table 09 above highlights the statistical information gathered after the administration of the questionnaire.

From the table 09 above, we noticed that 7% of the responses showed that DBES students will always need to use English during lectures and seminar sessions, 93% of the responses reported that they will often to use English during exams and seminar sessions. 79% of the participants claimed that the students will always need to use English during exams, while 21% claimed that they will often use it during exams. 21% of the answers revealed that DBES students will always need to use English during laboratory sessions, whereas, 79% of the responses revealed that the master I students will often need to use English during laboratory sessions. 100% of the responses revealed that the students will often need to use English during national conferences. 100% of the participants' answers revealed that DBES students will always use English during international conferences. 100% of the participants revealed that DBES master I students will always use English during international competitions and contests.

After the analysis of the above question, convergent responses were provided by the participant as regarding the different time periods where the students will need to use English in their communicative situations. Thus, the result gathered from both the instruments revealed that DBES master one students will need to use English language in different moment such as conferences, seminars, lectures etc.

### **3- The different places of the usage of English by DBES students:**

From the responses of the seven interviewed participants, we deduced that DBES students may use English in their communicative situations in different places. According to the participant, they can use English in classrooms, amphitheatres, at university, in laboratories, in addition to virtual places when communicating with scientist around the word. The ESP teacher explained: *“English might be used everywhere by the student this depends on this willingness to use that language, but mainly it is used in classrooms, amphitheatres for large classes, inside laboratories when dealing with materials, and in training...”* The

master student claimed that they mainly needed to use English inside the classroom, amphitheatres and in workshop.

Following the analysis, this second part shed light on the results deduced from the analysis of the teacher questionnaire.

Possibilities	Always	Often	sometimes	Never
a- In Algerian lecture rooms	00	00	00	00
b- In Algerian graduation labs	1( 7%)	5(36%)	8(57%)	00
c- In Algerian research centers	2(14%)	8(57%)	4(29%)	00
d- In foreign lecture rooms	13(93%)	1(7%)	00	00
e- In foreign graduation labs	14(100%)	00	00	00
f- In foreign research centers	14(100%)	00	00	00
g- In multinational companies in Algeria	3(21%)	8(57%)	2(14%)	00
h- In multinational companies outside Algeria	11 (79%)	3(21%)	00	00
Total	14	(100%)		

**Table10: The areas in which English language will be used DBES students.**

From the table above, we noticed that 7% of the respondents reported that DBES students will always use English in Algerian graduation labs, 36% of the respondents claimed that they will often use it in graduation rooms; however, 57% claimed that it will sometimes be used in Algerian graduation rooms. 14% of the responses showed that English will always be used in Algerian research centres, 57% of the responses showed that it will often be used in Algerian research centre, whereas, 29% of the responses showed that it will sometimes be used in Algerian research centres. 93% of the responses showed that DBES will always English in the foreign lecture rooms, while 7% claimed that they will often use it in the foreign lecture rooms. 100% of the responses revealed that they will always need to use English in foreign graduation labs. 100% of the respondents reported that master one DBES students will always need to use English in foreign research labs. 21% of the respondents reported that the students will always English in multinational companies in Algeria, 57% of the responses showed that the students will often need to use English in multinational companies in Algeria. Whereas, 14% claimed that they will sometimes need to use English in multinational companies in



Algeria. 97% of the responses showed that DBES master students will always need to use English in multinational companies outside Algerian, whereas, 21% of the responses revealed that DBES students will often use English in multinational companies outside Algeria.

To conclude, the reading of analysis revealed that there are many places where DBES student may use the English language as a medium of communication. Among these places, they may need to use this language in graduation labs in side and or outside the country; also, they may wield it in national and multinational companies. The usage of the English language may differ from one place to another.

#### 4- The means for the English language communication:

Possibilities	Always	Often	sometimes	Rarely
a- Face-to-face	14(100%)			
b- On the phone	11(79%)	3(21%)		
c- Through Skype/ video conference	5(36%)	00	9(64%)	
d- Through e-mails	13(93%)	1(7%)		
e- Traditional mailing		14(100%)		
f- Textbooks, handouts, lecture notes, and other written materials.	14(100%)			
Total	14(100%)			

**Table 11: the means of the English use by DBES students.**

According to the table above, we noticed that 100% of the respondent claimed that DBES students will need to use English face-to-face. 79% % of the responses revealed that DBES master I students will always need to use English through Skype or video conferences. While, 21% of the response revealed that the students will often need to use English through Skype or video conferences. 93% of the respondents reported that the students will always need to use English through e-mails, while, 21% of the respondents reported that the students will often use English through e-mails. 100%of the responses reported that DBES students will often need to use English through traditional mailing. 100% of respondents reported that

English will always need to be used through textbooks, handouts, lecture notes and other written materials.

It is highlighted from the above results that the students will need to use the English language in different ways. According to Hutchinson and Waters (1987) DBES students will need to use English through different ways; they might need to use English as a channel of communication through face to face, video conferences, during conversation, debates and different spoken interaction. Moreover, they may be asked to use English for reading and writing such as reading textbooks, handouts and writing lecture notes and e-mails for tutors and supervisors in order to ask for different documents and help when finding difficulties.

## **Research question 02: What language contents are needed by the Biological Environmental sciences?**

### **1- The needed skills by DBES students:**

All the 7 interviewed participants reported that the four skills (reading, writing, speaking and listening) needed to be developed by the students. The majority agreed that the skills were very important to the students' learning. Among these responses, the following statements;

The PhD student answered by saying:” *all the skills are needed by the students. They need to improve their reading in order to be able to read and deal with different scientific articles, scientific documents, and books. The writing skill is needed for example to redact essays, dissertation abstracts, emails, reports that might be published in scientific reviews. For the speaking skill, the importance of English is while communicate with foreigners during seminars, conferences and giving a speech, presentation without having any difficulties in articulation the sound. In addition, it is needed in order to understand what is said while listening to presentations in conferences, seminars, and webinars*”.

Comparable with the other interviewees, ESP teachers claimed that “*master one DBES students are in high need to develop their language skills. However, the focus is on the reading skill, since, they are asked to read different articles, reports and books of DBES written in English language*”.

Similarly master II student argued that “*as master two student we need more to improve our reading and writing because most of the time we are called to read and write summaries about different topic. However, the resources are only available in English. In addition to that we to learn English in order to avoid the literal translation when writing our laboratory reports, master thesis...etc*”.

Furthermore, the content teachers pointed that “the reading and writing skills are prioritized over speaking and listening skills. This is because the students requirement in the master II degree since they .are sometimes asked to write the full dissertation using the English language in order to avoid misleading information”.

Based on the triangulation of the results the following table highlights the statistical description of the findings gathered from the e-mailed questionnaire.

The skills	The level of importance0			
	Very important	Important	Of a little importance	Not important
a- Listening	6 (43%)	8 (57%)	00	00
b- Speaking	1 (7%)	13 (93%)	00	00
c- Reading	13 (93%)	1 (7%)	00	00
d- Writing	12 (86%)	2 (14%)	00	00
Total	14 (100%)		00	00

**Table12: the important skills needed by the students**

The table above showed that 43% of the respondents ranked that the listening skill is very important for master DBES students. 57% of the respondents reported that it is important. 7% of the answers reported that the speaking skill is very important to the students. While, 93% of the respondents reported that the speaking skill is important to DBES students. 93% of the

respondent claimed that reading skill is very important for DBES, while 7% of the participants reported that it is important for DBES students. 86% of the participants reported that writing skill is very important for DBES students. However, 14% of the respondents claimed that reading skill is important for DBES students.

After having analyzed the different data gathered from the questionnaire and interview, we concluded that DBES master students will be in a need to use more the reading and writing skills, while the speaking and listening skills were given a little importance. In contrast, in her research, Dakhmouche (2008) revealed that the reading and speaking and listening skills were the most important for computer sciences, and the writing skill is the less important and favoured by the students.

## **2- The types of topics needed for DBES students:**

After having interviewed the 7 participant, we found that the students mainly need to deal with topics related to animal DBES, ecology (relationship and interrelationship between different organisms in the environment ), biodiversity (different animal species and plants that are present in the Algerian environment), genetical sciences, animal reproductive physiology (cattle, fish), physiology of the animal nutrition, molecular and experimental embryology.

The content teacher pointed out different topics that master DBES students needed to read, he stated that” *in master, the students are asked to read different text and articles that are in relation to biological sciences, these texts is based biodiversity which means the different animal and plant species that are present in a specific region. After that they should study how these animal or plants grow up in addition to their nutritional system and compare between these species with other species that are present in other region of the country*”.

To sum up, the results revealed that DBES students will need to deal with different topics. Among these texts, they will need most of the time to read different documents that are

relation to animal reproduction, bio-diversity, and animal nutrition, molecular and experimental embryology.

### 3- The types of texts the students need to read:

When asked about the different texts the students need to read, all the interviewees ( teachers and students) reported that there are different types of scientific writing that DBES students need o read.

One of the ESP teachers claimed that” *master students need to read different scientific articles, reports of laboratory experiments and findings, and books including biodiversity, ecology, and animal nutrition. In addition in some cases, these texts are not available in the library. So the students need to read eBooks online courses to enrich their knowledge*”.

Another who is the PhD student revealed that” *most of the time need to read scientific articles, research thesis, books, and research papers, laboratory reports about animal DBES such as cattle, fish, animal nutrition....*”.

Similarly, the following table represents a statistical representation of the findings that have been highlighted from the use questionnaire.

Reading sub-skills	Very important	Important	If a little importance	Not important
1- Reading textbooks of DBES in English	9( 64%)	5 (36%)	00	00
2- Reading technical reports	8(57%)	4(29%)	2 (14%)	00
3- Reading research articles	13(93%)	1(7%)	00	00
4- Reading course resources and handouts	8(57%)	5 (36%)	1(7%)	00
5- Reading instruction for laboratory manuals	9(64%)	5(36%)	00	00
6- Reading lecture notes	7 (50%)	3 (21%)	3(21%)	00
7- Reading research results	10(71%)	3(21%)	1(7%)	00
8- Reading instruction manuals	4(29%)	6 (43%)	3 (21%)	00
Total	14(100%)			

**Table 13: the reading sub-skills needed by DBES students**

From the table above, we noticed that 64% of the responses revealed that it is very important for DBES students to read textbook of DBES in English, where as 36% of the respondents reported that it was of medium importance for BES students to read textbook of DBES in English. 57% of the answers revealed that it is very important for DBES students to read technical reports in English, whereas, 29% of the teachers claimed that it is a medium of importance for DBES students to read technical articles. However, 14% claimed that it is of a little importance for DBES students to read technical articles. 93% of the teachers responses revealed that it is very important for the students to read research articles, while, 7% of the respondents reported that it is of a medium importance for DBES students to read research articles. 64% of the responses revealed that reading instruction for laboratory manuals is very important for DBES master one students. While, 36% of the responses revealed that it is an average important for DBES students to read instruction for laboratory manuals. 50% of the respondents ranked that it is very important for DBES students to read lecture notes; while 21% of the responses reported that it is of an average importance for DBES students to read lectures notes. Similarly, 21% of the responses showed that it is of a little importance for DBES students to read such notes. 71% of the results revealed that it is very important for DBES students to read different research results. 21% of the participants' answers showed that it is a medium importance for DBES students to read research results. However, 7% of the participants claimed that it is of a little importance to DBES students to read research results. 29% of the participants showed that it is very important for DBES students to read instruction in manuals, while 43% claimed that it is of an average importance for DBES master one students to read such instruction; however, 21% ranked that it is of a little importance for DBES students to read instruction manuals.

From the results, we concluded that convergent answers were provided from the interpretation of the findings, most of the participants agreed that it is very important for

DBES students to read textbooks of DBES in English, technical reports, research articles, course resources and handouts, instruction in laboratory manuals, lecture notes and research results. Blue (1993) cited in Dudley Evans and St John (1997, p: 41) referred to such activities by saying "... *EGAP isolated the skills associated with the study activities such as..., reading textbooks, articles, and other reading materials*". Similarly, Kittidhoworn (2001) conducted an investigation on needs assessment for under graduation engineering students at Thai public University in Thailand, he revealed that the students needed to read different scientific textbook, and reading instruction of science and engineering. Thus, it is

#### **4- The types of texts the students need to write:**

The seven participants in the interview claimed that DBES students need to redact different types of writing. The ESP teachers revealed that "*the master students need to produce writing pieces. These writing consist of writing exam answers in form of paragraphs and essays. In addition, in master II level, some supervisors require the student to redact their master thesis in English in order to avoid the literal translation*".

Another content teacher claimed that "*students need to write their master thesis or the dissertation abstract in English as a requirement from their research tutor. However, after graduating and postulating for doctoral studies, the students will be asked to write different research papers, research articles which later are published in scientific reviews*".

That is to say the students need to learn how the different writing are structured in order to be able write them easily. These writing differ from a level to another, depending on what purposes the students are going to use them.

In addition to the qualitative data gathered from the analysis of the interview, the table bellow presented some statistical description of the types of texts that DBES master one students will need to write in the target situation.

writing sub-skills	Very important	Important	Of a little importance	Not important
1- Taking notes during seminars/ conferences	9 (64%)	3 (21%)	2 (14%)	00
2- Taking notes during lectures	6 (43%)	3 (21%)	4 (29%)	00
3- Writing texts and exams answers	8 (57%)	6 (43%)	00	00
4- 0020Summarizing	8 (57%)	5(36%)	1(7%)	00
5- Writing dissertation abstracts	11(79%)	3 (21%)	00	00
6- Writing laboratory reports	8 (57%)	6(43%)	00	00
7- Writing research reports	11(79%)	3 (21%)	00	00
8- Writing seminar reports	8(57%)	5(36)	1 (7%)	00
Total	14 (100%)			

**Table 14: the writing sub-skills needed by DBES students**

From the results in the table above, we notice that 64% of the participants' answers reported that it is very important for DBES students to take notes during seminars and conferences, 21% reported that it is of a medium importance for DBES students to take notes during seminars and conferences. However, 14% claimed that it is of a little importance for DBES students to take notes during seminars and conferences. 43% of the answers revealed that it is very important for DBES students to take notes during lectures; while 21% ranked that it is of a medium importance for them to take notes during their lectures. However, 29% of the participants reported that it is of a little importance for them to use this sub-skill in their future communicative situations. 57% of the answers revealed that it is very important for DBES students to write different texts and exams answers in English, whereas; of the answers revealed that it is of a medium importance for DBES students to write different texts and exams answers in English. 57% of the teachers ranking revealed that it is very important for DBES students to summarize any given writing, while 36% claimed that it is of a medium importance for DBES students to use summary. Whereas, 7% of the respondents claimed that it is of a little importance for them to use this sub-skill. 79% of the participants' answers reported that it is very important for DBES students to write dissertation abstracts, while 21%



reported that it is of a medium importance for them to write dissertation abstracts. 57% of the respondents claimed that it is very important for DBES students to write laboratory reports; while 43% reported that it is of a medium importance for them to write laboratory reports. 79% of the teachers' answers revealed that it is very important for DBES to write research articles. Whereas, 21% of the results revealed that it is of a medium importance for these students to write research articles. 57% of the responses reported that it is very important for DBES master students to write report about seminars, while 43% of the respondents reported that it is of a medium important for these students to use this sub-skill in their target situations.

To sum up, the majority of the respondent claimed that it is very important for these students to use these writing sub-skills in their target situations. These writing sub skills consist of a set of activities that will help them effectively function in their target situation. Among these activities, they may produce different types of research articles, laboratory reports, and text and exams answers. In addition, these students will need to write dissertation or dissertation abstract for the fulfilment of a degree either master or doctoral. Similarly, the same results have been found in Kittidhoworn (2001) research thesis on needs assessment for under graduate students in Thai Public University. He concluded that Engineering students need to write different examination answers, research articles, assignment for job...

#### **5- The types of oral messages the students need to listen:**

The entire participants in the interview agreed positively that master I students needed to listen to different categories of scientific documentaries transmitted in TV channels such as national geography, or downloaded from the internet using different research engines such as YouTube... In addition, the students might need to listen to different recording and presentation of seminars, conferences, and webinars.

In this context, the PhD student explained: “*the listening skills of the students can be improved through hearing to different documentaries, recordings of previous presentation in seminars, conferences and debates related to the field of study*”.

In addition to the results found from the analysis of the interview, the present table exposes a numerical description on the different types of the listening sub-skills required by these students.

Sub skills	Very important	Important	Of little importance	Not important
1- listening to lectures	7 (50%)	5 (36%)	2 (14%)	00
2- listening to spoken presentations	8 (57%)	4 (29%)	2 (14%)	00
3- listening to class debates	2 (14%)	9 (64%)	2(14%)	00
4- listening to seminars/ conferences debates	13 (93%)	1 (7%)	00	00
5- listen to instruction /explanations in labs	4 (29%)	9 (64%)	1 (7%)	00
6- Listening foe instruction for task assignments	5 (36%)	2 (14 %)	7 (50%)	00
Total	14 (100%)			

**Table 15: The listening sub-skill needed by DBES students**

After having analyzed the present table, the results showed that 50% of the respondents reported that listening to lectures is very important to DBES students. 36% of the respondent reported that it is important. While 14% of the answers reported that listening to lectures is of a little importance to DBES students. In fact, 57% of the answers of the participants ranked that listening to spoken presentation is very important to DBES students. 29% of the responses showed that listening to spoken presentations is the second position of importance for DBES students. While, 14% of the responses showed that listening to spoken presentation is of a little importance for DBES students.14% of the answers revealed that listening to class debates is very important for DBES students, 64% revealed that it is in a second position of importance for DBES student to listen to class debated. While 14% of the answers revealed that it is of a little importance for DBES students to listen to class debates.

93% of the respondents responded that listening to seminars and conferences debates is very important for DBES students. While, 7% of the responses revealed that listening to seminars and conferences debates is in a second position of importance. 29% of the answers showed that listening to listening to instructions and explanations is very important for DBES students, 64% of the respondents answers revealed that it is of a second importance for DBES students to listen to instructions and explanations. However, 7% reported that it is of a little importance for DBES students to listen instruction and explanations. 36% of the respondents reported that listening to instructions for task assignments is very important for master DBES students, 14% of the responses revealed that it is in a second position of importance for DBES master one students to listen to instructions for task assignments. However, 7% claimed that it is of a little importance for DBES master one students to listen to instructions for task assignments.

To sum up, convergent responses were generated from the two instruments. DBES master one students may need to employ some listening sub skills in their future communicative situation. They considered listening to lectures, listening to spoken presentation and listening to seminars and conference debates as being very important. Besides, these students will need to develop their listening skill while attending conferences, seminars. In addition, some of them claimed that listening to class debates and instructions and explanations in labs are in a second position of importance for these students. However, they viewed that listening to instruction for task assignments are of a little importance for these students.

#### **6- The types of oral messages DBES students need to produce:**

After asking the participant in the interview about the types of oral messages that they needed to produce in their master level, convergent answers were provided by the participant. The ESP teachers and content teachers argued that “*master one biology students are not asked*

to produce any oral messages, however, in their second year master they might need to produce poster of a topic of research during seminars and conference”.

Similarly, the PhD student claimed that” *personally, I have not yet produced any oral presentation; however, sometimes I take part in debates through asking and or answering to questions. The students may communicate orally while presenting a given topic of research in a conference, seminar. Or while present and explaining the content of posters of experiment or research conducted by the students*”. However, one of the master students revealed that “*In my case, I have never presented or produced any oral communication in front of a large audience. The only place where we can do so is while answering to our teachers questions*”.

Moreover, the following table gives a statistical representation of the findings that shows similarities with the results found from the previous research instrument.

Speaking sub-skills	Very important	Important	Of little importance	Not important
a- answering/ asking questions	13 (93%)	1 (7%)	00	
b- participating in seminar/ conference debates	11 (79%)	3 (21%)	00	
c- participating in class debates/ discussions	2(14.28%)	10(71.42%)	2 (14.28%)	00
d- explaining biology concepts	8 (57%)	6(43%)	00	00
e- explaining biology experiments and techniques	9 (64%)	5 (36%)	00	00
f- describing biology objects	4 (29%)	8 (57%)	2 (14%)	00
g- Describing biology processes	6 (43%)	5 (36%)	3 (21%)	00

**Table 16: The speaking sub-skills needed by DBES students**

The table above showed that 93% of the participants considered that asking and answering to questions will be very important for master one biology students, while, 7% claimed that it is in a second position of importance for them to use these sub skill in a given communicative situation. 79% of the participants claimed that participating in seminars and conferences debates is very important for master one biology students; however, 21% of the respondents revealed that it is of a medium importance for them to use this sub-skill in the future. 14.28% of the results showed that biology students will need to participate in class

debates, similarly some participants claimed that it is of a little importance for biology students to participate in class debates; however, 71.42% of the respondents reported that it is a second position of importance for biology students to participate in class debates. 57% of the respondents claimed that it is important for biology students to explain biology concepts in English in their future carriers, while, 14.28% of the teachers responses revealed that it is very important for biology students to explain biology concepts using English, similarly, 14.28 of the participants ranked that it is of a little importance for biology students to explain biology concept using English. 64% of the teachers' answers revealed that it is very important to biology students to explain biology experiments and techniques in their future academic or professional carriers; however, 36% claimed that it is of a medium importance for biology students to need to use such language sub-skill in the future.

Thereby, the interpretation of the findings showed that biology master I students will need different speaking activities which will allow them communicate in their academic situation. In this context, Jordan (1997, p 193) argued that there are a set of speaking activities associated with academic settings, these activities and / or activities are: asking questions in lectures, participating in seminars/ conferences, making oral presentations; answering ensuing questions and points, verbalising data, and to giving oral instructions in seminars, workshops, and laboratories.

#### **7- The language aspects needed by biology students:**

When asked about what language aspect biology student need, all the interviewees responded that the students were in a high need to acquire all the language skills. However, their priority was to increase their amount of vocabulary both technical and general vocabulary. This includes reading different scientific documents which will help them enrich their lexis. In addition, the students needed to learn the different structures and grammatical

rules that will help them construct well formed sentences. These structures were considered to be used when writing essay and different writing productions.

In this context master II students claimed that” *as we are master II student, we need to learn specially the technical vocabulary in English because we are to the daily use of the same words. In addition, while writing most of the time, we are making confusion between different structures such as passive and active voice. Moreover, we face a lot of difficulties when we are asked to talk in English. So it is very important for master students to know how to articulate and pronounce different sound and label them in an understandable way*”.

In addition to the above results, the following table provides the quantitative description of the different aspect needed by the master I students of biological environmental sciences.

Language aspects	Very important	Important	Of a little importance	No importance
a- Grammar	11 (79%)	3 (21%)	00	00
b- Technical vocabulary	14 (100%)	0	00	00
c- Logical connectors and discourse/text connectors	6 ( 43%)	8(57%)	00	00
d- General English vocabulary	5(36%)	9(64%)	00	00
e- Pronunciation	4( 28%)	9 (64%)	00	00
f- Spelling	9 (64%)	5(36%)	00	00
Total	14 (100%)			

**Table 17: the most important language aspects for DBES students**

The table above shows the language aspect that will be most important for biology master one students. 79% of the respondents claimed that grammar is very important for biology, while 21% claimed that it is of a medium importance for DBES students to need grammar in their target situations. 100% of the responses revealed that it is very important for biology students to need the technical vocabulary in the future target situations. 43% of the answers reported that it is very important to use logical connectors and discourse/ text connectors in the target situation; while 57% of the answers reported that it is of a medium importance for biology students to use technical vocabulary in their target situations. 36% of

the teachers' answers revealed that it is very important for these students to use general English vocabulary in the future, while 64% claimed that it is of a medium importance for them to use this language aspect. 28% of the responses reported that pronunciation is very important for biology students; while 64% revealed that pronunciation is of a medium importance for these students. 64% of the participant answers revealed that spelling is very important for biology students, whereas, 36% of the participants' answers reported that spelling is of a medium importance for biology master one students.

From the previous results highlighted in the analysis of the interview and questionnaire; we came to conclusion that BES master 1 students will be in a much important need to use technical vocabulary and grammar in their future academic or professional carries. In addition to that grammatical structures such as passive voice, active voice are very crucial for biology students to know how to transform sentences and phrases form active to passive or vice versa. Moreover, they need to know other language aspects such as pronunciation, spelling, and logical markers and discourse connectors. Furthermore, in her research on language needs analysis, Belala (2015) has deduced similar results in which she highlighted that master I marketing students are in need to know the grammatical and technical vocabulary as the prominent aspects of the English language related to their field of study.

### **Research question 3- Are the administrators, teachers and researchers satisfied with the students' academic preparedness in terms of English language ability?**

#### **1- Master one students' preparedness to communicate in English in the academic and professional contexts.**

When asked about whether the master one biology students were well prepared to communicate in English in their academic and professional careers, the majority of the

participants responded negatively. They all agreed that master I students were not at all prepared to communicate in English.

The Head of the Department justified her answer by saying:” *biology master students are not at all well prepared to communicate in any situation using English since they have a lot of difficulties at the level of vocabulary (technical or general vocabulary), using the grammatical rules effectively in the writing structures. In addition, the time allocated to this module is not sufficient for them to develop their language competences*”,

similarly the master II students claimed that” *our level of English does not allow us to communicate in English, since we have not studied English for years and in the master years the main focus is upon the technical vocabulary and specific grammatical structures such as the passive voice, active voice,... etc*”.

As reinforcement to the interviewees’ qualitative description, the table provided a numerical and statistical description of the different views the participants have as regarding the well preparedness of the master I biology students to use the English language in their communicative situation.

	Frequency	Percentage
Yes	2	14%
No	12	86%
Total	14	100

**Table 18: Master one students’ preparedness to communicate in English in the academic and professional contexts**

From the table above, we notice that 14% of the responses revealed that biology student are well prepared to use English in their future communicative situations. While 86% of the responses revealed that DBES students were not well prepared to use English in their future academic and professional settings.



The analysis of findings of both instruments revealed that biology master students were not at all prepared to use the English language in the target communicative situations. Convergent justifications were given by the participants. Among their justifications, the teachers claimed that students don't give any attention to learn English, even though, they know that it is important for their academic and professional careers. In addition, the English language level of the students is very poor; they have many difficulties in choosing the appropriate vocabulary when needed in different situation example, writing essays, exam answers...etc. moreover, the time allocated to the module is not sufficient for them to practice the language. Thus, the BES students level in the English language necessitate reinforcement in order to enable them use these languages in their target academic communicative situations.

As reinforcement to the interview results, the following statement presents a statistical knowledge about the different point of view the participants had developed on the preparedness of these students to use the English language in their future.

	Frequency	Percentage
Yes	00	00
No	14	100%
Total	14	100%

**Table 19: Perceptions about the Current Situation of English language Teaching**

From the table above, we noticed that 100% of the respondents claimed that the way of teaching English at the department of biology was not helpful for the improvement of the students' communicative needs. They justified their answers by saying that the current course was not relevant the students needs, since each ESP teacher is teaching the module according to their personal experiences. In addition, the administration does not provide them with a specific syllabus or program to follow during the periods of teaching. Moreover, the teachers are part-time English teachers or biology teachers not specialized in English language teaching.

## **2- The different difficulties faced by the students to learn English:**

The answers to this question were that the majority of the participant stated that there are many difficulties and obstacles that hinder the good learning and teaching of this language. The respondents justified their answers by saying the following statements;

The ESP teachers claimed that *“the student have a lot of issues in their assiduity; they have a poor amount of knowledge concerning the language aspects such as technical vocabulary and general vocabulary, grammar structures and spelling”*.

Similarly the content teachers reported that *“biology students consider English as optional module, so they don’t have to learn and give a lot of importance, they don’t feel motivated to attend the English course since it is taught in amphitheatres and with a large number of classes”*.

Additionally, the master II students pointed out that *“our difficulties in the English language are to employ the right words and vocabulary when we are asked to write or speak. In addition, each time we speak; we face difficulties to articulated and spell the different sound”*. The major difficulties the students face when using the English language are at the level of the language aspects. These issues are present because of so many factors such as the unwillingness and carelessness of the students to improve their level in the English language.

To conclude, the results revealed that there were many difficulties and obstacles that hindered the correct use of the English language by Master I students. These difficulties consist of the unwillingness and the demotivation of the students while attending the English course, the lack of importance given by the stakeholder to the teaching of this module hinders the grasping and comprehension of the course content by these students. In addition, the lack of the English knowledge such as the right use of the grammatical structures (tenses, preposition, logical connectors...) and the technical vocabulary that is needed in their field of study.

### **3- Do you have any suggestions for the improvement of the use of the English language course?**

The majority of the participant had provided us with similar suggestion which will help the improvement of the teaching of English for master one level. Among the suggestions, we found that some teachers proposed to allocate more time for the teaching of the English module since one hour and a half is not sufficient for the students to deal with the different elements of the course such as the technical vocabulary, technical grammar, and writing structures. In addition, they suggested assigning English language teachers who are specialized in the field of ESP. Moreover, it was believed that the administration had to provide the teachers with specific common syllabus to follow in order to guide the students and let them know the different elements and language aspect which they will focus on during the period of teaching. Finally, one of the participants suggested that the teaching of the English module starts in the first year license, and in during the whole year of study. This was believed to help the student understand and grasp the technical language that is related to their field of study.

Similar to the result gathered from the questionnaire, all the interviewees agreed that the teaching and learning of English in the department of biological environmental sciences should be improved in order to facilitate the student's usage in their future communicative situations. The interviewees listed some suggestions that might help in the improvement the learning and teaching of English for specific purposes. Among these statements, we find that at first a specific syllabus should be designed in order to guide the teachers and students in the content and methodology to follow during the lesson presentation. Secondly, the module should be taught by English language teachers, not by biology teacher who carried out their studies in English language countries such as England, i.e. the teachers are aware about the different aspects and skills that the learners need to develop in their field of study. Thirdly, the

teaching of English should be taught from the first year license and allocate more time instead of teaching it one hour and half a week because it is not sufficient for the students to practice the language. Fourthly, the teachers should involve the students, motivate and challenge them to learn English by using different new methods which attract their attention and don't make them feel careless. Finally, the English module should be considered as mandatory and for a small class to facilitate the understanding and interaction between the students and the teacher.

The PhD student claimed that *“in order to improve the teaching and learning of English, the administration should give more importance to this module, since all the teachers and students consider it as facultative so less importance is given. In addition, a specific syllabus should be developed for each specialty to guide the learners use that syllabus as a reference to what has been learned and taught”*.

Another content teacher proposed some suggestions in which he claimed that *“first English should be taught by teachers specialized in the field of ESP not by teachers of biology who received training abroad, since currently English is taught according to the previous experience of biology professors. Then, more importance should be given by the teachers, administration and the learners. And most of all, the administration should allocate more than one hour and a half during a week for the student to learn and acquire enough knowledge and especially develop their reading and writing skills”*.

As a conclusion, through the discussion of the results, the participant highlighted the awareness of the stakeholders on the importance of the English course in the student's academic or professional careers. Even though they are aware of this importance, they still cannot manage to use the English language correctly while communicating in different situation. This is due to some lacks that hinder the efficient use of English.

### **III- Conclusion:**

In this second chapter, different elements have been highlighted. The first section was an introduction to the research method and design used. The second section dealt with the triangulation of the analysis and discussion gathered from the mailed questionnaire and interview. These findings answered the different research questions. The results revealed that English is very important for biology master students. The students will need to use it in different places, moments and with different interlocutors either in their academic or professional settings. In addition, it has been proved that reading and writing were most of the time needed by biology student, as compared to the other skills which are listening and speaking. Also, the results revealed that these students not well prepared to use this language in their future communicative situations, since they face difficulties in using it appropriately in some difficulties in their current use. Furthermore, some suggestions were given by the participants to improve the teaching and learning of English by biological environmental sciences at Bejaia University.

**Chapter three**

**Limitation, Implication and Suggestions  
for Further Research**

## Chapter three

### Limitation, Implication and Suggestions for Further Research

#### Introduction

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## **Introduction**

The previous chapter dealt with analysis and discussion of the findings. Hence, in this present chapter, the different constraints and limitations that hindered the well accomplishment of this study, in addition, some suggestion for further research are present.

### **1- The Summary of the Results**

This present section is devoted to the recapitulation of the major results found after the triangulation of the data collected from the email questionnaire and semi-structured interview. The analysis of the data progressed following the research questions raised from the study. Hence, the results of these instruments had confirmed the assumptions of the current research.

As the starting point was based on identifying to which extent is English is important to DBES students. This research question was divided in to two main sub- questions; the first one considered the importance of the English language to master 1 BES students. It revealed that the English language has a major importance to BES academic and professional careers since they need to acquire certain efficiency and knowledge which would allow them effectively function in their target communicative situations. In addition, this foreign language is needed mainly for academic, professional and training purposes. Which means that these students will tend to used English during their academic purposes (85%), professional purposes (64%), and 43% for training purposes.

As the second sub-question is concerned, it revealed that BES students would need English for communicative exchanges with different interlocutors, places and during different moments using different means of communication. This later means that BES students would employ the English language with Algerian teachers, students, researchers and or foreign



students, teachers, researchers having English as their native or non- native language during different situations such as during seminars, lectures, exams sessions, laboratory sessions, national and or international conferences. Moreover, this lingua franca is needed to be used by BES students' in different areas while communicating. These areas consist of lecture rooms, Algerian or foreign research centers and laboratories...etc. Consequently, the above mentioned results confirmed the importance of the English language on the academic and professional careers of master one BES students at BU.

The second research question dealt on the different content areas in which this foreign language is needed by these students. From the interpretation of the findings, we come to conclusion that BES students need to develop all the language skills (reading, writing, listening and speaking), but mainly the reading and writing since they were selected as the most important language skills for the academic usage of BES students. In addition, it was revealed that these master one students need to read research articles, read different text books, technical articles and course recourses, handouts and lecture notes of biology in English. Also, the participants claimed that BES students need to redact different writing pieces of biology using the English language. These pieces consist of note-taking during seminars, conferences, exams answers and lecture notes. Moreover, they need to redact dissertation abstract, laboratory and research and seminar reports. These two skills were considered as the most important as regard the needs of these students, in the meanwhile, the speaking and listing skills were treated as second position of importance. The need of these students in developing the speaking skills is through the use the English language as a tool for communication while debating, asking and answering questions during seminars and conferences either in Algerian territories or aboard. Furthermore, in some communicative situations, BES students are required to produce oral messages while describing biology objects, processes and experimental techniques. As far as the listening skill is concerned, the

results showed that master 1 BES students would need to listen to different lectures and debates during the course presentation in the classroom, instructions and explanations in laboratory... etc. The last but not the least, the findings highlighted that grammar and technical vocabulary and spelling are considered as the most important language aspects that BES students would need to use while interacting in English.

The last research question in this research study highlighted whether the stakeholders are satisfied of the current academic level of the students in terms of language abilities and prepared to communicate using English as a mean for exchanging knowledge. The answers revealed that the students are not at all prepared to communicate using the English language. Since the students are facing some difficulties and obstacles such as the unwillingness and demotivation of these students to learn English. Also, the lack of knowledge about the basic knowledge such as grammar, vocabulary, spelling and punctuation prevent the right use of English while communicating with this lingua franca in their academic settings. And by this claim it was revealed that the stakeholders are not satisfied of the current situation in which the ESP course takes place in DBES at BU and urged a change as to improve the quality of teaching and learning in this department. Among the participant suggestions, it was highlighted that the administration should give more importance to this module as to reinforce the teaching process through allocating more time since 1 hour and a half is not sufficient to come across all the elements needed by these students. In addition, as the most important suggestion provided by the participant, it was urged to design a syllabus according to the students' needs and which should be taught by ESP language teachers.

Accordingly, through the analysis of this research question, we come to conclusion that English has a major importance on the academic careers of BES students, since the English language is used by these students in their academic exchange and communication either orally or written. However, it was revealed that the stakeholders are not at all satisfied of the

current situation in which English is taught and learnt at DBES at BU and urged a change as to improve the students level since these students are not prepared to deal in English in their target communicative situations. Thus, the assumptions to the research problematic have been confirmed after the analysis of the data following the research questions.

## **2- Limitation of the study**

Through this research process, many constraints and limitations affected the right accomplishment of the study. Among these limitations we find:

First, the conducted research was about the master BES students target needs as regarding the learning of ESP, so the resources dealing the dependent variable English for science and technology were not available at the university library, which caused the lost of time searching elsewhere to find them.

Secondly, the number of the participants was limited to 28 teachers working at the department at environmental sciences. However, only 14 teachers accepted answering to the questionnaire. The majority of the teachers refused filling the questionnaire and this of course affected the generalization of the results and the reliability of the tool.

Thirdly, observation was supposed to be included as a controlling instrument in order to gather data about the way English is used in this department. However, because of the time allocated, the researcher could not have time to attend the lectures.

## **3- The Implication of the study**

Through this study, we confirmed that English is very important in the academic and professional careers of master I BES students at BU. However, the administration and the students do not give much importance to this module. So through this chapter, some implications are given in order to improve and reinforce the teaching and learning process.

- 1- **Allocating more weekly time to the teaching of English:** the administration needs to think of allocating more than one hour and a half per week for the teaching of English in order to give opportunities to the students for practice and learning more about ESP and develop their language skills especially reading and writing since they are the most important for the students.
- 2- **Giving more importance to the English module:** from the analysis and discussion of the results, we found that English is very important. So, the administration should take into consideration the importance of this module and teach it for small groups of students instead of large groups in amphitheaters and during the whole academic year.
- 3- **Recruiting expert users of ESP:** we noticed from the analysis that the current teachers of English are teachers specialized in the field of biology, who had the opportunity to carry out their studies in English speaking countries such as the UK. Hence, they had acquired this language through their personal experiences while dealing with texts, writing. So, the administration should take into consideration recruiting teachers who graduated in the field of ESP to enable the students improve their language skills and the aspects needed in their academic and professional careers.
- 4- **Designing a syllabus relevant to the students' target communicative needs:** in order to have a good quality of teaching and learning, we suggest designing a syllabus by specialists and provide the ESP teachers with a specific instruction to guide them with the specific students' necessities, lacks and difficulties which will enable them function effectively in English during their target situations. Hence, according to the results gathered, the following model is proposed in order to help the teachers know the "What" and the "How" that should be taught during the teaching process.

<p><b>The outline of the setting:</b> Department of Biological Environmental Sciences at Bejaia University</p> <p><b>The Level:</b> master one biological environmental sciences</p> <p><b>The materials to be used:</b> textbooks, articles, research articles, CD, Audio-books, recording, documentaries....</p> <p>In order to help the learners develop their English language proficiency, the following program is design to help the teachers know what to teach to improve the learning process.</p>		
the objectives	<ol style="list-style-type: none"> <li>1- Help the students acquire a certain level of proficiency in the English language</li> <li>2- Enhance this skills through the provision of different activities in order to reinforce their use of the English language</li> <li>3- Enable the student to produce any given piece of writing such as an E-mail, abstract of the dissertation, the master thesis, scientific reports... needed to convey different scientific messages</li> <li>4- Effectively use the English language while communicating during different moments and places</li> <li>5- Help the students develop their reading skills through practicing and exercising some activities and tasks</li> </ol>	
Topics	The skills	Tasks and activities
<ul style="list-style-type: none"> <li>- Biodiversity</li> <li>- Physiology Animal nutrition</li> <li>- Animal reproduction physiology</li> <li>- Ecology (relationship and interrelationship between different organisms in the environment)</li> <li>- molecular and experimental embryology</li> <li>-</li> </ul>	Listening skill	<ol style="list-style-type: none"> <li>7- listening to lectures</li> <li>8- listening to spoken presentations</li> <li>9- listening to class debates</li> <li>10- listen to instruction /explanations in labs</li> <li>11- Listening foe instruction for task assignments</li> </ol>
	Speaking skills	<ol style="list-style-type: none"> <li>h- answering/ asking questions</li> <li>i- participating in class debates/ discussions</li> <li>j- explaining biology concepts</li> <li>k- explaining biology experiments and techniques</li> <li>l- describing biology objects</li> <li>m- Describing biology processes</li> </ol>

	Reading skill	<ul style="list-style-type: none"> <li>9- Reading textbooks of biology in English</li> <li>10- Reading technical reports</li> <li>11- Reading research articles</li> <li>12- Reading course resources and handouts</li> <li>13- Reading instruction for laboratory manuals</li> <li>14- Reading lecture notes</li> <li>15- Reading research results</li> <li>16- Reading instruction manuals</li> </ul>
	Writing skill	<ul style="list-style-type: none"> <li>9- Taking notes during seminars/ conferences</li> <li>10- Taking notes during lectures</li> <li>11- Writing texts and exams answers</li> <li>12- Summarizing</li> <li>13- Writing dissertation abstracts</li> <li>14- Writing laboratory reports</li> <li>15- Writing research reports</li> <li>16- Writing seminar reports</li> <li>17- Writing e-mails</li> </ul>
	Grammar and technical vocabulary,	<ul style="list-style-type: none"> <li>- Passive and active</li> <li>- Phrasal verbs</li> <li>- Scientific vocabulary</li> <li>- The use of punctuation</li> <li>- Intonation</li> <li>- Stress</li> </ul>
	Logical connectors and discourse markers	<ul style="list-style-type: none"> <li>- Time</li> <li>- Place</li> <li>- Addition</li> <li>- Comparison</li> <li>- Contrast</li> <li>- Cause/ effect</li> <li>- Condition</li> <li>-</li> </ul>

**Table 20: Needs-based Model syllabus DBES students at Bejaia University.**

**5- Focusing on both receptive and productive skills during the teaching and learning process:** from the analysis, we noticed that the teachers focuses more on reading and writing skill and neglect the listening and speaking skills. Hence, the students face difficulties mainly when dealing with oral communicative situation.

Therefore, the teachers should take into consideration helping the students reinforce their four language skills through designing activities and tasks which involve and challenge them to take part during the sessions.

#### **4- The suggestions for further research:**

Based on the findings of the present study which aimed at identifying the target needs of Master I biology students at the DBES, the following recommendations are suggested for further studies:

- 1- As the present study was limited by some constraints, we suggest further researchers to replicate this study by investigating both the learning and target needs of the students of biology and using other tools for data collection such as observation, student questionnaire, and document analysis.
- 2- Further researchers can investigate the present situation of the teaching and learning of English for specific purposes in the different department and come up with solutions that might help in a better teaching and learning of English for specific purposes at Bejaia University.
- 3- Future research can be carried out a deficiency need analysis to know what prevents the well teaching and learning of English for specific purposes at Bejaia University.

As a conclusion, this present chapter highlighted the different constraints and limitations which prevented the good achievement of the study. After, the researcher shed lighted on some suggestions that might help in improving the teaching and learning of English at the department of biology at Bejaia University. As last, the researcher has given some suggestion to help further researchers when dealing with needs analysis.

# **General conclusion**



## **General conclusion**

After the emergence of the ESP movement, a huge attention was given to the English language, to discover what the learners needed to know in their field of study or profession function effectively in their target communicative situation. In this present study, the researcher attempted to study the different target needs of biological environmental sciences students at Bejaia University regarding the learning of English for specific purposes. The researcher hypothesized that English is very important for master I BES students at BU; however, they are not well prepared to use this language in their target situation. In order to confirm the present hypothesis, three research questions have been asked.

The present study aimed at highlighting the importance of ESP in the learning process of BES master I students in their academic careers. In addition, the main objective was to shed light the different needs of these students as regard the learning of English which would enable them effectively function in their target communicative situations. In order to achieve the objective of this study, the researcher divided the study into three main chapters. The first chapter dealt with the theoretical background of the variables, it includes three sections. The first section includes the theory about English for science and technology. The second section deals with needs analysis. The third section involves the review of literature about EST needs analysis. The second chapter deals with the practical part, it includes three main sections. The first section deals with the methodology, research design, and the instruments used to gather data. And the research subject involved in the study. The second section is about the analysis and discussion of both the questionnaire and interview that were used to collect data. Finally, the third chapter is deals about the limitations that hinder the good achievement of the study, implication and suggestion given for further research.

In order to investigate the phenomenon under study, the researcher opted for a descriptive / exploratory research design. Thus, the researcher relied on case study based on both qualitative and quantitative methods. In order to gather qualitative data, a semi structure interview was used to have a deeper understanding about the phenomenon. Also, a teacher questionnaire is seen as the consolidating tool to strengthen the data gathered from the semi-structured interview about the inquiry under investigation.

The results obtained from the triangulations of the analysis of the data obtained from both instruments revealed that English language is very important for master 1 BES students. First, the results revealed that reading and writing skills are considered as the most important skills to be used by BES master 1 students. Second, the students might need to use English in different places and moment such as during national and/ or international seminar, conferences, the lecture sessions, laboratory work...etc. Thirdly, these students will need to use the English language with different interlocutors such as researchers, teachers, and students at university, and / Or with foreign researchers, specialists, students having English as a native or non- native language. Finally, the findings revealed that despite the importance of the English language to master 1 BES students, but they are not well prepared to use this language effectively in their target situation and this due to some difficulties such as the lack of motivation in learning English, the lack of teachers specialized in ESP...etc. Therefore, based on the results of the findings, the hypothesis of the present study has been confirmed.

As the third and final chapter, the researcher devoted it to illustrate the limitations and constraints that prevented the better achievement of the present study. Also, some implication were shed lighted to reinforce the teaching and learning of English by BES master 1 students, among these implications, the participants proposed to allocate more time to the teaching and learning process. In addition, the teaching of the English should be done by teachers' experts in the field of ESP to have a better quality of learning. Finally, some suggestion were pointed

out to help further researchers. Among the suggestion, the researcher proposed replicating this research using other methods and tools.

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# Appendixes

## Appendix 01

### ESP teachers' interview

#### Part one: background information

- 1- What are your different tasks in the department of (environmental sciences)
  - a. ESP teacher
  - b. Administrator
  - c. Biology teacher
  - d. Researcher
  - e. Research tutor
- 2- What is your rank?
  - a. Professor
  - b. Senior lecturer (MCA)
  - c. Assistant lecturer (MAA/MABB)
  - d. Part time teacher

#### Part two: Needs Analysis

- 3- Do you teach English for academic purposes for professional purposes or for general purposes? Why?
- 4- What are the main purposes of your ESP course?
- 5- Your ESP course prepares the students to communicate with a number of real life interlocutors, who are they?
- 6- Your ESP course prepares the students to communicate in English during a number of specific moments, what are those exact moments?

- 7- Your ESP course prepares the students to communicate in English in a number of places, what are those exact places?
- 8- Which skills do your course enables the students to develop?
- 9- Which language aspects does your course enable the students to practice (grammar, vocabulary, pronunciation)?
- 10- What topics does your course enable the students to deal with?
- 11- What types of text does your course enable the students to read?
- 12- What types of text does your course enable the students to write?
- 13- What types of oral messages does your course enable the students to listen to?
- 14- What types of oral messages does your course enable the students to produce?
- 15- Do you encounter any difficulties in ESP teaching?
- 16- Can you enumerate them?

## **Appendix 02:**

### **PhD students' interview .**

#### **Part one: background information**

17- What are your different tasks in the department of (environmental sciences)

- a. ESP teacher
- b. Administrator
- c. Biology teacher
- d. Researcher
- e. Research tutor
- f. Student

18- What is your rank?

- a. Assistant lecturer
- b. Part time teacher

#### **Part two: Needs Analysis**

1- Is English important for master 01 biology students? Why?

2- What do PhD biology students need English exactly for (specific purposes)?

3- With whom do the PhD biology students use the English language?

4- What moments, during their daily academic activities, do the PhD biology students use English?

5- In which places during their academic activities, do the PhD biology students use English?

6- Which skills do the PhD biology students need?

7- Which language aspects do the PhD biology students need (grammar, vocabulary, pronunciation)?

- 8- What topics do the PhD biology students deal with?
- 9- What types of texts do the PhD biology students read?
- 10- What types of texts do the PhD biology students write?
- 11- What types of oral messages do the PhD biology students need to listen to?
- 12- What types of oral messages do the PhD biology students need to produce?
- 13- Are biology PhD biology students well prepared for academic or professional communication in English?
- 14- Should the English language teaching be reinforced in the biology department? And how

## **Appendix 03:**

### **Interview for Administrative staff**

#### **Part one: background information**

1- What are your different tasks in the department of (environmental sciences)

- c. Head of the department
- d. Assistant of the Head of the department
- e. ESP teacher
- f. Biology teacher
- g. Researcher

2- What is your rank?

- a. Professor
- b. Senior lecturer
- c. Assistant lecturer

#### **Part two: Needs Analysis**

3- Is English important for master 01 biology students? Why?

4- What do biology students need English exactly for (specific purposes)?

5- Are biology students well prepared for academic or professional communication in English?

Why?

6- Are there any difficulties? What are they?

7- Should English language teaching be reinforced in the biology department? How?

## **Appendix 04:**

### **Biology teacher-researchers' interview**

#### **Part one: background information**

- 1- What are your different tasks in the department of (environmental sciences)
  - a. ESP teacher
  - b. Administrator
  - c. Biology teacher
  - d. Researcher
  - e. Research tutor
- 2- What is your rank?
  - a. Professor
  - b. Senior lecturer
  - c. Assistant lecturer

#### **Part two: Needs Analysis**

- 3- Is English important for master 01 biology students? Why?
- 4- What do biology students need English exactly for (specific purposes)?
- 5- With whom will the students use the English language?
- 6- What moments, during their daily academic activities, will the students use English?
- 7- In which places during their academic activities, will the students use English?
- 8- Which skills will the students need?
- 9- Which language aspects will the students need (grammar, vocabulary, pronunciation)?
- 10- What topics will the students deal with?
- 11- What types of texts will the students read?



12- What types of texts do the students write?

13- What types of oral messages do the students need to listen to?

14- What types of oral messages do the students need to produce?

15- Are biology students well prepared for academic or professional communication in English?

Why?

16- Should the English language teaching be reinforced in the biology department? And how?

## Appendix

### The teacher questionnaire

Master 02, Applied Linguistics and ELT- Bejaia University

By Lamia TOUAZI: department of English

The present questionnaire is designed as a part of a research required for the fulfilment of a Master degree In Applied Linguistics and English Language Teaching. It aims at identifying and analysing the English language needs of the Biology Master students at Bejaia University.

You are kindly requested to answer the following questions; the answers will be kept anonymous and will be used exclusively for academic purposes.

Thank you for your voluntary participation.

#### I- Background information:

Tick in one of the boxes below:

1- Gender:

Male:  - female:

2- Your status in the department:

- Professor:

- Senior lecturer

- Assistant lecturer

3- How long have you been teaching?

- English for biology: .....years.

- Modules of biology: .....years.

#### II- English Language Needs:

1- Why is English needed by the Biology students? Tick the relevant answers

a- For academic purposes

b- For professional purposes

c- For a training purposes

d- For general purposes

2- With whom will the learners use the English language? Tick the relevant ones

a- With Algerian students

b- With Algerian teachers/ researchers

c- With foreign students having English as a foreign language

d- With foreign teachers/ researchers having English as a foreign language

e- With foreign students having English as their native language

f- With US, British, Canadian or Australian students

g- With US, British, Canadian or Australian teachers/researchers

Skills	importance			
	Very important	Important	Of little importance	No importance
a- Listening	.....	.....	.....	.....
b- Speaking	.....	.....	.....	.....
c- Reading	.....	.....	.....	.....
d- Writing	.....	.....	.....	.....

**3- What language skills will be more important for students?**

Skills	Sub-skills	importance			
		Very important	Important	Of little importance	No importance
Listening	<ul style="list-style-type: none"> <li>- Listening to lectures;</li> <li>- Listening to spoken presentation;</li> <li>- Listening to class debates;</li> <li>- Listening to seminar/conference debates;</li> <li>- Listening to instructions and explanations in labs;</li> <li>- Listening to instructions for task assignments.</li> </ul>				
Speaking	<ul style="list-style-type: none"> <li>- Asking and /or answering questions</li> <li>- Participating in seminar/conference debates</li> <li>- Participating in class debates/ discussions;</li> <li>- Explaining biology concepts</li> <li>- Explaining biology experiments and techniques</li> <li>- Describing biology objects</li> <li>- Describing biology processes</li> </ul>				
Reading	<ul style="list-style-type: none"> <li>- Reading textbooks of biology in English</li> <li>- Reading technical reports</li> <li>- Reading research articles</li> <li>- Reading course resources and handouts</li> <li>- Reading instruction for laboratory manuals</li> <li>- Reading lecture notes</li> <li>- Reading research results</li> <li>- Reading instruction manuals</li> </ul>				
writing	<ul style="list-style-type: none"> <li>- Taking notes during seminars/ conferences</li> <li>- Taking notes during lectures</li> <li>- Writing texts and exam answers</li> <li>- Summarizing</li> <li>- writing dissertation abstracts</li> <li>- Writing laboratory reports</li> <li>- Writing research articles</li> <li>- Writing seminar reports</li> </ul>				

**4- What language sub-skills will the students need in the future? Indicate the level of importance.**

Skills	importance			
	Very important	Important	Of little importance	No importance
a- Grammar b- Technical vocabulary c- Logical markers and discourse/text connectors d- General English Vocabulary e- Pronunciation f- Spelling				

**5- What language aspects will be more important for students?**

**6- Which context and means for English language use?**

questions	possibilities	frequency				
		Always	often	Some-times	Rare-ly	never
1- Where will the students use the English Language?	a- In Algerian lecture rooms b- In Algerian graduation labs c- In Algerian research centres d- In foreign lecture rooms e- In foreign graduation labs f- In foreign research centres g- In multinational companies in Algeria h- In multinational companies outside Algeria					
2- When will the students use the language? Tick the relevant answers	a- During lectures/ seminar session b- During exams c- During lab sessions d- In national conferences/ seminars e- In international conferences f- During international competitions / contests					
3- How will the language be used by the students?	a- Face-to-face b- On the phone c- Through Skype/ video conference d- Through e-mails e- Traditional mailing f- Textbooks, handouts, lecture notes					

	and other written materials					
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**7- Do you feel that your students are well prepared in terms English language abilities to meet their future communicative needs?**

- Yes  - No

- How?

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**8- Do you think that the way English is taught in your department is helpful for the improvement of the students' communicative needs?**

- Yes  - No

- Why?

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**9- Do have any suggestions for the improvement of the use of the English language course?**

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**10- Do have any comment to add?**

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## Résumé

L'étude présente examine les besoins cibles des étudiants master I biologie de l'environnement à l'Université de Béjaïa en termes d'apprentissage de l'anglais pour des objectifs spécifiques. Les participants de cette étude comprennent les enseignants, étudiants et administrateurs. L'objectif principal de cette étude est d'identifier les besoins cibles et mettre en évidence l'importance de la langue anglaise dans les futurs supports académiques ou professionnels de ces étudiants. Pour atteindre cet objectif, une méthodologie mixte basée sur des méthodes quantitatives et qualitatives est utilisée. Ces derniers sont considérées comme des méthodes appropriées pour donner un aperçu sur le phénomène sous enquête. La méthode qualitative consiste à l'administration d'une interview à 7 participants. La méthode quantitative consiste à l'administration d'un questionnaire aux 14 participants. Les résultats ont révélé que les participants sont conscients de l'importance de la langue anglaise dans les futurs supports académiques ou professionnelles des étudiants en biologie de l'environnement, cependant, ces étudiants ne sont pas bien préparés à utiliser efficacement cette langue dans leur situation de communication cible. De plus, les résultats ont révélé que les élèves devront utiliser l'anglais dans différentes situations de communication tels que lors de séminaires, conférences, ateliers avec différents interlocuteurs tels que, les enseignants, les étudiants, les chercheurs parlent l'anglais comme natif ou non natif. Enfin, à partir des résultats à la fois du questionnaire et des entrevues confirment que l'anglais est très important dans supports académiques ou professionnels des étudiants master 1 à l'université de Bejaia.

**Les mots clés:** anglais à des objectifs spécifiques, l'anglais scientifique, les besoins cibles, Anglais pour la science et la technologie.

## Résumé

L'étude présente examine les besoins cibles des étudiants master I biologie de l'environnement à l'Université de Béjaïa en termes d'apprentissage de l'anglais pour des objectifs spécifiques. Les participants de cette étude comprennent les enseignants, étudiants et administrateurs. L'objectif principal de cette étude est d'identifier les besoins cibles et mettre en évidence l'importance de la langue anglaise dans les futurs supports académiques ou professionnels de ces étudiants. Pour atteindre cet objectif, une méthodologie mixte basée sur des méthodes quantitatives et qualitatives est utilisée. Ces dernières sont considérées comme des méthodes appropriées pour donner un aperçu sur le phénomène sous enquête. La méthode qualitative consiste à l'administration d'une interview à 7 participants. La méthode quantitative consiste à l'administration d'un questionnaire aux 14 participants. Les résultats ont révélé que les participants sont conscients de l'importance de la langue anglaise dans les futurs supports académiques ou professionnels des étudiants en biologie de l'environnement, cependant, ces étudiants ne sont pas bien préparés à utiliser efficacement cette langue dans leur situation de communication cible. De plus, les résultats ont révélé que les élèves devront utiliser l'anglais dans différentes situations de communication tels que lors de séminaires, conférences, ateliers avec différents interlocuteurs tels que, les enseignants, les étudiants, les chercheurs parlent l'anglais comme natif ou non natif. Enfin, à partir des résultats à la fois du questionnaire et des entrevues confirment que l'anglais est très important dans les supports académiques ou professionnels des étudiants master 1 à l'université de Bejaia.

**Les mots clés:** anglais à des objectifs spécifiques, l'anglais scientifique, les besoins ciblés, Anglais pour la science et la technologie.

## Abstract

The present study investigates the target needs of Master I Biological Environmental Sciences students at Bejaia University as regarding the learning of English for Specific purposes. The participants of this study include the stakeholders (teachers, students and administration staff) of the department of biological environmental sciences at Bejaia University. The aim of this study is identifying the target needs of the students as regarding the learning of English for specific purposes. To reach this aim, a case study based on both quantitative and qualitative methods are regarded as appropriate methods that give an insight on the phenomenon under investigation. The qualitative method consists of conducting an in-depth interview with 7 participants. The quantitative method consists of a questionnaire delivered to 14 participants. The findings revealed that the participants are aware of the importance of the English language in the future academic or professional careers for master I BES students, however, the students are not well prepared to use this language effectively in their target communicative situation. Moreover, it is showed that the students will need to use English in different communicative situation such as seminars, conferences, lectures, and workshops with different interlocutors such as, teachers, students, and researchers speaking English as native or non-native language. Finally, from the results of both the questionnaire and interview confirm that English is very crucial in the academic or professional careers.

**The key words:** English for specific purposes, scientific English, target needs, English for science and technology.