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Course Design: Case Study of Master I Mathematics at Tlemcen University

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Dedication

To my family

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Abstract

English for Specific Purposes is a branch of English Language Teaching, it is aimed at learners with specific linguistics needs for a pre-determined and practical usage. The current study investigates the effectiveness of the English course offered at the department of mathematics at Tlemcen University, first year Master students were chosen as a sample population alongside their English teacher. The case study relied on three instruments: classroom observation, questionnaire and the interview. The results obtained from this case study stipulate that the course is closer to General English than it is to ESP. In fact, students' needs are ignored for the most part because the syllabus is not built on needs analysis but rather on intuition, as an outcome, students still struggle with English and remain with the very basic linguistic competence. Bottom line is, English for specific purposes at the department of Mathematics is not up to the standards and would not be much of an assistance to students, be it in their current studies or during the postgraduate ones.

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List of Acronyms

EAP: English for Academic Purposes

EGAP: English for General Academic Purposes

ELT: English Language Teaching

EOP: English for Occupational Purposes

ESAP: English for Specific Academic Purposes

ESP: English for Specific Purposes

EST : English for Science and Technology

GE: General English

NIA: Needs Identification and Analysis

General introduction

English has secured its status not only as an international language, but also as a global one. It is the most used language in the world and the only one which the non-native speakers are far numerous than the native ones; 340 million people are natives while 510 million speak it as a second language. The numbers indicate that English is expanding outside its boundaries and in every part of the world which creates an increasing and an unprecedented demand for the language. Furthermore, English has found its way into every sector of life like medicine, economy, law, higher education just to name a few. So, with this expansion emerged the need for specific language courses that cover only what is needed in the situation in which English is to be used.

Even though Algeria does not recognize English as a second language, it has introduced English into the syllabi since the early years of independence. Now English is incorporated within schools from the first year of middle school till the last years of university. In other words, the Algerian government recognizes the importance and the potential of teaching English in the sense that it could raise the quality of education.

The present study investigates English for Specific Purposes in the department of Mathematics due to the fact that Mathematics is a vital field of study within the technical sciences so that they are all based on it. The research enquires about English teaching at the level of Master in this department and to what extent it respects the norms of English for Specific purposes, it also aims at identifying learners' needs as well as their proficiency level. To investigate the matter, the following questions are put forward:

1. What is the official position of English in the Mathematics department?
2. Is the syllabus up to the standards of ESP teaching?
3. Are the students' needs taken into consideration by the English course they receive?
4. What are the needs of Mathematics students?

The questions put forward, logically, prompted the following hypotheses:

- There is strong probability that French outweighs English in science domains of study in Algeria. English is given the status of a supportive/secondary module in the programme of study.
- The ESP syllabus is perhaps close to General English in which the materials are randomly gathered (if there are any) and the goals are to provide the learners with a general knowledge about the language.
- Since the students have most of their modules taught in French, their need for English is not fully apparent which leads us to assume that their needs are not taken into consideration in the ESP syllabus.
- The learners may be in need to be introduced to Mathematics terminology, how to write reports and reviews and how to deliver presentations.

To undergo this case study, a research methodology was devised to extract the data that could answer the questions raised. Accordingly, classroom observation and the questionnaire were destined to first year Master students of Mathematics. As for the interviews, only the English teacher is concerned.

The current study comprises of three chapters each set a different task. The opening chapter which is the literature review incorporates definitions of notions related to the field of ESP, comparison between the main branches of ESP with the addition of Need Identification and analysis.

The second chapter embodies the methodology followed throughout the research. It includes detailed descriptions of the classroom observation, questionnaire and the interview. The second part of the chapter presents the analysis of the data gathered during the study. Both qualitative and quantitative findings are analysed and discussed in this chapter. The answers to the questions raised in this investigation are provided in this section.

Last but not least, the last chapter builds on the findings of this study. A set of materials is proposed as a ‘pilot syllabus’ according to the results obtained by the current research.

Chapter one:
Literature review

1.1 Introduction

English for specific purposes (ESP) emerged as a reaction to the increasing need for special language teaching. It all started in the aftermath of World War II, the world was witnessing an unprecedented evolution in international trade and technology. Soon after that arose the need for a language that would be the medium of communication. English was the strongest candidate for this task. Thus, special English language courses started flowing.

This chapter is devoted to tackle the foundations of ESP. first, a distinction is drawn between English for specific purposes and General English. Second, the tenets of the approach are laid down along with the main approaches to needs analysis.

1.2 Definitions of ESP

ESP is an approach to language teaching that sets the learners needs as its basis. It is so straight forward that it tackles the needed language elements circumventing the unnecessary language items if they do not serve the learners' purpose. ESP courses differ depending on the target situation, that is, the English to be taught to police officers is not the same for doctors, it is exclusively and specifically made for a certain group of people. Along the years, ESP has been defined and redefined by many scholars. The definitions vary according to the developments in the field of teaching and advances in linguistics. Here are some noteworthy definitions;

Mackay and Mountford (1978:2) associate English for Specific Purposes with function, in this respect they provide that "ESP is generally used to refer to the teaching of English for a clearly utilitarian purpose"

Hutchinson & Waters argue that ESP is an approach to language teaching that sets the learners' needs as the basis for the course (1987:19). The definition focuses on two key points: ESP in an approach rather than a product, second, learner's needs are at the core of the course.

In a more recent definition, Basturkmen (2006:18) defines ESP as opposed to General English (GE). According to her, ESP is a linguistic preparation for academic or professional settings.

> In ESP, language is learnt not for its own sake or for the sake of gaining a general education, but to smooth the path to entry or greater linguistic efficiency in academic, professional or workplace environments.

The three definitions are ordered in a chronological order. They all agree on the specificity of ESP but they approach it in different ways. Mackay and Mountford view ESP from a functional perspective, according to them, a language course that is designed for learners that are willing to use the language for a given purpose. Hutchinson and Waters focus on the fact that ESP is an approach to language teaching that is need-based. Ultimately, Basturkmen focuses in her definition on the timing and nature of the course. That is, ESP is used to facilitate access or to expand learners' proficiency in a given environment.

The idea of needs is implied in all of the definitions, the scholars defined ESP in different ways but they all keep the common core. In other words, even if scholars do not overtly utter the word 'needs', one can still infer it from definitions as it is the pivot of ESP.

1.3 Origins of ESP

Hutchinson and Waters (1987**)** portray ESP as an unplanned and incoherent movement. The approach emerged after World War II, the increasing need for an international language to keep up with both the expansion of international trade and advances in technology. English was accepted to be the international language after the war and with it arose the need for specific language courses.

ESP sprouted from the idea of teaching exactly what is needed by the learners. This endeavour is marked by narrowing down the scope of teaching as well as setting the learner as the centre of the course i.e. learner-centred approach.

1.4 General English (GE) versus English for Specific Purposes (ESP)

The core difference between GE and ESP is the awareness of the need, ESP learners are aware of why are they taking the course, in GE, however, learners are instructed about the language as a whole with no explicit awareness of the needs.

Moreover, an ESP course builds on a prior basic linguistic competence whereas a GE course can be used with absolute beginners.

Holme (1996:3) views the divergence between the two concepts as follows:

> It is in the nature of a language syllabus to be selective. The General English syllabus is based on a conception of the kind of reality that the student has to deal with in English. For example, a General English course for teenagers will probably be written around the language-based activities of a stereotypical teenager. Finding out or even speculating on what these activities are is like taking the first step towards a needs analysis. Consciously or unconsciously, therefore, all sensible course designers must begin by trying to assess students' specific needs. ESP is simply a narrowing of this needs spectrum.

Holme simplifies the difference between ESP and GE, he summarizes the difference in the fact that an ESP course is a reduced and a need-based one. A GE course throws in the element of intuition within needs analysis. That is, the needs are not the determining factor when designing a GE syllabus, designers can add elements that they deem important for students.

1.5 Characteristics of ESP

As a separate entity within English Language Teaching (ELT), ESP holds its own features and characteristics. Dudley-Evans and St. Johns (1998:4) allocate two sets of characteristics to ESP, absolute and variable.

- **Absolute characteristics**

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

- **Variable characteristics**

- ESP may be related to or designed for specific disciplines;

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

Dudley-Evans & St. John depicted a clear picture of ESP by splitting it into two categories. Absolute characteristics are common in all ESP courses, they represent its essence. Variable characteristics, on the other hand, are the particularities that differentiate between ESP courses.

1.6 Types of ESP

ESP counts more than just one main stream, it is divided according to its orientation and nature. Here are the main subdivisions of ESP:

1.6.1 English for Academic purposes (EAP)

It concerns teaching English to students in academic institutions. It revolves around the skills needed by students such as listening to lectures, taking notes and participating in seminars and tutorials.

English for Academic Purposes is about research and teaching needed by learners to perform the expected academic tasks. EAP per se, can be split into two categories (Charles, 2013:145)

1.6.1.1 English for General Academic Purposes (EGAP)

Every student, no matter what he/she specializes in, have some typical practices when enrolled at a university. These practices are regarded as generic, they include note-taking, listening to lectures, participating, writing reports and essays. The English received for such a case is English for General Academic purposes.

1.6.1.2 English for Specific Academic Purposes (ESAP)

Academic practices are shared by all disciplines one can encounter at universities. Still, specialities have their own particularities which set them apart from each other. For instance, the writing skills required at the Physics department and the ones at Philosophy are not the same, the logic behind writing in physics could not be adapted to philosophy. The nature of the speciality will steer the writing structure and logic to a certain direction. Hence, the sort of English instruction should differ to specifically fit the target situation.

1.6.2 English for Occupational Purposes (EOP)

Just as students need English in their studies, employees can also be required to learn the language associated with their jobs. The motivation for enrolling in such a course ranges from wanting to get hired for a job to reaching a promotion. The key difference here is the target situation and the eventual utility of the language.

Dudley-Evans & St John (1998:7) define it as: "EOP refers to English that is not for academic purposes; it includes professional purposes in administration, medicine, law and business, and vocational purposes for non-professionals in work or pre-work situations."

1.6.3 English for Science and Technology (EST)

EST is a sub-branch of ESP destined to people that are concerned with science and technology. It can be thought of as both EOP and EAP, the key difference here is timing. EST would be of an academic orientation if incorporated within a university programme to assist learners in their academic tasks (writing, presenting, reading …). There will be an occupational inclination if EST is planned for learners not belonging to educational institutions or at least no willing to use the language academically.

An EST syllabus can be devised for purposes other than academic e.g. Teaching English to employees in an energy company, they will not be asked to write research papers or present findings to a scholar audience but they would need EST in doing their day-to-day work.

1.7 English and science

The years after World War II asserted the dominance of the English language and its hegemony. Just it became the language of international commerce, it also secured its role as the language of science. Up to 1981, 80% of scientific publications were in English, this includes journals, articles and books. (Crystal 1997:2).

For researchers who wish to be read and published beyond the national boundaries, there is no side-stepping English. Hard sciences –be it physics, biology, mathematics ... are universal. So, scientific principles will not differ or change and if they do, the change will be on a global scale. Languages, however, do differ and thus creating barriers between scholars form different linguistic backgrounds. So, English for science is there to restore equilibrium to the equation. Bottom line, science is one and it should be represented and communicated using one global language, English has claimed this role ever since the late 1940s.

Scientific English can be held as an English variety given the particularities it has. Grammar, vocabulary and rhetoric in scientific texts are unique due to the premise of science. A scientist describes, explores and describes phenomena within the range of his/her field, scientific description, for example, should be free from bias and subjectivity as opposed to the literary one. For objective description, for instance, the researcher is to use linguistic structures that convey an objective tone e.g. passive voice.

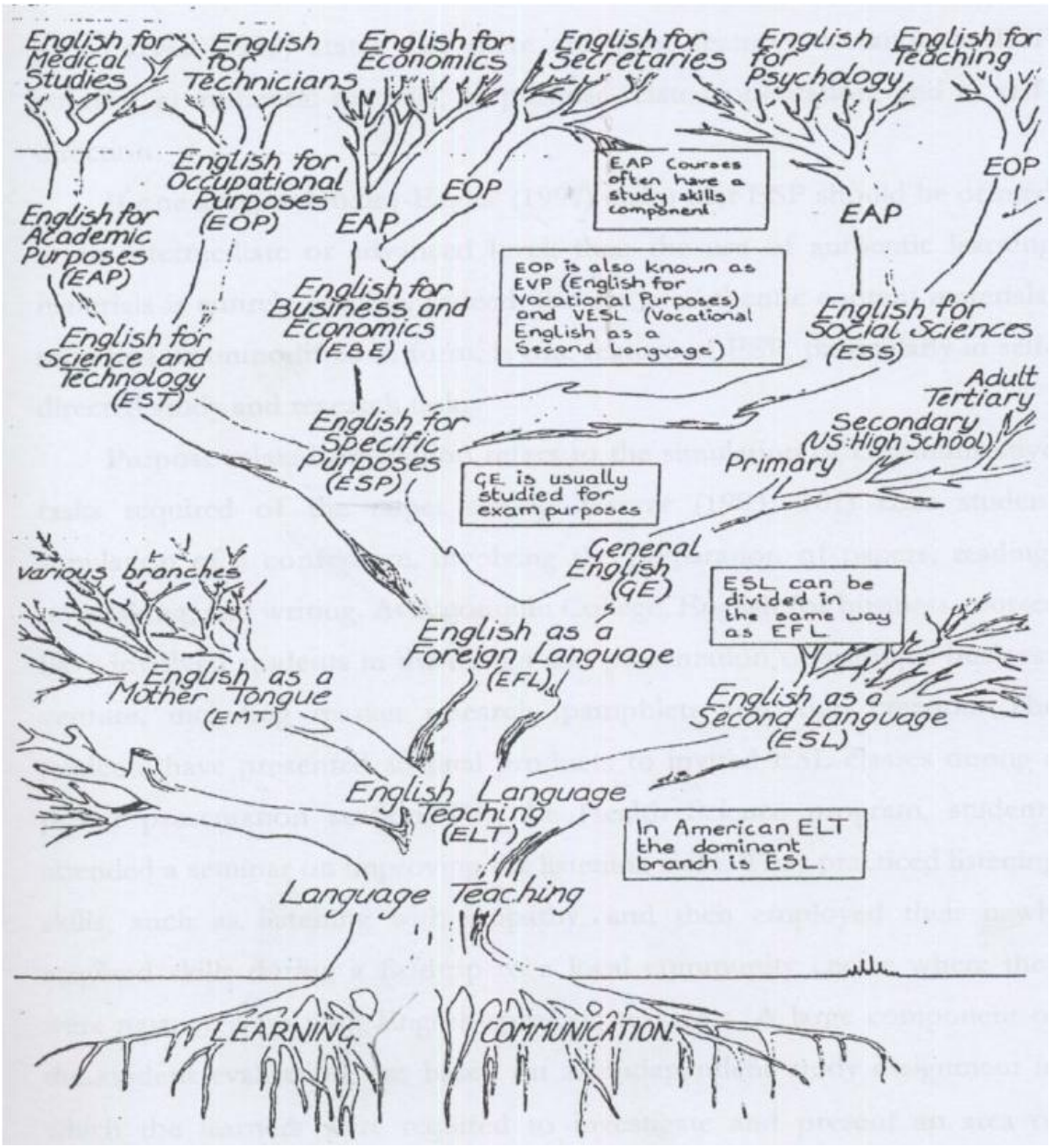

Figure 1.1 ELT Tree by Hutchinson & Waters 1987

1.8 Needs Identification and Analysis (NIA)

Needs identification and analysis is the cornerstone of any ESP course. Needs analysis is associated with ESP for it was introduced to language teaching during the movement (Richards 2001:51). The curriculum is drawn from the systematic analysis of the target situation. In other words, what is to be taught is decided through boiling down the target situation to its core components and ruling out any unnecessary elements so that the course remains focused and narrow in scope. For instance,

postgraduate students who are expected to participate in an international conference do not need to focus on how to greet and orient people like a hotel staff do, the former target situation points at the necessity of presentation and academic interaction while the latter requires a different type of language.

Dudley-Evans and St John (1998:125) present a contemporary and holistic view of needs analysis, they list the following points under the notion needs analysis:

A. Professional information about the learners: The tasks and activities learners are/will be using English for – target situation analysis and objective needs.

B. Personal information about the learners: Factors which may affect the way they learn such as previous learning experiences, cultural information, reasons for attending the course and expectations of it, attitude to English – wants, means and subjective needs.

C. English language information about the learners: What their current skills and language use are – present situation analysis – which allows us to assess (D).

D. The learners' lacks: The gap between (C) and (A) – lacks.

E. Language learning information: Effective ways of learning the skills and language in (**D**) – learning needs.

F. Professional communication information about (A): Knowledge of how language and skills are used in the target situation – linguistic analysis, discourse analysis, genre analysis.

G. What is wanted from the course?

H. Information about how the course will be run – means analysis.

Basturkmen (2010:19) posits that needs analysis is a course development process that is based on the identification of the language and skills required in the target situation, once identified, they are studied in relation to the learners' current state of knowledge as well as how they perceive their needs.

According to Basturkmen, the needs analysis process involves the following stages:

- Target situation analysis: Identification of tasks, activities and skills learners are/will be using English for; what the learners should ideally know and be able to do.
- Discourse analysis: Descriptions of the language used in the above.
- Present situation analysis: Identification of what the learners do and do not know and can or cannot do in relation to the demands of the target situation.
- Learner factor analysis: Identification of learner factors such as their motivation, how they learn and their perceptions of their needs.
- Teaching context analysis: Identification of factors related to the environment in which the course will run. Consideration of what realistically the ESP course and teacher can offer.

1.8.1 Types of Needs

The word *need* is pivotal as far as ESP courses are concerned. ESP syllabi are moulded from the learners' needs, their actual language needs i.e. Target needs, and how to amount to an optimum teaching-learning experience i.e. Learning needs. Thus, throughout the process of designing an ESP syllabus, the previous two types of needs should be put in the forefront.

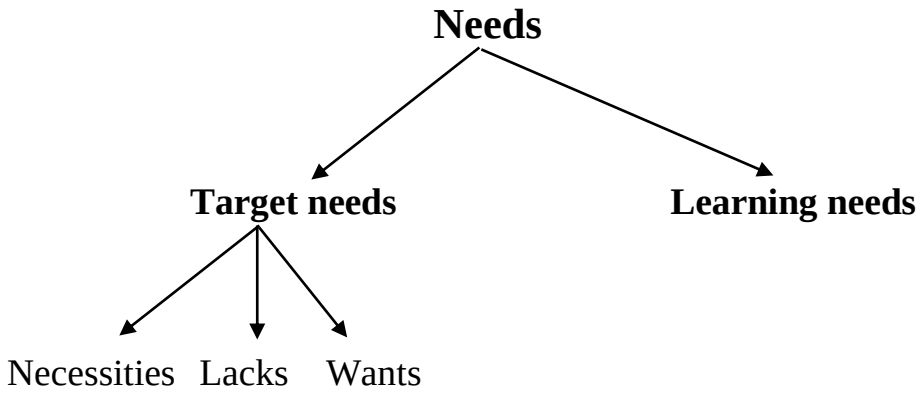

Figure 1.2 Hutchinson and Waters' classification of NA (1987)

1.8.1.1 Necessities

Any given target situation necessitates some fundamental linguistic skills that are essential for effective communication. Necessities are the central requirements for effective operating when at the target situation. Hutchinson and Waters (1987:55)

consider necessities to be: "what the learner has to know in order to function effectively in the target situation." (1987:55)

1.8.1.2 Lacks

Knowing the necessities is not sufficient to proceed with course design, there should also be a clear indication of the learners' prior knowledge about the language. Lacks emerge when testing learners in necessities, any necessity which does not check off is considered a lack. In other words, lacks are the gaps encountered in the learners' linguistic competence.

1.8.1.3 Wants

Hutchinson and waters (1987) consider 'Wants' to be a rather subjective element given that it depends on what learners desire to have in the course or what they deem important for the target situation. Learning styles and preferences come into play when listing students' wants. Needs analysis includes 'Wants' for the sake of designing a well-rounded syllabus. That is, observing and analysing the target situation will not expose everything about it, the learner may assist in producing the syllabus.

1.9 Course design

It is the transformation of the findings provided by needs analysis into a block of specifically chosen and sequenced learning units. Needs analysis extracts data from both the target population and the target situation to lay the foundations of the course.

In a similar vein of thought, Hutchinson & Waters (1987:65) define course design as: "The process by which raw data about a learning need is interpreted in order to produce an integrated series of teaching-learning experiences, whose ultimate aim is to lead the learners to a particular state of knowledge." Course design can also be called language programme design, curriculum design or programme design. Richards & Schmidt 2010 maintain that it is simply the process of developing a language programme or a set of teaching materials. The key difference between course design and syllabus design is that course design is inclusive in the sense that it directs how a syllabus will be carried out. For example:

- What teaching method and materials will be needed to achieve the objectives
- How much time will be required
- How classroom activities will be sequenced and organized
- What sort of placement tests, achievement tests and other sorts of tests will be used how the programme will be evaluated.

(Richards & Schmidt 2010:141)

1.9.1 Syllabus

It is a detailed account of the topics to be taught, educational institutions rely on syllabi and consider them as an elaborate agenda for a journey. Candlin (1984) suggests that a syllabus is delimited by the classroom, it is based on accounts and records of what happens inside and what is expected of teachers and students. The following figure sums up the characteristics of a syllabus.

1- Consists of a comprehensive list of

- content items (words, structures, topics)
- process items (tasks, methods)

2- Is ordered (easier, more essential items first)

3- Has explicit document

4- Is a public document

5- May indicate a time schedule

6- May indicate preferred methodology or approach

7- May recommend materials

Figure 1.3 Characteristics of a syllabus

(A Course in Language Teaching, 1996: 177, CUP, qtd in Basturkmen 2006:21)

1.9.2 NIA and ESP Syllabi

As it has been formerly brought up, NIA is the cornerstone of any ESP syllabus. It is, in fact, what makes as such a syllabus what it is. NIA is a procedure by which the syllabus is rendered specific and straight to the point. In this respect, Hyland argues

that specificity, which is the ultimate aim of NIA, is what sets ESP apart from GE (Hyland 2002:386).

The content of the syllabus is justified by NIA. In other words, data collected about the target situation, teaching-learning setting, students' wants and preferences …etc justify the choice of the materials and the objectives set for each unit. For instance, data collected for NIA in a given research may point out the importance of a given language skill over the others, the syllabus, then, may devote more room for that skill. In sum, NIA is the main input for syllabus design as far as ESP is concerned.

An ESP syllabus designer starts with the end in mind. That is, the goals and objectives are critical when it comes to materials selection and development. The ultimate aim is that students will be able to function effectively in the target situation (Hutchinson & Waters 1987). So, goals and objectives must be fulfilled by the end of the ESP course. The success or failure of the syllabus is determined by the state of knowledge attained by students at the end of their instruction i.e. linguistically speaking, are they able to behave comfortably in the target situation?

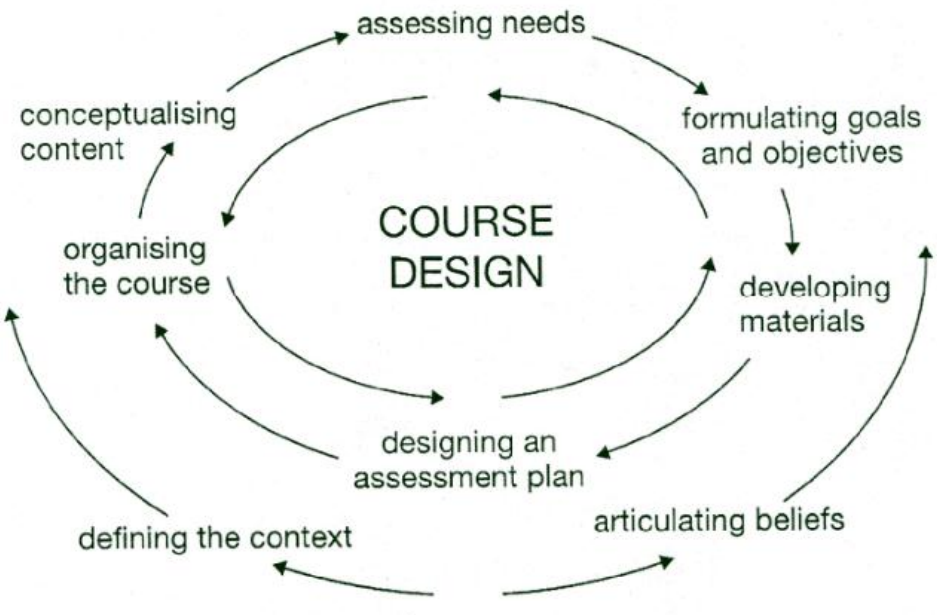

Figure 1.4 Graves' Model of Syllabus Design (2000) (cited in Haddam 2015:50)

1.9.3 Conclusion

In this chapter, the researcher attempted to lay the foundations for this research. Its aim is to overview and highlight the key notions and concepts related to ESP. The chapter contains definitions that were drawn from various scientific publications,

distinctions between the ESP and GE, as well the breaking down of ESP into the two main branches which are EAP and EOP. This first part of the research is drawn to a close by reviewing course design.

The following chapter is the first practical part of this paper. It is dedicated to Research methodology, data collection and analysis.

Chapter two:
Data collection and analysis

2.1 Introduction

English is deemed the language of scientific and technological development, there is no way to circumvent its use especially in these fields. Many new terms come to existence thanks to technology, those terms are most generally lodged into the English language. Therefore, and in an attempt to keep up with the globalized world, students and professionals who are non-native speakers of English need it for both input and output; they need the materials written in English for their own improvement and they are also in need to publish their works in English.

Although English is not perceived as an important language within the Algerian universities which is mainly due to the hegemony of French, students and professors are growing conscious about the significance of learning English in today's world, given that bulks of original data is being published from all over the world, data that is not likely to be found in other languages unless translated.

This chapter lays the methodological foundations for data collection in the first part while the rest of it is spared for data analysis and interpretation.

2.2 Objectives of the study

This study is designed to get an inside view of the learning situation at the department of Computer Sciences and Mathematics –more precisely the Master One Mathematics. As this academic research belongs to the field of ESP, its objectives revolve around the needs of the target situation. The objectives of the study are:

- Getting a full description of the situation of ESP in the Mathematics Department (English Status, students' interest and motivation, attendance, teacher qualification, the setting, time load and administrative procedures concerning English).
- Identifying the learners' needs in the target situation.
- Designing adequate materials for students.

2.3 The Teaching-Learning Situation

2.3.1 The Department of Computer Sciences & Mathematics:

The department of computer sciences and mathematics is divided into two branches. First year students have a common programme. After passing their first

year, students have to choose either Computer sciences or Mathematics. The sub-branches of both specialities get sub-branched once more at the level of Master.

2.3.2 Status of English at the department

English is held at a low position comparing to the rest of the modules. Its coefficient is one while the other scientific modules go from 2 up to 6. English is labelled as a complementary module that does not have a considerable significance when compared to the rest.

2.3.3 Time load

English is taught only during the first year of licence with a time allowance of one session a week. English is restored to their programme once again during the first year of Master. By this time, the students have narrowed down their field of study by choosing a more specialized stream. English, however, remains at one session a week.

Specialties	**Licence**		
	First year	Second year	Third year
Common stream	1h30m	/	/
Computer sciences		/	/
Mathematics		/	/

Specialities	Master	
	First year	Second year
Computer Sciences		
Information and acquaintance systems	1h30m	/
Software engineering	1h30m	/
Intelligence and decision models	1h30m	/
Networks and distribution systems	1h30m	/
Mathematics		
Differential Equations	1h30m	/
Disturbance, medians and biomathematics applications	1h30m	/
Statistical Probabilities	1h30m	/

Numerical analysis of Differential Equations with partial derivatives.	1h30m	/

Table 2.1 English time load in the department of Mathematics and computing per week

2.3.4 Course Content:

No two can disagree over the importance of materials in any teaching-learning situation. ESP is no exception to the fact that teaching materials are the building blocks that would assist the learners to get to where they want to. Furthermore, ESP materials are designed so as to fit the learners as best as possible, material developers set up the contents of the course with the ultimate goal in before their eyes i.e. Effective communication in the target situation.

In this respect, it is worthy of note that no English teaching materials are supplied by the administration of the department. In spite of this, recommendations and general guidelines are provided by the head of the department to the English teacher. The teacher is instructed to teach mathematical notions, definitions and terms just to familiarize the learners with English Mathematics that they have been studying in French and Arabic their whole academic life.

In this situation, the teacher is the one responsible for gathering and developing materials, the materials revolve around the literature about Mathematics. The sessions are divided into two main parts: the first part is where the teacher presents his lesson about a particular aspect of mathematics. The second part of the session is dedicated to oral presentations performed by students (it goes by turn). The presentations are concerned with topics about Mathematics, the learners can present individually as well as in pairs.

2.3.5 The English Teacher:

The English teacher is of a recent graduation holding a Master degree in translation with a two-year' experience (part-time teaching jobs). He is a part-time teacher. Furthermore, no prior training has been provided to the teacher in ESP which poses problems in his teaching experience. For instance, the scientific register has to be

learnt from scratch and it requires teaming up with other specialised teachers and even students as well as further research on the internet.

The teacher is the key component in the teaching-learning situation, hence, a structured interview was set up to gain insights about the setting in question from his perspective. The two groups chosen for this case study share the same teacher.

2.3.6 The learners:

They are in their first year of Master, English is included in the first year (common stream) and reintroduced in the first year of Master. So, there is a two-year gap. Prior to university, the students have studied English for 7 years (from 1st year of middle school to their Baccalaureate year).They recognize the importance of English in their field of study since most of the modern literature about Mathematics is in English. They do realize its importance but it does not bend the fact that they are not as motivated to study it as they are in other major modules.

The learners to whom the questionnaire was administered were randomly chosen. There are two groups of the same mathematics speciality (*Numerical analysis of Differential Equations with partial derivatives*) who had their English sessions together in a classroom. They were 60 students.

2.4 Research Instruments

Data collection is the cornerstone in any scientific research, other than this, the outcomes will be mere speculations. Hence, some data collection methods were assigned for this case study, the instruments are:

2.4.1 The Questionnaire

The Questionnaire is the first option when it comes to collecting data from relatively large masses of population. Preparing a questionnaire is an easy task which is one of its strengths. Brown defines 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 answers." (Brown 2001:6).

It is also useful when it comes to testing the validity of the research hypotheses put forward at the beginning of the research.

There was no pilot study in the process as the researcher delivered the questionnaires during a session. The questionnaire was explained question by question and the respondents were instructed to answer in any language they were comfortable with (French, English, Arabic). There was also room for further questions from the part of the respondents.

The questionnaire is designed to give an idea about the students' proficiency level as well as to generate enough input for the yet-to-come sample syllabus.

Questions 1and 2: aim at getting an idea about the students' level of proficiency in English.

Questions 3 and 4: they are posed to gauge the students' motivation when it comes to learning English.

Questions 5 to 8: the sole purpose of these questions is to test if the learners recognize the importance of English in their field of study.

Question 9: prompts students to evaluate their learning experience.

Question 10: the students are asked if they wish to alter French with English in the other modules.

Question 11: is concerned with the learners' use of English for research purposes outside the classroom.

Questions 12 and 13: aims at revealing the students' wants within the English course.

2.4.2 Classroom Observation:

It is a method of collecting data which is concerned with watching people's behaviours and attitudes in given contexts. In other words, it is the eliciting of data from a certain phenomenon by being close to it or within it. Richards (2005:61) asserts that: "observation of learners' behaviour in a target situation is another way of assessing their needs"

The type of observation chosen by the researcher was structured, non-participant and overt. An observation grid was designed for the task so as to keep up with the developments inside the classroom. The researcher did not take any part in any session. It was also an overt observation, the teacher was aware of this fact and he showed no hesitation or signs of caution but instead, he showed hospitality and co-operation. The procedure was carried out for 6 weeks.

English teacher:	Observer:
topic:	Number of students present:
Date/time of observation:	Total number of students:

	Positive	Not observed	Negative
Presenting the lesson			
Purpose of the session clearly stated by the teacher			
Starting the lesson from where the last one ended			
Logical organization of the lesson			
Clear explanation of the lesson			
Time management			
Use of audio-visual aids			
Use of hand-outs			
Use of blackboard			
Interaction			
Maintaining eye contact			
Does the teacher engage his students			
Does the teacher encourage students to participate			
Use of humour			
Clear explanation			
Proper response to questions raised by students			
Managed to keep a comfortable environment for teaching			
Use of French in explanation			
Use of Arabic in explanation			
Translation			
Learners			
Participation			
Are they attentive?			
Is there any disturbance during the class?			
Did they prepare for the lesson?			
Are they able to express themselves speaking in English?			
Pronunciation of the English sounds			
Inquiries during the class			
mastery of grammar			
Students' pronunciation			

Table 2.2 Observation grid

Observation permits eliciting data that one cannot be obtained through questionnaires or interviews. The goal behind Classroom observation is to get a first-hand look at what happens in the teaching-learning situation as well as checking the

reliability of the answers provided in the questionnaire i.e. Students can fake answers on questionnaires so it is up to the classroom observation to confirm or deny them.

2.4.5 The Structured Interview

An interview is a form of conversation that involves usually two people. The difference between a regular conversation and an interview is that in the latter, the interviewer is seeking answers for a given purpose from the other person, the interviewee. (Graham: 1)

The structured interview is the one in which the subject and the questions are planned beforehand. This kind of interviews does not deviate from its main purpose which can sometimes be a drawback since it is not fully able to deal with new and unexpected responses. On the other hand, it saves time for it is limited and straight to the point that it does not deviate from the main purpose set beforehand. The English teacher was the only one concerned with this interview

Questions 1 and 2: asked to know whether the teacher is prepared for a career in ESP and the nature of his job (Full-time or part-time).

Question 3 and 4: aim at gauging the students' proficiency as well as their motivation to study English from the teacher's perspective.

Questions 5 to 7: aim at getting insights of how sessions are designed as well as the materials used and whether the teacher is the materials developer or a mere instructor.

Questions 8 and 9: they are concerned with the limitations in teaching as well as the difficulties faced in the classroom.

Questions 10 to 12: are about the attitude of the teacher on teaching as well as his input for improving the situation.

2.5 Approaches to Data Analysis

Even after data is collected it is still in a raw form. That is when the analysis comes in handy as it allows for the systemic categorization and arrangement of the answers gathered and makes it an easy task to emerge with conclusions. Two main approaches were chosen for analysing the research data.

2.5.1 Qualitative Analysis

This brand of analysis allows for processing the qualitative data qualitatively. That is, the information obtained from observation and open-ended questions from questionnaires cannot be interpreted in terms of charts, graphs or any other numerical fashion. Instead, it aims at answering the questions *why* and *how*. Interpretation of one piece of information could span pages. That is due to paying close attention to individual cases as they can differ drastically from each other.

2.5.2 Quantitative Analysis

This approach, on the other hand, is concerned with analysing in a numerical fashion. The quantitative data can be expressed in numbers, charts and graphs. It is used to process the data collected by the students' questionnaires. The goal of quantitative analysis is to quantify the answers and test the given hypotheses (to what extent they are true). This approach was used for close-ended questions.

It is then used to strengthen a hypothesis or to refute it. This approach is more simplistic than the previous one because the findings can be interpreted in a language that casts no confusion among people, the language of numbers.

2.6 Data analysis and interpretation

Students' questionnaire is set the task of profiling the learners in terms of their language aptitudes, opinions about the learning experience as well as what they wish to have within the course i.e. Wants. The instruments facilitate the task of determining the actual language proficiency they have, to what extent the course they are having accomplishes what they expect and how motivated they are when it comes to learning English.

31 questionnaires were distributed during a session, all of the questionnaires were returned in 10 to 20 minutes. Even though all the questionnaires were returned, some of them were half empty (only the close-ended and multiple-choice questions were answered).

2.6.1 Questionnaire

The order of the questions analysed in this section is not the same as it is on the questionnaire. The questionnaire is a mixture of open-ended and close-ended questions, close-ended questions are tackled first in this analysis.

Question 1: Language proficiency

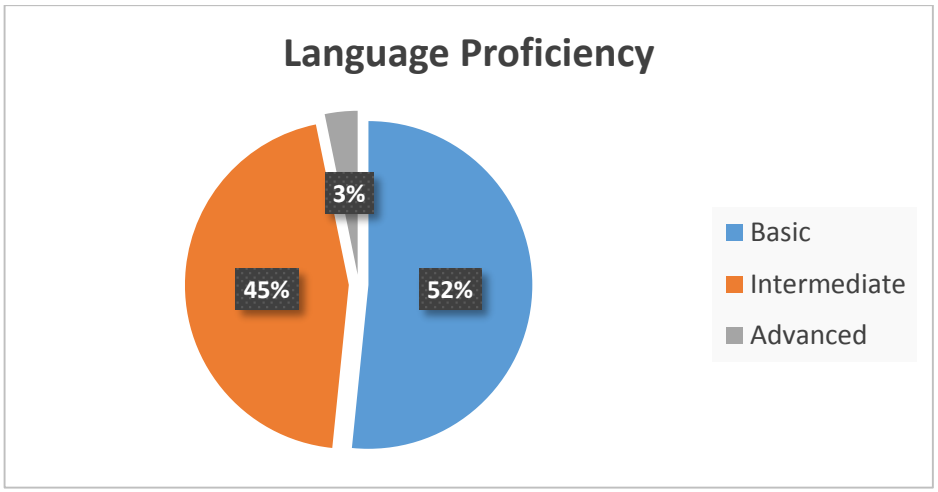

Figure 2.1 students' level of proficiency

Question 2: Proficiency in the selected language elements

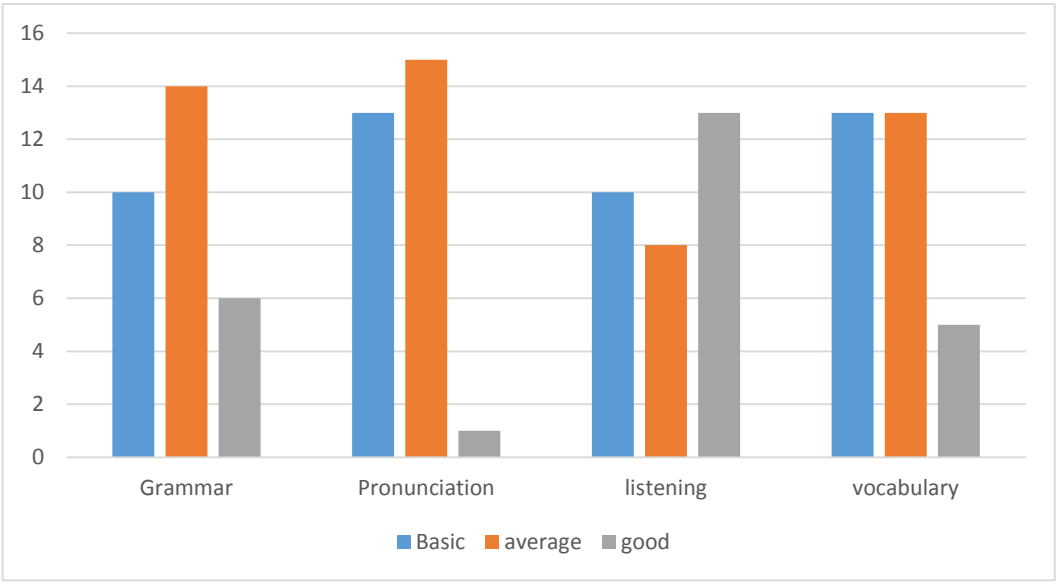

Figure 2.2 Students' proficiency in the selected language elements

The answers helped draw a panoramic view of the language competence that the learners possess. For grammar, the students who consider their grammatical competence to be average hold a share of 47%, 33% of the sample opted for basic and 20% remains for those who ticked *good*.

The answers concerning pronunciation were mainly divided between *basic* and *average* with a share of 45% and 52% with only 3% for *good*.

The third element is the one that diverges from the rest. The percentage of students who ticked *good* is at 42%, *basic* is at 32% and *average* comes last at 26%.
The last element which is vocabulary equals between the students who ticked *basic* and *average* 42% with 16% remaining for those who indicated *good*.

Question 3: Attendance

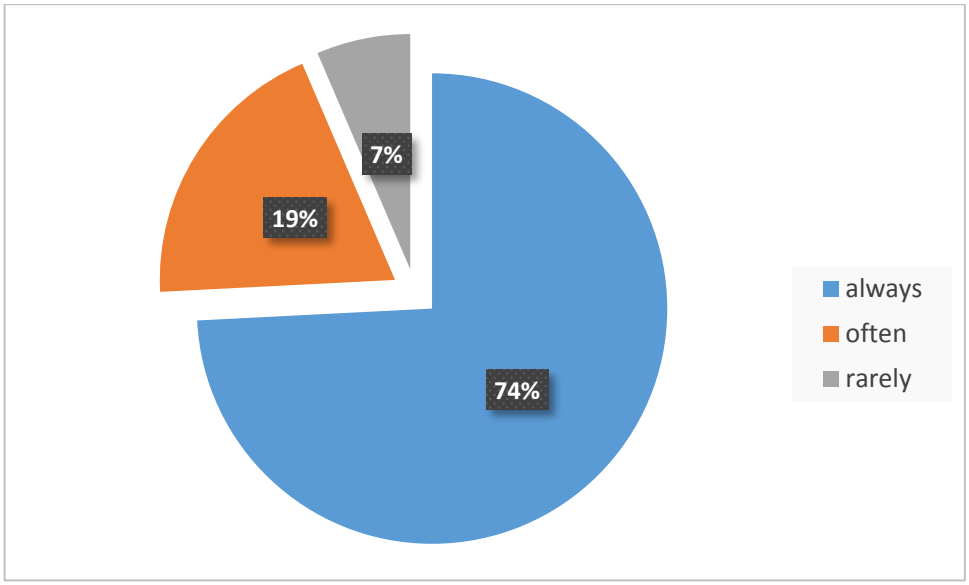

Figure 2.3 Attendance

The majority of students acknowledged that they are always present for the English session. The rate of absences is small all along the year.

Question 4: Motivation behind attendance

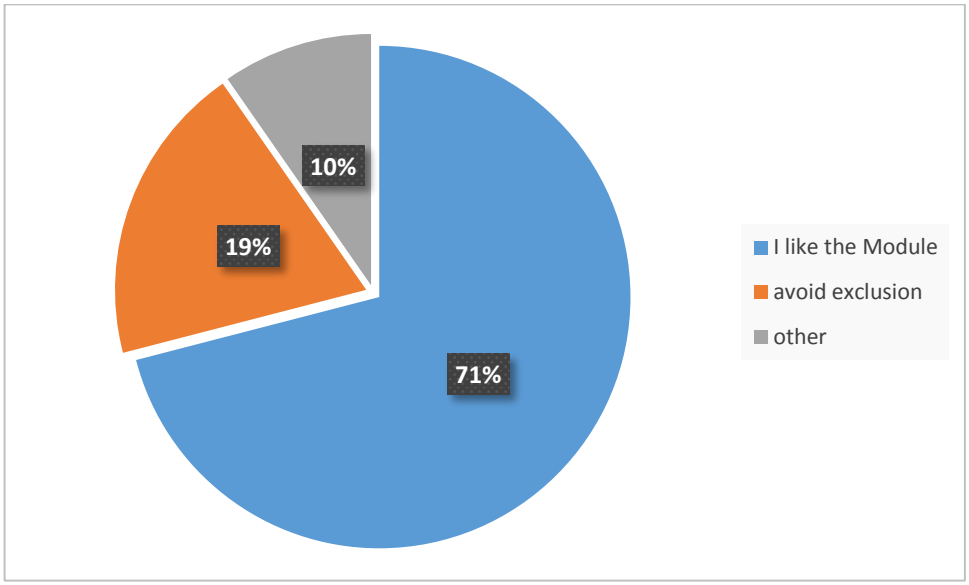

Figure 2.4 Motives for attendance

The mainstream answer was that the learners liked the module and wanted to study English, however, 19% attend the class to avoid exclusion form the module.

The rest of the learners stated that they believe English is important in their field of study. Some said that most of the references in Mathematics are published in English so it is a necessity especially reading for the sake of research. Others shared their ambition to pursue advanced studies and commented that it would not be possible without learning English.

Question 5: the importance of English in Mathematics

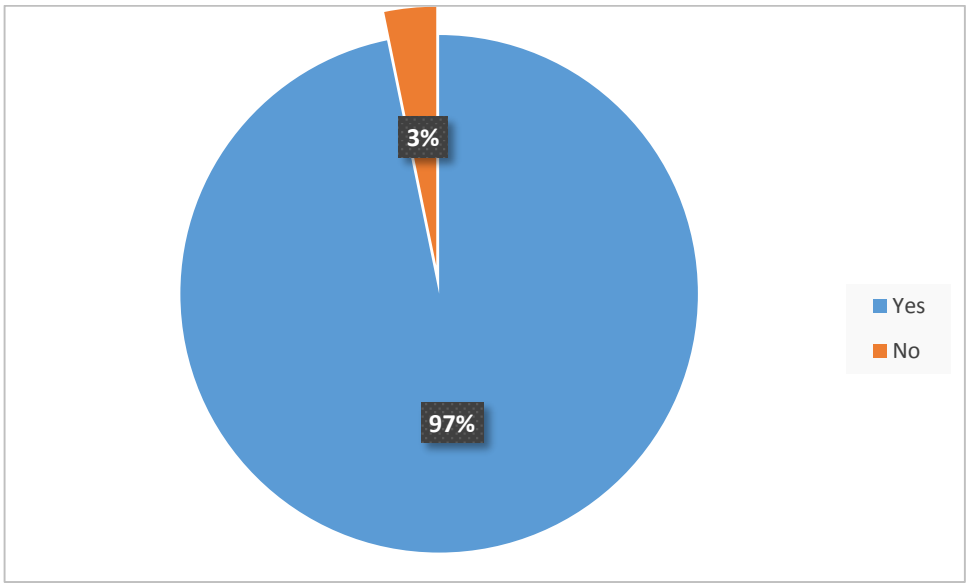

Figure 2.5 relevance of English to Mathematics

The learners were asked if they consider English as important in their studies and they affirmed that it is crucial for them to have it as a skill. Only one participant made the exception.

Question 6: the contribution of English to students' goals attainment

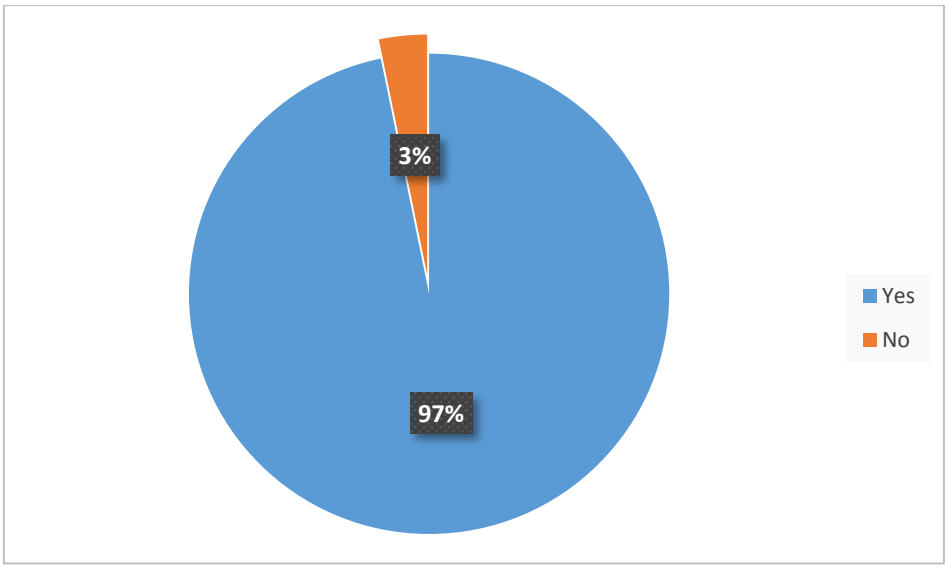

Figure 2.6 Contribution of English to students' studies and career

The question that was posed is: Do you think that the English you are having is helping you meet your academic or future professional goals?

As the pie chart displays, the majority of the learners confirmed that the course is helping them in their studies.

Question 8: Time load

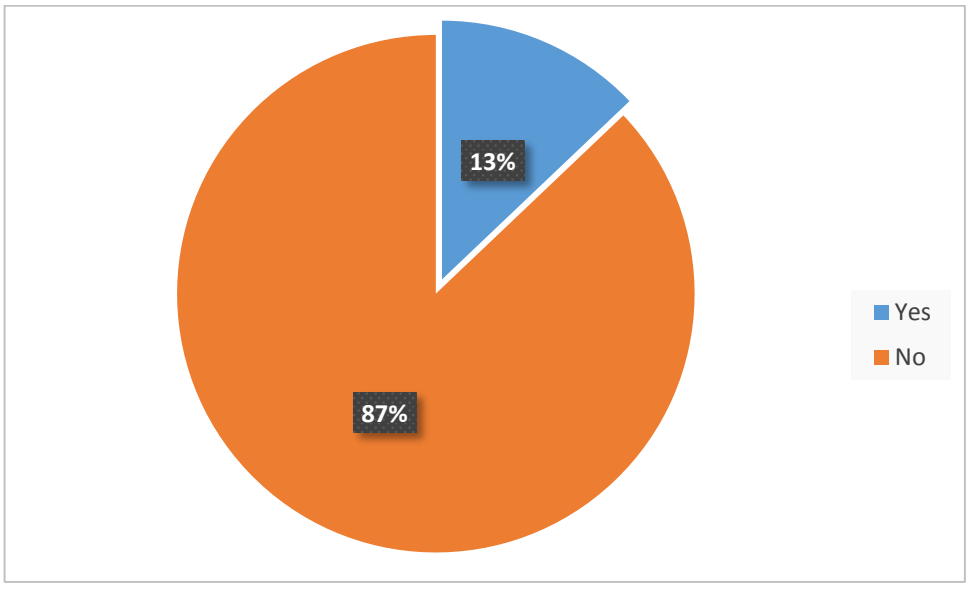

Figure 2.7 Adequacy of the time load

The question posed was whether the time spared for English is enough. Most of the students (27) checked *No* given that there is only one English session a week. So, according to the respondents, English is undermined when it comes to time load. The responses stipulate that one session a week is not doing right by English and more time is needed.

Question 11: Research

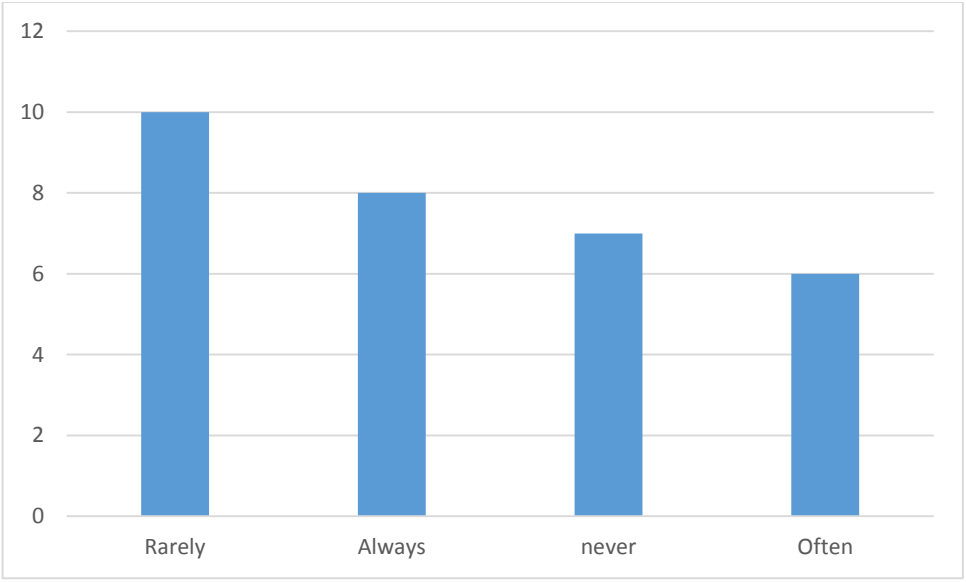

Figure 2.8 frequency of research in English

Graduate studies are marked by intensive research in most of the modules, hence, the eleventh question attempts to expose how often students research in English. Students were given four choices: Never, rarely, often and always. The answers confirm the use of English in research as most of the students acknowledged with the exception of a minority of 7 students who divulged that they never use it in research matters.

Question 7: The necessity of English

The learners were asked about the necessity of English and where would it be a fundamental skill. Most of them pointed out at research, according to the answers, English is crucial for the scientific research in Mathematics. Students find themselves obliged to search in English since –most of the time- the resources are written in English. As a strategy for avoiding English, the students use online translation (Google Translation™) this method has often proved to be futile since it produces confusing texts as it transfers from English to French or Arabic due to the verbatim translation.

Other students, however, consider English to be important for international communications such as international conferences, symposiums or simply communicating with native speakers.

Question 9: comments about the teacher's method

Students agree that the teacher's method is engaging and it grants them the chance to speak in English by participating in classroom presentations. In fact, students believe that this method is boosting their self-confidence and pushing them to use the language.

The down side to the method is that there are not enough terms introduced during the sessions. The learners' answers revolve around this point mainly, the need for learning terms is their top priority besides reading. In addition, most of the respondents pointed at the teacher's incompetence in terms of Mathematics.

Question 10: English versus French

The students were asked if English should take the place of French in the science departments, the majority of the answers agreed to the proposition. The premise was based on two main arguments:

- **References:** the dominant part of references are written in English and very few of them are translated into French. English is a must in research and science in general.
- **English is the global language:** for international communication, English is number one because it is the most used language in the world and French is used only in an increasingly limited range as opposed to English.

Students who rejected the proposal argued that they are not prepared to study Mathematics in English for they were not prepared for it. The Maths they know has been taught in French for many years so the transition will not work.

Question 13: suggestions

The last question puts the students in the driver's seat so as to know more about their preferences and wants. The most recurring answer was to include Mathematical terminology within the course. Second, other students raised the point of reading, reading lessons and drills should be incorporated as well as grammar.

2.6.2 Discussion of the results

According to the data collected, it is noticeable that the learners' knowledge gaps are actually larger than what they already know. The questionnaire has revealed that students do not believe that they have the required proficiency to use the language in their studies, and by extension, academic research. So, the desire for improvement is

present unlike the adequate language instruction and organization. Most students stated that English is a necessity in Mathematics because a considerable amount of literature is available in English only which materializes a major handicap for them. Hence, they would have to look for translations or do them themselves to get hold of that literature.

Another point to consider is the hegemony of French over English. Learners are aware of the fact that French has been lagging behind English for decades. However, the programme they are having is based on French -as it has always been, so, all what they know about Maths is virtually in French. English, according to this system, stands no chance to compete with it.

Though English is underrated in terms of support, time allowance and continuousness of the programme, the learners believe that the current course is helping them in their studies, and thus, show motivation to learn the language.

The method adopted for teaching is appreciated by the learners. They state that their teacher engages them during sessions and encourages them to speak the language. They also praised him for the fact that he gave them chance to overcome their presentation anxiety. However, the course is not satisfyingly comprehensive as it does not tackle the required concepts due to the teacher's gaps in Mathematic. As suggestions, the learners asked for the addition of reading and grammar to the course.

2.6.3 Discussion of the Classroom Observation Results

The researcher opted for classroom observation as an addition to the questionnaire. A questionnaire, as effective and practical as it can be, may not provide all the data concerned with a given phenomenon. Thus, classroom observation helps fill the void. Furthermore, it acts as a reliability test for data collected by means of the questionnaire. In other words, what is observed can confirm or deny the answers provided by the learners as they can be untruthful.

An observation grid was prepared beforehand to keep up with the developments during the sessions attended. The observation spanned 6 weeks. During the six sessions attended, a substantial amount of data was gathered.

The English taught to 1st year Master students is in fact a General English with a tinge of ESP. All sessions revolve around a mathematics-related topic, topics range

from everyday Mathematics to fields and sub-branches of Mathematics. Apart from this, there are no exercise or drills to reinforce students' writing or reading skills.

Students did not participate much, most of them were heard only at times of presentation. Even though they were literally reading everything from papers that were most likely retrieved from the internet, some lacks and weaknesses such as pronunciation could be spotted. Also, after students drew their presentations to a close, it was time for them to answer questions from both the teacher and their classmates. Most of the students who were supposed to answer questions gave the impression of being cornered. The difficulty to answer questions or respond to comments exhibits serious lacks in speaking skills, grammar and pronunciation.

In spite of the hardships encountered by the learners, they seem to be interested and motivated to learn English. Attendance rates are always high, the majority of students grant their attention to their teacher and they are always ready for their presentations.

As for the teacher, topics were introduced at the beginning of every session. The session starts by writing a text on the blackboard or displaying the lesson as a projection. Next, students are asked to read it and then to try and explain some keywords previously underlined by the teacher. He would explain the words which students could not understand through simplification or translation to French and Arabic.

2.6.4 Teacher's Interview

Question 1: ESP training

The teacher stated that he did not receive an ESP training and none is offered.

Question 2: teacher's title

He holds an MA and he is a part-time teacher.

Question 3: students' level of proficiency

Students' level of proficiency, according to their teacher, is low except for a few students. Most of the students struggle even with basic English. A minority of them hold an acceptable level

Question 4: Students' motivation

Students are not motivated to study English. He provided that the majority of his students are not interested in the module, attendance rates are good but they are not actually attending out of interest.

Question 5: materials

Materials used for teaching are mostly retrieved from the internet. The department does not supply teaching material so it is up to the teacher to select them.

Question 6: Syllabus

No syllabus is offered by the department. The teacher is free to teach whatever he sees fit. Nonetheless, some recommendation were provided by the head of the department to teach student Mathematical terminology.

Question 7: limitations

The teacher acknowledged that the main limitations are: the non-existence of a syllabus and an appropriate time load. The absence of the syllabus holds the teaching process back because it requires the teacher to play different roles in a setting that he was not trained to cope with. Second, one session a week is not enough to teach a language.

Question 8: difficulties

The answer to this this question was a broad one. He stated that there are a lot of difficulties concerning teaching English to Mathematics students.

Question 9: suggestions and propositions

As suggestions, he proposed that there should be syllabus and more time should be allocated to teaching English.

Question 10: English vs. French

The question was whether English is a competitor to French. He answered by saying that English can be a competitor to French since all the references are available in English, not in French.

2.7 Summary of the main results

Data collected by means of this research confirm most of the hypotheses put forward at the beginning of this endeavour. The three research instruments served for the purpose of triangulation. First, French is the language of science in the department of Mathematics while English is assigned the role of a supplementary module. Apart from English, all of the other modules are French-based which asserts its hegemony over English and even Arabic. Second, the second hypothesis speculates that the ESP

syllabus is closer to GE than it is to ESP and in which the materials are randomly collected for the sake of equipping students with the most basic English knowledge. The data at hand show that there is no standard ESP syllabus provided by the administration. The teacher is set the task of collecting and adapting teaching materials and deciding what students should learn. So, the method used for teaching is intuition-based verging both on ESP and GE. Third, students' needs are not taken into consideration. There is no solid syllabus upon which the course is based. So, English remains as a secondary module as shown through the data collected by means of the three instruments. Furthermore, academically speaking, English is uncalled for since students are not required to use the language outside the session boundaries, the rest of the modules do not require students to hand their works written in English. Fourth, the first three hypotheses, and to certain extent, have been validated according to the data collected. The fourth one, however, stands corrected; students state that they need to have more terminology within the course and stressed the importance of reading for most of the Mathematics literature is available in English only. Accordingly, vocabulary, grammar and reading come at the top their needs. The target situation requires reading skills more than the rest. Besides, students are not in desperate need for presentation skills at this stage, presenting research findings is for postgraduate studies. The main results can be summarized in the following points:

- Students do not have the required competence in English.
- English is not an important language within the department of Mathematics.
- No syllabus is put forward by the department, materials used for teaching are mostly retrieved from the internet by the teacher.
- The absence of a formal syllabus hinders the teaching-learning experience in addition to the poor time allocation.
- Reading is regarded as the most important skill.

2.8 Conclusion

To conclude, the current chapter represents the needs analysis and identification. The researcher employed three research instruments to gain an overview of the teaching-learning situation in the department of Mathematics. Data collected helped draw a picture of the setting as well students. English is so undermined in this

department that no syllabus is provided and it is considered as a minor module holding a coefficient of 1, one session a week is not satisfactory. Moreover, students are not competent in English but showed interest in learning the language since they regard it as essential in their studies. In view of that, the results collected in this chapter lay the foundations for the next one where they will serve as input for the sample lectures.

Chapter three:
Suggestion & recommendations

3.1 Introduction

ESP, as it has been recurring throughout this work, concerns itself with efficient teaching and learning a language. As an approach, it studies the very needs of a certain group of learners and attempts to create the adequate tight-fit course for them. So far, description of the teaching-learning situation has been completed as well as the needs identification and analysis. What remains now is the last piece of the work which is the sample syllabus. Data priorly collected is used as input and advice for the sample units contained in this chapter.

3.2 The Sample Units

Four sample units are designed for Master I Mathematics students. Each unit is based on two language skills; productive and receptive. Materials are selected according to data generated by NIA. Data revealed that most students are still at the beginner's level which will require materials that are not too advanced. Also, the learners pointed at their need for reading and grammar which explains the incorporation of conditionals, simple tenses, and passive & active voices within the units proposed. Moreover, the teacher commented that his students are not motivated during the session which brought up the idea of using grammar games and mathematical problems for the sake of pushing students to take part and have fun when learning.

Unit	Theme	Topics	Skills	Aims
One	**Mathematics-based technology**	**Lattice-based encryption (text)**	Reading Writing	Developing reading skills Learning simple tenses learning Passive and active writing a basic paragraph
Two	**Problem solving**	**Math problems** **Asian Honey Bees**	Speaking Listening	Developing speaking skills through discussion. Developing reading skills Learning basic mathematics vocabulary Learning conditionals, type 0 and 1.
Three	**Mathematical analysis**	**Candy Crush (text)**	Reading Writing	Developing reading skills Learning basic equation vocabulary Writing basic paragraph
Four	**Academic presentations**	**Geology 210 class (recording)** **Classroom Presentation (role-playing)**	listening Speaking	Developing listening skills Simulating an academic presentation

Table 3.1 Sample syllabus

3.3 Criteria for Selection

Topics chosen for the sample syllabus are relatively within the students' linguistic range. Texts provided are chosen on the basis of relevance to the field of mathematics

and for their simplicity. Texts are selected from popular science magazines for they are destined to the general population and for their authenticity, therefore, no complex structures. Recordings, however, are not chosen for their relevance to mathematics but because they are set in a university setting. The first recording is a lecture and the second one is a dialogue between a student and a professor. Students are supposed to experience both situations during their studies.

3.4 Combining Skills

The sample syllabus comes in four chapters, in each chapter a receptive skill is paired with a productive one. It is opted for this approach so that one skill provide input for the other. In other words, students read texts to familiarize themselves with written English and have an idea structure and then write. In this way, students would at least get a taste of the semi-technical language before they proceed with composition. On another front, it is usually expected of non-native speakers to struggle with the English intonation and speech rhythm. So the listening part, just as the reading one, paves the way for a more natural speaking. The precursor statements do not claim that students will speak fluent English overnight, it is rather about a logical skill acquisition i.e. Receive then produce.

3.5 Language Activities

3.5.1 Reading Comprehension

Comprehension activities are included with every text. The reading comprehension activities are designed to gauge students' understanding of the material presented. Two types of activities are dedicated to this purpose; answering questions related to texts and the second being *true/false.*

3.5.2 Lexis activities

Lexis activities are included as a finish for the comprehension. During the data collection phase, students mentioned that they need to learn Mathematical terminology. So, lexis activities try to cover this need. The activities include words that range from simple vocabulary (common English words) to basic mathematical terminology.

Several activities are selected to help students acquire more vocabulary, reading sections, for example, include *synonym* and *antonym* activities. Accordingly,

listening in Unit 2 contains fill-in-the-gap exercise so that vocabulary activities will not be exclusively associated to reading.

3.5.3 Grammar activities

Grammar is a necessary element in any syllabus -if not the most important, it can, however, be diluted due to the over prioritizing of other elements on its expense. So, the sample units provide room for grammatical practice through reviewing the simple tenses, tackling passive and active voices given that the passive voice is a regular feature in scientific writing and landmark of such discourse as stated by Riley (1991). The conditionals, type 0 and 1 are called upon due to their importance when expressing equations.

Seizing students' interest and increasing their motivation is the reason behind including games and riddles in some units. Grammar cannot generate discussion or prompt debate due to its prescriptiveness. The card game, for example, encourages team work and promotes 'learning with fun' in a fixed field which is grammar.

3.5.4 Speaking Activities

The researcher chose to include riddles or mathematical problems to induce the usage of newly learnt vocabulary. The riddles used are a relatively easy ones because the ultimate aim is not to solve them but rather to express solutions in English and use lexis related to issues at hand.

A role-playing activity is included in the fourth chapter to simulate an academic presentation. This activity puts students in the researcher's shoes by playing his/her role at a fictional international conference.

Sample Unit one

3.6 Objectives of Unit One:

- Improving reading skills using semi-technical articles.
- Familiarize students with passive and active voices.
- Practicing simples tenses (present, future and past).
- Learning how to plan before composition.
- Learning about the basic structure of a paragraph.

Reading

Read the text carefully and answer the questions bellow

Cryptographic methods are typically created the following principle: somebody comes up with an algorithm; others attempt to break it -- if they don't succeed, it means that the algorithm is secure. The team headed by Prof Dr Eike Kiltz who holds the Chair for Cryptography at the Ruhr-Universität Bochum opted for a different approach. They base their security algorithms on hard mathematical problems.

"If somebody succeeded in breaking those algorithms, he would be able to solve a mathematical problem that the greatest minds in the world have been poring over for 100 or 200 years," compares Kiltz. The mathematicians make the algorithms so efficient that they can be implemented into microdevices, such as electric garage openers.

Lattice problem: finding the optimal difficulty level

The algorithms are based, for example, on the hardness of the following lattice problem: imagine a lattice to have a zero point in one specific location. The challenge is to find the point where two lattice lines intersect and that is closest to zero point. In a lattice with approx. 500 dimensions, it is impossible to solve this problem efficiently.

The researchers test various parameters that render the lattice problem simpler or harder and use it as basis for developing a cryptographic algorithm which could be implemented even in small devices.

Authentication protocols almost finalised

Lattice-based authentication algorithms developed by the team are fairly advanced. "We are about to finalise them," says Eike Kiltz. Authentication protocols are necessary whenever an object has to prove its identity, for example an electric garage opener at the respective door. This is how it could work in the protocol: the opener authenticates itself at the garage door by proving that it knows an internal secret, for example an intersection point close to the zero point in the lattice.

Kiltz's group is currently also researching into lattice-based encryption methods. They are necessary if two parties wish to exchange a secret message. The Ruhr-Universität Bochum's science journal *Rubin* reports about the mathematicians' work.

www.sciencedaily.com

Section 1: Reading comprehension

Task one

Answer the following questions

- How are cryptographic methods created?
- Where can cryptography be applied?
- What are the algorithms based on, and what makes them difficult to solve?
- Explain how lattice-based authentication functions?

Task two

Say whether the following sentences are right or wrong. Correct the wrong ones.

- An algorithm is secure when others can break it.
- Prof Eike Kiltz and his team base their cryptography approach on lattice.
- Professor Kiltz announced that lattice-based authentication it will take a long time to be finalized.
- Encryption is practical when people want to have a secret exchange of messages.

Task three

Find in the text synonyms to the following words:

Safe – Difficulty - Solving – Examine – Validation – Interior.

Task Four

Match the following words with their opposites

Succeed	disorganized
Hard	Start
Efficient	Basic
Impossible	External
Simple	Easy
Finalize	Fail
Advanced	Possible
internal	complex

Section two: Grammar

Transform the active sentence to the passive form and vice versa

- Lattice-based authentication algorithms developed by the team are fairly advanced.
- They base their security algorithms on hard mathematical problems.
- The researchers test various parameters.
- The algorithms will be developed by another team.
- Professor Kiltz has developed a new method of encryption.

Tenses: put the following verbs in the adequate tense (future, present simple, past simple)

- The university (to host) an international conference about differential equations on the 12th of October 2018.
- 300 students (graduate) last year from the department of computing.
- Mathematics (to be) the science that (to deal) with the logic of shape, quantity and arrangement.

Tips for reading

When reading a text you should consider the following steps:

- Skim through the text, read the title and subtitles (if there is any), check for words that are in bold or italics.
- Begin by reading the first and last paragraph of the text at hand.

- Read the first sentences of every paragraph as they are most likely to be topic sentences while the rest of the paragraph is only supporting that first idea.
- Now that you have an idea about the text, go ahead and read it all.

Writing

Choose one of the topics and answer in one paragraph

- Why did you choose Mathematics as a university major?
- Define mathematics and mention some of its sub-branches.
- What does Mathematics mean to you?
- If you get the chance to study abroad, which country will you choose?

Tips for writing

Basic paragraph writing

- Pay attention to the question at hand. Are you asked to argue, to explain or to narrate, understand the question and then proceed with your answer.
- It is preferable to start with brainstorming ideas and planning your answer.
- The main idea of a paragraph should be the opener. After that, you can support it by other examples and ideas.
- The last sentence in a paragraph should conclude the idea developed.

Sample Unit Two

3.7 Objectives

- Familiarizing students with basic mathematical vocabulary
- Developing students' speaking skill by means of group discussion (riddles).
- Mastering the use the use of conditionals (type 0 & 1)
- Simulating a lecture through a recording and familiarizing students with spoken English in a classroom context.

Speaking:

This unit contains two mathematical problems for you to solve. To help you provide solutions to those problems, the following table will assist you in expressing your answer.

Operation	Symbol(s) used	Name of parts	Example
Addition	+ (plus sign)	Addend + addend= sum	6 + 9 = 15
Subtraction	− (minus sign)	Sum – addend= difference	15 – 9 = 6
Multiplication	× (times sign) · (raised dot) ( )( ) parentheses	Factor × factor = product Factor · factor = product (factor)(factor) = product	10 × 2 = 20 10 · 2 = 20 (10) (2) = 20
Division	÷ (division sign)	Dividend÷ divisor=quotient $\frac{dividend}{divisor} = quotient$	20 ÷ 2 = 10 $\frac{20}{2} = 2$

Table 3.1

(Clark & McCune 2012: 22)

I. Three Guys at a Hotel Riddle

Three guys rent a hotel room for the night. When they get to the hotel they pay the $30 fee, then go up to their room. Soon the bellhop brings up their bags and gives the lawyers back $5 because the hotel was having a special discount that weekend. So the three lawyers decide to each keep one of the $5 dollars and to give the bellhop a $2 tip. However, when they sat down to tally up their expenses for the weekend they could not explain the following details:

Each one of them had originally paid $10 (towards the initial $30), then each got back $1 which meant that they each paid $9. Then they gave the bellhop a $2 tip. HOWEVER, 3 • $9 + $2 = $29

The guys couldn't figure out what happened to the other dollar. After all, the three paid out $30 but could only account for $29.

Solution

There are many ways of explaining/thinking about this truly brain bending riddle! It all boils down to the fact that the lawyers' math is incorrect.
They did NOT spend $9 • 3 + $2.
They spent exactly $27 dollars. $25 for the room and $2 for the tip. Remember they got exactly $3, in total back.
Another way to think about the answer to this riddle is to just pretend that the bellhop refunded $3 to the lawyers (rather than giving them $5 and receiving $2 back).
If the lawyers get $3 back and each takes $1. They spent exactly $27 dollars.

II. The Dilemma of Bread

A hunter met two shepherds, one of whom had three loaves and the other, five loaves. All the loaves were the same size. The three men agreed to share the eight loaves equally between them. After they had eaten, the hunter gave the shepherds eight bronze coins as payment for his meal. How should the two shepherds divide this money based on the bread they gave to the hunter?

Solution

The shepherd who had three loaves should get one coin and the shepherd who had five loaves should get seven coins. If there were eight loaves and three men, each man ate two and two-thirds loaves. So the first shepherd gave the hunter one-third of a loaf and the second shepherd gave the hunter two and one-third loaves. The shepherd who gave one-third of a loaf should get one coin and the one who gave seven-thirds of a loaf should get seven coins

Notes about the session

- Students are asked to solve the riddles in English.
- the students are instructed about the how to structure and organize their answers
- The aim is to create interest and induce the use of basic mathematical vocabulary.
- Students can be divided as teams and compete against each other.
- The goal is to get students to talk with cohesion and confidence.

Conditionals

Type 0 and 1.

Cards game

The students are divided into groups of 3-4 and each group is given two sets of cards. The first set is the *Conditional clause* cards (there is no clause on the card but a picture), the cards are put face down in the middle of the table while the *action* cards are distributed among the students. Next, a player within a group flips one *Conditional clause* card and he/she who has the compatible *action clause* with that card gets to answer. The verbs are not conjugated on the *action clause* cards, so, it is up to the student to conjugate them and verify with his/her group if the sentence makes sense. (see Appendix D).

The aim of the game is to get rid of all the cards, the first one to do it wins the game. (Harfield 2003:21)

Listening section

Professor: Good morning everyone. In today's seminar, Grant Freeman, a biologist who specialises in identifying insects, and who works for the Australian Quarantine Service, has come to talk to us about his current research work. Right, well, over to you, Grant.

Grant: Good morning, everyone. I'm sure that you know that the quarantine service regulates all food brought to Australia. Well, obviously they want to protect Australia from diseases that might come in with imported goods, but they also want to prevent

insect pests from being introduced into the country, and that's where I have a part to play. Anyway, my current research involves trying to find a particular type of bee, the Asian Honey Bee, and finding out whether there are any of them around in various states of Australia. We discovered a few of them in Queensland once and eradicated them. Now, we're pretty keen to make sure that there aren't any more getting in, particularly to New South Wales and other states.

Student 1: What's wrong with Asian Honey Bees? Are they so different from Australian bees?

Grant: Well, in fact, they look almost the same, but they are infested with mites – microscopic creatures which live on them, and which can seriously damage our own home-grown bees, or could even wipe them out.

Professor: Well, what would happen if Australian bees died out?

Grant: Well, the honey from Australian bees is of excellent quality, much better the stuff the Asian bees produce. In fact, Australia exports native Queen Bees to a large number of countries because of this. When the European Honey Bee was first discovered out in the bush, we found they made really unpleasant honey and they were also too big to pollinate many of our native flowers here in Australia.

Student 2: that must have had a devastating effect on the natural flora. Did you lose any species?

Grant: No, we managed to get them under control before that happened but if Asian bees got in, there could be other consequences. We could lose a lot of money because you might not be aware, but it's estimated that native bees' pollination of flower and vegetable crops is worth 1.2 billion dollars a year. So in a way they're the farmers' friend. Oh, and another thing is, if you're stung by an Asian Honey Bee, it can produce an allergic reaction in some people; so they're much more dangerous than native bees.

Professor: How will you know if Asian bees have entered Australia?

Grant: we're looking at the diet of the bird called the Rainbow Bee Eater. The Bee Eater doesn't care what it eats, as long as they're insects. But the interesting thing about this bird is that we are able to analyse exactly what it eats and that's really helpful if we're looking for introduced insects.

Professor: How come?

Grant: Because insects have their skeletons outside their bodies, so the Bee Eaters digest the meat from the inside. Then they bring up all the indigestible bits of skeleton and of course, the wings in a pellet – a small ball of waste material which they cough up.

Professor: That sounds a bit unpleasant. So, how do you go about it?

Grant: In the field we track down the Bee Eaters and find their favourite feeding sports, you know, the places where the birds usually feed. It's here that we can find the pellets we collect them up and take them back to the laboratory to examine the contents.

Professor: How do you do that?

Grant: The pellets are really hard, especially if they have been out in the sun for a few days so, first of all, we treat them by adding water to moisten them and make them softer. Then we pull them apart under the microscope. Everything's all scrunched up but we're looking for wings so we just pull them all out and straighten them. Then we identify them to see if we can find any Asian bee wings.

Professor: and how many you found?

Grant: so far our research shows that Asian bees have not entered Australia in any number – it's a good result and much more reliable than trying to find live ones as evidence of introduced insects.

Professor: Well, that was fascinating! Thank you, Grant for those insights. I hope that you might inspire some of our students here to conduct some similar experiments.

Questions

- What is the recording about?
- What does Mr Grant Freeman do for a job?
- How many types of bees are mentioned by Mr Grant?
- What does Mr Grant say about Asian Honey Bees?
- Why is the Australian Honey Better than the European Honey Bee?

Filling the gaps

Water – Skeletons - Money – Rainbow Bee Eater – Inside – Queensland – Asian Honey Bees – Diseases – insects – Quarantine service.

- Insects have their ……. Outside their body. …… digests them from the ……..
- In order to know if Asian Honey Bees got into Australia, biologists analyse the pellets left out by ……. The pellets can be very hard depending on how much time they have been under the sun, …… is added to the pellets to moisten them and facilitate the process. If Asian Honey Bees get into Australia, the government could lose a lot of ……..
- …….. regulates the food imported to Australia, their goal is to protect the country from ……. that may come with imported goods. They also want to prevent …….. from being introduced into the country.
- A few ……. Were found and eradicated in ……..

Sample Unit Three

3.8 Objectives of Unit Three

- Reading for gist.
- Learning vocabulary through synonyms and antonyms.
- Learning the basic vocabulary for equations.

Reading comprehension

Candy Crush's Puzzling Mathematics

By Toby Walsh

It's been said that in a city, you're never more than a few feet away from a rat. But these days it seems more likely that you're never more than a few feet away from someone playing Candy Crush Saga. It is currently the most popular game on Facebook. It has been downloaded and installed on phones, tablets, and computers more than half a billion times. Largely based on this success, its developer, Global King, listed recently on the New York Stock Exchange in an initial public offering valuing the company in the billions of dollars. That's not bad for a simple game of swapping candies to form chains of three or more identical pieces.

A big part of the appeal of Candy Crush for players is that there are complex underpinnings to the seemingly simple puzzle. Surprisingly, the game holds a lot of interest for researchers as well: It offers insight into one of the most important open problems in mathematics, as well as into the security of computer systems.

To prove that Candy crush is a hard puzzle, I needed to call upon one of the most important and beautiful concepts in the whole of computer science, the idea of a *problem reduction*. This idea maps one problem onto another, or as computer scientists like to say, it reduces one problem into another. At its heart, this concept arises because computer code is versatile: You can use the same type of code to solve more than one problem, even if the variables differ. If the problem you started with was hard, then the problem you map onto must be at least as hard. The second problem can't be easier because you must be able to solve the first problem with a computer program that can solve the second problem. And if you can show the

reverse, that the second problem can also be reduced to the first problem, then in some sense the two problems are equally as hard as each other, and take a similar time to solve.

Determining the difficulty of a problem is a fundamental tenet of mathematics. But it's not a semantic point. If you can classify a problem by how hard it should be to solve, you know what kind of computing power to throw at it—and even if it's worth trying to solve at all. In some ways, at least for mathematicians, looking at Candy Crush as a math problem can be as addictive as playing it.

Excerpt from: *The Best Writing on Mathematics 2016*

Reading comprehension

Activity one

Answer the following questions

- Which game is the author talking about?
- The author mentioned several devices on which the game is played, what are they?
- How is the game played?
- What makes this game addictive?
- Explain what *problem reduction* is.

Activity two

Explain the following words:

Download – Swapping – Appeal – System – solve – Tenet – classify.

Activity three

Say whether the following sentence are true or false and correct the false ones.

- Candy Crush is not used much on Facebook.
- The game has been downloaded for more than 500 000 000 times.
- Researchers are not interested in Candy Crush.
- The author considers that *problem reduction* is one of the most beautiful and important concepts in the whole of computer science.
- Mathematics does not consider problem solving to be one its principles.

Activity four

Match each word with its opposite

Away	Increase
Popular	Rare
Problem	Hide
Show	Solution
Reduce	Close

Activity five: vocabulary

The following table describes the different parts of a basic equation. You can refer to it while answering questions included in the activity below.

Word	Definition
Variable	A symbol for an unknown value. Usually a letter, such as a, x or y, is the symbol used for a variable
Constant	A number of its own
Coefficient	A number that is multiplied by a variable. Example: 8y means 8 times y; 8 is the coefficient, and y is the variable.
Operator	A symbol (×,÷,− or +) representing a mathematical operation
Term	Either a single number, a variable, or numbers and/or variables multiplied together examples 4 45 × abc 5w 20mn
Expression	A term or a combination of terms and operators Examples: 2 2x 2x + 7 y – 3 7w + 3 8ab 5xyz
Equation	A mathematical sentence stating that two expression are equal

Table 3.2 Parts of the equation

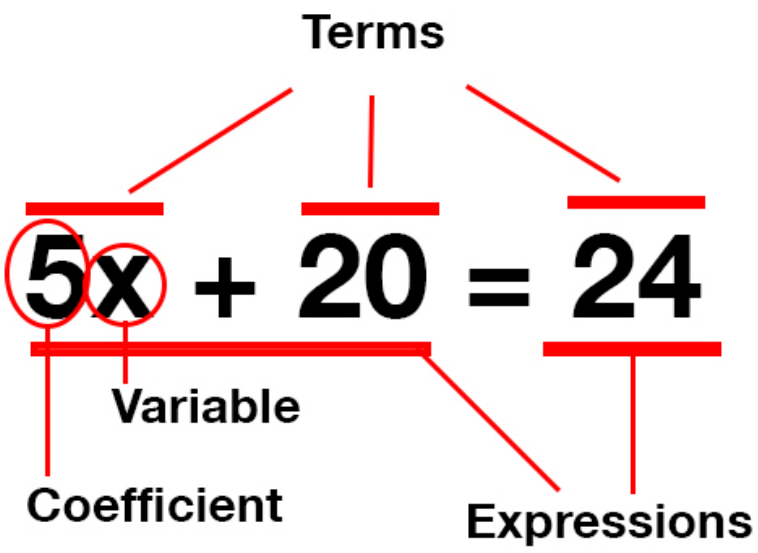

Figure 3.2

List all the coefficients in: 24ab – 67z = 37a + 40

List all the terms in: 15ab – 8z = 99a + 14

List all the expressions: 48ab – 36z = 100a + 6

Writing

Choose one of the topics

- In one paragraph, cite the different elements of an equation.
- Have you played Candy Crush? If yes, write a paragraph in which you share your experience with this game.

Sample Unit Four

3.9 Objectives of Unit Four

- Making the difference between different varieties of English. (comparison with the recording in *Unit Two*)
- Listening for an overall comprehension.
- Learning the basics of delivering a presentation.
- Simulating academic presentations.

Listening section

Narrator: Listen to a conversation between a student and a professor.

Student: Professor Dixon? I'm Brenda Pierce. From your Geology 210 class . . . ?

Professor: Yes. I know. That's a big class, but I do recognize you. As a matter of fact, I noticed you weren't in class yesterday morning. Did you oversleep? That's one of the problems with an 8:00 class. I almost overslept myself a couple of times.

Student: Oh, uh, no, I didn't oversleep. In fact, I was up at 5:00—one of my roommates had an early flight and I took her to the airport. I thought I'd make it back here in time, but, uh, well, you know . . . you know how traffic can be out on Airport Road at that time of day. Anyway, uh, I know you were going to tell us . . . give us some information about our research paper in class today. Do you have a few minutes to fill me in?

Professor: Well, umm, a few minutes, I guess. This isn't my regular office hour. I actually just came by my office to pick up a few papers before the faculty meeting.

Student: Okay, well . . . about the research paper . . . how long does it have to be?

Professor: Well, as I told the class, the paper counts for 30% of your grade. It should be at least twelve pages, but no more than twenty-five. And your bibliography should contain at least ten reference sources.

Student: Will you be assigning the topic, or . . .

Professor: I'm leaving the choice of topic up to you. Of course, it should be related to something we've discussed in class.

Student: I, I'm interested in writing about earthquakes . . .

Professor: Hmm. Earthquakes . . . well, I don't know, Brenda . . . that sounds like much too broad a topic for a short research paper.

Student: Oh, well, I'm planning to choose . . . I plan to get more specific than that. I want to write about using animals to predict earthquakes.

Professor: Really? Well, once scientists wondered if maybe . . . if perhaps there was some connection between strange behaviour in animals and earthquakes . . . and that maybe animals . . . that you could use them to predict earthquakes. But there have been a lot of studies on this subject, you know, and so far, none of them have shown anything promising . . .

Student: But I thought there was this . . . I saw this show on television about earthquakes, and it said that in, uh, China, I think it was, they did predict an earthquake because of the way animals were acting.

Professor: Oh, right—you're thinking of the Haecheng earthquake about thirty years ago. Well, that's true. There were snakes coming out of the ground in the middle of winter when they should have been hibernating . . . and supposedly horses and other animals were acting frightened. And there were other signs, too, not just from animals. So the government ordered an evacuation of the area, and in fact, there was an earthquake, so thousands of lives were probably saved.

Student: Yeah, that's what I'm thinking of . . . that's what I saw on television.

Professor: The problem is that, unfortunately, no one's been able to duplicate that kind of result . . . in China or anywhere else. There have been lots of earthquakes since then that haven't been predicted, and there have been a couple of false alarms when cities were evacuated for no reason . . . and like I said, none of the studies that have been done have shown that animals are any better at predicting earthquakes than people are.

Student: So that's . . . so you don't think that's a very good idea for a topic, then, I suppose . . .

Professor: I didn't say that . . . just because this theory hasn't been proven doesn't mean you couldn't write a perfectly good paper about this topic . . . on the notion that animals can predict earthquakes. Why not? It could be pretty interesting. But to do a good job, you . . . you'll need to look at some serious studies in the scientific journals,

not just some pop-science articles in newspapers, or . . . and you can't get your information from television shows.

Student: You really think it might make a good paper? Well, then, I think if I can get enough information from the library or the Internet . . .

Professor: Okay, why don't you see what you can find? Oh, I forgot to mention . . . you'll need to write up a formal proposal for your paper, and work up a preliminary bibliography, and hand it in to me a week from tomorrow. I'll need to approve it before you get started. Now, if you'll excuse me, Brenda, I've got to get to that faculty meeting.

Answer the following questions

- What is the recording about?
- Why was Linda absent in the last lecture?
- How long should the research paper be?
- Brenda decided to work on earthquakes, what exactly was going to talk about in her paper?
- What did professor Dixon ask Brenda to hand him in a week?

Speaking section

You are asked deliver a presentation about a concept, theory or method of your choice.

- Students can pair with their classmates.
- They can use audio-visual aids.
- Time limit: 15mn.

In this presentation, you'll be acting as a researcher who is presenting a paper in an international conference. The tips below will help you organize your presentation.

Tips for delivering a presentation

- Greet and welcome the audience, present yourself, the university you are from and the topic you are about to speak about. For example, I am (*family name, first name)*, a researcher/student at the Tlemcen University. My presentation is going to be about *Differential Equations*.

- Show the audience the outline presentation and give a brief overview of each element.
- Do not read from everything there is on your papers.
- Do not read from the slides, use them to help the audience follow not to read from them.
- Give room for your audience to ask you questions and comment on your work.

3.10 Further Suggestions and Recommendation

3.10.1 Reconsideration of the EFL Policy in Algeria

The cause of low level proficiency that characterize science students in general can be traced back to secondary school. At the beginning of this phase, students choose their paths. The ones who opt for Experimental Sciences or Mathematics do not receive specialized English courses that would prepare them for higher studies in the same language. The gap is fully exposed when students graduate from secondary school and embark upon their academic journey. The previous statements may indicate that the fact that English being considered a foreign language is a setback since it is not being taken care of from its early years of education. So, switching it to ESL can bring change given that English would be more involved with the Algerian life and thus, a better language instruction and proficiency.

3.10.2 Pre-sessional or in-sessional Courses

After securing a spot in the department of mathematics as undergraduates, students who show weak English prerequisites (shown through baccalaureate transcripts and diagnostic tests) should be subjected to pre-sessional or intensive in-sessional courses to attain the required proficiency level which will help smooth the transition to ESP.

3.10.3 Needs Identification and Analysis

Needs analysis is not a one-time operation, science is evolving on a daily basis and so is language. NIA should be paired with evaluation and assessment to form a cycle. Then, university syllabus will be an outcome of NIA rather than intuition, which is in fact, the case in most of science departments.

3.10.4 Continuousness

As priorly shown in this research, English teaching in neither continuous nor consistent in the department of Computer Science & Mathematics. English is taught during the first year Licence and first year Master with a gap of two years in between. It is once more restored in postgraduate studies. So, the interludes take more time than English teaching. Even if there is an ESP syllabus, the two-year interval and lack of practice would obliterate the language from learners' minds. English should be consistently taught every single year.

3.10.5 Time Allowance

Students majoring in sciences have the most rigorous studies if compared to those of humanities. The strictness of their system entails a loaded schedule, frequent homework and research papers that there is not enough time left for a module like English. This is one of the reasons that English do not have a fair share of the time table. All what a session a week can do is warm up students and leave them at that. It can maintain students at their current level but cannot push them far. 90 minutes a week cannot be evenly divided among grammar, vocabulary and language skills in general, it is a matter of what to drop from the course.

3.10.6 Collaboration with the English Department

Throughout this paper, it has been pointed out that English is underrated in the department in question (1 for coefficient, two groups in one class, part-time teachers). If things change and English is given a promotion, the department of Mathematics and the one of English could partner up for purposes such as teacher training.

The department of English is already offering Master courses in applied linguistics so, the supply is present unlike demand. Teachers could be trained exclusively for a certain target audience such as Mathematics graduate students.

3.11 Conclusion

The last part of the dissertation draws the work to its logical conclusion which is the sample syllabus. After data have been collected, the only assignment remaining was to design materials and adapt them to the population that is the subject of this study. The sample units alternate between two pairs of language skills. A unit comprises of either speaking and listening or reading and writing. The materials gathered were selected on the basis of relevance to students' needs and interests. Data

collected pointed to unquestionable need for reading. Hence, some popular science articles were selected to help students with reading and familiarize them with basic reading techniques.

General Conclusion

General conclusion

The case study at hand aimed at getting a full description of how English is taught at the department of Mathematics with a focus on first year Master students. Moreover, and since this study belongs to the field of ESP, the research focused on extracting the language needs required by the target situation. To account for this, four research questions were raised:

1. What is the status of English in the Mathematics department?
2. Is the syllabus up to the standards of ESP?
3. Are the students' needs taken into consideration by the English course they receive?
4. What language elements should be introduced or altered in order to have an efficient course?

Which led to the formulation of the following hypotheses:

- There is strong probability that French outweighs English in science domains of study in Algeria. English is given the status of a supportive/secondary element in the programme of study.
- The ESP syllabus is perhaps close to General English in which the materials are randomly gathered (if there are any) and the goals are to provide the learners with the most basic competence.
- Since the students have most of their modules taught in French, their need for English is not fully apparent which leads us to assume that their needs are not taken into consideration in the ESP syllabus.
- The learners may be in need to be introduced to Mathematics terminology, how to write reports and reviews and how to deliver presentations.

Data gathered in this research show that English is considered as an extra module at the level of first year Master at the department of Mathematics. French is, academically speaking, used more than any other language in the department.

Therefore, students show serious weaknesses in English though they realize its importance in their field of study as the majority of publications are in English only. Furthermore, no official syllabus is provided by the department which lays the task of finding and adapting materials on the teacher. In this way, the course offered is mostly General English with a shade of English for Specific Purposes.

The first three hypotheses were confirmed by the data gathered as opposed to the last one that got denied. It was speculated in the last hypothesis that the most needed skills are writing and speaking (presentations), research results, however, demonstrate that students need reading more than the skills mentioned beforehand.

This endeavour met some limitations in terms of response. The questionnaire could have generated more qualitative data if all the open-ended questions were answered. Though every single questionnaire was returned, half of the students did not provide answers to the open-ended questions but only to the close-ended and multiple choice ones.

As a conclusion, English is still undermined in the department of Mathematics in spite of its unquestionable importance in the field. But on the bright side, students are now starting to realize the significance of English in their domain. All what is left to carry on the momentum falls on the administration. They should meet the students halfway by creating the suitable atmosphere for learning English, this would include having a standard syllabus based on needs identification and analysis, recruiting teachers who are trained to teach ESP or offering ESP training and stretching the time allowance from one session a week to two or three at least.

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Appendices

Appendix A

Students' Questionnaire

You are kindly invited to answer this questionnaire that is destined to know about your opinions and attitudes as far as the English course is concerned. Please respond to as much questions as you could.

1. How would you evaluate your level in English?

Basic ☐

Intermediate ☐

Advanced ☐

2. Please rate your proficiency in the language elements below :

Grammar	☐ good	☐ average	☐ basic
Pronunciation	☐ good	☐ average	☐ basic
Listening	☐ good	☐ average	☐ basic
Vocabulary	☐ good	☐ average	☐ basic

3. How often do you attend the English session?

Always ☐

Often ☐

Rarely ☐

4. What motivates you to attend the English class?

I like the module ☐

Avoid exclusion from the module ☐

Other ☐

……

5. Do you think that English is relevant to your field of study?

Yes ☐

No ☐

6. As far as the English course is concerned, do you think that it is helping you meet your goals -academic or professional?

Yes ☐

No ☐

7. Where do you see that English is a necessary skill?

……

8. Do you think that enough time is given to English?

Yes ☐

No ☐

9. What can you say about the way your teacher's way of teaching?

…….

10. All the modules are taught in French, do you think that English should take its place?

……..

11. How often do you research in English? If yes, state how often.

Yes ☐ Always ☐ No ☐

Often ☐

Rarely ☐

12. What would you like to study during the English class?

……

13. If you were to change the way you study English, what would you change?

Appendix B

Teacher's interview

Degree acquired: …….

Years of experience: ……

1. Have you received a formal ESP Training?
2. Are you a full-time teacher?
3. What can you say about the overall students' level of proficiency?
4. How motivated are your learners?
5. In what way do you conduct your sessions?
6. What materials do you use for teaching?
7. Is it up to you to choose what to teach or you use a ready-made syllabus?
8. What are the limitations of teaching ESP in your department?
9. Do you have any difficulties while teaching Mathematics students?
10. What would you change to better teach ESP in this department?
11. In your opinion, can English be a competitor to French in the Algerian science departments?

Appendix C

Observation Grid

English teacher:	Observer:
topic:	Number of students present:
Date/time of observation:	Total number of students:

	Positive	Not observed	Negative
Presenting the lesson			
Purpose of the session clearly stated by the teacher			
Starting the lesson from where the last one ended			
Logical organization of the lesson			
Clear explanation of the lesson			
Time management			
Use of audio-visual aids			
Use of hand-outs			
Use of blackboard			
Interaction			
Maintaining eye contact			
Does the teacher engage his students			
Does the teacher encourage students to participate			
Use of humour			
Clear explanation			
Proper response to questions raised by students			
Managed to keep a comfortable environment for teaching			
Use of French in explanation			
Use of Arabic in explanation			
Translation			
Learners			
Participation			
Are they attentive?			
Is there any disturbance during the class?			
Did they prepare for the lesson?			
Are they able to express themselves speaking in English?			
Pronunciation of the English sounds			
Inquiries during the class			
mastery of grammar			
Students' pronunciation			

Appendix D

Conditional Cards

Conditional Clause Card

We (to make) a snowman.

Consequence/action Clause Card

Abstract

English for Specific Purposes is a branch of English Language Teaching, it is aimed at learners with specific linguistics needs for a pre-determined and practical usage. The current study investigates the effectiveness of the English course offered at the department of mathematics at Tlemcen University, first year Master students were chosen as a sample population alongside their English teacher. The research relied on three instruments: classroom observation, questionnaire and the interview. The results obtained from this case study stipulate that the course is closer to General English than it is to ESP. In fact, students' needs are ignored for the most part because the syllabus is not built on needs analysis but rather on intuition, as an outcome, students still struggle with English and remain with the very basic linguistic competence. Bottom line is, English for specific purposes at the department of Mathematics is not up to the standards and would not be much of an assistance to students, be it in their current studies or during the postgraduate ones.

ملخص البحث

اللغة الانجليزية للأغراض الخاصة فرع من تعليم اللغة الانجليزية، هذا النوع من تعليم اللغة موجه للمتعلمين أصحاب الاحتياجات اللغوية الخاصة و ذلك لاستخدامها لأغراض محددة و عملية. هذا البحث يحقق في نجاعة برنامج اللغة الانجيلزية الذي توفره كلية الرياضيات بجامعة تلمسان. تم اختيار طلاب السنة الأولى ماستر كعينة مع أستاذ اللغة الخاص بهم. لقد اعتمد البحث على ثلاثة وسائل: المراقبة القسمية، الاستبيان و المقابلة. النتائج المحصلة في هذه الدراسة تشير إلى أن البرنامج أقرب من اللغة الانجليزية العامة ممّا هو عليه من الانجليزية لأغراض خاصة. يجدر بالذكر أنّ احتياجات الطلبة غير مأخوذة بعين الاعتبار لأنّ البرنامج لا يعتمد على تحليل الاحتياجات بل على الحدس مما يبقي الطلبة في صراع مع اللغة الانجليزية و في مستوى ضعيف. باختصار، الانجليزية لأغراض خاصة في كلية الرياضيات لا تسمو إلى المعايير المطلوبة ومن المستبعد أن تساعد الطلبة سواء في دراساتهم الحالية أو ما بعد التدرج.

Résumé

L'anglais sur objectifs spécifiques est une branche de l'enseignement de la langue anglaise, elle concerne ceux qui ont des besoins linguistiques pour un usage prédéterminé et pratique. Cette recherche enquête sur l'efficacité du programme d'anglais présenté au sein de la faculté des mathématiques à l'université de Tlemcen. Les étudiants en première année Master ont été choisis comme participants avec leur professeur d'anglais. L'étude est basée sur trois instruments : l'observation en classe, le questionnaire et l'interview. Les résultats obtenus au cours de cette étude stipulent que le programme d'anglais est plus proche de l'anglais général qu'il est de l'anglais sur objectifs spécifiques. En effet, les besoins des étudiants sont ignorés parce que le programme n'est pas basé sur l'analyse des besoins. Donc, les étudiants ont toujours des problèmes avec l'anglais et ils maintiennent toujours un niveau linguistique modeste. En résumé, le programme d'anglais sur objectifs spécifiques à la faculté des mathématiques n'est pas à hauteur des normes et ne peut pas trop aider les étudiants soit durant leurs études courantes ou bien dans leur post graduation.