Exploring Natural Science Students’ Perceptions of their English Language Needs and their Appraisal of the ESP Courses

Abstract

The present study explored natural science students’ perceptions of their English language needs at two main public higher education institutions in Burundi. It also examined their appraisal of the ESP course. The study was conducted on second year students and the data were collected by means of a face-to-face semi-structured interview which was carried out with 27 students. The collected data were analysed using thematic analysis. Therefore, a qualitative data analysis software (Weft QDA) was used. The analysis of the results indicated that students need English language for their studies while reading scientific texts and searching on internet. Students also displayed strong preference for speaking skill and group activities. Regarding their appraisal of the ESP course, although they acknowledged that contents are related to their fields of study, they insisted that the time for the English course is very short and hence cannot acquire all the necessary skills in English.

Keywords: ESP, Natural science students, English language needs, Burundi

1. INTRODUCTION

Since after the World War II, the need for an international language became more essential than ever before. This was due to rapid developments in science, technology and commerce that the world was undergoing (Hutchinson & Waters, 1987). As these authors explain, English became accepted as an international language. Due to this internationalisation of English language, many people are now learning English, not just for the sake of learning; they are rather learning it because they feel the need for that language be it immediate or future.

As English became a global language or a global lingua franca (Marlina, 2018; Crystal, 2003), the issue of meeting the specific English language needs of particular groups of learners (e.g. non-English major students in sciences, engineering, medicine, economics, etc.) attracted considerable attention among EFL/ESL scholars. The field which substantially addressed this issue is probably English for Specific Purposes (ESP) which emerged in the 1960s and is now acknowledged as a separate branch of ELT. Thus, the major aim of ESP is to meet the students’ specific needs’ within a particular discipline (Dudley-Evans & St John, 1998; Hutchinson, T., & Waters, 1987)

The importance of Need Analysis in ESP course design is now widely acknowledged in ESP community. It is therefore considered as the cornerstone or backbone of any ESP programme design (Brown, 2016; Basturkmen, 2010; Otilia, 2015; Rahman, 2015). For Brown (2016), ‘NA and ESP are inextricably intertwined’. It follows that NA is the first stage in ESP course development (Flowerdew, 2013). Consequently, there is practically no ESP courses without a Needs Analysis conducted beforehand.

In the context of Burundi Higher Education, the English subject is compulsory at undergraduate level in all non-linguistic departments. The objectives and contents of the English course are defined in an official document that is validated by the National
Commission of Higher Education. However, these objectives/contents are formulated without any formal comprehensive needs analysis. Besides, unlike some other countries such as Brazil, Iran\(^3\), United Arab Emirates, etc. wherein ESP teachers rely on home-grown coursebooks provided by their institutions or recommended by the ministry of higher education, ESP teachers in Burundi are left on their own in terms of teaching materials (textbooks) they use. Consequently, they base their course on intuition and often resort to ready-made materials which are in most cases above the level of the students.

Since ESP courses in Burundi are designed and taught to students without being consulted at any stage, the relevance of these courses in serving the specific needs of the students is questionable. Indeed, as Hutchinson & Waters (1992, as cited in Otilia, 2015) insisted, “If we know why learners need English, the content of the language can be adjusted accordingly and the teaching process will focus on these needs.”

The present paper is intended to bridge the gap by exploring natural science students’ perceptions of their English language needs. It also investigates their appraisal of the existing ESP courses.

2. WHAT IS NEEDS ANALYSIS?

The term “Analysis of Needs” first appeared in India in the 1920s and was coined by Michael West to refer to what learners will be required to do with the foreign language in the target situation, and how learners might best master the target language during the period of training (West, 1992). However, it is with the advent of ESP movement in the 1960s that the term NA became more known among language scholars.

Although the term appeared a century ago, there is still a disagreement over what the term exactly means. This might be due to the multi-faceted nature of the term ‘needs” itself. Richards (2001, p.54) explains that the term “needs” is not straightforward as it may seem to be”. It is both “ambiguous and imprecise” (Chambers, 1980, p. 26; as cited in Alfehaid, 2011, p. 55). Consequently, different scholars define NA differently. It is notable, however, that the existing definitions of NA have much more in common than their differences. Richards, Platt and Platt, 1992) define Needs Analysis as “the process of determining the needs for which a learner or a group of learners requires a language and arranging the needs according to priorities.”

In the literature on ESP, there is a common distinction between target needs and learning needs. Target needs refer to what a learned has to do in the target situation; they are the destination of an ESP course (Hutchinson & Waters, 1987). They include necessities, wants, lacks. However, as these authors insist, ‘analysing what people do tells you little, if anything, about how they learnt to do it (ibid, p. 61). For this reason, there is a need to determine the learning needs, that is, how the learners will learn what they need to do in the target situation. Learning needs therefore include the learners’ preferred learning strategies, their attitudes, their motivation or reasons to take the course, learning styles, learners’ expectations from the

\(^3\) e.g.: textbook entitled *English for the students of computer engineering* taught at Payame Noor University in Astane (Danaye Tous & Haghighi, 2014).
course etc. If the learning needs are served, they will make the learning more enjoyable and manageable. Indeed, an ESP learning should not be viewed as a mechanical project to be imposed mechanically on the learners (Tahir, 2011). For example, a text might well reflect what learners need to do in the target situation, but because of lack of motivation on the part of the learners the learning will prove difficult.

3. THE IMPORTANCE OF NEEDS ANALYSIS IN ESP

The importance of conducting Needs Analysis in ESP course development is considerably acknowledged. Many ESP scholars highlighted it in their works (e.g. Basturkmen, 2010; Brown, 2016; Dudley-Evans & St John, 1998; Frendo, 2012; Hutchinson & Waters, etc.). With Needs Analysis, teachers will get real information about their students (Scrivener, 1994) and will therefore know why their students need to learn English (Hutchinson & Waters, 1987). This will then help them adjust the content and the teaching process of the course according to the identified needs of the students (Hutchinson & Waters, 1992, as cited in Otilia, 2015; Scrivener, 1994) For this reason, ESP teachers should bear in mind that, as Johns (1991) explains, needs analysis is the first step in course design and that it provides validity and relevancy for all subsequent course design activities.

In order to emphasise the importance of Needs Analysis, Richards (2001) listed a number of reason for which Needs Analysis is conducted: (1) to find out what language skills a learner needs in order to perform well at the target situation, (2) to help determine if an existing course adequately addresses the needs and potential students, (3) to determine which student from a group are most in need of training in particular language skills, (4) to identify a change of direction that people in a reference group feel is important, (5) to identify a gap between what students are able to do and what they need to be able to do, (6) to collect information about a particular problem learners are experiencing. Therefore, the course can be adjusted according to identified needs of the learners (Hutchinson & Waters, 1992, as cited in Otilia, 2015; Scrivener, 1994). Indeed, as Frendo (2012, p.) argues, “When we get Needs Analysis right, our teaching is exactly what our student’s need, when we get needs analysis wrong, we are not doing ESP.

4. RESEARCH QUESTIONS

This paper attempted to answer the following research questions:

1. What are the perceptions of natural science students towards their English language needs in Burundi context?
2. What are their appraisal of the current ESP courses

5. METHODOLOGY

5.1. The Participants

The participant in this study are second year natural science students at the University of Burundi and Ecole Normale Supérieure (of Burundi), academic year 2018-2019. These students have a compulsory English course in first and second years. They participated in this
study after they completed the English course in second year. Three volunteers were taken in each class, adding up to a total number of 27 students.

5.2. Data collection and Analysis Procedures

The data were collected by means of semi-structured interview. To insure trustworthiness, the interview guide was sent to three senior scholars in ESP for feedback. Two of them provided a useful feedback. The interview were conducted in students’ native language to allow them express themselves comfortably. A total number of 27 interviews were conducted. With the permission of the participants, all the interviews were recorded. The duration on the interview ranges between 15 and 27 minutes. There were then transcribed and translated in English for analysis.

The interview data was analysed by means a qualitative data analysis software (Weft-QDA). The data were coded on the basis of major themes. In reporting the findings, direct quotations from the interviews were used to illustrate the themes.

6. FINDINGS

6.1. Students’ Perception of the Needs

Theme 1: Reasons for/Importance of Learning English

The analysis of the interviews revealed that many of the reasons provide by students are study-related. In fact, many students reported they would learn English because many science books (texts) are found in English. This is in line with other students who highlighted that they find most of the information in English while searching for their studies in the library or on the internet.

Others confirmed that the knowledge of English would make it easy to search about their domain. Some other students mentioned the possibility to get a scholarship abroad and therefore continue their studies in Anglophone countries. For the sake of illustration, one student said:

“The importance of learning the English language is enormous because if you go to different libraries, you find that many science books such as physics or Maths are in English (Interview 1, Physics student, UB)

Another student added

Nowadays, there are master scholarship abroad, but the knowledge of English is a prerequisite. This is because it is a global language (Interview 22, Biochemistry student, ENS)

In terms of work-related reasons, students highlighted that Burundi is a member country of East African Community which mainly use English as a working language. Burundi membership in EAC opens up job opportunities any other member country.

Theme 2: Target Situations
In this study, authors also explored the situations in which, natural sciences students use/will use the English language. Students reported that they currently use English (1) while reading for studies, (2) while searching for their studies on internet. Here is an illustrative quotation:

So, if you have a topic, you navigate on internet and get a book in pdf version and you find notions in Maths, physics, Technology, in English and you can understand by yourself (Interview 17, Physics Student, ENS).

In terms of future (projected) situations, students expect to get a job that will require them to use English. Some others reported that they will need English to continue their studies.

**Theme 3: Preferred Language Skills and Aspects**

This study also investigated students’ preferences in terms of the four main language skills (reading, writing, listening, and speaking) and language aspects (grammar, vocabulary and pronunciation). The interview data revealed that several students would like ESP teachers to focus much on speaking (or oral expression) than on any other main language skill or aspect:

*I think knowing a language is not knowing writing a lot, though writing is important. Instead, speaking is more important* (Interview 16, Physics student, ENS)

As far as language aspects are concerned, many of the interviewed student would like the teachers to go back to grammatical notions and vocabulary (scientific/technical terms). Some regard these aspects as the foundation for any language since they are involved in different situations that is, in speaking, writing, listening and reading.

**Theme 4: Preferred Activities**

The analysis of interview data revealed that there is a strong preference for practical activities especially those engaging students in practicing speaking skill such as presentations. Such activities, students argued, help them improve not only speaking (by overcoming the fear of speaking), but also improve other things such as grammar, vocabulary, and writing etc.

Asked whether they would like individual or group activities, many students argued for group activities. In their explanations, some argued that in group activities, students can help each other, that is, strong students can help weak students. However, some students highlighted the shortcomings of group activities. They explained that in group activities, some students (lazy student) do not really work as they rely on what other members of the group did. For this reason, they argued for a combination of both individual and group activities.

**Theme 5: Audio-visual Material**

Many of the interviewed students are in favour of the use of audio-visual materials. They explained that by using these materials, teachers can show videos/ documentaries related to students’ field of study:

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2 Presentations help students to improve their writing in that while they are preparing for the presentation, they will first write it.
There is what I often see in biology courses, a teacher can project a film to watch something like embryonic development. If he projects and we listen, this helps us to know more. If you watch and listen to something, it is very helpful. So while learning English in sciences, projecting would be very helpful. (Interview 22, Biochemistry student, ENS)

**Theme 6: Preferred Methodology**

Students were asked to give their views on the appropriate methodology that they would like their ESP teachers to use. Many students explained that the teacher should not speak alone. He should rather give them time to speak or do practical activities like presentations, topic development:

> But our teacher uses a good methodology. There is time to teach and time for us to speak. We are given many practical activities to present. In languages, if you don’t speak yourself, you will not know anything. The fear of speaking will remain, and even what you know, you will not know whether is correct or not. But when you speak, the teacher will tell you whether it is correct or not. (Interview 18, Physics student, ENS)

Some other students suggested that since a teacher cannot teach all what they need (due to the time), he should teach them strategies to help them continue the learning even after the course. They also explained that the teacher can make use of ICT by sending what to learn via a telephone like audio file to improve listening. Here is an extract from an interview with a geography student:

> As the time is short, teacher should give strategies to students because he cannot teach all, but he should show students how they can learn by themselves (Interview 27, geography student, ENS)

With regard to the use of other languages (use of translation) in the ESP course, many students are in its support: below is an illustration from an interview with a biology student.

> It is better that if the teacher explains and students don’t understand, he translates in French and if necessary, he can use Kirundi because if something is in English and you know it in French and in Kirundi, it is not easy to forget it. (Interview 10, Biology student, UB)

Although many students supported the use of translation, the analysis of interview data indicated that such translation should be used only when need be.

**Theme 7: Difficulties Faced by Students**

The analysis of the interview data revealed that most of the participants face difficulties in reading and speaking. The explanations for the reading difficulties are that (1) English is given less attention/importance; (2) there are difficult terms in science texts; (3) student have a low level of English. The following quotations illustrate respectively difficulties in reading and speaking:

> R: If you consider your level of English, would you find it easy to read and understand a science book that is written in English?
I: Not very easy because in the science texts we studied in the English course, there were terms difficult to understand. Unless you are motivated to search and have a dictionary, the English for Physics becomes difficult. (Interview18, Physics student, ENS)

As far as I am concerned, I can write and succeed in writing, but when it comes to speaking, I make a lot of mistake? If a teacher asks a question, I may understand it. I cannot answer in English, this is the problem I face but I think it is not only my problem; others may face it. (Interview 27, Geography student, ENs)

Other difficulties that were reported reflect students’ lack of motivation. The reasons behind this lack of motivation are that (1) students concentrate on sciences courses and (2) some students believe that they will not need English in the future. The quotations below illustrate the students’ lack of motivation:

In general, as we are in natural sciences, there are many science courses and we put much attention to these courses? We are more interested in Maths, Chemistry, and Physics. (Interview 21, Maths Students, ENS)

So, as we will not use the English we are learning, we don’t give an important place to that language and because in our everyday life we will not use what we are learning, it will not help us, there is no need to make an effort. (Interview 20, Maths student, UB)

6.2. Students ‘Appraisal of/Satisfaction with the Current ESP Course

Theme 8: Relevance of the ESP Course to Students’ Field of Study

With regard to the relevance of the course to students’ field of study, many of the participant reported that the contents of the ESP course are relevant. However, as the ESP course can sometimes combine students from different departments/sections, some students complained that the teachers tend to focus one field of study (though the domains are not far from one another). Below is an illustrative quotation:

The English we learnt in 1st year was very rich and very useful. But in second year, we got a problem. We studied English for Chemistry and Biology. We did not study English for Geology. We studied English for Chemistry and Biology. It is necessary too, but they should integrate English for Geology (Interview 13, Geology student, UB)

Theme 9: Time Allocated to the ESP Course in Naturals Sciences

In terms of the time allocated to the ESP course, all the participants insisted that the time allocated to the course is not enough. Here is what one student explained:

For someone who is thirsty of knowing English, the time is not enough because the English language requires practicing and practicing, or meeting with people who use it, or staying with someone who can encourage you to like the language. So 30 hours is a very short time because you can finish 30 hours in just one week or two. (Interview 19, Maths student, ENS)

In order the show that the time is short, students provided a number of reasons:
The time for activities is limited; the ESP teacher cannot give as many activities as necessary.

The teacher can finish the course in just one week.

The ESP teacher does not get the time to go back to what students did not understand.

In case of combined classes, the teacher does not get the time to cover all the students’ field of study.

Student learn a few things and it is just to validate the course (getting the average mark required to pass the course).

The teacher runs with the time (hasten things) and students don’t understand.

**Theme 10, Suggestion for Promoting the English Language**

Students provided some recommendations for promoting the English course in their departments. The three main recommendations are (1) increasing the time allocated to the ESP course, (2) Teaching some sciences course in English, and (3) creating and supporting English clubs in natural science departments

**7. DISCUSSION OF THE FINDINGS**

**7.1. Students’ Perceived Needs**

The analysis of interview data revealed that study-related reasons were outlined as the major reasons for learning English in science departments. Thus, students reported that they currently use English (1) while reading for studies, (2) while searching for their studies on internet. These findings are in line with Fadel’s and Elyas’ (2015) Needs Analysis study. Their study was conducted on science students at King Abdulaziz University. One of the findings of that study is that a large majority of students (98%) need to use English in their current studies.

In terms of preferred language skills and aspects, the analysis of interview data showed that several students would like ESP teachers to focus more on speaking (or oral expression) than on any other language skill. Students also highlighted the necessity for ESP teachers to go back to grammatical notions and technical vocabulary. Their preference for speaking corroborates Akyel’s Ozek ‘s (2010) needs analysis research whose participants highlighted the importance of speaking and listening skills. However, this is in contrast with what might be expected. Indeed, as much of scientific literature is published in English, one would expect students do display strong preference for reading skill.

Their preference for speaking skill probably explains why they would like ESP teachers to give them time to speak. They therefore displayed strong preference for activities engaging them to practice speaking skill such as presentations and these activities should be given in groups. These findings are similar to those of Li (2014) who reported that simulation and group discussion were the most preferred activities in the classroom.
As far as difficulties are concerned, students confirmed to have major difficulties in speaking. This finding corroborate Hattani’s (2019) needs analysis study that was conducted on engineering students at a Moroccan University. The study showed that most of the respondents faced serious difficulties with the productive skills such as giving speech in front of an audience, speaking to native speakers, pronunciation, and writing technical reports. It is worth reminding that the finding of the present study indicated students’ lack of motivation due, as they explained, to their concentration on sciences courses and the belief that they will not need English in the future.

7.2. Students’ Appraisal of the ESP Course and their Suggestion for Improvement

Although many students agreed that the contents of the ESP course are relevant to their domain, all of them insisted that the time reserved to the ESP course (30h) is very short. This finding is similar to one of Ibrahim’s (2016) findings. His Needs Analysis study was conducted on Public and Environmental Health students. The participant in his study were dissatisfied with the time allocated to the English course. In the present study, students therefore recommended an increase of the time and the use of English in teaching some science courses. This, they believed, would help them get in touch with the English language for more time.

8. CONCLUSION AND RECOMMENDATIONS

This study set out to explore natural science students’ perceptions of their English language needs and examine their appraisal of the current ESP course. The findings indicated that students need English for their studies, precisely while reading scientific text, and searching on internet for their studies. Students also displayed strong preference for speaking skill and group activities. With regard to how they appreciate the current ESP course, although they acknowledged that contents are related to their field of study, they highlighted that the time for the course is very short. Therefore, they cannot acquire all the necessary skills that would help them to cope with the demands of the English language which is now a global language of science and research. It is therefore recommended that the time be increase and that some science courses be taught in English to help motivate students to keep on using that language.

9. REFERENCES


