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Based on Needs and Situation Analyses:

A Step toward Elaborating an ESP Curriculum for Physics

Students

Abstract

Needs analysis is believed to be the core stone in the teaching/ learning process. Its importance is reflected in students' participation in, almost, all stages of the educational process. At this level, it should be mentioned that to know about our learners' aims, their wants and lacks, besides, their expectations can be regarded as the starting point for the design of, more or less, an efficient curriculum.

However, it is not only the learners who play a central role in developing a curriculum, but it goes even beyond, to reach other factors associated with the design and implementation of language

curricula. At this point, situation analysis is, also, needed. The main aim behind the current paper is, therefore, to enlighten the process of developing an English for Specific Purposes curriculum based, fundamentally, on the results of both; needs and situation analyses. The outcomes of observations of ESP students, questionnaires given to the apprentices, and interviews conducted with a number of ESP teachers point out a divergence among learners' levels of English language proficiency, their needs, wants and future prospects, as well. Based on those results, implications are provided for the design of an ESP curriculum at the level of the Physics department within the faculty of Exact Sciences of TLEMCEEN University, ALGERIA.

Key Words: *Needs Analysis, Situation Analysis, ESP curriculum development, Physics students.*

Résumé:

L'analyse des besoins est considérée comme la pierre de base dans le processus d'enseignement et de l'apprentissage. Son importance se reflète dans la participation des étudiants dans, presque, toutes les étapes du processus éducatif. A ce niveau, il convient de mentionner

que, pour connaître les objectifs de nos apprenants, leurs désirs et leurs manques, d'ailleurs, leurs attentes peuvent être considérées comme le point de départ pour la conception de, plus ou moins, un programme efficace.

Cependant, ce n'est pas seulement les apprenants qui jouent un rôle central dans l'élaboration d'un programme, mais il va même au-delà, pour atteindre d'autres facteurs liés à la conception et la mise en œuvre des programmes de langues. À ce stade, l'analyse de la situation est, également, nécessaire. L'objectif principal derrière le papier actuel est donc d'éclairer le processus d'élaboration d'un programme d'anglais pour des fins spécifiques fondées, fondamentalement, sur les résultats de ces deux ; l'analyse des besoins et de la situation. Les résultats des observations des étudiants d'ESP, questionnaires donnés aux apprentis, et des interviews menées avec un certain nombre d'enseignants ESP soulignent une divergence entre les niveaux des apprenants de la maîtrise de la langue anglaise, de leurs besoins, les désirs et les perspectives d'avenir. Sur la base de ces résultats, les implications sont prévues pour la conception d'un programme d'ESP au niveau du département de physique de la Faculté des Sciences Exactes de

l'Université de Tlemcen, ALGÉRIE.

Mots clés: Analyse des besoins, analyse de la situation, l'élaboration des programmes d'ESP, les étudiants de physique.

1. Introduction

Algeria, as the rest of the globe, endeavours to implement and therefore, develop the use of English to insure better communication, as well as easy access to knowledge for students, workers, researchers and so forth. In the same line of thought, and despite the fact that the language of instruction in Algeria is, still, largely either Arabic or French to a lower extent, Algerian decision-makers who are aware of the vital role played and held by the English language, try to implement its use at all levels of education.

At the tertiary level, English is introduced in different curricula at different departments nationwide, either as a main subject at the English language and literature department or simply, as an additional module but 'compulsory' in other departments. Students who belong, then, to one of the following specialties: Mathematics, Physics, Chemistry, Sciences, Engineering, Economics, Political Sciences, etc, are required to follow ESP courses, depending on their area of research

and their needs, as well. Hence, different ESP courses are provided nationwide under different labels. The most common ones are: EBE 'English for Business and Economics', and ESS 'English for Social Sciences', etc.

Joining this idea and as the title of this paper may indicate our current interest will mainly fall on one of the most important sub-branch of ESP which is mainly labelled English for Science and Technology or 'EST' for short.

1.1 Key-Terms Definitions

In a modest endeavour to put the current work within an accurate framework a set of key-terms need to be addressed carefully. In this vein, the first concept to be highlighted is: Needs Analysis.

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Therefore and while reviewing the available literature revolving around NA, it can be stated that it is compulsory to know about learners' needs such as their objectives, language attitudes, prospects from the course and learning habits in order to design an well-organized program (e.g. Brindley⁷; Nunan⁸; Nunan⁹; Kaur¹⁰). Those studies have contributed a lot in equipping teachers chiefly those novices with a sound knowledge of those procedures used mainly for the sake of outlining all the possible information about apprentices to enlighten and guide the important key ingredients in any ESP course notably; course design, syllabus design or curriculum development.

However, it is not only the learners who play a central role in developing a curriculum, but it goes even beyond, to reach other factors

⁷ Brindley, G. Needs Analysis and Objective-setting in the Adult Migrant Education Program. Sydney: Adult Migrant Education Service, 1984. Print.

⁸ Nunan, D. The learner centered curriculum. Cambridge: Cambridge University Press, 1988. Print.

⁹ Nunan, D. *Using learner data in curriculum development*. ESP Journal, 9, 17-32, 1990.

¹⁰ Kaur, S. *ESP Course Design: Matching Learner Needs to Aims*. English for Specific Purposes, 2007.

associated with the design and implementation of language curricula. At this point, Situation Analysis is, also, needed. SA, hence, is believed to be another essential ingredient and a key-concept should be tackled carefully.

According to Richards (91) ¹¹ Situation Analysis is “*an analysis of factors in the context of a planned or present curriculum that is made in order to assess their potential impact on the project*”. Those factors can be related to the context particularities, here, we refer basically to the fact that scientific environments differ from other literary contexts where almost our language teachers, especially those ESP practitioners, come from.

The third key-term which needs to be enlightened is curriculum development. According to scholars like Nunan¹², Brown¹³, Richards¹⁴ and others curriculum as a concept is very difficult to define and hence,

¹¹ Richards, J. (2001). Curriculum development in language teaching. Cambridge: Cambridge University Press.

¹² Idem

¹³ Brown, J.D. The elements of language curriculum: A systematic approach to program development. Boston: Heinle & Heinle Publishers, (1995).

¹⁴ Idem

describe because of the specific characteristics related to this term. In this vein, Brown(19)¹⁵ describes curriculum development as “*a series of activities that contribute to the growth of consensus among staff, faculty, administration and students.*” He goes even further to point out that this “*series of curriculum activities will provide a framework that helps teachers to accomplish whatever combination of teaching activities is most suitable, i.e., a framework that helps students learn as efficiently and effectively as possible in a given situation*”. This could be clearly displayed in the following figure.

¹⁵ Idem

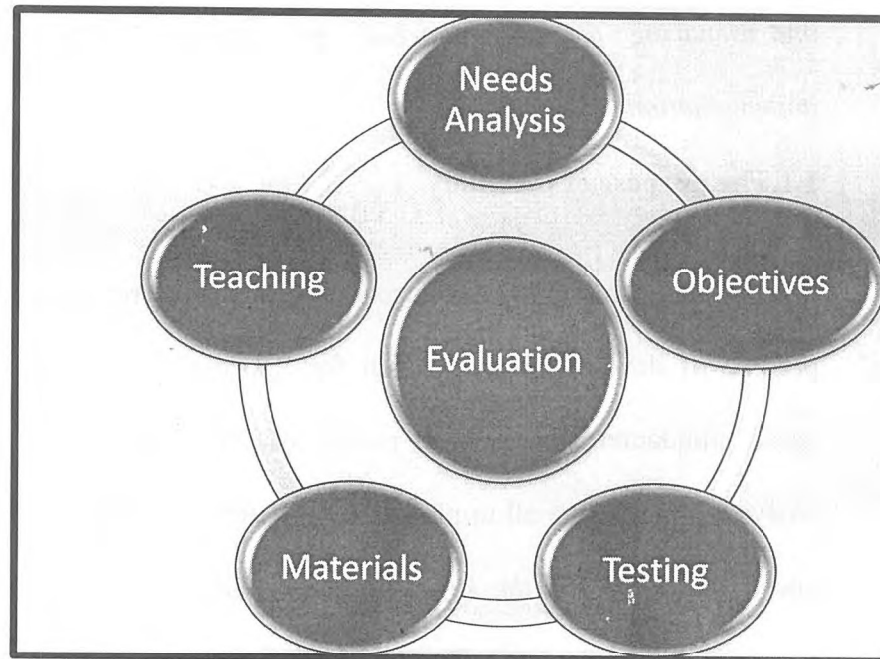


Figure1. Curriculum Development (adopted from Brown20)¹⁶

On the other hand, Richards (41)¹⁷ reveals that curriculum development is *“the range of planning and implementation processes involved in developing or renewing a curriculum”*. He maintains that the processes should primarily focus on *“needs analysis, situational analysis, planning learning outcomes, course organization, selecting*

¹⁶ Idem

¹⁷ Idem

and preparing teaching material, providing for effective teaching and evaluation”.

1.1.The purpose of the Study

The main aim behind the current paper is, therefore, to enlighten the process of developing an English for Specific Purposes curriculum based, fundamentally, on the results of both; needs and situation analyses. And before all to provide a thorough answer to the following questions: *What are the key-parameters that play a central role in designing a curriculum? How an ESP practitioner may succeed in managing needs alongside situation analyses in the design of an effective EST curriculum? What are the main implications one should offer to those language instructors aiming at developing a curriculum for physics students?*

1.2.Design of the Study & Data Gathering

In EST situation, our learners are regarded as the corner stone and our central issue as teachers’ researchers mainly under the learners-centred approach is to learn how to conduct careful needs analysis. To

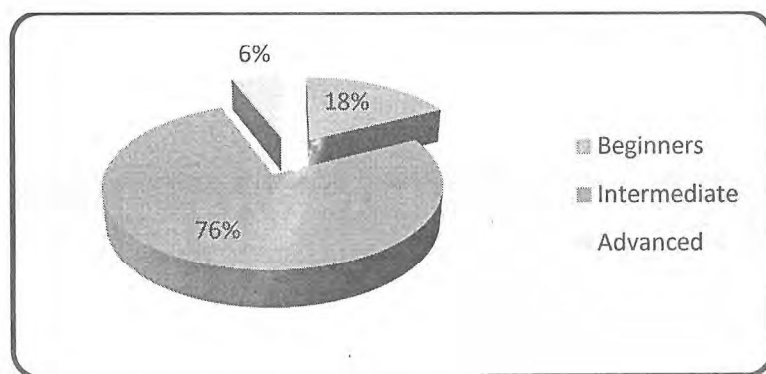
outline their target aims, current circumstances and their future prospects is considered, here, as a must.

In the same line of thought and believing in the worthy insights which one may gather from conducting such Needs Analysis, the researcher has recourse to first observe her classes and, later on, to the use of a questionnaire aiming at getting more, in depth, information about her learners' wants, lacks and outlooks. Interviews were also conducted with other language instructors.

As a matter of fact, the informants of this study are those apprentices enrolled at the physics department in the faculty of Exact Sciences of Tlemcen University.

After analysing data, the investigator has obtained the following results:

The first element which has been examined is the learners' level of English language proficiency. As it is, clearly, seen in the following pie-chart only few students have an advanced level whereas the majority ranges from beginners to intermediate.



Pie-chart 1. Learners' Level of Language Proficiency

Even though, the students are intermediate; they often lack motivation and face problems, while undertaking the EST course.

While examining and reflecting about the language being used within the EST classroom, the researcher has noticed that she was obliged to deal with three languages in her classroom. for different reasons.

The use of the three languages, i.e., English, French and Arabic can be explained by the fact that students' who lack a sufficient command of the target language, and who have a low level of language proficiency, obliged in most cases, the researcher to switch either to Arabic or French. This is, of course, to enlighten various ideas she judges to be of significant importance such as explaining some key-terms, giving definitions and dealing with sentence structures.

Depending on both parameters; the learners' answers provided in the questionnaire besides, the teacher's observation process the following difficulties have been outlined on the part of the learners:

- ✓ Lack of motivation; English is not important for them;
- ✓ Low level of language proficiency. Hence, they encounter a set of problems at different levels: Grammar, vocabulary, pronunciation, sentence structure and so forth;
- ✓ Lack of appropriate terminology for their fields of study, i.e., physics.

Based on the outlined difficulties, the learners have suggested translation as a main remedial for those issues. To include translation for them may help them express better their ideas, transfer the amount of information they have from their L1 to L2. They have, in fact, mentioned translation from Arabic, or French to English and vice-versa to learn more specialized terms.

To go a step further and apart from including specialized translation in our contexts, it should be revealed that ESP apprentices are already adult learners aiming at achieving a particular target namely; improving their level of English language proficiency which may facilitate for them, later on, different tasks including publication of papers in the target language and taking part in seminars and workshops, etc. In this case, it could be mentioned that, our learners are still claiming about the content provided for them in ESP courses as this latter do not match their real needs. At this level, I may dare to say that there is a gap between the knowledge afforded and that expected in such context, this may be due to the fact that those language teachers responsible for running such type of courses have no previous specialized training in the area they are currently taking part in.

Students, in this case, have called for a thorough consideration of their wants, lacks and outlooks including fundamentally the following points;

- ❖ To design courses based on their real needs;
- ❖ To take part in the process of determining the content of the course;

- ❖ To provide real-life tasks which may help them function adequately while involved in authentic situations;
- ❖ To afford a wide range of tasks aiming at enhancing their level of English language proficiency besides, their motivation, too.
- ❖ In addition to the already mentioned key-element which aims, basically, at including specialized translation within their context.

As an ESP practitioner, I may say that including specialised translation in our scientific context aiming at improving our learners' level of English language proficiency is considered to be of creditable importance. In EST milieu, translation is no more seen as a separate trend but as an integrated activity, and skill aiming at facilitating the way for our learners to better grasp the content of their courses and, later on, function adequately in their target situations. Specialised translation, in this case, is, therefore, seen as a vocabulary builder tool, a way to mediate culture and an instrument which may help our learners to expand their knowledge and to evaluate and assess their performance, too.

1.3. Conclusion and Implications

Bearing in mind that the current work is just a preliminary study which is still taking place at the level of the physics department of Tlemcen University and after almost discussing the most important results and taking into account the context particularities where the language of instruction in those settings is primarily French and our students faced extra difficulties while undertaking the English course. This latter could be related to their low level of language proficiency. Moreover and due to the typical characteristics of this situation, the language teacher is having additional and heavy duties simply because he/she comes, in most of the cases, from a background that has in no way a relation with sciences and technologies. The following moderate contribution can be considered as my first path towards designing a suitable curriculum for my students based, as it has been already mentioned, on the results of both needs and situation analyses. As a matter of fact, I have tried to cover a set of areas in this program aiming at motivating students, increasing the number of their attendance and responding positively to their field and their expectations, as well.

Believing in the fact that classes at the physics department are of mixed abilities nature, I have decided to start the courses with a general revision, holding at the same time, the view that moving from a general to a more specific perspective will help students learn how to function adequately in their target setting. In this curriculum and throughout courses the teachers I am working in collaboration with are asked to focus on the four skills notably: reading, writing, listening and speaking. The curriculum is divided into six units each unit covers one area of research related to the apprentices' specialism for instance: the first unit is devoted to the nature of physics. By the end of this unit, learners will be able to define their speciality to ask questions and to discuss their different points of view. Learners are also invited to provide a translation for a text they have read in English to French and vice-versa. Both audio and video extracts are mainly used hoping to improve students' ability to listen to native speakers and imitate them.

As a final annotation, I may say that for the sake of maintaining balance between the specific requirements of the scientific context and the expectations of our learners the current curriculum is mainly developed. This latter is still in a need of evaluation and, hence,

assessment which will help me later on adjust it and respond positively to those challenges I am currently facing as an ESP instructor working in an EST setting and learning from my students, too.

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