

## English as a Lingua Franca for Mechanical Engineering in Algeria: A Status Quo

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### Abstract

This article discusses the general background of English as Lingua Franca in the field of mechanical engineering teaching in an Algerian context. The emphasis is made on the content teachers' perspectives on the significance of English as a useful tool for the world of employment and on the strategies used to raise their learners' awareness about English learning. For this purpose, a questionnaire was handed to 18 content teachers in three different university departments. The key findings have demonstrated that English as a Lingua Franca is a powerful tool for the world of mechanical engineering field. Subject specialists play also a key-role in reinforcing the learners' positive attitudes to learn English for Specific Purposes.

**Keywords:** mechanical engineering; lingua franca; English for Specific Purposes; needs; attitudes.

### 1. Introduction

One of the most important concerns of a considerable number of researchers in the field of English Language Teaching (ELT) is the area of ESP (English for Specific Purposes). This interest is mainly justified by the importance of English as the key to different disciplines such as technical and scientific ones. Therefore, linguists and teachers of the field have devoted long time and accentuated attention on research to provide more insights into the teaching of ESP. With regard to Algeria, teaching ESP in universities is a young field and still needs deeper investigation and thorough research to improve its teaching. ESP is broadly meant by English for Occupational Purpose (EOP), English for Academic Purposes (EAP) and mainly English for Science and Technology (EST).

It is quite a challenging task to find the right and the most adequate

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definition of ESP whether for learners who are at work or still studying, since the workplace is continuously evolving to suit the demands of globalization. Today more than ever, learners and professionals need to cope with professional communications in a variety of international situations. To this end, (EST) should not only prepare the learners for pure technical specific professional demands, but also for worldwide communication skills. As far as teaching ESP is concerned, it has the characteristic to focus on the learners' specific objectives for their future professional life, yet under the light of globalization, ESP cannot be taught neglecting the stance of English as a Lingua Franca. Hence, before exploring the field of research, a couple of issues needed to be clarified:

What is ESP in the light of English as a Lingua Franca?

and how do experts participate in the act of teaching English for mechanical engineering purposes adapted in a globalized world?

## 2. Literature Review

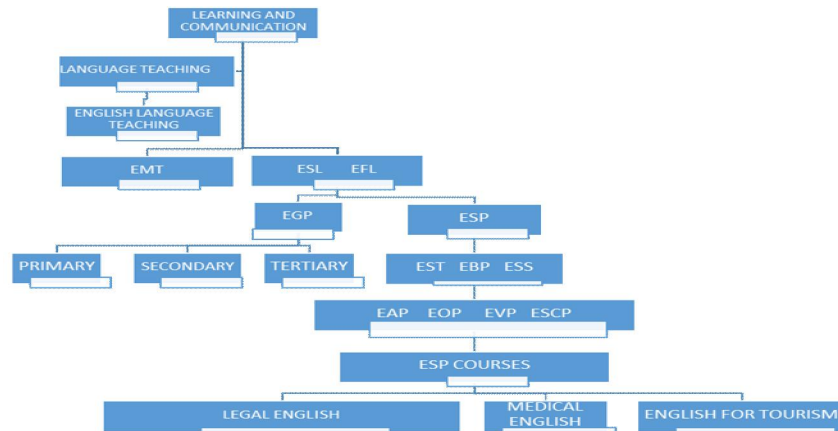
Due to its flexibility, ESP as a discipline, has known many attempts in terms of definitions; it has been defined differently by different people yet they all matched the same nature. Richards and Schmidt (2010: 198) for instance, defined ESP as "*the role of English in a language course or programme of instruction in which the content and aims of the course are fixed by the specific needs of a particular group of learners.*" Thus, ESP is characterized as being apart from the other domains of teaching and learning English. It is characterized then as being unique since its first objectives are to set the materials and methods in accordance with the learner's needs.

### 2.1. Scope of ESP

ESP courses, then, focus on the language, skills, and genres appropriate to the specific activities the learners need to carry out in English. In this respect, ESP is praised and regarded as a more focused domain of teaching English, and as McDonough (1984) suggests, ESP is the perfect solution to the issue of meeting the learners' needs with appropriate materials and teaching content when it is a question to refer to educational irrelevance and inappropriacy. By the same token, Strevens (1988: 84) also illustrates that ESP is "*designed to meet specified needs of learners; related to content, to particular disciplines, occupations and activities; and centred on the language appropriate to those activities, in syntax, lexis, discourse, semantics*".

Umera-Okeke adapted the ELT tree proposed by Hutchinson and

Waters (1987), the pioneers in elucidating the nature of ESP. She made prominent the place of ESP as a building stone into the ELT branch. She also traced the teaching of English first purpose as for learning and communication. It originated as a mother tongue (EMT) then it moved as being taught as a Second or Foreign Language (ESL) (EFL) which later gave birth to English for Specific Purposes (ESP) and General English (GE). The diagram below is a suggested model which combines between what Hutchinson and Waters established as the ELT (1987:17) tree and what was suggested by Umera Okeke (2005: 4)



**Figure 01:** The ELT chart

**Source:** An Adapted model from Hutchinson and Waters (1987:17) & Umera Okeke (2005: 4)

Learners of English for Science and Technology (EST) or for Business combine what they learnt as second or foreign language classes to apply and add to it English of the main field of study. Being able to combine the basic language grammar and vocabulary with the main field of interest is highly motivating and reinforcing the learner 's abilities of their subject-matters field.

Dudley-Evans (1998) claims, ESP may not always focus on the language of one specific discipline or occupation, such as English for Law or English for Physics. University instruction that introduces students to common features of academic discourse in the sciences or humanities. According to him frequently called English for Academic Purposes (EAP), is equally ESP. What can be added in this line of thoughts is that some

common features to EGP can similarly be joined to ESP lessons in the light of globalization since one cannot imagine international communications in a professional setting is purely subject matter-related, completely free from aspects of General English purposes.

ESP crucial interest is that English is not taught as a subject separated from the students' authentic world and their real needs. It is in fact the analysis of the learners' needs that distinguishes ESP from GE. It is also through Needs Analysis (NA) that the most needed language skills are determined by the learners and that design the syllabus for their courses. The ESP learners may define their own needs because they are mostly adult learners with a kind of homogeneity in terms of learning goals, but disparate in terms of language proficiency.

As far as these preliminary definitions are concerned, ESP has been the centre of interest of the worldwide universities and educational institutions, as stated in the above definitions, the sole objective of ESP is to create adequate programmes and essential tailored materials for its learners. Their specific needs analysis is a sine qua non condition in order to design ESP curriculum and operative pedagogy.

## 2.2. English as a Lingua Franca in Mechanical Engineering

English is the most probable language which plays the role of a common language between nations. Hilgendorf (2005:136) claims that "*English functions as the primary language for international business dealings.*" Language competency has become an important issue because much of the world's business is now carried out in many different languages. With regard to this, Babcock (2001:337) observes that "*English has emerged as the world's prominent linking language in international business communication and individuals from around the world are learning English in order to fulfill this role.*"

It is crucial, today, to focus attention on teaching English in all its aspects in such a fundamental discipline as mechanical engineering, mainly for those sub-specialties that concern the production development and which is tightly related to the industrial business partnership. The field of study has been chosen on the basis that it represents the core area of the Algerian industry and its foreign partnership. Based on the reasons stated above, EBP and English for mechanical engineering share common subjects, in some cases or in others, as well as shared communicative needs.

On his part, Douglas (2013) asserts that Engineering students, such as mechanical engineering students, being adult learners and having a

certain background in English, are aware enough to master the language skills that will be needed in their profession. Yet, in some of the Algerian university settings, with the same age level learners, mastering the relevant language skills, needed for the job-related purposes, as predicted by Douglas (2013) is not of so evident prospects. The learners may be aware of their needs as students, but lack the state of being skilful due to the nature of ESP courses they study which is generally far from their real professional life needs.

Nevertheless, a number of researchers agree upon the fact that any activity or a choice of a material, mainly authentic, should have as a sole objective; the development of the skills required by the specific and different groups of learners that share the same needs. (McDonough, 1984; Jordan, 1997; Rogers, 2000; Belcher, 2006).

The main concern of both a course and a syllabus design is to know the exact needs of the target group of learners, the more relevant is the task for the learner or the professional, the most efficient is the approach to course and syllabus design. However, the students, alone, may ignore what could be common with each other, but as Robinson (1991) explains; needs analysis considerations do not only take into account the learners' perspectives, it involves also multiple stakeholders as called in the ESP literature. Learners are of first concern, but needs may concern also content teachers, administration staff and more importantly the employers who are conscious about what is happening in the workplace.

### 3. Methodology

The present study attempts to reveal what mechanical engineering learners need to learn or to update in English. Accordingly, it seeks also to analyze and to assess the types of needs that will be the basis and the source of the English syllabus adaptation to the learners' needs. The objective is to study the general state of affairs from the perspectives of the content teachers in the departments of mechanical engineering working in different geographical sectors of the university but with wider perspectives for other future learners' needs. The selected universities are geographically adjacent in the western part of the country; in particular University of Sidi-Belabess, University of Oran, University of Mostaganem and University of Mascara.

Qualitative and quantitative data analysis resulting from the attribution of a questionnaire besides field observations will redound to the benefit of members shaping the world of academic as well as the socio-professional

settings in the field of English for Science and Technology; especially English for Mechanical Engineering, considering that English plays a crucial role in this field today.

The target population is the one of the content experts. The number of teachers was not fixed, when administering the questionnaire, but they were the teachers who accepted to answer and to be interviewed. What is important is that the gathered data included samples from the three universities and that represent, in itself, a sample of the western part of the Algerian universities. As far as the content teachers are concerned, they were (18) subject specialists the departments of Mechanical Engineering in Sidi Belabess University, Mostaganem University and Mascara University.

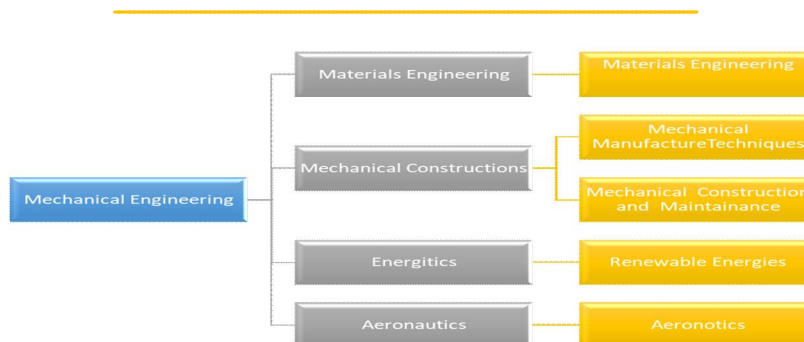
### **Results and Discussion**

To obtain an overview of Mechanical Engineering department setting and a picture of the English use in its real-academic context, with the purpose of providing a basis for data analysis, the first step of the environmental analysis, as named by Dudley Evans (1998), was a short period of exploration within the department. The access period was a kind of ethnographic approach as it allowed the researcher to elicit first information from the stakeholders about the field of investigation.

The investigation has brought out some findings below which are accompanied by language illustrations and observations.

The faculty of science and technology offers ten streams and eleven master courses in the field. The subdivision is important to understand for ESP practitioners and researchers as it explains, similarly, the use and division of English for Science and Technology.

The substantial presence of the industrial activity across the Algerian territory, and the economic requirements, tightly related to the field of mechanical engineering, have offered a diversity in options and specialties. These options can open doors to ESP practitioners to find out topics and materials related to these fields of studies as well as the workforce target needs as shown in figure 02.



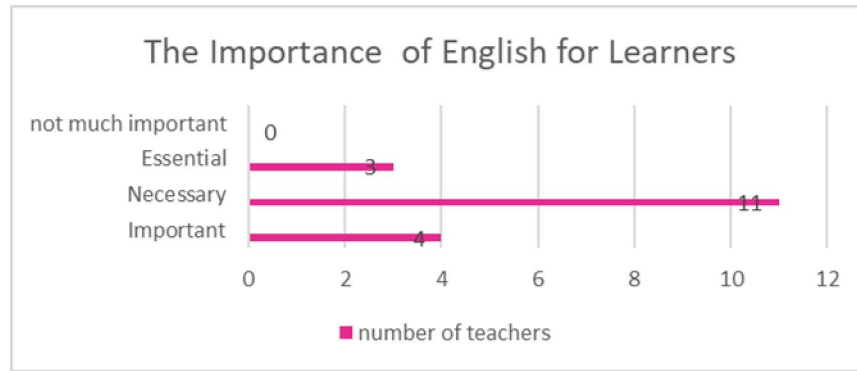
**Figure 02:** Mechanical Engineering Organization Flowchart in the Algerian University

As far as English is concerned in the curriculum, the official national document reveals in its first pages the need to teach a foreign language, yet the real needs in teaching English per se is not expressed. The general degree semester tables schedule English and /or French for the three first semesters as shown in table 1. With regard to time scheduling, it has been noticed in the three visited universities that English sessions are planned at the end of the week, notably in the evenings.

	Semester 1	Semester2	Semester3	Semester4	Semester5	Semester6
<b>Licence</b>	EFL (100%) 45h 3h/week	EFL (100%) 45h 3h/week	Technical English (100%) 22h30 1h30/week			
<b>Master</b>	Technical English and terminology (100%) 22h30 1h30/week					

**Table 1.** English Semester-Based Teaching (collected from the department Canevas)

Three adjectives, in the first question, describing the nuances of English importance were suggested to the content teachers to define their learners' needs. Results from the questionnaire revealed that there was a specialists' bias towards the necessity of English for their learners in mechanical engineering



**Figure.3.** The importance of English for the mechanical engineering learners

Both adjectives “essential and important” marked lower score than the attribute “necessary”. Through their highest score (61.11%), the teachers then expressed that English is a sine qua non condition for success. for the choice of the two adjectives; “important and essential” undeniably did not invalidate English for this discipline. On the contrary, it added more value to the consideration of English for mechanical engineering. As was expected, no respondents agreed on describing learning English as “not much important”.

Based on the previous question purpose, question3 seeks to discover the strategies that the specialists use to raise their learners’ awareness about the importance of English for their educational as well as professional careers.

The following table shows the number of content teachers who used to raise their learners’ awareness about the role of English for mechanical engineering in their classes:

Raising learner’s awareness	Yes	No	No answer	Total
Number of teachers	09	03	06	18

**Table.2.** Number of teachers promoting English in their content classes.

The results from table. 2 shows a positive implication from the part of the teachers in their fields of interest to draw attention to the importance that



English may have on their learners' success for both their studies and careers. The total percentage of the participants who did not share their opinions and those who answered negatively to this question (50%) equals the amount of the teachers who answered, "Yes" (50%). Despite this fact, the existence of a number of teachers who voiced the necessity of English in science and technology departments is a matter of positive English promotion.

The following table displays the results of the second part of the question addressed to the participants who answered positively, and it seeks to discover their enhancing strategies to promote English. The informants used the space devoted to their answers in describing the arguments they used to state in order to motivate their learners in class. The statements were reported as follows:

Teachers	Items
<b>T1</b>	"I always repeat that the most up-to date findings in the most recent articles are published in English" "By telling them anecdotes about some international conferences and how people feel crippled when they do not speak English well."
<b>T2</b>	"I'm trying to motivate my learners by explaining that research in French is restricted and limited; it isn't generous in terms of publications. English written ones are published to diffuse more their language through science."
<b>T3</b>	"I constantly indicate the private foreign languages schools addresses as well as the most important websites for English learning and level improvement."
<b>T4</b>	"Many materials (books and exercises) are available only in English, and the students must understand them to have knowledge of their discipline."
<b>T5</b>	"My simple strategy is to speak from time to time in English. Although it provokes some laughs, it is sometimes effective and influential."
<b>T6</b>	"I personally encourage my learners to do some research about the most recent articles in some specific points in the syllabus."
<b>T7</b>	"There's an obvious lack of textbooks in French and the most interesting are written in English." "There is constantly some new developments in this area and we need to master English to be continually up-to- date."
<b>T8</b>	"I motivate my learners by selecting some content activities in English and bring them to the classroom; the students will hence be prepared to be part of a community of practice."

**Table.3.** English Enhancing Strategies for Mechanical Engineering Students

Some very interesting strategies were collected and proposed by the content specialists, and that were employed to enhance the mechanical engineering students' English awareness about the wide perspectives that English may have on their careers. Such strategies were, according to the informants, very effective in raising the learners' engagement and participation.

It is of vital importance to emphasise at this point of the survey that the degree of consciousness raising from the part of the teachers has certainly to raise the alarm bell for language planners and material designers. By this act, they need to shed more light on technical fields and accord more acknowledgment to ESP status in the technical departments.

Knowing that there is an English awareness in the field of science and technology requires explicit description. The questionnaire then includes two other items to be clarified that will be displayed in the following graphs.

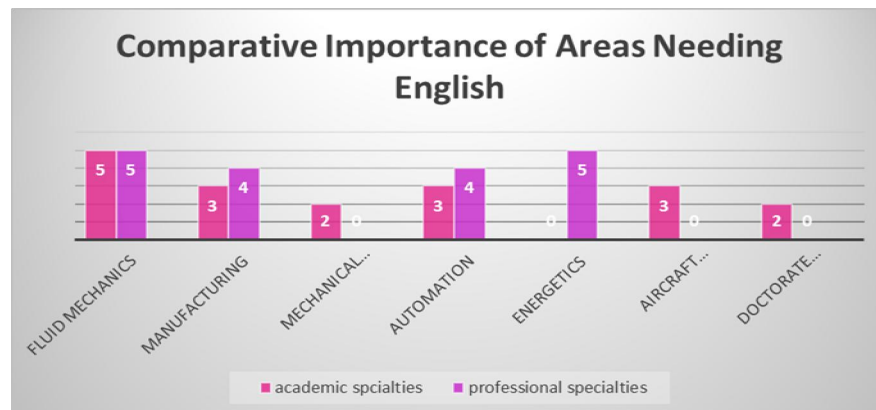


Figure. 4. Comparative Importance of Mechanical Engineering Areas Needing English

The respondents identified six different areas in the academic as compared to the professional sphere. It is clear from the graph that (27.77 %) of the respondents confirmed that fluid mechanics occupy the same position of importance for both academic and occupational areas of interest. Whereas for the remaining specialties the participants had mixed opinions. The second highest rate was granted to the specialty of Energetics in the working world with (27.77%) of the teachers' answers. None of the teachers selected it for the academic world. This may be due to its high importance in both industrial and economic spheres. Other two important disciplines were

revealed by the respondents with the same percentage (22.22%) for automation and manufacturing in the professional world, and (16.66%) for the same academic specialties which require English for studies and publications. No other respondents mentioned other disciplines as needing English for the professional life. On the other part, the same teachers recommended English for three other fields of study namely; aircraft manufacturing (16.66%), mechanical numerical simulations (11.11%) and doctorate preparation studies (11.11%). Some of the respondents added:

T1: “English is the language of publications; disciplines need English equally when it comes to academia especially in research publications.

T2: “English was the language of publications in all fields”.

T3: “Because of its global status, many lecturers devote much of their time to learn English.”

It is interesting to illustrate the teachers’ comparative answers to see that the teachers are aware of the privileged status that English has in their field of interest, and that they have a crucial role in raising their learners’ awareness. The answers to this particular question proved once more that English is the lingua franca of science and technology and mechanical engineering in particular. Its international status is also a valuable factor to make teachers and learners learn it because of its importance.

Question 6 of this part focuses on identifying the content teachers’ opinions about the importance of learning the basics of ELF in an ESP course for the future engineers. Figure.5. displays the respondents’ answers in this concern.



Figure.5. Specialists’ opinions about the importance of ELF in Communication

Interestingly, (56%) of the respondents found it advantageous to introduce the variety of ELF in preparing the future engineers for their professional communications. The rest of the respondents (44%) did not find it necessary to devote parts of the ESP course to a different type of English from the classical ones.

#### 4. Conclusion

The current research has demonstrated that the use of English as a Lingua Franca in the field of mechanical engineering is a practical way to gain experience in the world of employment. Though devoted little time in the general curriculum, subject specialists use various techniques to raise learners' awareness to learn and communicate in English.

Being involved in raising the learners' awareness about the importance of English in its globalized status in the content field practice, it can obviously add to improvement of both disciplines. Moreover, the influence of subjects' specialists can positively affect the mechanical engineering students' attitudes to participate actively in ESP teaching-learning act.

We may also conclude that two disciplines were distinguished to be more needing English than other disciplines, namely fluid mechanics and energetics. This was due to their strong link with the Algerian national economy of the market. Therefore, the results obtained clearly demonstrated the introduction of both the oral and written basics of ELF as an empowering tool to the professional communication in a globalized world.

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