

# Bridging the Gap between Moroccan Engineering Students' Needs and Job Market Needs: A New Perspective for Quality Education in ESP

Dr. Saad Eddine AKHAJAM  
Sidi Mohammed Ben Abdellah university, Fes  
Akhajam.saad@gmail.com

## Abstract

There has been much debate about what skills and what course content that must be introduced to Moroccan engineering students that meet their needs and job market needs. The ultimate objective of this study is to elicit the needed skills which Moroccan engineering students would like to develop and the one needed in the market place. This study hypothesis that there is a statistical difference between Moroccan engineering students' needs and employers' needs at the level of language skills, sub-skills and soft skills. To achieve the objectives set, a mixed method case study design is adopted for the collection and the analysis of the qualitative and quantitative data. The main research instruments used are the questionnaire and the semi-structured interview. The results show that there is a statistically significant difference between Moroccan engineering students' needs and job market needs at the level of language skill, sub-skills and soft skills. The results of the semi-structured interview clearly strengthen the quantitative results adopting the thematic analysis as the appropriate method of qualitative data analysis.

**Keywords:** ESP; Jobmarket; Needs analysis

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## 1. Introduction

English for Engineering is a branch of English for Science & Technology (EST), which is a branch of English for Specific Purposes (ESP) in the field of English Language Teaching (ELT). English for Specific Purposes came forth after the Second World War. According to Hutchinson and Waters (1987) the main reasons behind the emergence of ESP are the demand of brave new world, revolution in linguistics, and the focus on the learner. Dudley-Evans and Johns (2001) stated that "The demand for English for specific purpose continues to increase and expand throughout the world when there was a huge expansion of science, technology and business all over the world and these fields required an international language for specialists" (p. 115). Recently, ESP has become so popular, in which it is a vital branch of ELT. After the independence, the situation of teaching foreign languages in Morocco tended to correspond to another reality. Not only the teaching of English kept but other foreign languages introduced as well. Nowadays, with the increase of English as a language of business, other foreign languages started to disappear and English remained, after the French, the only foreign language taught in Morocco.

Since 2000, Moroccan education system has introduced to a new reform that focused on practical issues in addition to pedagogical and institutional one. Its main goal is to link between what is introduced to students in the classroom to the job market. The king Mohamed VI on the 60<sup>th</sup> anniversary of Revolution of King and People has raised this issue of the importance of education in general and languages in specific to the job market.

He put it as follow:

Moroccans have no choice but to learn and master foreign languages. They should deepen their knowledge base, boost their skills and be competent enough to work in Morocco's new professions and areas of employment. This signifies that there is a shortage of qualified workers in the job market especially in car industry, call centers, in the aeronautic industry and in other areas.

In the same vein, the Moroccan Ex Minister of higher education Lahcen Daoudi proclaimed that English is very fundamental in this modern era especially when he gave various speeches to students of engineering explaining to them the crucial role that English language plays in job market. In one of his speeches, he stressed that English is the world language for scientific research and for employment.

Recently, especially in the academic year 2018-2019, there has been a thorny debate about the importance of languages in the market place and how to bridge the gap between Moroccan education system and job market. The High Commissioner for Planning recently proved that there is a great gap between education and the market place and this is because of the high rate of unemployment. In addition to that, the head of the Advisory Mission of International Monetary and Fund stressed on training graduates to meet the needs of the job market.

## 2. Statement of the problem

The teaching of ESP in general and English of engineering in particular in Morocco faces lot of challenges. ESP course put the learner at the centre of language teaching. As matter of fact, there is a lack of predetermined goals that are always defined at the beginning of each academic year. Second, students' needs are not taken into account in ESP courses. Also, teachers do not conduct a thorough needs assessment each academic year. This lead the failure of some students to acquire the basic knowledge of both English language and ESP in which they are specialized and there exist a gap between students' knowledge in ESP and the requirement needed from job market. To succeed in a job interview in Morocco, a candidate will often get by with an intermediate knowledge of English and good communicative abilities (British Council, 2016). Moreover, some companies in Morocco fail to recruit graduate engineers because they do not master to some extent English that is needed in job market which will help them communicate effectively with specialists in the field. Moreover, communicating in English is the main pitfalls students encounter to be recruited in such companies. According to LahcenDaoudi, the Ex-minister of higher education, he said that English is the world language for scientific research. In his sequence of speeches about the role of English in the modern era, he claimed that all graduate students should speak English as fluently as possible, including engineering students. Also, a number of companies refuse to hire many engineers because of their poor employability skills which include basic/foundation skills, technical or vocational skills, professional/personal skills and core work skills (Erling, 2016). In a nutshell, since there are no predetermined objectives, students fail in their attempt to acquire the basic knowledge of English that is highly needed in the job market. As a result, there exist a gap between the achievement of the English instructional program and the labor market's requirements. .

## 3. Research Objectives

This research is tackledto explore the mismatch between Moroccan engineering students' needs and owners of companies needs, come up with the main skills that the owners of companies are in dire need, also to figure out the relationship between the coursecontent introduced to Moroccan engineering students in class and the expected knowledge needed by the job market. To suggest the expected skills that ESP teachers have to focus on and last but not least to bridge the gap between what is ushered to students in class with their actual needs.

## 4. Research questions and hypotheses

This research strives to find answers to the following research questions:

- 1.) What are the employers' and Moroccan engineering students' language needs and is there any significant difference between their language needs?
- 2.) What are Moroccan engineering students' needs and job market needs at the level of sub-skills and is there is any statistical difference between their needs.
- 3.) What are the 21st century skills that need to be improved most among Moroccan engineering students and is there any significant difference between students and employers' 21st century skills?
- 4.) What English course content should be taught to Moroccan engineering students?

**The Research hypothesescame out from the research questions are as follow:**

- 1.) There is a significant difference between Moroccan engineering students' and employers' language needs at the level of language skills
- 2.) There is a significant difference between Moroccan engineering students' and employers needs at the level of sub-kills
- 3.) There is a significant difference between Moroccan engineering students' and employers at the level of 21st century skills

## 5. Research design

The present investigation is handled at the national level essentially in various Moroccan engineering schools and companies in Morocco. The institutions are ENSAM, EMI, ENIM, and ENSA in Fes and Agadir. The researcher opted for mixed-method which is based on quantitative and qualitative method through the use of one quantitative data collection, the questionnaire and one qualitative data collection, the semi-structured interview. As for the analysis of the results obtained from the two instruments, the two parts are analyzed separately and they are blended once the conclusions are drawn.

Combining between the two methods will give greater validity and general comprehension to the results. Dorney (2007) assumes that the supplementary findings of a mixed method study can produce a fuller picture of the topic or issues being investigated, expanding the scope and breadth of the study. The adoption of the mixed method advocates complementing each other. To strengthen the results of the study, it is necessary to adopt the mixed method (Creswell, 2004). Therefore, triangulation will help the researcher have a clear vision about what course and content should be taught to Moroccan engineering students.

The primary objectives of quantitative components are twofold: to explore the English language needs of

engineering students and employers in order to come up with the main linguistic skills that are needed in the market place. As for the qualitative components, the researcher adopted the semi-structured interview because it is the best technique that could help the researcher test students' satisfaction to the ESP course on one hand and employers' view to their prospect engineers on the other hand. The semi structured interview is designed for employers in different companies in Morocco, ESP teachers as well as Moroccan engineering students. The companies and the engineering students are chosen through convenience sampling.

## 6. RESEARCH INSTRUMENTS

Based on the research objectives of the study, the researcher goes for the questionnaire and the semi-structured interviews as the appropriate research instrument for gathering data. Hutchinson and Waters (1987:56) view that "the choice of a method will depend on time and resources available and the procedures of each will depend on accessibility". Likewise, Robinson (1991) clarified that in needs analysis the researcher can opt for a list of research methods including questionnaire, interviews, case studies, tests, and authentic data collection (e.g. analyzing actual manuals and written assignments). Jordan (1997) added that in needs assessment, the researcher can rely on other research instruments like language test, self assessment, structured interviews and learner diaries. Thereby, the researcher is free to choose between the above research instruments and the validity of the results in needs assessment is based on the triangulation. Hence, this study opted for the semi-structured interview and the questionnaire as two different research instruments that will trigger quantitative and qualitative results.

The questionnaire is a widely used research instrument for quantitative data. Brown (2001) defined 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" (p. 6). The main asset of choosing the questionnaire is that it is time saving and it targets a huge number of populations in a very limited period of time. Regarding the questions, the researcher can incorporate questions that give the chance to the respondents to answer questions freely especially questions for classroom management, motivation to learn, learners' belief about learning, and students' reaction to learning (Mackey&Gass, 2005).

The main attraction of questionnaires is their unprecedented efficiency in terms of (a) researcher time, (b) researcher effort, and (c) financial resources (Dornyei, 2003, p. 9). Furthermore, Brown (2001) highlighted that questionnaires are more flexible and the respondents can fill out the questionnaire at ease and at their own place. Besides, the questionnaire is also versatile in the sense that it can be used successfully with a variety of people in a variety of situations targeting a variety of topics. As a result, "the vast majority of research projects in the behavioral and social sciences involve at one stage or another collecting some sort of questionnaire data" (Dornyei, 2003, p. 10).

The survey consisted of two fundamental sorts of questions: open ended and close ended questions. This research utilized the two types of questions so as to complement each other and target the objectives of the study. Furthermore, this questionnaire respected the rules of writing good items like being short and simple, all the items in the questionnaire are easy to understand and read.

## 7. Data collection and analysis

The researcher questioned 300 Moroccan engineering students and 20 employers. For the interview, the researcher interviewed ten Moroccan engineering students and four employers. After collecting data which took one year, the data were inserted into SPSS (Statistical Package for Social Sciences) and analyzed used descriptive and inferential statistics. Descriptive statistics include the mean and standard deviation and for the inferential statistics, the Chi-square and independent sample T test were used.

## 8. Findings of the questionnaire

This part is devoted to the analysis of the language needs for Moroccan engineering students in comparison with its counterpart. Moroccan engineering students put speaking and listening as the most important language skills that must be given much importance ( $M=5.05, SD=1.02$ ) ( $M=4.69, SD=0.66$ ). Employers consider speaking, reading and writing are the most important language skill that must be given more importance ( $M=3.85 SD=1.040$ ), ( $M=3.85 SD=1.309$ ). For the sample T test. The results show that ( $p: .001$ ), suggesting that there is a significant difference between Moroccan engineering needs and job market needs. This proves that the two groups have different views toward the importance of language skills.

For the importance of speaking sub-skills, Moroccan engineering students put Talking with professionals in real situations as the most sub-skill that should be given much interest which rates ( $M=4.29 SD=1.09$ ) Also, delivering presentations in class is as important as talking with professionals in real life situation which rates ( $M=4.29, SD=.958$ ). As for other speaking sub skills, preparing for interviews rates ( $M=4.00, SD=1.17$ ). In the same vein, this workplace skill is one of the skills that job market is in immense need. Building relationships rates the third ( $M=3.95, SD=1.22$ ). Meetings rates ( $M=3.93, SD=1.16$ ). Employers on the other hand employers

consider reading graphs and charts very important reading sub skill that engineers should be improved which rates (M=4.10 SD= 1,071). Reading technical articles rates (M= 4.00 SD= 1,026). Also, reading job application rates (M= 3.75 SD =1.070). Reading magazines rates (M=3.30 SD 1.342). Reading books rates (M=3.25 SD 1.446).

For the importance of reading sub skills, reading technical articles rates higher than other sub skills (M=4.7 SD 1.11). Reading graphs rates (M=3.71 SD= 1.17). Reading job applications rates (M=3.74 SD=1.13). Reading magazines rates (M=3.32 SD=1.25). Reading books rates (M= 4.02 SD= 1.13). In contrary, employers firmly believe that reading technical articles rates (M= 4.00 SD= 1,026). Reading job application rates (M= 3.75 SD =1.070). Reading magazines rates (M=3.30 SD 1.342). Reading books rates (M=3.25 SD 1.446).

For the importance of listening sub-skills, Moroccan engineering students believe that listening to presentations delivered by experts rates (M= 4.37 SD= 1.0) which is rated the highest among other listening sub-skills. Listening to understand the difference between American and British English rates (M=4.00 SD=1.13). Listening to native speakers rates (M= 3.85, SD=1.13). Listening to conversation rates (M=3.57 SD= 1.34). For employers, listening to presentations delivered by experts rates (M= 4.37 SD= 1.0) which is rated the highest among other listening sub-skills. Listening to understand the difference between American and British English rates (M=4.00 SD=1.13). Listening to native speakers rates (M= 3.85, SD=1.13). Listening to conversation rates (M=3.57 SD= 1.34).

For the importance of writing sub-skills, Moroccan engineering students regard that writing CVs rates (M=4.14 SD=0.17). The second main sub skill is writing business email which rates (M=4.12 SD=1.16). Writing motivation letter rates (M=3.99 SD= 1.16). Writing business reports rates (M=3.86 SD 1.22).writing application letters rates (M=3,74, SD=1,22). Writing academic reports rates (M=3.43, SD1.30). Writing news papers articles rates (M=3.16, SD=1.34). For employers, consider writing business emails the most important sub-skill which rates (M= 4.45 SD= 1.099). The second main important writing skill is writing business reports which rates (M=3.75 SD= 1.251). Writing application letter rates (M=3.65 SD= 1.226). Writing motivation letter rates (M=3.40 SD= 1.095). For Writing CVs, it rates (M=3.35 SD= 1.496. Yet, writing academic reports rates (M=2.45 SD= 1.395).

It is important to test the relationship between the needs of the two groups at the level of sub skills. The independent sample T-test proves that there is a significant difference between the needs of Moroccan engineering students and employers. The results show that ( $p$ : .000), suggesting that there is a significant difference between Moroccan engineering needs and job market needs. Hence, we accept the alternative hypothesis and claim that there is a significant difference between the two groups' variance. This proves that the assumption of homogeneity of variance is not met. In other words, students' language needs and employers' language needs at the level of sub-skills are totally different. The two groups have different views toward the importance of language sub-skills.

After testing the relationship between the two groups at the level of soft skills, the results show that the independent sample T-test reveals that the P value is below the typical level 0.05. Hence, we accept the alternative hypothesis and claim that there is a significant difference between the two groups' variance. This proves that the assumption of homogeneity of variance is not mentioned. In other words, students' and employers' 21<sup>st</sup> century needs are totally different.

For the content that must taught to Moroccan engineering students, the results show that employers highlights that technical communication rates (M= 4.25 SD= 1.070). English for engineering rates (M=4.25 SD= 1.209). Entrepreneurship rates (M=3.80 SD= 1.361). Standardized tests rates (M=3.50 SD=1.070). For students, the results reveal that English for engineering rates (M=4.53 SD= 0,851) Entrepreneurship rates (M= 4.21 SD 1.034). Intercultural communication competence rates (M=4.04 SD= 1,021). Technical communication rates (M= 4.01 SD= 1.06).Standardized tests rates (M=3.85 SD= 1.305).

## 9. Findings of the interview

The aim of the semi-structured interview is investigated to strengthen the results found in the questionnaire. The interview was assigned to ten Moroccan engineering students and four employers from different companies in Fes, Meknes, and Tangier. The interview took place from May 2018 to July 2018 and each interview lasts for twenty to twenty five minutes. The researcher respected the interview protocol. After recording the respondents and transcribing their answers the thematic analysis was used to data analysis and four main themes have emerged. The results of the interview reinforce what has been discovered in the questionnaire. Moroccan engineering students prefer to boost their speaking skill as they believe the most widely needed skill in the job market. In regard to first question which is about the importance of English in professional context, All Moroccan engineering students claim that that English plays a crucial role in academia and how it paves the ground for future engineers to find a job easily nationally and internationally. For question two which is about knowledge and skills that are important for the job market, students' answers vary from student to another, however, the majority believes that speaking and listening are the most crucial skills that would love to improve

and that are extensively needed in the market place. At the level of knowledge, students would go for English for engineering and being knowledgeable in some business issues like management, and business organization in general. For the third question which aims to elicit the main soft skills that are important in the market place, respondents acknowledge problem solving, innovation, critical thinking, collaboration, and leadership as vital and absolutely important in the market place in this modern era. For employers' interview, the ultimate objective is to get more information about the challenges employers face while recruiting engineers at the level of the mastery of English, the main skills that they consider very significant for their prospect engineers, and the extent to which the company trains their engineers in English. The first question is meant to gain much information on the challenges that companies face at the level of the mastery of English, The four main human resource managers interviewed proclaim that their novice engineers are not linguistically competent in English, i.e. the companies really need engineers who are very fluent in English and who are able to communicate effectively. Also, this proves that the mastery of English becomes a must in the market place in Morocco. For the second question which is about skills and knowledge that prospect engineers must improve, all employers agree that they have to foster their speaking and writing skills especially being able to speak fluently in formal and informal situations, as well as being able to write technical reports. For the following question which is about knowledge that engineers must hold, human resource managers would prefer someone who is knowledgeable in the target culture as well as being knowledgeable in business organization. This clearly proves that an engineer must broaden his/her knowledge in business issues. An engineer must be interdisciplinary in various fields, English culture, engineering, and business. For the third question which is about training novice engineers in English, in fact the answers vary from one company to another. Some companies prefer to train their engineers others especially multinational companies seek for ready-made engineer who is competent enough in English. For the fourth question which is about the purpose of recruiting English speakers. Its aim is to prove the extent to which English is fundamental in the market place. No doubt, all the companies firmly believe that an engineer who's good at English will surely facilitate the process to get a job. The mastery of English among Moroccan engineering students is not a choice anymore.

## 10. Discussion and Interpretation

Moroccan engineering students put speaking and listening as the most important language skills that must be given more importance. Employers consider speaking, reading and writing are the most important language skill that must be improved. At the level of speaking sub-skills, talking with professionals in real life situations was ranked first then delivering presentations, preparing for the interviews, building relationships, meeting, and negotiation, giving instruction and last but not least speaking over the phone. For the employers, talking with professionals in real life situations was ranked first then delivering presentations, preparing for negotiation, speaking over telephoning, speaking with natives, Meetings, Preparing for interview, and then Building relationships.

The chronological order of the speaking sub-skills of the two groups shows different results, and the needs of Moroccan engineering students vary from the needs of the employers. Concerning Moroccan engineering students reading sub-skills, reading technical articles has ranked first then reading books, reading job applications, reading graphs, and then reading magazines. Thai engineering students chose to develop reading as the most language skill which is considered as the most important skill with a mean of 2.79 (Rajprasi et al,2014). Similarly, Alsamadani (2017) found that the reading skill was the most important skill for Saudi engineering students, see also (Labassi, 2009;Rais, 2007; as cited in Alsamadani, 2017).However, Gözüyeşil (2014) found that engineering students in Nigde University in Turkey emphasized the importance of speaking and listening. The choice of speaking as the first important language skill to be improved among Moroccan engineering students is explained with its importance in the job market. Students would like to improve their listening skill so as to be able to understand native speakers. Also, Moroccan engineering students will need to speak with their instructors fluently and be able to speak confidently. This skill is very significant because that can help them communicate in different situations. In the market place, for instance, engineers will deal with interview questions as well as speak with native managers and other managers who come from other nationalities and foreign colleagues or customers. Though some companies still use French as the language of communication, English will overtake French in the near future. The vision of Morocco at the economic level will give English its due concern in the market place because it is the language of business, technology, and engineering as it has been stated in the review of the literature.

## 11. Conclusion

This research was an attempt to bridge the gap between Moroccan engineering students' needs and job needs at the level of language skills, language sub-skills, and soft skills. The main objective of this research is to come up the needed skills and knowledge that Moroccan engineers must hold so as to find a job in the market place easily. This research hypothesized that there is a statistical difference between Moroccan engineering students' needs at

level of language skills, sub-skills and soft skills. The independent sample T-test confirmed the alternative hypotheses and claim that there is a statistical difference between the needs of each group. As for knowledge that Moroccan engineering students must study, students and industry sector consider English for engineering, technical communication, entrepreneurship and intercultural communication competence as the most critical knowledge that they must improve; having said this, engineers who fail not to be knowledgeable in the above mentioned knowledge and skills they may fail to have a place in the employment sector.

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