

## The English Communication Needs Of Computer Science Students, Case Study: Second Year Students, Computer Science Department, University Of Chlef

احتياجات التواصل بالإنجليزية لطلبة علوم الكمبيوتر. طلبة السنة الثانية إعلام آلي بجامعة شلف أنموذجاً

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### Abstract

This paper attempts to uncover the English communication needs of Computer Science students during their graduation aiming to decide on the contents of an English for Specific Purposes (ESP) course and the appropriate approach which would prepare computer science students for their workplace after graduation. A questionnaire and a classroom observation were chosen as the best tools to collect data from the participants namely: Second year students and language teachers at the Computer Science Department. The results show that students have difficulties when communicating in English regarding the four language skills: reading, writing, speaking, and listening. Thus, a communicative approach is to be implemented in ESP classrooms to enhance the students' communication skills to help them perform better in the classroom and at the workplace.

**Keywords:** English for Specific Purposes; Computer Science students; Computer Science Workplace; communication deficiency; communication needs; the communicative approach.

الملخص: يهدف هذا المقال إلى الكشف عن احتياجات التواصل باللغة الإنجليزية لطلبة علوم الكمبيوتر خلال فترة التدرج من أجل اتخاذ قرار حول محتويات درس اللغة الإنجليزية كلغة تخصص والمنهج المناسب الذي من شأنه إعداد طلبة علوم الكمبيوتر لمكان عملهم بعد التخرج. تم اختيار استبيان وملاحظة كأفضل وسائل لجمع البيانات من المشاركين وهم: طلاب السنة الثانية ومدرسي اللغة الإنجليزية في قسم علوم الإعلام الآلي. تظهر النتائج أن الطلاب يواجهون صعوبات عند التواصل باللغة الإنجليزية فيما يتعلق بالمهارات اللغوية الأربع: القراءة والكتابة والتحدث والاستماع. وبالتالي، سيتم تطبيق نهج التواصل في حصص اللغة الإنجليزية لتعزيز مهارات التواصل للطلبة لمساعدتهم على أداء أفضل في القسم وفي مكان العمل.

الكلمات المفتاحية: اللغة الإنجليزية ذات أهداف محددة، طلبة علوم الكمبيوتر، مكان عمل علوم الكمبيوتر، نقص التواصل، احتياجات التواصل، المنهج التواصلية..

### 1. Introduction

In the current globalized world and the use of English as the international language of business and technology, English for Specific Courses (ESP) courses are needed to prepare students for better communication in graduation and in their workplace. Thus, ESP courses became a vital activity for teaching English in the 1970's (Rahman, 2012). In the Computer Science Department at the University of Chlef, a new ESP course is required to be designed for second year students. Furthermore, requested changes were required in the methodology of language teaching, and there was a need to re-identify the contents of the course through a needs analysis. Then, new items should be included in the course that could meet students' needs and purposes in order to decrease students' communication apprehension in the classroom and to help them perform better when they

join the workforce after graduation. Therefore, the ESP course has to meet the specific needs of the learner (Dudley-Evans, 1998), which are determined through conducting a needs analysis.

## 2. Statement of the Problem

In the Department of Computer Science, University of Chlef, English language teachers who are not specialists in the field and lacking experience in the teaching of ESP carry out the responsibility of teaching ESP in bad conditions including the large overcrowded classrooms, lack of an agreed syllabus, and lack of equipment and teaching materials that would facilitate the teachers' task. The main problem that handicaps the ESP teaching/learning process is that students' needs are neglected, and the course is based mainly on teaching grammar skills and reading comprehension texts. As a result, students have problems of communication in ESP and they are just receivers of information from their teachers.

### 2.1. Research Objectives

- To uncover the English communication needs of Computer Science Students during their study.
- To identify the items that need to be included in an ESP course that would prepare the students for their workplace.

### 2.2. Research Questions

- What are the English communication needs of the Computer Science students in relation to the four language skills during their study?
- What are students' attitudes towards the existing teaching situation of ESP at the Department of Computer Science?

### 2.3. Research Hypotheses

Based on the research questions, it is hypothesized that:

- Computer Science students need to focus on all four-language skills in their field of study.
- Students at the Computer Science Department see that the current ESP teaching situation is neither satisfactory nor relevant to their field of interest.

## 3. Literature Review of ESP and the Communication Needs of Computer Science Students

Stevens (1988) defines ESP by making a clear distinction between what he calls absolute and variable characteristics. So, according to Stevens "*English for specific purposes is a particular case of the general category of special- purposes language teaching*". In fact, Stevens's definition (1988 :1-2) makes a distinction between four absolute and two variable characteristics. However, Dudley-Evans and St. John (1998), have modified Stevens' definition and viewed ESP from the following two perspectives:

### 3.1. Absolute Characteristics

- \_ ESP is defined to meet specific needs of the learner;
- \_ ESP makes use of the underlying methodology and activities of the discipline it serves;
- \_ ESP is centered on the language (grammar, lexis, and register), skills, discourse and genres appropriate to these activities;

### 3.2. Variable Characteristics

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

As it is noticed, although influenced by Strevens' distinction of characteristics, Dudley-Evans and St. John have suggested that the absolute characteristic proposed by Strevens that "*ESP is in contrast with general English*" has no relevance. They have revised and increased the number of variable characteristics and affirm that ESP is not necessarily linked to a specific discipline. Furthermore, ESP is likely to be used with adult learners although it could be used in secondary schools. The division of ESP into absolute and variable characteristics, is very helpful to know what is and is not ESP.

Munby (1978) proposes a definition of ESP where he emphasizes the importance of the learners communication needs saying: "*ESP courses are those where the syllabus and materials are determined in all essentials by the prior analysis of the communication needs of the learner*". Whereas, Hutchinson and Waters (1987: 19) provide us with a wide-ranging definition of ESP: "*ESP is an approach to language teaching in which all decisions as to content and method are based on the learner's reason for learning*". Hutchinson and Waters (1987:53) state: "what distinguishes ESP from general English is not the existence of a need as such but rather an awareness of the need". This "awareness" will influence the language course content. Furthermore, they emphasize the fact that NA is an important step to be taken before designing any ESP course.

The present survey explores that the existing English course taught at the Department of Computer Science cannot reach the demands of the students' professional field, and does not meet the communication needs of students. Therefore, there is a clear and an urgent need to strengthen students' English communication skills through conducting a needs analysis in order to provide information about the ESP course construction. Regarding ESP, Flowerdew (2013) states that needs analysis is carried out to identify the "what" and "how" of an ESP course and is therefore the first stage in ESP course development. Belcher (2006) also confirms that needs analysis is the foundation on which all other decisions about ESP are or should be made.

Needs analysis is conducted before designing the ESP course in order to make the teaching materials more suitable for the requirements of students, and thus improving students' learning interests and motivation. Regarding research on the English language communication needs of computer science workers in their workplace, which may help to determine the contents of an ESP course that helps students communicate effectively in the classroom, and prepares them for work, Xenodohidis (2002) developed a curriculum for English for Computing in an Institute of Vocational Training in Greece to make students familiar with the technical terms used in computer science field to help them improve their writing skills by asking them to produce writings in English. This includes writing simple letter and complicated texts, to understand, interpret and present quantitative data, and to communicate effectively in work-related situations.

Blume et al. (2009) also explain the contents of a "Communication Skills for Computer Scientists" Course at the University of Toronto, which included three areas of teaching, namely writing, speaking and interpersonal communication. In addition, work-related tasks were performed to simulate the job situations in the course. Freiermuth (2002) describes an ESP course in technical writing at a university in Japan with Computer Science students where a simulation was used. Students were given a project team and then they were asked to write a technical proposal about the project.

In 2009, Kaneko et al. carried out a survey of English needs of Computer Science graduates in the workplace in Japan. The results show that the communicative activities that were frequently performed in the workplace were reading and writing of documents such as emails, memos, and

faxes. The speaking and listening tasks included social interaction in conversation, conducting or attending meetings with English speaking professionals, lectures, and presentations.

#### 4. Results and Discussions

Most students (79, 97%) assess their English level and their ability of comprehension in English as being low. 27, 66% of the students sometimes can understand English texts related to their field by using dictionaries, and 46, 47% of the students cannot understand texts related to computing. Only a small number of students (21, 73%) show that they can communicate in English. 39, 53% of the students sometimes can communicate, and 29, 9% of the students find difficulties in communicating in the ESP classrooms.

According to the students' self-assessment, students have a low level of English comprehension ability and they are not satisfied with this situation. This lies in the fact that the teaching material content is not relevant to their required needs, and the content of the course focuses more on grammar and reading comprehension of general English texts, but there is a lack of professional English teaching materials.

The majority of students (78, 51%) think that they learn ESP only for their future career. Thus, they are instrumentally motivated. Most of the students (60, 41%) have strong desire and interest to learn ESP. 25% of the students have a little interest and only 10% of the students are not interested in learning ESP.

The results show that the majority of students (85, 9%) have a great desire to communicate effectively in English through learning ESP courses. 76,9% of the students hope that they can read materials written in English which are related to their field of study, and 84,6% of the students hope to improve speaking and listening skills through the ESP course. This reveals students' strong desires and interests to improve their communication skills through learning ESP courses, and their hope to apply what they learn through ESP courses in the workplace after graduation.

Regarding the teaching methodology and the content of the ESP course, the majority of students (84,6%) need to focus on listening and speaking skills, and 76,9% of the students need to read ESP materials, while 65,8% of the students need to improve their writing skill. This shows that the students have difficulties with all four-language skills in their ESP course, and more particularly, the speaking and listening skills. Since ESP is based on satisfying the learners' needs and interests, the ESP course should be closer to the current and future required needs of the students.

80, 20% of the students hope to improve their communication skill in the classroom, and they show a desire to do some simulation practice of their field rather than passively receiving information through listening to the teacher's explanation of grammar rules, and translating words and sentences from English into the mother tongue in the ESP classroom. Therefore, English teachers need to have competence of ESP and a certain professional knowledge through co-operating with subject specialists in the same department, and having training in ESP in order to teach ESP courses better and to create a purposive and fulfilling classroom environment.

Regarding the items that have to be included in the ESP course, the Computer Science students propose the followings: reading and writing of emails, reading and writing of reports, faxes, and specifications, conducting and attending meetings in English, and preparing oral presentations since they are expected to work as managers in industrial firms, multinational

companies, oil companies, and banks. Other communicative events that students need include reading professional texts, writing periodic or progress reports, listening to presentations in a meeting, delivering oral presentations, engaging in professional conversations, reading textbooks and manuals, writing correspondences, handling complaints, negotiating with English speaking professionals, and holding general or telephone conversation.

### **5. Classroom Observation**

The classroom observation is undertaken to investigate the performance of second Year Computer Science students in ESP classes. The observation in this study lasts for three weeks. The main objective was to observe the teacher's way of teaching as well as the students' interactions in the classroom.

Indeed, the teacher seems to be the only authority in the classroom. Some students seem to be interested but their individual interactions from time to time reveal that they have difficulties in communication. Furthermore, the classroom seems to lack harmony and effective discussion, and when it exists, it relates to particular and limited number of students.

In fact, it has been noticed that the students are careless, passive, and noisy. The teacher tries to explain the text through reading it first, then asking one or two students to read it. The students find difficulties in understanding the text that is about Internet, and the teacher translates almost all the words into Arabic or French. Three weeks were allocated to tackle one text since the students lack comprehension ability.

### **6. Experimental**

#### **The Object of Study**

Second year students at Computer Science Department, Hassiba Ben Bouali University of Chlef are selected as the sample of the present survey. The subjects were 40 students from the two-year undergraduate Computer Sciences Degree program.

#### **Research Tools and Data Collection**

This study uses a questionnaire to investigate students' communication needs for learning and work requirements. The data were analysed using statistics and percentages. The questionnaire included 10 questions; questions 1-3 are about students' level and comprehension ability, questions 4-7 investigate students' communication needs in ESP learning regarding the four language skills: speaking, listening, reading, and writing, and the items that they want to include in the ESP course. Questions 8-10 seek students' attitudes towards the content of ESP course and methodology. Statistics are counted and analysed by using Excel. Classroom observation was used as another tool to enhance the reliability and the validity of the present research.

### **7. Conclusion**

This paper analyses the necessity of ESP teaching and explores the communicative needs of Computer Science students through a questionnaire survey of students' needs and interests. It can be found through the survey that the students have strong desire for learning ESP, and they need to improve their English communication skill requirements to perform well in the ESP classroom and in the workplace after graduation.



Thus, the above findings bring some requested changes in ESP teaching methodology and the content of the ESP course on the part of the language teachers and the curriculum designers. First, ESP teachers should implement the communicative approach in the classroom, focusing on developing the communication skills of students, mainly, the speaking and listening skills, and providing students with tasks related to real context through simulation, to make students involved in the learning process.

Regarding ESP teachers, they should enhance the students' comprehensive ability of professional English. Therefore, when teachers design the English curriculum, they should consider including more relevant professional English courses related to students' needs and future requirements of the workplace. Additionally, ESP teaching materials need to be practical and functional and teachers should adopt suitable authentic materials that relate to the students' field of study.

Additionally, ESP teaching requires the teacher owning solid knowledge of the English language and professional knowledge, as it requires the teacher to understand or to be fully aware of the students' needs. Therefore, improvement is needed urgently to remedy the ESP teaching/learning situation at the Computer Science Department, through enhancing training of ESP teachers, changing in the learning methodology, and designing an ESP course that would fit the learners' needs and improve their overall professional level in English.

As a result, the findings of this study indicate that an ESP course for Computer Science students should focus on the four language skills, and mainly, listening and speaking skills, as they provide the items that should be included in the ESP course namely emails, reports, and oral presentations.

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