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**"MASTER APPLIED LINGUISTICS"**

**THE IMPACT OF AUTHENTIC MATERIALS  
SELECTION TO MOTIVATE COMPUTING  
SCIENCE STUDENTS**

**The Case of First Year Master Computing Science Students at Mostaganem  
University (2017-2018)**

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# ***Dedication***

I dedicate this work to my parents, my husband who helped me in achieving my goal. To my little princess Alae Hadja Fatima. To my sisters and any person who encouraged me to finish this work. To my supervisor Msr Bendoukha for her guidance, with respect and love.

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## **List of Abbreviations**

AACE: Advancement of Computing in Education

CS: Computer Science

CS&E: Computer Science and Education

EAP: English for Academic Purposes

EEP: English for Educational Purposes

ELT: English Language Teaching

EOP: English for Occupational Purposes

EPP: English for Professional Purposes

ESP: English for Specific Purposes

EST: English for Science and Technology

EVP: English for Vocational Purposes

GE: General English

N: Number

Vs: Versus

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## Definition of Key Words

**Appropriate:** the term appropriate is defined in *Oxford Dictionary* as “suitable, acceptable or correct for the particular circumstances.” Being appropriate means being effective and accurate in achieving something.

**Computer Science:** “most generally, computer science is the study of methods for organizing and processing data in computers. The fundamental questions of concern to computer scientists range from foundations of theory to strategies for practical implementation.” (Spraul, 2005, p. 109). CS is concerned with programs’ structures, operations, applications, tasks, design, programming language, data, mechanism, protocols, and organization works.

**EST:** EST is a part of ESP. It is concerned with studying science matters. In *Oxford Dictionary*, science is defines as “knowledge about the structure and behavior of the natural and the physical world, based on facts that you can prove...”. This branch is based mainly on the study of mathematics, physics, engineering, and computer science.

**ESP:** Tomlinson (2003) points out that “... English for Specific Purposes (ESP) is an umbrella term that refers to the teaching of English to students who are learning the language for a particular work or study-related reason” (p. 307). ESP is concerned with different areas based on academic or professional fields where English of specialism is needed such as business, medicine, law, engineering, history, and art, etc.

**Level of Comprehension:** In *Webster’s Merriam Dictionary*, comprehension is defined as an “Act of or capacity for grasping with the intellect. The term is most often used in connection with tests of reading skills and language abilities, though other abilities (e.g., mathematical reasoning) may also be examined.” In other words, comprehension is the ability to understand the meaning or importance of something

**Materials:** “In language teaching, anything which can be used by teachers or learners to facilitate the learning of a language. Materials may be linguistic, visual, auditory, or kinesthetic, and they may be presented in print, audio or video form, on CD-ROMS, on the Internet or through live performance or display.” (*Longman Dictionary of Language Teaching and Applied Linguistics*). They are anything that the teacher may use and that provide helpfulness for the learning process.

**Selection:** “(in language teaching) the choice of linguistic content (vocabulary, grammar, etc.) for a language course, textbook, etc. procedures for selecting language items to include in a language course include the use of FREQUENCY, COUNTS, NEEDS ANALYSIS, and PEDAGOGIC GRAMMARS.” (*Longman Dictionary of Language Teaching and Applied Linguistics*). To select means to follow specific criteria in order to achieve a specific goal.

- Dedication**
- Acknowledgements**
- List of Abbreviations**
- List of Tables**
- List of Figures**
- List of Key Words**
- Table of Contents**
- Abstract**

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## Abstract

Students are facing different problems that may disturb their learning such as the lack of appropriate vocabulary use, misunderstanding grammar rules, and the difficulties in language skills; listening, speaking, writing and reading. Hence, using the appropriate materials by teachers would be the useful solution to overcome them. The present study attempts to investigate the suitability and effectiveness of ESP materials selection in enhancing computing science students' level of comprehension. The obtained results by means of questionnaires to (02) CS teachers and (30) first year CS students reveal that appropriate ESP materials selection cannot be done in a good way unless it respects five specific criteria: appropriacy, accuracy, range, flexibility and size. Following these criteria is very helpful but the need to respect factors such as time constraints, learners' age, sex, level, and background knowledge is also crucial. The results also show that the availability of ESP materials and administrative facilities have a big impact on enhancing students' level.

**Key Words:** ESP, EST, materials, selection, appropriacy, computer science, level of comprehension.

## **1. General Introduction**

English for specific purposes is an approach to language teaching in which all decisions depend on learners' needs. In fact, it is devoted to both students and workers of the field. Moreover, there are two parts of ESP: EAP (English for Academic Purposes) and EOP (English for Occupational Purposes). There are five major components that can be subsumed under language instruction within ESP. These elements are the students, the teacher, materials, teaching methods, and evaluation.

Materials are the vital component concerning what happens inside the ESP classroom because they control the process of teaching and learning. In other words, materials should satisfy learners' needs; teachers have to follow the curriculum and select the relevant materials according to them, taking into account their students' interests and motivation. In order to help learners, the teacher may adapt, supplement, and elaborate those materials.

In this context, ESP materials should not be chosen randomly but should be selected appropriately in order to foster learners' capacities. It is thus crucial to mention that materials must be enjoyable, initiative and creative so that to reach the ultimate aims of both teaching and learning processes. It is here that the ESP teacher's role as a researcher is very important; he tries to look for the appropriate materials for the classroom from what is available concentrating on learners' needs respecting factors, such as, learners' speciality, age, sex, society, background knowledge, academic objectives and requirements, proficiency levels, cultural aspects, and learning/teaching styles.

Textbooks, dialogues, activities, video and audio tapes, computer software, visual aids and others can be covered under ESP materials. Many educationists think that ESP materials may affect computer science students' proficiency more than any other elements of the course. ESP materials should be authentic and valuable in order to meet learners' needs and interests. Also, it would be useful to have a variety of ESP materials. Since students' understanding of vocabulary is very limited, the vocabulary in ESP materials should be controlled so that to foster students' understanding of the selected materials. For lower level students, grammar also should be involved.

## **2. Statement of Purpose**

Although there are five different elements of ESP, materials are considered as the most important ones because they often control the instruction within an ESP

classroom and both teachers and learners are supposed to rely on them all the time. Materials that are appropriate for a particular classroom may not be so for another and may not be so for all the lectures. So, materials selection is a crucial task to be done by teachers, especially those who teach English for specific purposes.

Computer science students are chosen because it seems that they need appropriate materials selection more than other ESP classrooms since they will apply all what is in the selected materials on the computer and in their life. Also, computer science students are facing a host of problems when meeting inappropriate ESP materials in their studies. Another reason is that computer science became an important branch at Mostaganem University and even for other national and international universities.

Since we have chosen ESP materials selection as a study, it is worth choosing computer science discipline because computer science courses should be established in order to satisfy the needs of learners when they move from theoretical issues to the practical ones; when facing a computer. Therefore, teachers are interested more in giving their students texts then ask them to analyze, synthesize and summarize them. Also, they give them a host of games and reports. In fact, the selection of appropriate ESP materials should be very efficient in order to motivate computer science students.

The main purposes of this study is to get an insight over the current development of selecting appropriate ESP materials in order to urge computer science teachers to choose the best materials for different lectures, to satisfy their learners' needs, to have a creative and motivated setting and, of course, to help them to get better grades and results.

### **3. Statement of Problem**

An ESP practitioner is a course designer and materials provider. The selected materials should be useful, meaningful and interesting for students. Some teachers do not care a lot about materials selection and they may select any material or even use the same ones every time. In fact, this may demotivate their students because ESP materials may affect a lot the level of students. A problem occurs when the teacher does not find adaptable materials to the needs of a particular class, so he is supposed to select and exploit suitable texts and to write suitable exercises.

There are certain considerations that must be taken into account when selecting activities such as the speciality, age, sex, society, background knowledge, academic

objectives and requirements, proficiency levels, cultural aspects and learning/teaching styles, etc. If these considerations are not respected, the classroom would be boring. Moreover, it is very dangerous that teachers do not select what may motivate their learners because this may leave a negative impact on them and this will not encourage them, the classroom would be boring and teachers will make students suffer instead of helping them.

#### **4. Aims of the Study**

The aim of the present study is twofold:

- (1) To examine the correlation between selecting ESP materials and students' performance.
- (2) To raise students' level of comprehension through experiencing carefully- selected materials.

#### **5. Research Questions**

The study is based on defining specific criteria to select materials for computer science classrooms that provide both grammar rules and vocabulary content which are very helpful in leaving a good impact on students' motivation and level of comprehension. In order to carry out the present study, the following question have been asked: to what extent can appropriate ESP materials selection enhance Mostaganem University first year computer science students' level of comprehension?

To what extent the selection of authentic materials help computing science students in their studies?

#### **6. Methodology**

The methodology that will be followed in this study is descriptive correlational. It has been selected in order to acquire information and deduce conclusions about the development and the role of selecting ESP materials for first year computer science students at Ibn Badiss University.

A correlational study is used in quantitative terms to describe the degree to which the variable of improving students' level depends on the variable of selecting appropriate ESP materials for computer science students. Also, data gathered by means of two questionnaires will be analysed and interpreted.

The means chosen for conducting this study is the questionnaire. Thus, two questionnaires are administered in two different ways for two different groups: two (02) computer science teachers and thirty (30) students. They would be used in order to gather information about the variables of interest to appropriate activities selection from teachers and specialists in the field.

## **7. Structure of the Study**

The present work is divided into three chapters. The first two ones are theoretical, whereas the last one is practical.

Chapter one is concerned with ESP materials selection and its importance within ESP classrooms.

Chapter two deals with the role of computer science and how to improve the process of teaching and learning within computer science classes.

Chapter three is the practical part. Chapter three deals with methodology and tools and it is concerned with two questionnaires that are conducted with two different groups : Computer science teachers and students .It also included analysis and interpretation of data, Comments and suggestions.

# Chapter One: ESP Materials Selection

## Introduction

### 1. ESP as a Discipline

#### 1.1. Definition of ESP

#### 1.2. Typology of ESP

##### 1.2.1. English for Academic Purposes

##### 1.2.2. English for Occupational Purposes

#### 1.3. Developments of ESP

##### 1.3.1 Register Analysis

##### 1.3.2. Discourse Analysis

##### 1.3.3. Target Situation Analysis

##### 1.3.4. Skills and Strategies

##### 1.3.5. Communicative Approach

### 2. ESP Materials

#### 2.1. Typology of ESP Materials

##### 2.1.1. Materials for Listening

##### 2.1.2. Materials for Speaking

##### 2.1.3. Materials for Reading

##### 2.1.4. Materials for Writing

##### 2.1.5. Materials for Integrated Skills Activities

#### 2.2. Role of ESP Teachers

##### 2.2.1. Teaching Vocabulary Content

##### 2.2.2. Teaching Grammar Rules

### 3. ESP Materials Selection

#### 3.1. Authenticity vs Simplicity

#### 3.2. Criteria for ESP Materials Selection

#### 3.3. Characteristics of Motivating ESP Materials

#### 3.4. ESP Materials Evaluation

#### 3.5. Factors Influencing ESP Materials Selection

## Conclusion

## **Introduction**

It has been noticed that learning English for students of different fields such as economics, computer science, medicine, politics and other disciplines results a host of problems for both teachers and learners, thus, researchers made considerable efforts in order to help in solving those struggles. English for specific purposes (ESP) has emerged in order to overcome such difficulties and then to help teachers of different branches in giving instructions, providing helpfulness, and transferring information to their learners in an effective way.

One remarkable characteristic of ESP classrooms is the increasing number of varieties among students. The need for appropriate materials selection and, therefore, the desire to have suitable courses become a greater interest. In other words, selecting a particular material for ESP students has become a prerequisite to conducting such courses and for negotiating the ultimate aims of learning/ teaching process in ESP classrooms.

In this chapter, three basic points are focused on; ESP, ESP materials, and ESP materials selection. First, an overview about the field of ESP is given; the definition of the field of ESP, classification of ESP types, and the developments that ESP has witnessed. Second, ESP materials are tackled. Definition of ESP materials, specification of materials for different skills then for teaching vocabulary and grammar are given. Then move to ESP materials selection. A comparison between authenticity and simplicity, definition of the criteria for materials selection and mention the main characteristics of motivating ESP materials then talk about materials evaluation and the factors that may influence the process of selecting materials for ESP students are presented.

### **1-ESP as a discipline**

ESP is a field that English language learners need to study when learning English for economics, computer science, medicine, politics and other disciplines. It does not study general English but extends to special vocabulary use where students may face many problems when learning. ESP is the solution for this problem. In fact, ESP is an unstructured discipline as Hutchinson and Waters (1987) note. It has not been emerged for this reason but as a result of different other reasons: the demands of Brave New World, a revolution in linguistics, and the focus on the learner.

In 1945, technology and commerce have taken greater interest and have witnessed more progress. The end of Second World War brought new perspectives of changes and, consequently, international new developments. This led many people to learn English since it became the language of technology and commerce, especially after the developments resulted from Oil crises of the early 1970s. Another reason is variation; linguistics is regarded as a description of English rules usage (grammar description) but this view has been shifted to description of language use according to the context. The idea of variation between different contexts led to having courses for specific groups of learners. Finally, in order to keep learners motivated, courses should be designed on the basis of their needs, interests and area of study. This idea was very helpful in starting thinking seriously of a discipline that respects these qualities.

The growth of ESP, then, was brought about by a combination of three important factors: the expansion of demand for English to suit particular needs and developments in the fields of linguistics and educational psychology. All three factors seemed to point towards the need for increased specialization in language learning (Hutchinson and Waters, *ibid*, p.8).

Thus, to make such needs and exchanges successful, there was an increasing demand which became during time an urgent necessity for learning and mastering languages for different purposes. In fact, language learning has been oriented towards necessity and efficiency for different ESP learners. ESP has emerged in the sixteenth century where the production of specialized vocabularies and phrase books for diplomats, businessmen and others has taken place. (Stevens, 1977)

### **1-1 Definition of ESP**

ESP has been defined by many theorists in different ways, but what has been emphasized by most of them is that it is a discipline based on learners' needs according to the situation that they face and their specialty. In *Oxford Dictionary* ESP is defined as "The teaching of English for scientific, technical, etc. purposes to people whose first language is not English."

According to Hutchinson and Waters (*op.cit*), ESP is an approach to language learning that takes into account learners' needs when designing courses. It is not solely based on vocabulary but also on learners' knowledge of language and abilities that help them to communicate. ESP is not the study of 'specialized varieties', but the use of language in different contexts among learners of different specialism.

Dudely-Evans and ST John (1998) define ESP according to three absolute characteristics and four variable ones. On the one hand, absolute characteristics are: meeting specific needs of the learner; emphasizing the methodology and activities for different fields; and being based on the language (grammar, lexis, register), skills, discourse and genres that fits the given activities. On the other hand, variable characteristics are: being related to specific disciplines, using different methodologies for different situations; being designed for adult learners; and also can be relevant for beginners, not only for intermediate or advanced students.

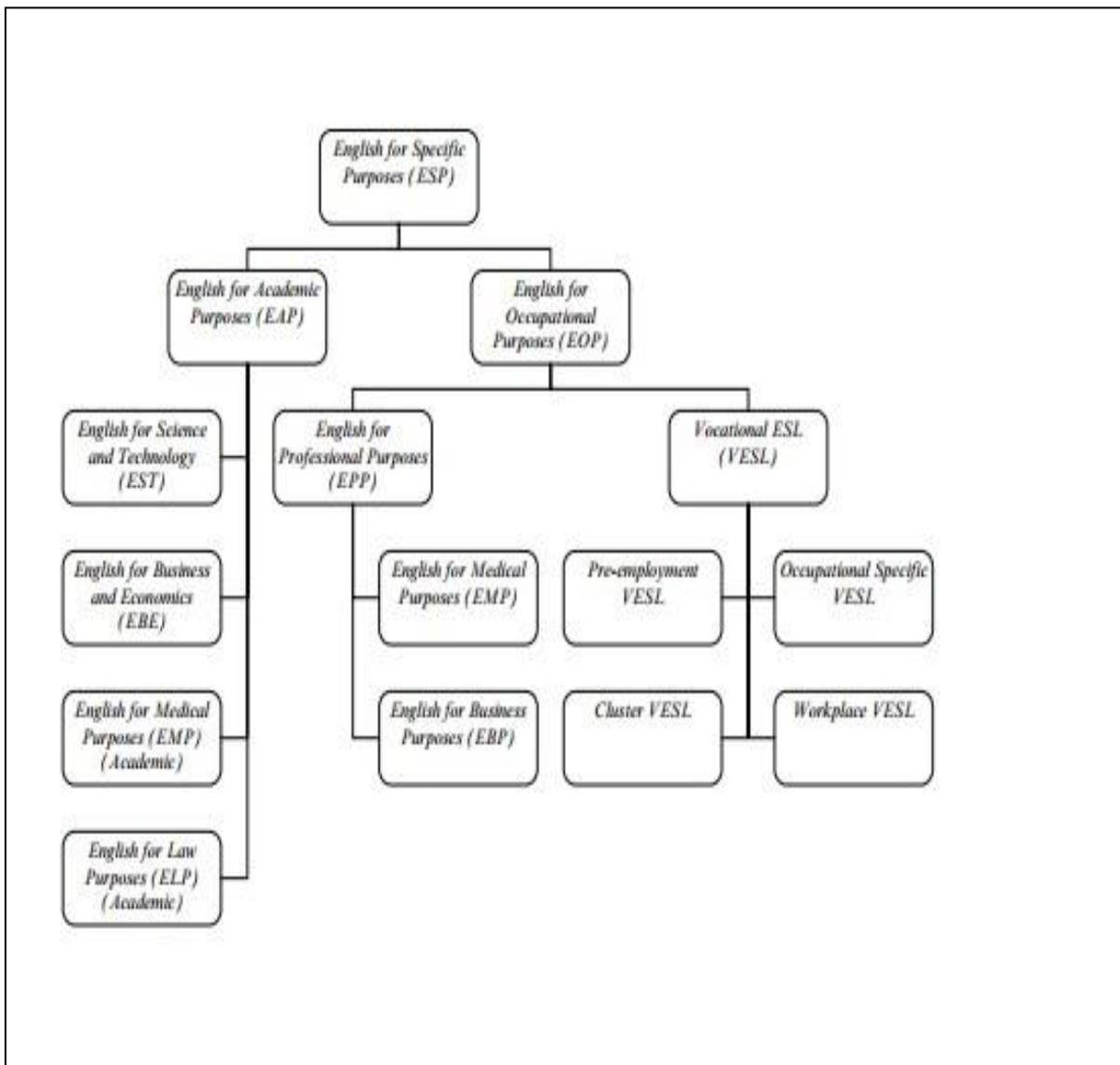
Strevens (op.cit) maintains that ESP is designed to meet specific needs of the learner. It is related in content (themes and topics) to particular disciplines or occupations as it is based on the language that is appropriate to those activities in syntax, lexis, discourse and so on.

According to Harding (2009), the sense of ESP is related more with two elements: purpose and vocation. He says that "... ESP is the coal-face of International English: it is its practical application. And it's not just the coal-face: it's the production line, the operating theatre, the reception desk, and the building site" (p.7). ESP is a very important field of teaching; it is the practical implementation of English language teaching.

Tomlinson (2003) points out that "... English for Specific Purposes (ESP) is an umbrella term that refers to the teaching of English to students who are learning the language for a particular work or study-related reason" (p.307). ESP is concerned with different areas based on academic or professional fields where English of specialism is needed such as business, medicine, law, engineering, history, art, etc.

## **1-2 Typology of ESP**

ESP has emerged to satisfy learners' needs. According to Kennedy and Bolitho (1984), some of those needs are important for their studies, whereas others are crucial for their work and profession. The former is called English for academic purposes (EAP) and the later is referred to as English for occupational purposes (EOP). EAP and EOP are the main common parts that can be subsumed under the field of ESP. Each of which has its own characteristics. They are explained in the following graph.



**Figure 01: Classification of ESP categories (adapted from Johns and Price- Machado 2001)**

### 1-2-1 English for Academic Purposes (EAP)

Jordan (1997) points out that the term ‘English for academic purposes’ appears in 1974. EAP is also called EEP (English for Educational Purposes).

“EAP is a field open to self-scrutiny and change, and for these reasons it offers language teachers an ethical, reflective, and fruitful field of research and professional practice and offers students a way of understanding their chosen courses and disciplines.” (Hyland, 2006, p.5).

EAP is taught generally within educational settings for students who need English in their studies in order to succeed. It is helpful for students when specializing or intending to be specialized. EAP is taught not only in technical streams, it also takes a great interest in non-technical ones. Tomlinson (op.cit) says that EAP is helpful for learners to get appropriate skills in order to achieve a certain level.

### **1-2-2 English for Occupational Purposes (EOP)**

EOP is also labeled EVP (English for Vocational Purposes) or EPP (English for Professional Purposes) as Jordan (op.cit) maintains. EOP is taught for learners whose need is related to their profession. They need English to talk and respond in their domains and to read technical manuals. Their learning depends on the time of training. That is to say before, during or after working. Tomlinson (op.cit) mentions that EOP is helpful for learners to function in English in their job.

### **1-3 Developments of ESP**

ESP was influenced by different exchanges in both linguistics and psychology. In fact, it is really interesting to know that ESP has witnessed a host of developments since 1960s. Each of which has paved the way for other crucial ones that are separated from other disciplines of English language teaching. The current studies concerning ESP are more related to communication. Dudley Evans and ST John (op.cit) maintain that approaches were based on ELT courses and reading strategies were not well developed, but nowadays many improvements have been done in the field, such as the work on register analysis, discourse and rhetorical analysis, skills based approaches and the learning based approaches. ESP has been developed in different levels all over the world. "From its beginnings in the 1960s ESP has undergone three main phases of development. It is now in a fourth phase with a fifth phase starting to emerge." (Dudley- Evans and ST John, *ibid*, p.9). The developments starts from register analysis then move to discourse analysis, target situation analysis, skills and strategies, then to a learning- centered approach.

#### **1-3-1 Register Analysis**

Register analysis is the result of the idea of special language. This thought has occurred in the 1960s and early 1970s. It is related to different specialism such as biology, engineering, medicine, computer science, etc. There were many works that

tried to find the differences and similarities among such fields on the basis of grammar and lexis to analyze and organize so that to recognize the different features of those registers. The results show that some grammar structures are almost neglected and different within different ESP classrooms and that there is a big difference in vocabulary use among different registers. As a result, ESP courses must be designed in a good way respecting both forms and functions. (Dudley-Evans and ST John, *ibid*)

### **1-3-2 Discourse Analysis**

Discourse analysis is a great development that ESP has witnessed in the 1970s. It goes beyond the level of the sentence; it is not based solely on analyzing grammatical and lexical features but also on measuring formality and managing information.

Whereas in the first stage of its developments, ESP has focused on language at the sentence level, the second phase of development shifted attention to the level above the sentence, as ESP become closely involved with the emerging field of discourse or rhetorical analysis. (Dudley-Evans and ST John, *ibid*, P.10).

This phase is based on how to produce meaning and led to functional-based lectures. That is to say to define the organizational patterns and to state the linguistic means that make the patterns occur. Such discourse patterns differ in use from one specialism to another.

### **1-3-3 Target Situation Analysis**

Target situation analysis phase is also called needs analysis. It has been said that this phase seem to bring nothing special to the 'range of knowledge about ESP'. It is based on classifying knowledge according to learners' aims of studying. Needs analysis is the process of collecting and interpreting information according to learners' use of the target language. ESP courses are designed to help students use language in an appropriate way within a target situation through identifying, then analyzing its linguistic features. (Dudley-Evans and ST John, *ibid*)

### **1-3-4 Skills and Strategies**

The previous three phases study language on the base of its surface level. The fourth phase has been done in order to move to looking at deeper thinking of language use. Reading and listening are the main useful skills within this phase where students are given texts and are asked to show their efforts. It is a very helpful idea when

intending to make them get the meaning from discourse. Accordingly, surface forms of language have no great importance. Instead, interpretive strategies are the main interest since they facilitate analyzing forms and understanding their meaning so that to help in developing skills. (Dudley-Evans and ST John, *ibid*)

### **1-3-5 Communicative Approach**

An ESP course is directly concerned with the purposes for which learners need English and these purposes have to be defined in functional terms. In the process of evolution ESP has, in the 1970s, embraced notional, functional and communicative ideas.

These terms are frequently used in language teaching these days. Prone at times to some of uncertainty about their meaning they jointly reflect a new attitude towards language, a concern with the rhetorical and discursive aspects as directed to meaningful interaction between human beings. This attitude manifests a striking contrast with earlier attitudes that see language as a collection of formal lists of items and entities, rules and paradigms etc. ESP, like any other development in language teaching, is likely to reflect the current theory and practice in general. Placing it firmly within the general movement towards functional/ communicative teaching of last decade or so many of the ESP practitioners have taken great care to examine, interpret and redevelop the traditional theoretical framework in order to determine what sorts of interaction and what language activities are going to be needed by their learners, and to direct teaching materials and techniques accordingly.

### **2- ESP Materials**

ESP materials are the useful means in language teaching. "Teaching materials are tools that can be figuratively cut up into component pieces and then rearranged to suit the needs, abilities, and interests of the students in the course." (Graves, 1999, p.27). They are anything that the teacher may use in order to help learners get better understanding. Such materials can exist in different forms; they can be textbooks, workbooks, texts, activities, etc.

In language teaching, anything which can be used by teachers or learners to facilitate the learning of a language. Materials may be linguistic, visual, auditory, or kinesthetic, and they may be presented in print, audio or video form, on CD-ROMS, on the Internet or through live performance or display. (Longman Dictionary of Language Teaching and Applied Linguistics)

ESP materials must be varied so that to attract and motivate students; they appear in most times interesting, fun and clear. Sometimes, materials are appropriate for the content but sometimes they need to be modified and creative; the teacher has to adapt or supplement in order to fit the local context.

## **2-1 Typology of ESP Materials**

ESP materials can be done for different reasons and can be presented in different forms. Kennedy and Bolitho (op.cit) points out that ESP materials are helpful in making students read then get the meaning, read then write such as summarizing or paraphrasing, listen when teachers read from them, speak when the teacher motivates his students to communicate, or do different tasks when the teacher integrates different skills. Activities are very useful means in language teaching. They are of different forms: reading, listening, speaking and writing. Each specialty is based on some skills according to students' needs and the form of the present lesson.

### **2-1-1 Materials for Listening**

According to Kennedy and Bolitho (ibid), materials for listening might be the most difficult choice. They have to be selected in an appropriate way in order to motivate students and make them listen without getting bored. ESP students may listen to lectures, instructions, seminars, meetings, and committees. Then they have to get key words, main ideas, speakers' attitude, and switches of register. The teacher's role here is to be attentive concerning students' reactions and to the atmosphere of each lesson so that to attract students' attention and satisfy their needs in an appropriate way without making them get bored or confused.

### **2-1-2 Materials for Speaking**

Though those activities need more work for teachers but it is worth using them. They make the speaking process seems easier and more active as they help in making the students' involvements more obvious. So, the use of speaking activities would highly improve students' retention. Such activities add variety to range of learning situations, maintain motivation, refresh learners during formal learning, encourage students' interest, help in making teacher-student distance less marginal, and provide more student-student communication. The more students get motivated, the more students get comfortable and can speak confidently. Kennedy and Bolitho (ibid).

### **2-1-3 Materials for Reading**

Materials for reading are the texts given to learners to practise them in order to achieve a specific aim or various ones. In *Oxford Dictionary*, activity is defined as "a thing that you do for interest or pleasure, or in order to achieve a particular aim". According to Kennedy and Bolitho (ibid), materials for reading play the role of activities; students are asked to read and try to comprehend as they are allowed to use dictionaries to learn new structures and vocabulary. Students have to skim, scan, relate graphs to text, relate diagrams to text, predict and sequence the structure

of a text, and understand elliptical writing-telexes. Such activities are means of joy as well as of teaching and learning. They help students in using and practising their available language recourses as to develop their own skills, strategies and level of comprehension; they are the practical contribution of theoretical lessons. Each material for reading is given to students in order to make them master specific points which themselves are helpful for their studies.

#### **2-1-4 Materials for Writing**

When students are given a text and after reading it, they are asked to write something. Here, the aim of the material is to serve the skill of writing. Since students are not English ones, they are not asked to write using great styles. Instead, they have to write correct grammar and simple wording. Kennedy and Bolitho (ibid) insist on the importance of being coherent when writing.

Some adult ESP students do not experience too many problems with coherence as there is classroom evidence to suggest that the ability to organize writing coherently is largely transferable from the mother tongue. Conversely, an absence of this ability in English in an adult student is bad news for the ESP teacher as it may signal lack of practice in writing coherently in any language. (Kennedy and Bolitho, ibid, p.86-87).

When implementing written activities, students also must have a purpose. There is no activity without one aim or more as their answers should be relevant to them. ESP students are asked to write reports, take notes, summarize a text, write descriptions of processes and systems, and write letters and telegrams.

#### **2-1-5 Materials for Integrated Skills Activities**

Materials for integrated skills are those integrating two skills or more: speaking, listening, writing, and reading on the same activity. The use of activities should help in making the lesson well prepared and organized. Moreover, the teacher has to confirm the presence of all available facilities. Teachers must confirm that activities are simple and can provide the instructions that are intended to do. Philips (1997) emphasizes that “the activities should be simple enough to understand what is expected of them.” (p.3), but some activities may require the four skills and they have a considerable value. Simulation, games and information gap activities, and project work are integrated skills activities.

#### **2-2 Role of ESP Teachers**

Teaching an ESP classroom means to have certain qualities in order to help students in satisfying their needs. ESP students need to know the basic foundations of their specialism. They need to learn the common vocabulary and master different grammar rules in order to achieve the

ultimate aims of teaching and learning process. ESP materials are useful when doing so since they provide helpfulness through appropriate selection of materials that teach vocabulary content and grammar rules.

### **2-2-1 Teaching Vocabulary content**

Vocabulary is the backbone of ESP classroom teaching. Ur (1991) defines vocabulary as "... the words we teach in a foreign language." P.60. Thornbury (1997) states that vocabulary and lexis in English are frequently used interchangeably. However, words are the building blocks in a language. One cannot develop his knowledge of a specific specialty unless he gets a rich background of its lexical items. English learners may face big problems when learning vocabulary and even when moving from one level to a higher one. Macaro (2003) spots the light on vocabulary when learning a foreign language, especially if it deals with different disciplines where sub-technical vocabulary exists and which are considered as the most crucial type of vocabulary to be learned in order to enhance the teaching and learning process within an ESP classroom.

When selecting ESP materials, a great consideration must be given to vocabulary content since it presents the main concern of students' needs. In ESP, "specialized texts of any sort, whatever written or spoken, exhibit various characteristic lexical features." (Kennedy and Bolitho, *op.cit*, P.56). Technical abbreviations, symbols and formulae, highly technical vocabulary, and subtechnical vocabulary are the lexical features of ESP texts. Kennedy and Bolitho (*ibid*) maintain that teaching vocabulary to ESP students starts from word formation (prefixes and suffixes and identification of word classes) then moves to word relationships (synonymy, contextual clues, selection from alternatives, building up sets, and collocations (thornbury, *op.cit*). ESP materials are of different forms and contain different vocabulary content; the selection depends on the needs of the course, intended language and the degree of authenticity, and the students' level and specialty.

Words do not exist as isolated items in language. They are integrated in a complex system in which different levels of a lexical item is produced in order to supply a suitable understanding in receptive skills and provide an adequate production of ideas in productive ones. Richards and Renandya (2002) say that "vocabulary is a core component of language proficiency and provides much of the basis for how well learners speak, listen, read, and write." P.255.

### **2-2-2 Teaching Grammar Rules**

It has been remarked that vocabulary takes a great part within ESP classrooms. But knowing vocabulary without mastering grammar rules does not help students in their studies since grammar has its importance as well. Though discourse can be understandable with wrong grammar rules' use,

but it would not be coherent and appropriate, and the meaning of the discourse would not be accurate. Ur (op.cit) defines grammar as "... a set of rules that define how words (or parts of words) are combined or changed to form acceptable units of meaning within a language" p.75.

Grammar can be taught through two different approaches as Harmer (2002) states. "There are basically two ways in which a learner can achieve understanding of a rule, the deductive (rule-driven) path and the inductive (rule-discovery) path" (p.49). Deductive approach is based on teaching grammar from rules; students are asked to retain the definitions, the rules, the examples, and the exceptions. It is very helpful for students to gain more time in practicing exercises. Inductive approach is based on teaching grammar from examples and students are asked to discover the organizational principles and formulate a set of rules. Inductive learning can be an effective means of teaching grammar. Learning inductively means studying examples of language in use, and exploring underlying patterns and rules. This approach is very helpful in making learners more active through giving more chance to interaction and discussion when giving them the opportunity to extract rules from the examples.

Macaro (op.cit) proposes two ways that teachers may use when wanting to provide helpfulness to their learners in order to get better memorization and understanding of grammar rules. First, practice might be a good solution. It is controlled, contextualized or communicative. It contains series of stages based on activities that are helpful to transfer the information from short to long memory. Second, consciousness-raising is the other solution. It is an attempt to motivate learners in grammar rules understanding so that their knowledge can be discovered.

The ESP materials that are used to teach grammar rules should respect two principles: efficiency-factor and appropriacy-factor. On the one hand, to be efficient is very crucial. According to Harmer (op.cit), "when considering an activity for the presentation or practice of grammar the first question to ask is: how efficient is it?" (p.25). Efficiency might be measured according to three elements: economy, ease, and efficacy. On the other hand, appropriacy is the second crucial principle of grammar teaching. Learners are different concerning their interests, level, needs, and goals, beliefs, values, attitudes, age, materials and resource, experience and expectations, cultural factors, group size, educational context, and the constitution of the group. These variations must be taken into account when wanting to be appropriate. These factors are interrelated and cannot be taken separately.

### **3- ESP Materials Selection**

Some teachers may use the same ESP material for different classes ignoring the variation among different classrooms. Also, some of them may use the same material in all lectures. In this situation, students will get bored and may hate this class. That is why appropriate ESP materials selection would be important and can play a crucial role in ESP lesson planning. Ellis and Johnson

(1994) distinguish between two levels of materials selection. The first one occurs at the beginning of the course when teachers suggest their coursebooks and materials. The second level occurs when the teacher is going to select items from the chosen coursebook.

### **3-1 Authenticity vs Simplicity**

Authentic texts are very important in showing real language use though it is sometimes difficult to find appropriate ones. In fact, most teachers prefer to use them. “Authentic material is any kind of material taken from the real world and not specifically created for the purpose of language teaching.” (Ellis and Johnson, *ibid*, p.157). Authentic materials are those taken as they are in the original or natural sources. “It has been traditionally supposed that the language presented to learners should be simplified in some way for easy access and acquisition. Nowadays there are

recommendations that the language presented should be authentic.” (Widdowson, 1990, p.67) Many people prefer such classroom resources because of their natural language use and explanations, as stated in Longman Dictionary of Language Teaching and Applied Linguistics.

In language teaching, the use of materials that were not originally developed for pedagogical purposes, such as the use of magazines, newspapers, advertisements, news reports, or songs. Such materials are often thought to contain more realistic and natural examples of language use than those found in textbooks and other specially developed teaching materials.

On the one hand, using authentic materials is very helpful because they have a positive impact on learners’ motivation, satisfy learners’ needs, and supply authentic cultural information and exposure to real language. On the other hand, using authentic materials may contain difficult language, difficult vocabulary items and complex language structures as they can be too culturally. (Basturkmen, 2010)

Some interesting texts may go beyond students’ level and current abilities. This would not make problems only for students, it may also struggle teachers. Simplified materials are materials used by teachers to facilitate the learning process ( Basturkmen, *ibid*). When using authentic materials may not be very helpful and it is difficult for students to understand them since the language and the use of words may be highly complex, thus, the use of simplified ones would be the solution. Simplified materials use understandable language, provide clear objectives, and focus on specific items of the lecture.

### **3-2 Criteria for ESP Materials Selection**

It seems that most, if not all, ESP lessons include the use of an ESP material or series of materials. Not all students enjoy them and not all lessons provide appropriate ESP materials selection. There is no rule for selecting or adapting them but some said that following specific criteria may make it easier for them. Paul (1996) proposes a division of the lesson into two parts: educational and fun sections. Selecting materials for ESP students does not resemble the same as

selecting for general English students which need only print, audio, and video materials as Ellis and Johnson (op.cit) point out. For ESP teachers, the selection extends the use of what is available. Sometimes, they need to adapt or look for over the shelf materials in order to help ESP students achieve their aims. When doing so, they need to respect certain criteria.

Ellis and Johnson (ibid) explain the criteria for selecting ESP materials: types of learners and their language level, relevance, learners' age and cultural background, and appropriateness of methodology or style. Moreover, they emphasize the distinction between different types of learners and their language level; pre-experience learners and job-experienced learners. Relevance of language and skills is the second key element that must be respected when selecting materials. Another important criterion is to respect learners' age and cultural background. In other words, types of activities differ among groups of different age, background knowledge and cultural features. The last element is the appropriateness of methodology or style for learners. In other words, "the trainer should experiment to find out an approach to use with a particular group and then select activities accordingly." (Ellis and Johnson, ibid, P.127).

Wallace (1992) suggests the following criteria when selecting ESP materials.

- Adequacy: the selected materials should contain appropriate language and information about the course.
- Motivation: They should present interesting content in order to help students be active and work hard in order to understand better. This criterion should be respected in order to make students' work more effective.
- Sequence: It is important to have materials that are related to the lecture. There must be a relation to previous texts, activities, topics not to miss the sense of a lesson.
- Diversity: The selected material should lead to a range of classroom activities, be a vehicle for teaching specific language structure and vocabulary, and promote strategies.
- Acceptability: It should contain acceptable cultural customs and language.

### **3-3 Characteristics of Motivating ESP Materials**

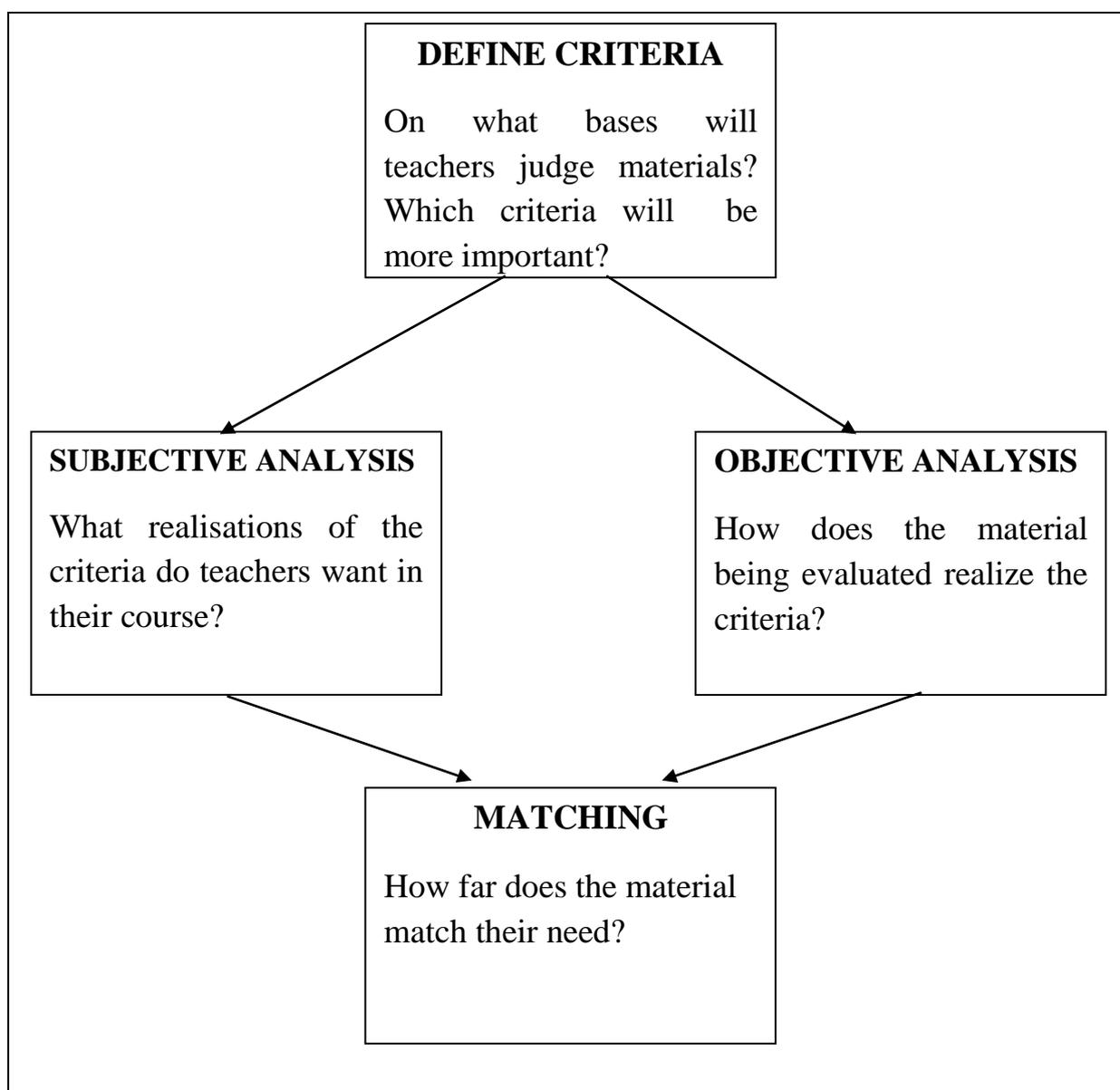
ESP materials are not selected solely to transform information from teacher to learners. In fact, they must be selected for educational purposes as well as for fun and motivation. If the teacher does not think of this side, learners would not be satisfied and happy concerning what they are learning. Thus, the teacher should focus on what attracts his students for the learning process. It is therefore helpful for teachers to follow the factors that might help in motivating learners. Ellis and Johnson (op.cit) suggest three perspectives: credibility; to use materials which have enough knowledge about the subject and the specialism, up-to-date materials; to use novice materials because old ones are old-fashioned ideas and language, and attractive materials; to use materials

which contain acceptable layout, good visuals, and easy access.

### 3-4 ESP Materials Evaluation

Materials evaluation is a means based on examining learning materials in order to establish their value. Tomlinson (op.cit, 15) defines materials evaluation as “a process that involves measuring the value (or potential value) of a set of learning materials”. Evaluation focuses on the students’ satisfaction of their needs. “in language teaching, the process of measuring the value and effectiveness of learning materials” (Longman Dictionary of Language Teaching and Applied Linguistics). In other words, evaluation of ESP materials is the judgment of the appropriateness of materials for an ESP classroom. ESP materials evaluation can be done through four stages as explained in the following graph.

**Figure 02: The Materials Evaluation Process (adapted from Hutchinson and Waters1987)**



ESP materials evaluation is a matching process: “matching your own analysed needs with available solutions” (Hutchinson and waters, *ibid*, p.105). Moreover, this process is helpful to match solutions for problems that occur on the level of materials. Hutchinson and waters (*ibid*) divide evaluation into four stages as shown in graph (01). In the first stage; defining criteria, the teacher has to set his goals for a specific material. The next stage is subjective analysis where developing and testing the course in terms of materials requirements. The third phase is objective analysis where the teacher focuses on the aims of the material itself. The last stage is matching. It occurs when investigating the problems on the level of both subjective and objective analysis and trying to remedy them through adapting content or methodology. ESP materials evaluation is considered as a crucial part in ESP materials selection since it provides testing them and knowing what is useful and what is not in order to avoid it when selecting for another time.

### **3-5 Factors Influencing ESP Materials Selection**

ESP lectures must be well implemented in order to satisfy students’ needs. Some factors may influence such implementation positively or negatively. Even when teachers are not the responsible for doing so but they have to take into account such factors affecting their course so that they avoid them or try to find solutions if possible. Kennedy and Bolitho (*op.cit*) suggest that the following factors must be taken into consideration whether the teacher is the course designer and materials provider or even when he is going only to select from what is available. Those factors are the use of English (whether within a community or an institution); available administrative facilities and available materials; learners’ age, level, motivation, and attitudes and prior views towards learning an ESP course; and teacher’ knowledge about vocabulary, specific forms and functions, and how to interrelate functions in order to get coherent texts.

### **Conclusion**

It should be stated that ESP is very helpful in teaching English to students of different disciplines. In this chapter, it has been focused on ESP as a discipline and emphasizes the importance of materials selection within ESP classrooms. First, ESP is defined as an approach to teaching English and that is based on students’ needs as we stated the developments that ESP has witnessed such as: register analysis and discourse analysis. Next, the role of ESP materials was explored in teaching the four skills, then in teaching vocabulary content and grammar rules. After that, the difference between authenticity and simplicity was established. Moreover, authentic materials are taken as they are in their original form, whereas simplified ones are modified in order to meet specific needs. Finally, the criteria of selecting appropriate materials were identified (accuracy, appropriacy, range, flexibility, and size), the characteristics of a motivating material were explained (credibility, up-to-date materials, and attractive materials), the method of evaluating

materials (defining criteria, subjective analysis, objective analysis, and matching), the factors that may influence ESP materials selection (such as: the role of English, resources and administrative Constraints, the learner, and linguistic aspects, so that to take them into account) were described .

## Chapter Two: Computing Science/A Survey

1. Computer Science as a Discipline
  - 1.1. CS Definition
  - 1.2. Main Areas in CS
2. Computer Science within Educational Setting
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    - 2.7.3. How to Plan a CS Lesson
  - 2.8. How to Select ESP Materials for a CS class

Conclusion

## **Introduction**

Activities play a crucial role within ESP classrooms, especially within a computer science one. Since they provide learning in a good way, make students motivated, and keep a humour sense in the process of teaching and learning. However, according to different perspectives, the teacher should take into account some particular ways to facilitate the interaction within the classroom so that to reach the ultimate aims of the process of teaching and learning.

The major aim of this chapter is to highlight the importance of the computer in computer science classrooms and in our daily life, present computer science as a discipline within English for science and technology (EST), emphasize its importance within educational setting, as well as to recapitulate the role of computer science classroom for both teachers and students. Also, lesson planning will be discussed since it is very helpful for the process of teaching and learning; definition, organization, types, implementation, and the criteria about how to select ESP materials within a CS classroom will be explained.

### **1-Computer Science as a Discipline**

EST is a part of ESP. It is concerned with studying science matters. In Oxford Dictionary, science is defines as “knowledge about the structure and behavior of the natural and the physical world, based on facts that you can prove...”. This branch is based mainly on the study of mathematics, physics, engineering, and computer science.

Computer science is a dynamic field. It does not mean just programming; it goes beyond this thinking. It refers to Java understanding, the ability to adapt any new programming language and the capacity to practice problem solving. Computer science is a science that copes with the theoretical foundations of information and computation with reference to practical techniques for the implementation and application of these foundations. This science is based on studying the structure, mechanization and expression of algorithms, which are methodical processes for solving problems. (Denning et al, 1989)

Encyclopedia Computer Science and Technology emphasizes the role of different pioneers such as Alan Turing, J. Presper Eckert, and John Mauchly have been done great works concerning mathematics and engineering. By the 1960s, computer science as a discipline took place. By the late 1990s, more than 175 departments were supplying doctorate with almost a thousand Ph.D.s in computer science in America and

Canada. “The traditional computer science field emphasizes the theory of data representation, algorithms, and system architecture.” (Encyclopedia Computer Science and Technology). CS also is based on application; information systems management, database management, system administration, and web development.

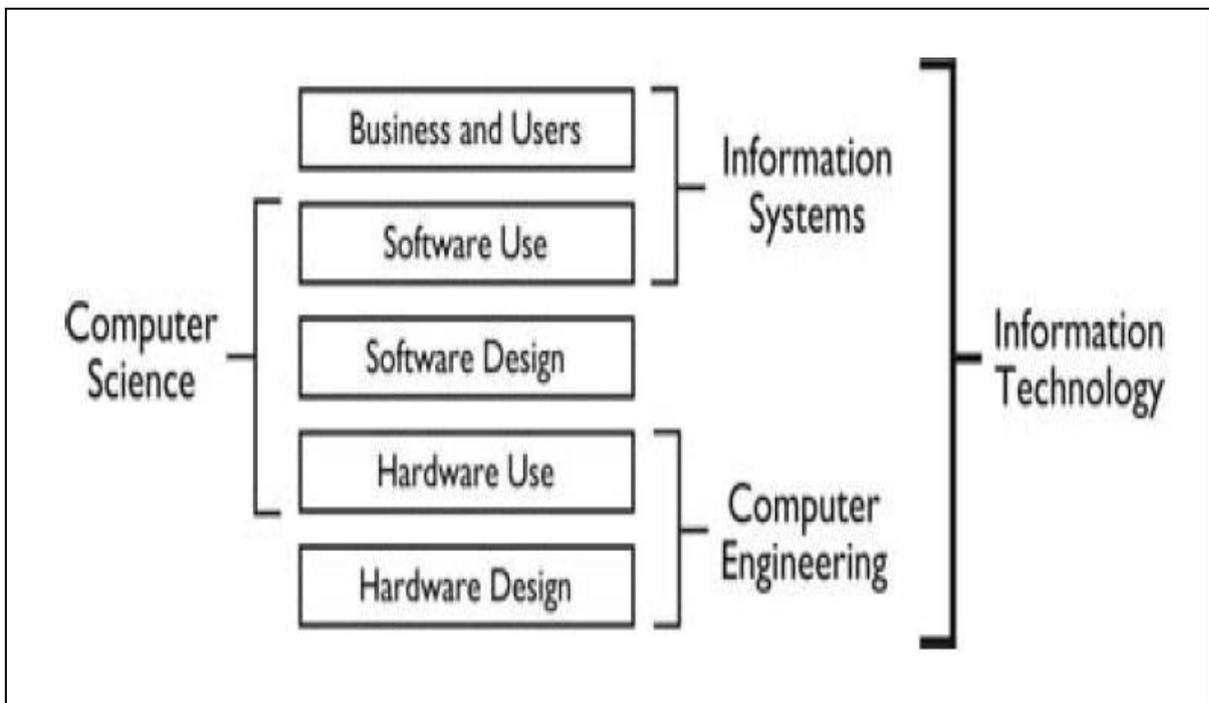
Denning (2005) points out that computer science as a field emerges in the 1950s. Its basic principles took place in the last four decades. Computational science, systems, engineering, and design can be subsumed under computer science as a field.

### **1-1 CS Definition**

Computer science as a field has emerged in the 1940s and is becoming a discipline in the last twenty years as Bell et al (2006) mentions. It grows as a discipline during time because of the rapid developments it has witnessed such as process, data structure, and timesharing. Bell et al (ibid) defines CS as “a rich subject concerned with what computers can and cannot do, how to approach problems, and how to make computers more valuable to their users.” (p.4). Computer scientists believe that computers are a crucial and necessary part all over the world and that during time, everybody will have several computers. As they explain the term computer science in terms of algorithm, effective process, program, procedure, and routine. It is a field that is not simply based on building computers or writing programs but it is more complex.

Denning et al (op.cit) say that “the discipline of computing is the systematic study of algorithmic processes that describe and transform information: their theory, analysis, design, efficiency, implementation, and application” (p.12). Computer science is a discipline that is based on understanding topics such as computer design, computer programming, information processing, algorithmic solutions of problems, and the algorithmic process. (Brookshear, 2012).

Denning (op.cit) pinpoints that computer science as a discipline studies the algorithmic processes systematically through giving a whole explanation about the theory, analysis, design, efficiency, implementation and application. He claims that “in 1989, we used the term ‘computing’ instead of ‘computer science, mathematics, and engineering’. Today, computing science, engineering, mathematics, art, and all their combinations are grouped under the heading ‘computer science’.” p.28. Computer science is related more to information process instead of computers’ use.



**Figure03: Computer science’ levels of abstraction (adapted from Spraul 2005)**

Spraul (2005) defines computer science as “a branch of science that studies computers” p.3. It is related to software use, software design, and hardware use. Accordingly, not all users of computers are computer scientists. In Encyclopedia Computer Science and Technology, computer science is defined as:

“Most generally, computer science is the study of methods for organizing and processing data in computers. The fundamental questions of concern to computer scientists range from foundations of theory to strategies for practical implementation.” (Spraul, *ibid*, p. 109)

CS is concerned with programs’ structures, operations, applications, tasks, design, programming language, data, mechanism, protocols, and organization works.

### **1-2 Main Areas in CS**

A computer scientist can be in different professions. Moreover, he can be a programmer, software engineer, systems’ analyst, system manager, network manager, researcher or teacher’s chief information. “Within the computer science field, scientists can work in many areas. Depending on the profession, some scientists may need to know a little about each area, while others may need deep knowledge of one or two areas.” (Spraul, *op.cit*, p.5).

Spraul (*ibid*) distinguishes between eight subject areas in computer science. First, artificial intelligence is based programming computers to make tasks that need intelligence when humans are doing them. The next area is theory of computation, in which we make boundaries on what can be

computed. Third, human computer interaction is based on understanding how people and people can work together. The fourth area is information management, in which we understand how to create, store, access, share, update, and secure database. The area which follows is computer graphics. It is related to images' generation through computers. The sixth is software engineering. It deals with facilitating the process of providing software. The following area is myths. It depends on the area of working. Moreover, some say that men are better suited to CS than women, another group says that CS is all about math, and others say that CS is for geniuses. The last are is concerned with computer security. It helps in finding ways that permit protecting data that exists in the computer from unauthorized access.

## **2-Computer Science within Educational Setting**

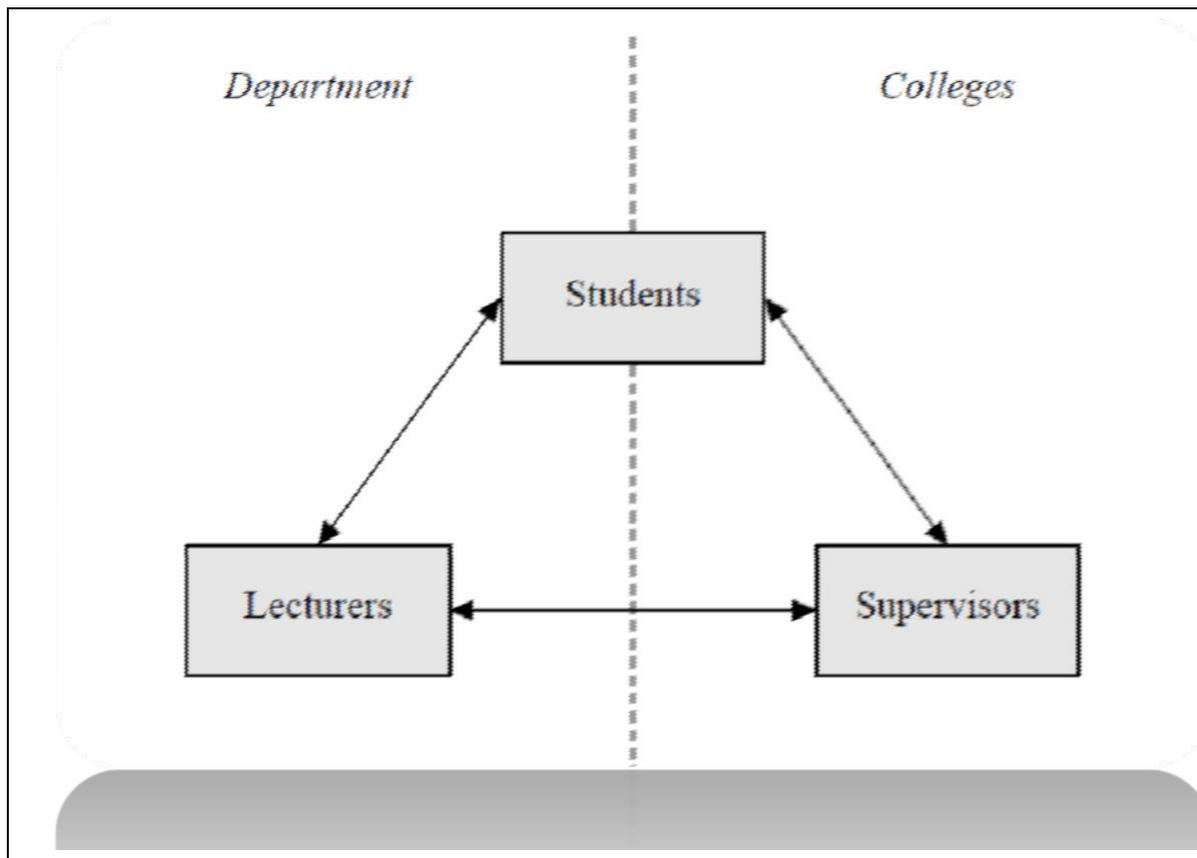
Computer is a secondary means of teaching that is used only for joy but nowadays it plays a vital role in the classroom. It may make learners be more active as it permits gaining more motivation. Distance education is helpful in getting new knowledge and skills without living the situation of traditional classes. CS is a STEM discipline; it studies science, technology, engineering and mathematics. (Spraul, ibid)

Ellis and Johnson (ibid) say that teaching ESP students is not the same as teaching General English (GE) ones. There is a huge difference between them when preparing the course, during presenting it and after doing so. Computer science within educational setting needs being related to learners' needs, assessed in a good way, goal- oriented, evaluated in an accurate way, and having fixed objectives and syllabus, restricted time, suitable materials selection, appropriate methodology use.

According to Tucker et al (1996), Education in computer science became an active act during the last 50 years. Moreover, in the mid 1960s, the first computer science departments emerges and a great attention is given to students' training. By 1968, a rapport was added to computer science curriculum.

### **2-1 CS Department**

Northeast (2008) maintains that in the process of learning and teaching, there is an interaction among three groups: students, lecturers and supervisions. Computer science department is responsible for the distribution of practical work system, the yearly teaching programme and an overview about the examinations. Lecturers after presenting their courses, they note them on a textbook that belongs to the administration. When trying to understand the relationship among the three groups, Northeast (2008) proposes the following diagram.



**Figure 04: Different Members of Teaching and Learning Process (adapted from Northeast 2008)**

Figure (04) shows that the department activity on the left, whereas the college activity on the right. This means that within computer science department, two elements are more active: the lecturers and the students.

## 2-2 Computing Science Classroom

An ESP classroom is the place where a teacher and a student or a group of students take place. It is not called so unless it respects some conditions. There must be a good relationship between those people in order to reach the ultimate aims of this process. Each of them has to play his role in an acceptable way. The ESP practitioner and learner are important elements within an ESP classroom. They can together make the process of teaching and learning more successful when they play their different roles in a good way. a good relationship between those people in order to reach the ultimate aims of this process. Each of them has to play his role in an acceptable way. The ESP practitioner and learner are important elements within an ESP classroom. They can together make the process of teaching and learning more successful when they play their different roles in a good way.

### **2-2-1 The Role of CS Practitioner**

As Dudely-Evans and ST John (op.cit) show, an ESP practitioner is a teacher; his role is to help students in learning. When teaching becomes more specific, the teacher would not be “the primary knower” and here is the role of learners so that more communication would occur. The teacher has to explain different situations and structures, try to make things easier for his students and provide one to one advice. A successful teacher is one that is flexible, willing to listen to his learners, being interested in what he is doing, thinking and responding according to the situation and taking risks whenever possible. An ESP practitioner is a course designer and materials provider.

According to Lapidot and Hazzan (2003), the CS teacher should learn how to plan lessons and deliver units of instruction, design lessons and learning activities, develop assessment strategies, and evaluate a personal plan for evaluating his own ways of teaching. He also should be knowledgeable enough about the programming process and concepts as well about how to develop and edit according to the lesson goals.

An ESP teacher is usually responsible for implementing the course and selecting the material. Sometimes, some materials cannot be appropriate for some situations. In this case, the teacher’s aim would modify or write a new material then assess them. The ESP practitioner is a researcher, especially in EAP. In order to implement a course, the teacher should look for the appropriate and well explained materials. He has also to observe situations and to understand the texts that students may use. The ESP teacher can also be a collaborator when he tries to integrate between language and specialist studies and activities. Also it is clear that ESP teacher sometimes work in teams and this is a kind of collaboration between the teachers of the same field. And of course, an ESP teacher is an evaluator for his students to check their understanding, the course to confirm their effectiveness and materials to see their appropriateness. The best way to do so is to use tests. He is the only responsible for preparing and dividing achievement tests. (Dudely-Evans and ST John, op.cit)

### **2-2-2 The Role of CS Students**

Computer scientists’ role is to study problems to know if they can be computed, compare algorithms to select the best solution, create programming knowledge and a special language to express these algorithms, design computer systems to develop research, and apply algorithms or some software systems. ESP students, as General English ones, have to follow, concentrate and generate in the classroom but when learning becomes more specific, it is then the learners’ role to provide support because they are, in most cases, more knowledgeable in their field and this is helpful to provide more communication within the ESP classroom. (Spraul, op.cit)

Certain characteristics are related to ESP learners. Harding (op.cit) classified two kinds of such learners. Some who have already work in their specialism and they have experience. So, it is easy to teach them since they are knowledgeable of most stages of learning. The others are pre-work learners. So, they have not enough knowledge about their specialism. The first category of learners has certain qualities. They have a further purpose; they need to achieve a specific purpose since they have a prior knowledge. They also need to achieve some practical and manual skills that are different from those of general English or any other language. Students may have different levels. That is why the teacher has to take into his consideration this variation and need to use some strategies and activities in order to do so. “The second (pre-work) category of ESP learners will demonstrate many of the same characteristics, but they will represent an even greater challenge to the teacher in that they have not yet developed knowledge or possibly even interest in their specialism.” (Harding, op.cit, p.9). This type of learners has some common characteristics but differ in some needs; they need to be motivated more than the others, not only for their studies but also towards their specialism itself.

### **2-3 Areas of interest within CS and Education (CS&E)**

In order to have successful topics within CS&E, Tucker et al (op.cit) suggests five areas: general curriculum issues, undergraduate education, graduate education, K- 12 education, and coordination within the education community.

#### **2-3-1 General Curriculum Issues**

Computer science continues its developments. There were new tools, techniques, and paradigms. Therefore, the curriculum became the main interest within computer science area. Up to date curriculum is the result of a host of changes in the discipline. In fact, CS institutions focused on improving mechanisms for sharing information and sources concerning curriculum so that to help people all over the world as there must be a reviewer to check the quality of such curricula. Taffe (1997) says that the curriculum is based on specifying items for learning and teaching process. He emphasizes the importance that “computers science students need strengthened communication skills, not only for enrichment, but also for professional.” (P.155)

#### **2-3-2 Undergraduate Education**

Since different institutions have different ideas and works, some were interested more in satisfying industry needs, others to arts and sciences. Thus, there is no common model for all institutions. Many problems faced undergraduate programs such as the differences between research and education, the impact of traditional programs and materials on novice courses, the lack of needs’ satisfaction of industry, the need to integrate practical issues in different levels of the curriculum, the difficult control of large classes, the need for accepting computer professionals as workable individuals, the need for teaching methods, lab materials, and technologies developments, the need for a curriculum that integrates between computer science and other

disciplines, and the lack of strong courses and needs' satisfaction for nonmajors. (Tucker et al, op.cit)

### **2-3-3 Graduate Education**

This kind of education is related to Ph.D. granted institutions. It insists on the importance of being productive when researching. Like undergraduate curriculum, graduate one is changeable in order to permit more improvements. These changes may lead to many challenges such as transferring the interest from academic to industrial, getting ready for teaching and training, and increasing MS degrees in computing in order to satisfy the industry demands. (Tucker et al, ibid)

### **2-3-4 K-12 Education**

K-12 education is related to primary and secondary school levels of CS&E. they may also benefit undergraduate ones. The problems in this level are that there is no coherent curriculum, no techniques for the new technology, lack of connectivity between the levels of learning. (Tucker et al, ibid)

### **2-3-5 Coordination within the Education Community**

Different communities exist such as AACE; advancement of computing in education, ACM; education broad, etc. though most interests of such communities are common but they have no contact in most times. The emergence of a SC&E education center is the result of trying to communicate between different communities and then to emphasize the strength presence of computer science. (Tucker et al, ibid)

## **2-4 CS Activities**

Activities are a very useful means in language teaching. They are of different forms: reading, listening, speaking and writing. Each specialty is based on some skills according to students' needs and the form of the current lesson. What has been noticed within second year CS classroom is the emphasize on teaching speaking and writing more than other skills. Photocopied games and activities are very useful for teaching and revising vocabulary content and grammar rules within computer science classroom in which students are given texts or pictures and they are asked to summarize, analyze or synthesize.

### **2-4-1 Definition of Activities**

Activities are the exercises that one practices in order to achieve a specific aim or various ones. In Oxford dictionary, an activity is defines as “a thing that you do for interest or pleasure, or in order to achieve a particular aim”. Activities are a means of joy as well as of teaching and learning. An activity is “... a general term for any classroom procedure that requires students to use and practice their available language recourses.” (Longman Dictionary Language Teaching and Applied Linguistics). Activities are the practical contribution of theoretical lessons. It would be

better to use them and change the type of activities from time to time in order to motivate students.

Kennedy and Bolitho (ibid) explain the role of activities for ESP learners, especially those studying EST. they emphasize the presence of coherence in such activities

Some adult ESP students do not experience too many problems with coherence as there is classroom evidence to suggest that the ability to organize writing coherently is largely transferable from the mother tongue. Conversely, an absence of this ability in English in an adult student is bad news for the ESP teacher as it may signal lack of practice in writing coherently in any language.p. 86-87.

Though activities preparation or selection need more work for teachers but it is worth using them. They make the learning process seems easier and more active as they help in making the students' involvements more obvious. So, the use of activities would highly improve students' retention. Activities add variety to range of learning situations, maintain motivation, refresh learners during formal learning, encourage students' interest, help in making teacher-student distance less marginal, provide more student- student communication, and can act as a testing mechanism.

CS activities are divided into six topics; data (representing information), putting computers to work (algorithms), telling computers what to do (representing procedures), really hard problems (intractability), sharing secrets and fighting crime (cryptography), and the human face of computing (interacting with computers)" (Bell et al, 1998, p.2).

#### **2-4-2 Role of CS Activities**

The use of CS activities should help in making the lesson prepared and well organized. Moreover, the teacher has to confirm the presence of all available facilities. Teachers must confirm that activities are simple and can provide the instructions that are intended to do. Philips (op.cit, 3) emphasizes that "the activities should be simple enough to understand what is expected of them". Good timing is another condition that must be respected. Students must given enough time to do the activities and all factors must be taken into account as he is allowed to change timing during the activity.

#### **2-4-3 Activities Ogranization**

Within the CS classroom, the teacher is not responsible only for selecting and adapting activities but also for grouping the students when making activities. Proper grouping can influence the achievement of the activity. In fact, the same type of activity can be successfully done using different groupings. Four crucial groupings might be useful when applying written activities: individuals, pairs, groups or the whole class work. The choice of such groupings depends on the personality of the teacher, the type of the activity and the relationship between teacher and learners (Ur, 1981)

### **2-4-3-1 Individual Work**

Individual work is more useful for traditional lessons but some activities require such grouping. Using this way may help students learn how to rely on themselves; they rely on their knowledge and abilities and become responsible for their own work. There will be also winners and losers so that there will be a sense of competition and motivation. But they will not be able to communicate that is why it would be better to start activities using this type of grouping but change it later on. (Ur, *ibid*)

### **2-4-3-2 Pair Work**

Ur (*ibid*) says that pair work is the most commonly used type of grouping. It occurs when two learners are together to make the same work. Pair work helps in making students learn from each other. It is very helpful to use this grouping, especially when intending to allow learners to cooperate through sharing their knowledge and respecting each other in order to reach their goals, but it is difficult for the teacher to control them. Being successful in pair work may make students happy but when failing, they may blame one another.

### **2-4-3-3 Group Work**

Groups consist of three learners or more. The number is not limited but Philips (*ibid*) emphasizes that the number of one group should not be higher than 5 persons. If more, they will not be productive. Ur (*ibid*: 7) maintains that “the chance for students who are shy of saying something in front of the whole class, or to the teacher”. So, learners would be more confident about themselves and about their capacities. In order to control different groups, the teacher would not talk with all students but with the leader of each group. Wright et al (1979) say that “The leader’s role is to ensure that the game or activity is properly organized and to act as an intermediary between learners and the teacher”. (p.5)

### **2-4-3-4 Whole Class Work**

Whole class work is a useful for learners when the teacher plays the role of a monitor. Using this grouping permits more communication among classmates in order to correct each others’ mistakes and confront different opinions. It is a very useful way when intending to have cooperated and responsible learners. (Ur, *op.cit*)

## **2-5 The Importance of Using the Computer within CS Classroom**

According to Spraul (*op.cit*), the computer is a means of using logical and mathematical operations that are based on programs. Computers play a great role in modern life and it seems impossible to pass a day without using them. During time, the benefits of computer and internet is increasing and all became interested in studying about computers.

Computers are available everywhere and they are useful for all people, whatever their place, age, sex, social class, society, culture, etc. It is useful to use them because they are accurate, fast and can accomplish many tasks easily. In the nineteenth, it was difficult to use a computer that is why it was useful only by the government and the army, but nowadays, a computer can be used everywhere and by everyone.

Spraul (op.cit) mentions that the term “computer” appears in the 19<sup>th</sup> century. Then a great revolution concerning mechanical tabulating machines and calculators began at the late of the 19<sup>th</sup> century and the beginning of the 20<sup>th</sup> century. Many works have been contributed but they failed. But since 1940s, valuable works have been done. Computers became a crucial part in human’s life. They are very useful to help in businesses and at home, communication and networks, entertaining, and even in teaching.

Taffe (op.cit) insists on the importance of using laboratories in order to facilitate the use of experiments and reports. Bell et al (op.cit) say that not all CS activities entail the use of computer. The use of computers within CS classroom provide concrete and helpful use to apply design, implementation, and testing practical software and hardware. They are also helpful in motivating learners to learn and understand more as they introduce experimental methods.in other words, they permit moving from theoretical issues to practical ones. (Denning et al, op.cit).

## **2-6 CS Curriculum**

The curriculum is the official program that the teacher should follow in order to satisfy students needs and improve their level. Lapidot and Hazzan (op.cit) say that the main elements that CS students should learn are: software engineering, database and web programming, computer network and security, distributed systems, machine intelligence, bioinformatics, and computer graphics and multimedia.

The aim of the curriculum is to provide the answers of different elements; the need to explain the degree to which the teachers are educated and to explain to what extent are different from other ESP learners, to provide appropriate ESP materials selection, to reveal the types of needed activities that suit the preparation of future CS teachers and workers, and to supply useful ways of assessment. Denning et al (op.cit) pinpoints that “the curriculum should be designed to develop an appreciation for learning with graduates will carry with them throughout their careers.” (p.13)

## **2-7 CS Lectures**

Implementing a plan is the process of carrying out the lesson in the classroom. It is the guide of the teacher when presenting the lecture. It is a very crucial task to be done before presenting the lecture because it would be very helpful for teaching/ learning process. Lapidot and Hazzan (op.cit) point out that courses are used to “emphasize curriculum issues, address topics such as learning

theory and instructional strategies of science curricula, special aspects of laboratory instruction and other investigative methods, professional ethics in science instruction, and the place of science and education.” (p.30)

### **2-7-1 CS Lesson Planning**

A lesson planning is a written work prepared by the teacher in order to provide a whole description about the ways that he uses when intending to attain particular objectives and about the interactions that may occur during the class session. Farrell (2002) maintains that “lesson plans are systematic records of a teacher’s thoughts about what will be covered during a lesson” (P.31). An appropriate lesson planning is the one that takes into account the time division and expected actions. Planning the lesson makes the teacher feels more confident and more knowledgeable about the subject matter. Moreover, it makes his work more organized. Implementing a lesson plan make students feel more satisfied.

### **2-7-2 Approaches to CS Lesson Planning**

Teaching anything does really need an approach to follow. Farell (ibid) proposes two approaches for teaching. The first one is Tyler’s rational-linear framework. It is an approach for teaching; it is considered as the most significant model. Tyler proposed this model after many years of research and studies on a sample of teachers. The results show that teachers focus on learners’ needs. In other words, the teacher should base his plan on four steps: specify objectives, select learning activities, and specify methods of evaluation. The second one is Yinger model. It consists of three stages: the description of the teacher’s aims, purposes, information, and attributes; the formulation of problems and fulfillment of solutions; and the implementation then the evaluation of the plan.

### **2-7-3 How to Plan a CS Lesson**

A lesson plan is not something that is done randomly; it consists of five phases. The first stage is “the opening” which is considered as the starting point of the lesson and in which the teacher asks some questions as a review to the previous lesson. The next phase is “stimulation”. Within this stage, the teacher’s role is to help students in thinking about the current activities through getting their attention by using authentic acts and pictures. The third phase is “instruction/participation”, in which the teacher uses pair work or group work. The next phase is “closure” where the teacher asks his students about what they have understood at the end of the class session. The “follow up” phase is regarded as the ultimate one in which the teacher provides useful activities in order to make students work outside the classroom so that to improve students’ level. (Esteras, 1999).

Bell et al (op.cit) point out that the lesson plan should begin with a summary of the needed

materials, students' age and background knowledge, and time indication. They classify the components of the plan into eight related sections; focus section (mentions the intended key skills to be developed), summary section (provides a background to the plan), list of subtechnical terms (supplies the used jargon), what to do section (mentions the helpful tools of teaching that lesson), variations and extensions (contains the alternatives of ideas to present the lecture), what is all about (provides knowledge about the whole lecture), and further reading (includes the references about the topic for more research)

## **2-8 How to Select ESP Materials for a CS class**

Taffe (op.cit) claims that materials within computer science are intended to develop facility with the specialized language of the discipline, explain the results of the study, help in classifying fuzzy ideas. CS students learn through getting articles selected by teachers, then are asked to read then summarize them. This may help them improve their organizational ideas from the original one. "In addition to specialized language and organizational skills, students learn to combine text and graphics to explain their results." (Taffe, op.cit, p.157) When teaching CS students, a variation of materials are needed; questionnaires and dairies, formal specification, project correspondences, system documentation, requests for proposals or quotations, the final report and standards for the analysis process. Thus, courses entail appropriate selection and preparation of technical materials.

Teaching within a CS classroom using inappropriate ESP materials may leave a negative impact on their learning and level. Thus, ESP materials for CS students should not be selected randomly but should be based on specific criteria. Appropriate materials selection within a CS classroom depends on the presence of specific criteria such as: the use of interesting and varied activities, enough authentic language, good explanation of grammar rules, integration of skills, enough educational and cultural knowledge, appropriateness of target language, related to the objectives of the programme and learners' need.

Hedge (2000) pinpoints that there are five criteria for materials selection for CS students: accuracy, appropriacy, range, variety, flexibility, and size. The first criterion is accuracy. Being accurate in means of both grammar and lexis means being clear and exact as possible as they can. Teachers must select what they expect that their students may understand. The following criterion is appropriacy where teachers must select what is suitable in terms of function, intention and context; they must select the clearer ones. An important one is range. Moreover, there must be a variety of materials. In fact, using the same type of materials all the time is not efficient and limitations must be taken into account. Another criterion is flexibility. Being flexible means to be changeable in order to suit new conditions or situations and to prepare them for communication. In other words, "There must be consistent evidence of the ability to 'turn-take' in a conversation and to adapt to

new topics or changes of direction” (Hedge, *ibid*, p.260). The last criterion is size. Since time is limited within ESP classrooms, teachers should use short texts, whereas long ones are used only if necessary.

### **Conclusion**

Teaching computer science is a part of English for science and technology. The computer is considered as a part of our life that one cannot do his work without using it. However, one cannot teach computer science students unless he specifies their needs and interests. Computer science department is the place where the meeting between teachers and students occurs. Both have specific roles to play when intending to reach good results. English as a foreign language, whether teaching grammar or vocabulary, should not be taught in a haphazard way. This means that teachers should follow a lesson plan to facilitate the process of transferring information to learners, so they can develop their grammatical items and vocabulary terms in an appropriate way.

## **Chapter Three : Practical Part**

### Introduction

1. The Sample of Study
2. Method
3. Means of Research
4. Teachers' Questionnaire
  - 4.1. Description of the Questionnaire
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5. Students Questionnaire
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### Conclusion

## **Introduction**

In order to collect data about ESP materials selection, a questionnaire has been administrated to two different groups of people; teachers and students. This study aims at checking the students' satisfaction with the teachers' choice of materials then evaluating the teachers' attitudes towards the available and utilized materials within their classrooms. For this purpose, the analysis of the students' and teachers' thoughts would help us to get insights about the matter.

This chapter is devoted to analyzing and interpreting data in order to confirm or refute the proposed hypothesis; appropriate ESP materials selection may enhance first year computer science students' level of comprehension and motivation at Mostaganem University.

### **1-The Sample of Study**

A sample of thirty (30) of students from computer science department is selected randomly in order to conduct this research. Age, sex and level of learners are not taken into account. As we have questioned two (02) teachers from the same department so that to obtain considerable information. In that sense, thirty students are selected because this number represents the half of the number of the whole class. Concerning teachers, there are only two teachers who teach ESP within CS department.

### **2- Method**

The chosen methods for conducting this study is descriptive and correlational. Moreover, it is descriptive because it describes the obtained results as it is correlational because it studies the relationship between ESP materials selection and students' level and their needs' satisfaction.

### **3- Means of Research**

The use of questionnaire is opted for as the source of getting data because of its facility to obtain quantitative and qualitative data. In other words, they permit getting a large amount of data in a short time. The results would be very helpful in reaching the ultimate aims of the study.

### **4- Teachers' Questionnaire**

The teachers' questionnaire was administrated to two teachers since the number of ESP teachers is too limited. Teachers were helpful and provide us with all the needed information for our study. One of them was English student then became computer science one, whereas the second one is a CS teacher but because of his acceptable level in English, he is allowed to teach English module for CS students.

Teachers' questionnaire is designed to confirm the theoretical part. The questionnaire includes eleven questions; some are open ended, whereas others are close- ended. The latter ones aim at

ticking the suitable answer, whereas the open ended ones aim at identifying the reasons for selecting an option rather than the others.

#### 4-1 Description of the Questionnaire

The teachers' questionnaire is designed to draw insights about ESP materials for computer science students and teachers' ideas about their teaching ways. The obtained results would be very helpful for getting valuable data about ESP materials selection. The questionnaire is composed of sixteen questions and divided into four sections as shown below.

Section One (Q1 – Q2) aims at exploring how the teacher encourages his students and know whether students' problems are taken into consideration or not.

Section Two (Q3 – Q10) aims at giving detailed information about the ESP materials that are used within the computer science and how are they selected by the teacher in order to reach the ultimate aims of the process of teaching and learning.

Section Three (Q11– Q16) is a space opted for teachers to comment and give their opinions as they like about the subject area.

#### 4-2 Analysis of the Questionnaire Section One: Teachers' guidance of students

**Q01:** As a teacher of English, do you encourage your students to learn by their own?

Option	N	(%)
Yes	2	100
No	0	0
Total	2	100

**Table01: Teachers' Encouragement**

Table (01) shows that students are highly encouraged (100%) by their teachers. They are given home work, advice, activities, and facilities in order to motivate them to study.

**Q02:** Do you talk with your students about their learning problems?

Option	N	(%)
Yes	1	50
No	1	5
Total	2	100

**Table02: Teachers' Discussion of Students' Problems**

The results in table (02) reveal that one of the respondents (50%) discusses the problems of their students within the classroom. Thus, knowing the needs and problems of students is worth looking at in order to overcome them and have a developed classroom. Also, students will be more confident and feel happier. But the other(50) see that discussing such matters within the classroom is a waste of time.

## Section Two: ESP materials selection

**Q03:** Do the available materials integrate the four skills in a balanced way?

Option	N	(%)
Yes	0	0
No	2	100
Total	2	100

**Table03: Materials and Language Skills**

Table (03) shows that the available materials do not include integrated activities. All respondents (100%) claim that it is difficult to find ESP materials that include two language skills or more.

**Q04:** Do you think that your way of selecting materials has an impact on students' learning?

Option	N	(%)
Yes	2	100
No	0	0
Total	2	100

**Table04: ESP Materials Selection' Impact on Students' Learning**

Table (04) reveals that ESP materials selection plays a crucial role on students' learning. All respondents (100%) choose the same answer. They emphasize the importance of selecting ESP materials in order to improve the level of their students. The way of selecting materials has a big impact on transferring data from the teacher to students. Using appropriate materials permit easier transfer of data, whereas using ESP materials that are selected randomly may disturb both teachers and learners.

**Q05:** Are the available materials sufficient?

Option	N	(%)
Yes	1	50
No	1	50
Total	2	100

**Table05: the Availability of ESP Materials**

The results in table (05) show that the available ESP materials are not sufficient and enough to satisfy students' needs. Thus, teachers are suffering when selecting from what is available. The lack of references may hinder teachers' work and discourage them when selecting. They also may feel anxious towards what they need exactly when having no variations or options.

**Q06:** to what extent can efficiency of ESP materials have an impact on your teaching?

Option	N	(%)
Very much	1	50
average	1	50
little	0	0
Total	2	100

**Table06: The Impact of Efficiency on ESP Materials**

The results in table (06) shows that the half of teachers (50%) emphasize the importance of having efficient ESP materials, whereas (50%) from them see that having efficient ESP materials do not influence the process of teaching.

**Q7:** Do you use the same material for different classes?

Option	N	(%)
Often	0	0
Sometimes	1	50
Rarely	0	0
Never	1	50
Total	2	100

**Table07: The Use of the Same ESP Material for Different Classes**

Table (08) reveals different choices of the different teachers. The first one (50%) said that he sometimes uses the same material for different classes. The second (50%) pinpointed that he never use the same material for different classes. Students are different in age, level, background knowledge, and needs. These variations affect the selection of materials. Therefore, what fits one group may not fit the others.

**Q8:** In your opinion, does the use of authentic materials help more in developing students' skills?

Option	N	(%)
Often	0	0
Sometimes	1	50
Rarely	1	50
Never	0	0
Total	2	100

**Table08: The Use of Authentic Materials**

Table (08) shows that one teacher (50%) is interested in using authentic materials most of the time because of his usefulness in helping students improve their level in a good way. He helps in teaching students the native language as he allows more explanations from real situations. Another teacher (50%) said that he rarely uses authentic materials because he thinks that they contain difficult language; he prefers to adopt on his own.

**Q09:** Do you think that teaching within a computer science classroom entails appropriate materials selection?

Option	N	(%)
Yes	2	100
No	0	0
Total	2	100

**Table09: Appropriate ESP Materials Selection**

Table (09) reveals that all the respondents (100%) said that computer science materials entails appropriate selection because computer science discipline requires specific vocabulary items' knowledge and correct grammar rules. The selected materials should show the presence of both

items. The computer science classroom should be well prepared and computer science lessons should be well planned.

**Q10:** You select your ESP materials according to:

Option	N	(%)
Specific criteria	2	100
Randomly	0	0
Total	2	100

**Table10: ESP Materials Selection' Criteria**

The results in table (10) reveal that all teachers (100%) select ESP materials according to specific criteria. The first one said that he selects materials according to students' needs. The second teacher pinpointed that he selected ESP materials according to the appropriacy and the students' needs.

**Q11:** Which do you prefer more?

Option	N	(%)
Educational materials	2	100
games and motivational materials	0	0
Total	2	100

**Table11: Teachers' Preferences of Materials**

The results in table (11) show that teachers (100%) are interested more in using educational materials. Though educational materials may contain more information, but games and motivational materials are very needed because of their influence on students' motivation and the sense of humour that they add within the classroom.

**Q12:** Do you use up to date materials?

Option	N	(%)
Often	0	0
Sometimes	0	0
Rarely	2	100
Never	0	0
Total	2	100

**Table12: Updated Materials**

The presence of up to date materials is limited in our country even when surfing the net. This problem may disturb teachers because they cannot follow what is novice. Thus, teachers (100%) maintained that they rarely use up to date materials. The use of such materials allows knowledge about more developments and technologies, especially when facing them in front of the computer outside the classroom.

**Q13:** Do you evaluate materials?

Option	N	(%)
Yes	1	50
No	1	50
Total	2	100

**Table13: ESP Materials Evaluation**

Table (13) reveals that the half of teachers (50) evaluate their materials. The evaluation of materials is a good way to improve ESP materials selection as they help in overcoming different problems. Teacher (01) said that evaluation occurs through continuous testing, whereas teacher (02) claimed that evaluation is done through observation

**Q14:** Specify the importance of the criteria when selecting materials according to the following degrees: totally important (TI), very important (VI), fairly important (FI), average (A), or not important (NI)

Option	Teacher 1	Teacher 2
Interesting activities	TI	VI
Variation of activities	TI	VI
Enough authentic language	A	FI
Good explanation of grammar rules	VI	A
Integration of skills	A	VI
Enough educational and cultural knowledge	VI	VI
Appropriateness of target language	NI	A
Related to the objectives of the Programme and learners' needs satisfaction	TI	TI

**Table14: Rating Materials Selecting Criteria**

Table (14) shows that teachers have different views when selecting materials. What has been

remarked from the results is that all insists that the selected materials should be based on the relation to the objectives of the programme and learners' needs satisfaction. What seems also important from teachers' answers is the presence of interesting activities so that to keep learners motivated; also, variation of activities so that to learn different types of activities.

**Q15:** When selecting materials, which factors do you take into account (you may opt for more than one answer).

Option	N	(%)
Time constraints	0	0
Learners' age, sex, and background knowledge	0	0
Availability of ESP materials	0	0
Administrative facilities	0	0
All	2	100
None	0	0

**Table15: Factors Influencing ESP Materials Selection**

The results in table (15) show that time constraints; students' age, sex, and background knowledge; availability of materials; and administrative facilities are worth taking into account when selecting materials. All respondents (100%) insist on respecting such factors in order to be appropriate.

### Section Three: Comments and Suggestions

**Q16:** Would you please add any details about ESP materials selection?

Teacher	Suggestions
01	The need for special training of ESP materials selection and having small classes
02	The need for criteria of ESP materials evaluation

**Table16: Teachers' Suggestions**

Teachers suggested different views and comments. The first teacher emphasizes the importance of having special training to select appropriate ESP materials would use different activities. He also suggests having small classrooms so that they can teach them better. The second teacher maintained that evaluating skills is difficult to be followed when testing materials that is

why he insisted the need for having specific criteria when assessing.

### **4-3 Findings and Discussion**

The first section is based on exploring the teacher's scaffolding and guidance and students' problems discussion. It shows that the half of teachers (50%) consider that role as an important task because he sees that doing so may facilitate learning and enhance their understanding so that he discusses his students' struggles in order to provide helpfulness. Moreover, discussing students' problems may help them in being more confident and aware of what is happening inside and outside the classroom.

The analysis in section two which is devoted to ESP materials reveals a consensus among teachers about the importance of selecting appropriate ESP materials for computer science classes. All teachers agree that ESP materials selection have a big impact on learners' performance since they may develop students' abilities. Also, the findings show that the half of teachers (50%) sees that the use of authentic materials is useful because he teaches the language that can be used in real life situations. Integrated skills' materials, materials validity, materials' efficiency, materials' variability, materials' appropriateness, educational materials, and up dated materials are the key elements of ESP materials selection. In addition, evaluating ESP materials is a task worth being done in order to know what is weak to strengthen it and what is strong to use it. All teachers emphasize the importance of taking into account specific criteria: time constraints; learners' age, sex, and background knowledge; availability of ESP materials; and administrative facilities.

The last question which presents section (03) is a space opted for teachers to comment and give their opinions about the subject area. The need for special training of ESP materials selection, small classes, criteria for ESP materials evaluation, and more references in order to enhance the process of teaching within a computer science classroom.

### **5- Students' Questionnaire**

A questionnaire was administrated to first year computer science students. Sometimes, it was difficult for them to understand some questions as they faced some problems in expressing their ideas when they were given the chance. However, they were very happy to answer and were very helpful. The aim behind this questionnaire is to collect data about students' opinions of the selected ESP materials.

#### **5-1 Description of the Questionnaire**

Since the aim of this study is to raise the students' awareness about what they are learning using suitable ESP materials, it seems appropriate to direct a students' questionnaire to investigate this issue. The questionnaire is presented in the form of questions and the main objective behind it is to verify the research hypothesis. The present questionnaire contains nine questions and it is divided into three sections as explained bellow.

Section one (Q1 - Q2) aims at gathering general information about students' learning. This section highlights whether students get scaffolding from their teachers to learn for their own.

Section two (Q3 – Q15) seeks to get an idea about the materials that the teachers use, know their opinions and comments about the selection, maintain their needs and preferences.

Section three (Q16) is a space devoted to students to comment and give their opinions about the subject area.

## 5-2 Analysis of the Questionnaire Section One: Students' Learning

**Q01:** As an ESP learner, do you study on your own?

Option	Numbers (N)	Proportions (%)
Yes	13	31,70
No	17	68,30
Total	30	100

**Table 17: Students' Autonomy**

Table (17) shows that most students (68,30%) do not study on their own and only (31,70%) do not do so. Since students do not master English, they seem to feel conscious concerning learning English alone. However, they always need scaffolding and encouragement from their teachers, especially since their language of specialty contains sub-technical vocabulary.

**Q02:** Do you get scaffolding and encouragement from your teacher to study?

Option	N	(%)
Often	5	17,07
Sometimes	15	46,34
Rarely	8	29,27
Never	2	7,32
Total	30	100

**Table18: Teachers' Encouragement**

Table (18) reveals that almost the half of the respondents (46,34%) said that their teachers sometimes encourage them to learn as they help them in order to reach the ultimate aims of learning. (29,27%) pinpointed that they rarely get encouragement from their teachers. (17,07%) said often and (7,32%) answered never. Helping students is the main objective of any teacher and everywhere. Computer science students, as all ESP ones, need scaffolding more than general ones because of the difficulties when learning both grammar and vocabulary.

## **Section Two: Students' Opinions about ESP Materials**

**Q03:** Do the selected ESP materials teach you the language you can use in current real situations?

Option	N	(%)
Yes	2	9,76
No	28	90,24
Total	30	100

**Table19: Students and Materials Selection**

The majority of students (90,24%) pinpointed that the ESP materials selection does not serve their wants in their real life, whereas (9,76%) said yes as shown in table (19). In other words, the majority said that they study ESP just for the sake of getting marks and succeed in their studies since what they study inside the classroom does not fit their real life situations.

**Q04:** Do the selected ESP materials satisfy your needs for future job?

Option	N	(%)
Often	2	7,32
Sometimes	10	34,14
Rarely	13	43,90
Never	5	14,64
Total	30	100

**Table20: Students and Materials Satisfaction**

Table (20) explains that needs differ from one student to another. Since they have the same teacher but they have different opinions about the satisfaction of their needs. Hence, it depends on what they want to be in the future. Some are interested in teaching, others want to work in companies, another category wants to work for themselves, etc. These variations of aims lead to the differentiation in terms of needs' satisfaction. Moreover, a large number from the respondents (43,90%) said that the selected materials are rarely suitable for them, others (34,14%) said that they sometimes reach their ultimate aims, few (14,64%) told us that their needs have never been satisfied, and others (7,32%) claims that their objectives are often reached using the selected materials.

**Q05:** In your opinion, to what extent can the use of ESP authentic materials help in developing your language skills and level of comprehension?

Option	N	(%)
Often	5	19,51
Sometimes	13	36,59
Rarely	1	9,75
Never	11	34,15
Total	30	100

**Table21: Students and Authentic Materials**

Different opinions were obtained when asking second year computer science students about their benefits from the use of authentic ESP materials. Table (21) shows that the highest rate of results is between never (34,15%) and sometimes (36,59%); whereas few ones were insisting on rarely (9,75%) and often (19,51%).

The difference between the answers of the respondents that study at the same class and have

the same teacher depends also on their needs. Those who said that using authentic ESP materials is more helpful said that the use of natural language is more helpful in learning any language, whereas the others prefer to learn with simplified language and claimed that the teacher knows their needs more than the authentic materials.

**Q06:** Do you think that the selected materials have an impact on your learning?

Option	N	(%)
Yes	28	95,12
No	2	4,88
Total	30	100

**Table22: the Impact of ESP Materials on Students' Learning**

Almost all students (95,12) emphasize the importance of selecting appropriate materials in order to be good learners. They correlate between appropriate materials selection and having good levels of comprehension. As a result, materials should be well selected in order to satisfy the classroom needs. Few from the sample said that whatever the material is, the teacher is the only one who is responsible for having a good level and even when the teacher selects a difficult or irrelevant material, his way of explaining and facilitating is solely influenced by the process of learning.

**Q07:** Do you select the materials for your own?

Option	N	(%)
Yes	8	21,96
No	22	78,04
Total	30	100

**Table23: Students' own Selection of Materials**

Since students are not allowed to select the materials on their own within the ESP classroom, they are given the opportunity to do so outside. The majority (78,04%) of students said that they read only what the teacher gives to them; they do not look for other ESP materials in order to satisfy their needs and improve their levels. Some of the respondents (21,96%) from the sample do not see the given ones superfluous, thus, they select materials for themselves on their own.

**Q08:** Which do you prefer more?

Option	N	(%)
Educational materials	1	2,44
Games and motivational materials	29	97,56
Total	30	100

**Table24: Students' Preferences towards Materials**

The results in table (24) shows heavily the importance of using games and motivational materials within a computer science classroom (97,56%) . Therefore, in order to improve students' levels, teachers should be aware and efficient enough to use different types of games so that to motivate students, facilitate learning, and making a sense of humor within the computer science classroom. Only one of the respondent (2,44%) opted for educational materials because he sees games a waste of time.

### **Section Three: Comments and Suggestions**

**Q09:** If you would like to add anything about this subject, please write it below

Students' suggestions	N	(%)
The need for more ESP lectures and time	6	35,30
The need for special sessions to learn listening strategies	2	11,76
The need for learning how to select materials	1	5,88
The need to cease the use of data show and the need to use laboratories and apply on computers	7	41,18
The need for learning in small groups	1	5,88
Total	17	100

**Table25: Students' suggestions and comments**

17 out of 30 students filled in the blank. The others gave us no comments. From the students that answered the last question, more than the half of the respondent (52,94) suggest to use the computer to practise what they studied instead of using data show all the time because it makes them get bored as they do not understand. Some (35,30%) said that time is not sufficient and they need more sessions. Few (11,76%) need more lectures to improve their listening strategies and

(5,88%) opt for the need to learn materials selection criteria. (5,88%) pinpointed that the number of students is too large and it is difficult to learn in a good way that is why the need for small classes becomes a necessity.

### **5-3 Findings and Discussion**

The results obtained from the section one; students' learning, reveal that (68,30%) of the learners believe do not study on their own but learns only what is included in the lesson at the classroom. (46,34%) from the respondents claimed that they think that they are sometimes getting encouragement from their teachers, whereas only (07,32) said that they never do.

Section Two deals with ESP materials selection. The majority of respondents (90,24%) said that the selected materials do not serve their current needs. Many from the respondents (43,90%) maintained that the selected materials rarely satisfy their future job needs, whereas only (7,32) agreed that the selected ESP materials are helpful. Most students (95,12%) pinpointed that ESP materials have an impact on their learning because of the great role that they play inside and outside the classroom. (78,04) from the respondents claimed that they do not select materials for their own but rely solely on what is given by their teachers and that (97, 56%) prefer games and motivational materials.

The last section is devoted to students' suggestions and comments. The need for more ESP lectures and time, special sessions to learn listening strategies and selecting materials, cease data show and use laboratories, and learning within small groups.

### **Conclusion**

The results from the practical part show heavily the importance of ESP materials for first year computer science students. They emphasize the importance of appropriate ESP materials in improving their students' levels.

The need for motivating activities became the aim of students as they insist on satisfying their current and future needs. Teachers on their own have to select what is valuable from what is available in order to serve the ultimate aims of teaching and learning process as they have to include what they think that may motivate their students and improve their level of learning and comprehension. Up to date materials and having variable types of materials are very useful within an ESP classroom.

### **General Conclusion**

ESP has been emerged to help learners of different branches such as economics, computer

science, biology, medicine and others in learning in an easier way through facilitating the ways of teaching. Thus, teachers became more aware of ESP lectures after the developments that are taking place everywhere all the time and that would be very helpful to enhance the level of ESP classroom.

Computer science students, as most ESP ones, have specific needs to be achieved according to what they want to be in future. These variations of future work have a big impact on their learning that is why computer science teachers should be aware of these needs and differences. A computer science teacher is the person who is mainly responsible for the success of his classroom. He has to guide, prepare lessons, select materials, present lectures, make tests, evaluate, etc. However, the aim of the present study is to highlight the importance of selecting appropriate ESP materials for computer science students.

Selecting materials is a task worth being done by the teacher because of its big impact on students' level. The more appropriate the material is, the learning and teaching processes become easier. Selecting materials is not done randomly but a task that requires following specific criteria: accuracy, appropriacy, range, flexibility and size. Through following such criteria, the use of ESP materials would benefit students a lot but what has been noticed is that computer science students are interested in motivational materials which are credible, attractive and up to date materials. Also, the use of authentic materials sometimes is very helpful, especially when intending to show students the real language and cultural aspects.

The evaluation of ESP materials is worth being done continually in order to overcome different problems and improve the selection tasks. It occurs when checking the value of different elements. The role of English; resources and administrative constraints; the learners' age, level, background knowledge and needs; and the linguistic aspects of the classroom should be taken into account when selecting ESP materials. In fact, students' needs satisfaction is the main objective of the teacher that is why he has to do his best in order to find the most appropriate ones.

Though the present study may spot the light on developing ESP materials selection. Huge explanations are done in order to help teachers select from what is available but valuable and attractive ones in order to satisfy students' needs. The

findings of the questionnaire of this study show that there is no sufficient up to date materials as that the available ones may not satisfy the classroom needs in most times. Since it is difficult to find what satisfies the needs of the classroom, it is suggested to select from what is available than adopt through modifying the selected materials. Future research would better integrate between selection and adoption of ESP materials within computer science lesson plan.

It is clear that ESP materials selection has a big impact on implementing the lesson plan for a computer science classroom. The appropriate selection plays a significant role in satisfying students' learning because of its usefulness. Using appropriate ESP materials offers a way to bestow and construct successful, knowledgeable and confident students.

## Appendix (01)

### Teachers' Questionnaire

**Dear teachers,**

This questionnaire is intended to gather information about ESP materials selection for computer science students. It aims at gathering information needed for the accomplishment of a Master thesis. We would be very grateful if you could help us through filling in the questionnaire. Thanking you in advance for your corporation.

**Will you please tick (☐) the corresponding square or fill in with information where necessary.**

1. As an ESP teacher, do you encourage your students to learn on their own?

Yes  no

If yes, could you tell how?

.....  
.....  
.....  
.....

2. Do you talk with your students about their learning problems?

Yes  no

3. Do the available materials integrate the four skills in a balanced way?

Yes  no

4. Do you think that your way of selecting materials has an impact on students' learning?

Yes  No

5. Are the available materials sufficient?

Yes  no

6. To what extent can efficiency of ESP materials have an impact on your teaching?

Very much average little

7. Do you use the same material for different classes?

Often  sometimes  rarely  never

8. In your opinion, the use of authentic materials may help more in developing students' skills?

Yes  sometimes  rarely  never

Whatever your answer, explain your point of view

.....  
.....  
.....

9. Do you think that teaching within a computer science entails appropriate materials selection?

Yes  no

10. You select your materials according to:

specific criteria  randomly

If according to specific criteria, could you state them?

.....  
.....  
.....

11. Which do you prefer more?

Educational materials  games and motivational materials

12. Do you use up to date materials?

Often  sometimes  rarely  never

13. Do you evaluate materials?

Yes  no

If yes, explain how.

.....  
.....  
.....

14. Specify the importance of the criteria when selecting materials according to the following degrees.

Totally important (TI), very important (VI), fairly important (FI), average (A), or not important (NO)

Criteria	Degree of importance
Interesting activities	
Variation of activities	
Enough authentic language	
Good explanation of grammar rules	
Integration of skills	

Enough educational and cultural knowledge	
Appropriateness of target language	
Related to the objectives of the programme and learners' needs	

15. When selecting materials, which factors do you take into account (you may opt for more than one answer).

- a. Time constraints
- b. Learners' age, sex, and background knowledge
- c. Availability of ESP materials
- d. Administrative facilities
- e. All
- f. None

16. If you have additional information about ESP materials selection, would you please add more details?

.....

.....

.....

.....

*Thanking you for your cooperation*

## Appendix (02)

First Year Master Students

### Students' Questionnaire

Dear Student,

This questionnaire is a part of a study for a Master degree on ESP materials selection for computer science students. Your answer as a computer science student is very helpful for us. Please, answer the following questions as specifically and strictly as possible.

**Will you please tick () the corresponding square or fill in with information where necessary.**

1. As an ESP learner, do you study on your own?

Yes  no

2. Do you get scaffolding and encouragement from your teacher to study?

Often  sometimes  rarely  never

3. Do the selected materials teach you the language you can use in real situations?

Yes  no

4. Do the selected materials satisfy your needs?

Often  sometimes  rarely  never

5. In your opinion, the use of authentic materials may help more in developing your language skills and level of comprehension?

Often  sometimes  rarely  never

6. Do you think that the selected materials have an impact on your learning?

Yes  no

7. Do you select the materials for your own?

Often  sometimes  never

8. Which do you prefer more?

Educational materials  games and motivational materials

9. If you would like to add anything about this subject, please write it below

.....  
.....  
.....  
.....

*Thanking you for your cooperation*

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