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# **Implementing the Blended Teaching Approach in ESP Courses: The Case of First Year Master Students of Computer Science at Mostaganem University**

Thesis Submitted to the Department of English in Candidacy for Doctorate  
Degree in Applied Linguistics and New Technologies

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**Abstract**

The traditional teaching approaches adopted in English for Specific Purposes (ESP) courses often lead to students' disengagement. Therefore, the blended teaching approach that focuses on integrating the best of technology and pedagogy has become more prevalent and captured the attention of researchers and educators. Although several studies have examined the effectiveness of blended learning (BL) in various EFL courses, there is a paucity of studies examining the effectiveness of BL in ESP courses. This study aims to investigate the effectiveness of implementing the blended teaching approach in ESP courses by measuring the extent to which the blended teaching approach in English for Computer Science courses creates a flexible, thorough, and authentic learning environment that meets students' diverse needs and interests. It was informed by a case study using a mixed-method research design. Data collection instruments involve a semi-structured interview conducted with six students, a needs analysis questionnaire, a quasi-experiment, and a course evaluation checklist carried out with fifty participants. First-year Master's students of computer science at Mostaganem University (Algeria) were selected as a study sample during the academic year 2018–2019. The findings of the study indicate that using different modes of teaching could positively impact student achievement and engagement and increase their autonomy and motivation. This pedagogical shift could also be offered as an alternative approach to overcome the hindrances of traditional classes since the conventional nature of ESP courses taught throughout the year program before implementing the blended courses was not adequate to meet the students' academic and professional needs. The participants had positive attitudes toward implementing the blended teaching approach in ESP courses as the latter could expand teaching context boundaries from the traditional classroom to the virtual classroom, enabling students to learn at their own pace. Based on the results, the students expressed their willingness for blended teaching to make the ESP courses constructively associated with their academic and professional specialisations. Nevertheless, they expressed dissatisfaction with the virtual interaction while learning. The overall findings of the study reveal the increasing necessity for the implementation of a blended ESP course in the current computer science department. These findings lead to pedagogical implications of considering the construction of course assignments covering students' areas of interest in connection with the multimedia features. Implications for leveraging students' digital resources and ongoing critical feedback and reflective teaching practices were also suggested as necessary for students' ESP mastery. A proposed ESP syllabus based on the stakeholders' needs within a blended learning environment was also recommended. The study also recommends the provision of teacher training as a first step towards the necessary improvements.

## **Dedication**

This work is dedicated to the two people who have made me who I am!

My dearest parents, Mohamed ALEB and Khira ALEB. Thank you for nursing me with affection and love. Thank you for always pushing me to “reach high and dream deep”. Thank you for being my rock at all times and encouraging me to be positive and optimistic throughout this journey.

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**List of Abbreviations**

AOD: Asynchronous Online Discussion  
BL: Blended Learning  
CALL: Computer Assisted Language Learning  
CE: Computing English  
CLT: Communicative Language Teaching  
CMSs: Course Management Systems  
CMSs: Content Management Systems  
CNP: Communication Needs Processor  
CS: Computer Science  
CSDs: Computer Science Departments  
DA: Deficiency Analysis  
EAP: English for Academic Purposes  
ECP: English for Computing Purposes  
EFL: English as a Foreign Language  
ELT: English Language Teaching  
EMI: English as a medium of instruction  
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  
FL: Foreign Language  
F-N: Functional-Notional  
FTF: Face-to-Face  
GE: General English  
HEIs: Higher Education Institutions  
ICTs: Information communication technologies  
Info: Informatique  
IT: Information Technology  
LMD: Licence, Master, Doctorat  
LMS: Learning Management System  
LSA: Learning Situation Analysis  
MA: Means Analysis

MIS: Management Information Systems  
MOOCs: Massive Open Online Courses  
Moodle: Modular Object-Oriented Dynamic Learning Environment  
NA: Needs Analysis  
NCTI: National Center for Technology Innovation  
NHK: Nippon Hoso Kyokai (Japan Broadcasting Corporation)  
OER: Open Educational Resources  
OLC: Online Learning Consortium  
OU: Open University  
PSA: Present Situation Analysis  
SD: Standard Deviation  
SL: Second Language  
SPSS: Statistical Package for the Social Sciences  
SRS: Self-Response System  
TEFL: Teaching English as a Foreign Language  
TESOL: Teaching English to Speakers of Other Languages  
TSA: Target Situation Analysis  
VLEs: Virtual Learning Environments

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## GENERAL INTRODUCTION

### 1. Background to the Study

In today's globalised world, English is regarded as the dominating language in a number of scientific domains. For example, it is widely recognised as the international communicative language of the computer industry. The distribution and exchange of computer science data in English have evolved into a global and national phenomenon. English is utilised in a specific community for a specific purpose beyond its own cultural territory. As is the case with the computing discipline, this suggests that English plays a critical role in that community. This critical function requires those aspiring to be computer science professionals to develop strong written and oral English proficiency in order to communicate successfully in the target setting. This leads to a growing need for both studying and teaching English in the computing profession, not just for general purposes but, more crucially, for specific ones. English for Computing Purposes (ECP) is the sub-specialisation of ESP on which this study focuses. ECP is a subset of ESP, which evolved from the broader field of English Language Teaching (ELT) and has remained a vital and dynamic area of specialism within ELT. ECP has developed into a significant component of the curriculum at a number of Algerian computer science departments, intending to address students' unique needs and assist them in becoming proficient and successful in English, both in their current academic studies and in their future professional workplace.

Moreover, technology advancement has revolutionised society and intensified the motivation to communicate in English, increasing the demand for language learning, technology-enhanced curriculum and flexible and engaging ways to learn. A paradigm shift in the theory and practice of language teaching, from a teacher-centred classroom to a more learner-centred pedagogy using technology-enhanced language learning, demands more active participants, autonomous learners who are responsible and critical members of the communities in which they live. Students today want to learn differently than in the past. They also expect teachers to use technologies in ways that align with their social and communicative practices. Pedagogies that are

student-centred, engaging, and incorporate a mix of instructional activities and differentiated instruction for the whole class send teachers on a quest for technology integration and the most suitable tools for use in the classroom. In the case of ESP courses especially, where a lot has to be covered within a very limited timeframe, teachers resort to incorporating technology and pedagogy to successfully meet the demands of timely teaching practices.

In the current digital era, ESP teaching and learning have witnessed a revolution due to the integration of technology and the extension of student learning outside traditional educational settings. The classroom is no longer the only learning setting. This reshaping of teaching is inevitably followed by a fundamental redesign of formal and informal teaching settings. The formality of the classroom is transformed through the development of digital content. The classroom turns into a collaborative learning setting where the students bring in their online learning experience and combine it with in-class learning. Thus, teachers have many opportunities to use online resources to enrich their language courses. Among these technological discoveries, blended learning is recognised as a response to traditional teaching problems. Blended learning is developed as an alternative to the traditional teaching approach. It is a blended instruction which combines traditional classroom teaching with online instruction, allowing students to learn anytime and everywhere. That way, teachers can focus on what the students have learned and not only on the delivery method in the class. Even though out-of-class learning has always been a learning goal for students, this becomes easier, and learning becomes more engaging with the use of technology. Such a way of instruction is advised to help create a context for English language teaching and, therefore, allow the students to engage effectively in the ESP course. Moreover, it provides a multitude of teaching materials and ensures access to high-quality authentic information that computer science students, workplace managers and engineers need to communicate effectively in technological and scientific fields. One reason contributing to the development of the blended learning environment for ESP courses was advancements in

educational psychology and technology, which established that learners have unique needs and interests, which substantially impact their motivation to learn.

As a result of these advances, some ESP teachers began to pay attention to their students' needs and construct ESP courses accordingly. Therefore, the blended ESP course was regarded as responding to the diverse and new education requirements of 21<sup>st</sup> century learners. And one of the compelling reasons to integrate blended learning is to create a supportive and flexible environment where students can better learn the English language in the ESP course. The development of blended language teaching tasks continues to be a stimulating field that allows ESP teachers to create their blended tasks. That is, digital teaching can increase the flexibility of information access, eliminate geographical barriers, and augment the effectiveness of collaborative learning. Due to this awareness, the philosophy behind Algerian Higher Education transformation is to initiate new approaches targeted to language learning for academic and professional purposes.

## **2. Statement of the Purpose**

Although ESP is considered a necessary unit in the current university program, it is taught as an isolated and secondary subject that disregards its status and demotivates students. This appears in several aspects as the lack of any particular programme, teaching approach, and materials. Teachers are given the freedom to teach what they consider is relevant to their students without being guided by any particular teaching approach. The students of the Algerian university encountered difficulty in learning ESP. Their English proficiency level remained below the expected and desired standard. It might be expected that the courses would face such difficulties because an essential step in its development, namely needs analysis, has not been followed to ascertain whether it addresses students' academic and professional needs. The absence of well-designed syllabuses and teaching objectives for this course put teachers and students in an uncomfortable learning environment that affects their proficiency level and achievement. Furthermore, the instructional decisions such as content and the teaching approach are not based

on students' reasons for learning. The problem of students' low achievement could be attributed to a possible mismatch between the students' needs, purposes and the ESP courses.

It should be investigated whether the underlying issues are related to students' motivation and attitudes, the teaching approach, the course content, or the existence of a disconnect between what students want to learn and what the teacher believes they should learn. To raise students' enthusiasm, develop their language skills, and suit their needs, the syllabus content and teaching methodologies should be connected to the English students will encounter during their computing studies and future professions. The level and methods used to teach basic English are insufficient for teaching computing English. For instance, in the study of computer sciences, particular lexis is required for people wishing to work in the computing field. Without a doubt, teaching General English to specific learners contradicts the ESP principles. This study recommends that a specialised curriculum be developed to assist students in acquiring English proficiency in various areas of computer science. In addition to the constraints mentioned above, other possible issues encountered by ESP teachers within traditional classrooms may be attributed to large class size and short time allocated to ESP courses, lack of supplementary teaching materials, and students' motivation do not usually help teachers conduct ESP teaching successfully. Therefore, urgent procedures should be taken in order to manage these challenging psychological and pedagogical problems.

In the era of information technology, ESP stakeholders quest for practical solutions to such problems. ESP teaching supports employing authentic materials, involving technology-based ones, to assist students to engage effectively in the course and cater to their different needs using multiple instructional materials. Therefore, a combination of traditional face-to-face and online teaching, which is referred to as the blended teaching approach, has been proposed to be used in ESP courses in order to overcome traditional teaching limitations of time and space and create new prospects for a better learning environment that ensures learning flexibility and interactivity and leads to better learning achievement. The blended teaching approach is indeed an effective

means that brings radical and rapid changes in ESP instruction. Teaching and learning potentialities are widely available in different instructional materials, such as online articles, graphics, sounds, videos, blogs, encyclopedias, dictionaries, terminology reference books, and multimedia materials. This offers multiple paths and extra possibilities for improving students' proficiency in all language skills and functions required for study or work. Self-assessments can also be ensured through online quizzes, tests, and exams. It provides authentic feedback so that the teacher can set his objectives based on the students' outcomes.

### **3. Research Questions**

This study attempts to answer the following questions:

- (1) To what extent can the blended teaching approach improve ESP students' language proficiency level?
- (2) How does the blended teaching approach impact on students' behavioural, cognitive, emotional engagement in ESP classes?

### **4. Research Hypotheses**

As far as the ESP courses in the Computer Science discipline are concerned, the main characteristics of ESP can be met through the implementation of the blended teaching approach. Above all, authenticity is ensured through MOOC's and all multimedia materials. Besides, students' learning needs and purposes can be met adequately using such differentiated instruction. In addition, learning flexibility is guaranteed because students can get easy access to learning materials and learn at their own pace via online lectures. Moreover, the interactive nature of BL is a crucial aspect for overcoming the traditional classroom barriers and increasing students' engagement and social connectedness.

Therefore, the research hypotheses (the alternate hypotheses, H1) assume that:

- (1) If ESP instructors implement blended teaching courses related to the computer science field, they will meet students' needs and increase their achievement.

(2) Besides, it may increase students' motivation, engagement and autonomous learning.

Furthermore, blended teaching supports the ESP teacher's access to the authentic materials required to meet the learning needs and purposes and overcome the limitations of traditional classrooms. It is proposed that this would improve their English proficiency in both their academic studies and target careers, enabling students to gain the information and skills necessary to perform a variety of tasks and function effectively in their academic and professional communities.

The null hypotheses (H<sub>0</sub>) assume that:

- (1) Implementing the blended teaching approach in computer science courses does not make any difference from traditional teaching approaches in the sense that it may not have a significant impact on students' achievement.
- (2) In addition, it may lead to undesirable outcomes in terms of boring classes and dependable and disruptive students.

## **5. Purpose of the Study**

ESP courses have been formed as a compulsory part of the computer science curricula in Algerian universities. While these courses are designed to provide students with the language skills necessary for academic study and future profession, the question is whether they adequately address and meet these needs. There is no debate about the importance of needs and purposes in ESP training. One could claim that ESP boosts students' motivation by directly addressing their needs. From the researcher's view, to meet students' needs, one should identify these needs and assess them to develop a practical strategy for satisfying students' needs and interests. Prior to developing ESP courses, it is critical to ascertain students' specific needs. This suggests that addressing the unique needs of students as a starting point might assist in the process of developing a successful course. Thus, it is expected that this research study will contribute to a better understanding of students' current and future needs from a pedagogical perspective in the Algerian

context. Furthermore, this study enquires about the appropriate ways to relate the CS students' needs to the instructional materials using the blended teaching approach.

Besides, it strives for students' evaluation of the blended courses to measure the extent to which the blended courses have met students' academic and professional language needs, expectations, and objectives and describe its strengths and weaknesses. Therefore, this study aims to evaluate the ESP courses taught within the BL environment from the students' perspectives in order to improve them in light of the students' needs and purposes as CS students and computing professionals.

It also attempts to determine the different features that the blended approach may add to the teaching process in terms of flexibility, authenticity, multiplicity of resources, interactivity, motivation, autonomous learning and self-assessment. Moreover, it aims to explore the different scopes and areas in which blended teaching can be implemented as a powerful approach to improving students' performance and achievement.

Overall, to elicit the subjective perceptions of this population, the following objectives guide this study:

1. To develop a profile of the English language purposes and needs of computer science students at university and their computing careers,
2. To determine the extent to which the blended ESP course meets these sets of needs in the CS classes, and based on these insights,
3. To develop a proposal for improving blended ESP courses to better meet the purposes and needs of students,
4. To develop ESP courses for CS students within the BL environment based on needs analysis and course evaluation.

## **6. Significance of the Study**

The significance of this topic stems primarily from the shift in emphasis on language instruction from the teacher to the learner. Depending on the students' learning objectives, the

curriculum will be defined. By the curriculum, the researcher means all the instruments used to accomplish the instructional objectives: the teacher, instructional materials, and approaches. Having implemented BL as a learner-centred approach, it is crucial to analyse ESP students' needs and purposes. Understanding their needs can be used as the basis for defining the syllabus content and teaching approach appropriately.

There is an increasing necessity to adopt the ESP courses within the BL environment to meet the CS students' needs. This need has stimulated the researcher's curiosity about what ESP teachers need to use to make students' learning experience successful and enable them to use the language effectively. This curiosity is a motivating factor for choosing this topic. The decision to explore students' needs and evaluate the blended courses, rather than to investigate other related issues, can be attributed to the critical role of the blended approach in meeting these needs. To the best of the researcher's knowledge, it can be asserted that little or no research attempt has been carried out to scrutinise the language needs of CS students or to evaluate the blended ESP courses.

This study assumes that the blended teaching approach will be effective and appropriate only if it serves students' needs and purposes. Content and methodology refer to the key components of the course. In this study, these components comprise the blended teaching approach, materials, syllabus, and assessment schemes. This study is intended to assist teachers concerned with the blended approach to refresh their insights about its design and implementation. The data obtained regarding students' language needs, lacks, and wants is likely to benefit the ECP course designers, who are expected to profit from this data while planning and executing courses.

Evaluation is intended to generate data that may be utilised to inform future planning and action. Additionally, it would bring the attention of ESP curriculum writers to the requirement that their ultimate purpose extends beyond the development of new courses to include the maintenance of existing ones. This study, it is hoped, would also benefit other ESP course practitioners by assisting them in revising and diagnosing this approach's flaws. ESP courses often share a significant degree of commonality in terms of setting and challenges encountered. The

findings from this study should be generalisable and transferable to similar classes. Students would make improvements based on the results of the quasi-experiment. The adjustment given in blended courses is based on systematic and extensive data collection and analysis, which are conducted objectively, i.e., by identifying deficiencies and advantages and taking into account students' perspectives. The potential contribution of this study lies in the fact that no other studies to date have dealt with these critical issues in the Algerian university context.

## **7. Research Methodology**

### **7.1. The Study Sample**

It would take too much time and effort to reach every member of the ultimate population. At order to assure the generalizability of results, the standards of a large population (all ESP students at Mostaganem University) were abandoned and a "realistic population" (Computer Science students in the Computer Science Department at Mostaganem University) was selected. Because it is an accessible representation of a similar research case including "key informants" concerning the subject being studied, the study sample was specifically chosen. Additionally, the ESP module in the target sample's academic programme needs to have its instruction reviewed and adjusted.

The participating students were assigned from the study population as follows. From a number of groups of CS students, two groups of first-year Master's students were randomly assigned. This selection was justified by the research purposes, which were intended to collect data about the ESP courses and students' language needs and purposes. Purposive random sampling was used to choose the sample from two groups. It is a mixed-methods sampling strategy that entails randomly selecting a small number of units from a much larger target population.

The two assigned groups had the following features in common:

- All students had nearly a similar learning background and the same ESP learning experience (three years of studying ESP with 1h.30 session per week;
- They had the same resources and facilities;

- All courses and instructional materials were the same;
- All students demonstrate similar academic and professional needs and purposes to study English with a particular interest in productive skills;

Due to the nature of the CS discipline, the main reason for choosing the participants of this study is due to their anticipated familiarity and manipulation of online tools. Furthermore, the department provides accessibility to the computer equipment and network facilities, which assist in accomplishing this study. Moreover, the increasing necessity of computer professionals with a satisfactory language proficiency level in the workplace encourages the students to actively participate due to the purposeful learning experience brought by this study.

## **7.2. Research Design**

The current study adopted a mixed-methods research design. According to Ivankova and Creswell (2009), such a research design is a procedure for gathering, "mixing," and evaluating quantitative and qualitative data within a single study in order to gain a complete understanding of a research subject. That is, the supplemental findings from a mixed-methods design can help develop a comprehensive picture of the subject under investigation and broaden the scope of the study (Dornyei, 2007). This strategy has been advocated by Richards (2001), who argued that quantitative and qualitative approaches to data collection are required in investigating ESP courses because they can complement each other and serve different purposes. Besides, such a combination is applied to decrease the risks of results' invalidity and incredibility. The data from both qualitative and quantitative research methods are combined to produce a comprehensive set of findings that are consistent with the research hypotheses. Considering the complex reality of students' language needs, purposes and recommendations about the ESP courses and the limitations of any research method, it is assumed that using a mixed-methods approach would strengthen the research design. The Needs Analysis questionnaire (appendix 3), the interview (appendix 1), the quasi-experimental study, and the course evaluation form are the four diverse research methods used in this study (appendix 4).

Thus, the research design of this study involves both qualitative and quantitative components. The former part was used to investigate the ESP students' needs as well as the appropriateness and effectiveness of ESP courses taught within the BL environment from the perspective of its stakeholders through semi-structured interviews with six participants. However, the quantitative part aimed to examine these needs and evaluate the blended courses to maximise the validity and reliability of the overall picture, hence assisting diagnosis and treatment, using quasi-experiment and a questionnaire administered to 50 participants.

### **7.3. Data Gathering Tools**

The two research approaches are discussed in detail in the following subsection.

#### **7.3.1. Interviews and Questionnaires**

In order to decide the content, objectives, and materials of ESP courses, needs analysis (NA), a prerequisite procedure for ESP course design, is used to gather data about the needs of students in their current situation and their target situation. A needs analysis process was conducted using two data collection tools: An interview was carried out with six participants, and a questionnaire was administered to the study sample, which comprised 50 participants of 1st year Master's students of CS. NA is considered a crucial phase in ESP course development because it reveals students' learning needs, lacks, and wants, so that appropriate decisions are made to address them. The learning objectives will be appropriately set if the students' learning needs are well defined. This will make the courses more engaging and appropriate and able to satisfy the students' needs, levels, and purposes. NA provides the instructor with the required data for conducting the experimental treatment intervention. Therefore, this study uses a NA framework to investigate the extent of English use in the CS students' academic studies and target careers contexts.

#### **7.3.2. Quasi-Experimental study**

The purpose of the quasi-experimental study is to evaluate how well the blended teaching approach has improved student performance. It attempts to investigate the relationship between

research variables; the Independent variable (the blended teaching approach) and the Dependent variable (the overall proficiency level of students in achievement tests). Therefore, the researcher expects one variable influences the other. As random assignment of students to the experimental and control groups was not feasible due to the restriction of students' various study schedules, a quasi-experiment that based on one group pre-test and post-test experimental design was used. A quasi-experiment is usually employed to maximise the reliability and validity of the research (Nunan, 1999). Furthermore, it ensures the causality of the variables that is resulted from the treatment, or the blended teaching approach. The researcher will therefore be able to claim that the variations in test scores are attributable to the experimental intervention by carrying out a pre-test and post-test experimental design.

### **7.3.3. Course Evaluation**

Given the critical significance of students' attitudes in determining the outcome of the process of learning a foreign language (Harmer, 2007), it is crucial to investigate students' attitudes regarding ESP learning in a BL context. Therefore, a course evaluation checklist is employed to rate the effectiveness and appropriateness of the blended courses as well as the extent of the teacher's success in bridging the gap between the instructional objectives and the students' needs.

## **8. Ethical Considerations**

Although it is argued that language teachers "should be involved in researching their own professional practises in their own classrooms" (Nunan, 1989, p. 16), practitioner-researchers face a number of difficulties and ethical dilemmas.

As a researcher and instructor for the current study, I encountered a significant roadblock to the research process. This difficulty arises due to the need to strike a balance between educator and researcher. As an instructor, I was responsible for organising the classroom physically and mentally in order to maximise student learning and meet each student's unique needs. However, as a researcher, I was more interested in determining how students behaved in terms of behaviour, cognition, emotion, and agency during classroom dynamics. The conflict between these two roles

influenced numerous aspects of the research, including the design and data collection procedures. For instance, in order to fulfil these two roles effectively, pre-instruction materials and a learning environment were developed. Classroom observations were conducted immediately after class in order to avoid interfering with the teaching-learning process.

My dual role as a teacher and researcher also raised ethical concerns about fairness, informed consent, the teacher-student relationship, and confidentiality. Therefore, these ethical considerations received special attention, and several measures were implemented to mitigate any potential threats.

Firstly, it was established that neither the research nor its conclusions were discriminatory based on race, ethnic origin, gender, sexual orientation, physical disability, marital status, race, class, or religion (Nunan, 1999). Additionally, the research participants were not subjected to discrimination and received the same course content as other Level students. To eliminate bias, additional instructors reviewed the participants' mid- and end-of-semester examinations scripts.

Secondly, the use of codes during the data collection, analysis, and reporting phases ensured that confidentiality and anonymity were maintained throughout the research project. In addition, interviewers signed a confidentiality agreement promising not to use real names when referring to other participants and not to share any information obtained during the interviews with a third party. All data collected throughout the research period was kept safe from unauthorised access by saving electronic data, as well as audio recordings and written transcripts, on a password-protected personal computer.

## **9. Structure of the Thesis**

This thesis is divided into six chapters under theoretical and practical parts. The theoretical part, which reviews the relevant literature, comprises two chapters. Whereas the practical part, which outlines the fieldwork, comprises three chapters and concludes with a final chapter of conclusion and suggestions.

The theoretical part begins with the first chapter, which reviews the literature pertaining to ESP. It begins by presenting the history of ESP and then outlining some definitions of ESP and its characteristics. Then, it examines the relationship between ESP and the approaches to curriculum development. Moreover, this chapter probes Needs Analysis as being the prerequisite for ESP course design. It outlines the classifications of needs, the different approaches used to conduct it, and the framework of NA, and reviews some research studies of NA in ESP. The chapter goes on to provide descriptions of evaluation types in ESP and approaches to course evaluation, then presents the evaluation framework of the present study. The second chapter is devoted to various issues relevant to the blended teaching approach. It also investigates the advantages and disadvantages of implementing BL in the EFL context besides its designs and structures. It also explores the different BL tasks and activities that can be implemented in ESP courses.

The fieldwork initiates with the third chapter. The third chapter explains Needs Analysis interviews and questionnaire, which were conducted to determine their present and target situation needs as a starting point for the experimental study. It also presents the quasi-experiment, which has been carried out to put the issue under investigation into practice. This chapter also explains the course evaluation instrument that measures the effectiveness and appropriateness of the experimental intervention in ESP courses that the students have undergone. Chapters Four and Five summarise the research findings about the students' language needs, the evaluation of the ESP course, and the quasi-experiment, respectively. These include findings from qualitative and quantitative research methodologies. The results are discussed in relation to each of the research questions and with reference to relevant literature. Each of these three chapters concludes with a summary of the major findings.

Chapter Six summarises the major findings of the study, emphasises their instructional and research implications, and discusses the strengths and weaknesses of the study. It presents a number of procedures recommended for effective ESP teaching using the blended approach,

particularly the role of the teacher in the online courses. It also provides a scenario for ESP teacher preparation and training, which is a requirement for teaching ESP. The chapter is concluded by instructional guidelines for designing blended courses that combine pedagogy and technology to improve ESP instruction.

## **CHAPTER ONE: ENGLISH FOR SPECIFIC PURPOSES (ESP)**

### **Introduction**

To serve the various language needs and purposes of specific learners in academic and professional settings, ESP has developed as a new trend in ELT. The literature pertinent to the current research areas is critically reviewed in this chapter. It is divided into three main sections. The first section provides an overview of ESP, including definitions of ESP, its development, characteristics, and types. Then, it reviews a number of approaches to ESP teaching and ESP curriculum development. The second section provides an overview of needs analysis (NA) in the ESP context, which includes the explanation of the concept of needs in language teaching and NA, classifications of NA, the steps of needs analysis's transference, and different approaches and models of NA. It summarises the key concepts used to generate the research framework and methodology for the NA used in this research and reviews some ESP-related research studies within such a framework. The third section defines the term "evaluation" in the context of English language teaching, explores some key approaches to course evaluation, and concludes with an evaluation framework for this study. Researchers have discussed these elements briefly to provide a broad horizon of ESP programs and the need analysis at the university level in Algeria.

### **1.1.ESP in Higher Education**

English is the most dominant language used in higher educational institutions in Europe (Coleman, 2006). Many non-English speaking countries in Asia and the Arab world are taking steps to adopt English as the language for instruction in their universities (Byun et al., 2011; Ebad, 2014). With greater globalisation, English has become the international language of academia, especially in physics, space science, chemistry, and Earth sciences (Hutchinson & Waters, 1987). ESP has developed as one of the most common areas of teaching English as a Foreign Language (EFL) due to learners' need to learn English to have certain majors such as business and computer

science. This demand leads to an increased number of academic institutions that offer ESP subjects as part of their short- and long-term courses and other degree programs. Brunton (2009, p.1 ) claimed that “the demand for English for specific purposes...continues to increase and expand throughout the world”.

### **1.2.The Status of English as International Language for Computer Science Purposes**

Presently, English is the language of computer science as most scientific papers are written in English. This trend has had a significant influence on the computer science field. Many new computer science terms are created in English and have become accepted into other languages. English is the internal language and has led to profound developments in computer science because it is widely accepted. Teaching computer science courses in English has become more prevalent in countries such as Algeria. English proficiency has become a critical skill for computing management jobs, including an assistant administrator or computer science manager. Due to the specialised nature of specific jobs in the computer science field and the use of English as an international language in the field, having proper English skills has become mandatory.

The status of English as a global language, in the light of the globalisation of the world economy, trade and international law, increases pressure on world governments, including Algeria, to implement English language teaching as part of their educational policy (ELT). In order to reach specific learning needs and social requirements, ESP was introduced at all teaching levels. Kennedy and Bolitho (1984) claim that the status of English as an international language has led to increased interest in teaching ESP as a productive approach for raising language proficiency levels and satisfying the needs of students in their respective specialties. As a result, decisions have been established to enhance the way of teaching and learning English. Numerous countries experienced a significant transformation in the ELT field, shifting from general English (GE) to teaching specific English. In Algeria, English is taught as FL and offered either as a secondary or a fundamental subject at the higher education level. Algeria, like many other countries, has decided to teach its students computer science using the medium of English in

higher education institutions. This decision is justified by the fact that English is widely recognised as an international and intranational language of computer science. Additionally, it may be stated that it is the most often used language in the field of computer science. English as a language of communication in the workplace and education is uncommon, with the exception of some workplace settings such as international organisations and businesses that hire foreign personnel. Thus, English is commonly referred to as a FL (Foreign Language) rather than a SL (Second Language) in Algeria. That is, it frequently serves no meaningful social or institutional function in the broader Algerian community. The absence of a substantial role for English in most areas of life and the lack of English language instruction in Algeria have two significant implications for the current study. To begin, the extent of language exposure outside of classroom settings is substantially smaller in a FL context, such as the one in which the study was done, than in an SL context, meaning that ELT demands will be somewhat different in each scenario. Second, English is used sparingly in primary, intermediate, and secondary education in Algeria but has gained popularity as a medium of instruction in a number of university departments, as is the case with the CSDs (Computer Science Departments). As a result, it can be particularly difficult for students entering university to appreciate and accept the newly prominent role of English in studying computer science. This may have an impact on their educational needs and attitudes. In general, one may assume that English is utilised in Algeria for various objectives; the most common of which are academic and professional. From the above discussion, it is worth investigating various issues of ESP.

### **1.3. Definitions and Characteristics of ESP**

It is not an easy task to define English for specific purposes (ESP) because it can be implemented in any context and depends on what students are facing. Strevens (1980) noted that "a definition of ESP that is both simple and watertight is not easy to produce" (p. 109). Despite this, a number of scholars have defined the term. For example, Robinson (1980, p. 98) cited fifteen researchers who attempted to define ESP. This indicates the existence of numerous

perspectives on the concept, resulting in some terminological ambiguity. Ewer (1981) commented on this, asserting that the ESP terminology has been divided into such a state of confusion and contradiction that it is impossible to carry on a discussion about the subject with practitioners outside one's own workgroup for more than a few minutes without encountering misunderstandings.

During the 1960s, ESP was separated from ELT with its teaching techniques and methods. Robinson considered ESP a type of ELT and defined it as "goal-oriented language learning" (1989, p. 19). This implies that learners have particular objectives to meet. Robinson (1991) included two critical criteria in his definition of ESP: a needs analysis that focuses on what learners need to do and should be used to design ESP courses. In a similar vein, Hutchinson and Waters (1987, p. 6) asserted that "learners know specifically why they are learning a language". As a result, this is advantageous because ESP students will accomplish a specific goal in their field of study. According to Blackie (1979, p. 263), "the term provoked statements of support and hostility as well as contradictory observations, depending on whether ESP was thought to be new-fangled and untested, or whether it was simply a new piece of jargon referring to something old". This implies that an individual's ability to comprehend what ESP entails is entirely dependent on the individual. That is, one person may regard teaching English for shopping as 'specific,' while another may believe that a subset of general English fulfils this function. Distinctions in interpretation can be geographical or functional; as stated by Robinson, "what is specific and appropriate in one part of the globe may well not be elsewhere" (1991, p. 1). As a result, ESP is frequently misinterpreted. Despite Mackay and Mountford's (1978, p. 2) defined ESP as "the teaching of English for a clearly utilitarian purpose", Due to the fact that Mackay and Mountford's definition may not encompass all facets of ESP, Blackie (1979, p. 263) called for "a satisfactory working definition" of ESP. To provide an alternative definition, ESP is defined by Blackie as "programmes designed for groups of learners who are homogeneous with respect to aims, and whose specific learning objectives have been quantified and stated in communicative terms" (1979, p. 266). The fundamental facet

of ESP definition is homogeneity within a group of students, which can be determined by two factors, as explained by Blackie (1979, p. 264), namely (1) the overall communicative competence of learners in terms of language skills, as identified through a placement test, and (2) learning needs, as identified by a needs analysis. Even though it is frequently challenging to find a group of students with completely homogeneous needs, Blackie appears to disregard specifying the extent to which such homogeneity may exist within a group of learners. Cunningsworth (1983, p. 153) pointed out: "the needs of the learners in a group may not be identical and, in many cases, may differ quite significantly one from another." According to Kennedy and Bolitho (1984, p. 13), a critical factor affecting the design and implementation of ESP courses is the extent of homogeneity among classes in terms of needs, abilities, and subject disciplines. Numerous authors agree that regardless of their views on homogeneity, ESP is centred on students' needs. For instance, According to Hutchinson and Waters (1987), ESP should be regarded as a process rather than a product. It is not a pre-packaged set of instructional resources, a specific language, or a methodology. The basic premise of ESP is this: Why do these learners need to learn a foreign language? to answer this question, Hutchinson and Waters (1987 ) provide a more expansive definition, defining it as "a method of language instruction in which all content and method decisions are made in light of the learner's motivation to learn". The organisation contends that it has developed its own methodology and that its research incorporates findings from a wide variety of disciplines, including applied linguistics — this is its most distinguishing feature ( Bojovic, 2006 ). Additionally, Hutchinson and Waters (1987) noted that "ESP should be viewed as a strategy, not a product" (p . 16). As a result, ESP can be taught or acquired in any dialect of English. Additionally, Barnard and Zemach stated that ESP is an approach that employs a variety of techniques and methods, referring to it as "an umbrella term that refers to the teaching of English to students who are learning the language for work or academic purposes" (2003, p. 306). ESP does not refer to a particular language or methodology or a particular type of instructional material. However, the entire analysis is predicated on the learner's previously identified need to

improve his or her language skills. Thus, ESP is a method of language instruction in which all method and content decisions are made with the student's motivation to learn in mind. Anthony (1997) maintains that Hutchinson and Waters' (1987) definition is accurate yet contains flaws. He clarified that non-specialist ESP teachers approach ESP differently in their course syllabi; according to their own authentic communication knowledge and learners' needs analysis, there is no clear distinction between ESP and general English courses. ESP courses are designed to convey the subjects or ideas that learners require to read confidently and communicate effectively in their field of study or work. In this sense, the ESP approach entails attending to the learners' unique language needs. Munby (1987, p. 2) concurs with this assessment and defined ESP courses as "those where the syllabus and materials are determined in all essentials by the prior analysis of the learner's communication needs." This demonstrates that the emphasis is on the purpose of language learning; however, Munby included the concept of communication in the definition; however, Hutchinson and Waters (1984, p.112) maintained that "ESP is first and foremost a learning process, and it is impossible to have a communicative approach in ESP unless ESP is primarily viewed as an educational process." ESP courses should be founded on an analysis of learners' communicative needs, which are typically determined by the target context and their overall language needs, attitudes, and interests; i.e., the ESP teaching context. Smoak (2003, p. 27) reiterates the communicative approach by establishing the notion of real-life tasks, stating: "ESP is English instruction based on actual and immediate needs of learners who have to successfully perform real-life tasks unrelated to merely passing an English class or exam." "ESP is task-oriented and needs-based." Among the definition's obvious shortcomings is that it makes no distinction between social and occupational tasks. Orr (2001, p. 207) defined ESP as the ability to perform the following tasks: When general English instruction is insufficient, ESP refers to specialised English language teaching tailored to the particular learning needs of an individual or group of learners within a specified period. The most frequently used method of teaching is the direction to specialised spoken and written English that is required to perform a particular

academic or professional task. Additionally, this definition emphasises a further facet of ESP: ESP classes are frequently time-limited (Basturkmen, 2006). That is, ESP is a teaching method geared toward accomplishing specific goals in a limited period of time. Regardless of these distinctions, this implies that ESP courses are founded on a thorough analysis of learners' needs. A quarter-century ago, McDonough (1984, p. 29) stated emphatically that: "the idea of analysing the language needs of the learner as a basis for course development has become almost synonymous with ESP in recent years, and it is difficult to think of one without the other coming to mind". It appears that the results of the analysis of these needs should assist in determining the content of the ESP courses.

Nevertheless, Dudley-Evans (1998) argues that a definition of ESP "requires much more than an acknowledgement of the importance of needs analysis". This implies that further characteristics are crucial to ESP. Strevens (1988a, pp. 1-2) lists both absolute and variable characteristics in his extended definition, as displayed in Table 1.1.

Absolute Characteristics	Variable Characteristics
- designed to meet specific needs of the learner;	- restricted as to the language skills to be learned (e.g., reading only);
- related in content (i.e., in its themes and topics) to particular disciplines, occupations and activities;	- not taught according to any pre-ordained methodology.
- centred on the language appropriate to those activities in syntax, lexis, discourse, semantics, etc., and analysis of this discourse;	
- in contrast with 'General English'.	

**Table 1. 1 Strevens' list of ESP characteristics**  
**Source: Strevens (1988a, pp. 1-2)**

Dudley-Evans and St John (1998, pp. 4-5) attempted to modify Strevens' definition of ESP a decade later, as presented in Table 1.2.

Absolute Characteristics	Variable Characteristics
- defined to meet specific needs of the learner;	- related to or designed for specific disciplines;
- makes use of the underlying methodology and activities of the discipline it serves;	- uses, in specific teaching situations, a different methodology from that of General English;
- centred on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities.	- designed for adult learners, either at a tertiary level institution or in a professional work situation, and could also be for learners at secondary school level;
	- generally designed for intermediate or advanced students;
	- assumes some basic knowledge of the language system, but it can be used with beginners.

**Table 1. 2 Dudley-Evans' and St John's list of ESP characteristics**  
**Source: Dudley-Evans & St John (1998, pp. 4-5)**

While there is still some debate over the precise definition of ESP, the two definitions above demonstrate its breadth and complexity. Additionally, Dudley-Evans and St John include more extended variable features than Strevens yet omit the latter absolute feature, namely ESP contrasts with GE. Additionally, it is worth noting that the two definitions have a good amount of overlap. Basturkmen (2003, p. 49) notes two such areas of agreement: "ESP courses are devised on the basis of the specific work-related or academic needs of the learners, and the courses offer descriptions of language use in the disciplines or occupations they serve". Still, ESP attempts to balance the weight of many factors in the authentic language situations that English language learners may encounter (Master, 2005).

To a considerable extent, both of the aforementioned categories of traits appear to contribute to the resolution of several inquiries about the nature of ESP. For instance, as asserted that ESP is subject-specific to the academic discipline and occupation served, it would be overly limiting to suggest that the word ESP should be used exclusively to refer to a subject-specific field, as elucidated by Dudley- Evans (1998, p. 6), "where the focus in the class is on common-core skills or genres that belong to any discipline or profession, this is as much an ESP class as

the more specific work". Therefore, ESP is not primarily concerned with teaching subject matter but instead with increasing learners' understanding of English and language skills to assist them in learning the subject content they need. A key implicit point in the third variable feature of ESP is that it is not targeted to a specific age group (Dudley- Evans & St John, 1998). nevertheless, ESP is typically targeted to adults since they are more aware of particular needs and purposes of language learning; as Kennedy and Bolitho (1984, p.14 ) approve, "the older a learner is, the more likely he is to have his own definite ideas on why he is learning English. In fact, many ESP learners are adults".

The problem of defining ESP seems to have elicited both debate and agreement. As Flowerdew (1990, p. 327) notes, one obvious area of dispute among ESP researchers involves the nature and function of the so-called "common core" (a basic set of language items that can be used in all contexts)". Bloor and Bloor (1986, p. 13) developed this common core theory, arguing that learners should master a core set of grammatical and lexical elements before enrolling in ESP courses. Due to the importance of certain less specific material in the context of ESP, academics have distinguished between two forms of ESP course design: "narrow-angle" and "wide-angle". The former term refers to courses designed for learners who are interested in a specific professional or academic area, while the latter term refers to courses that include a broader range of professional and academic areas (Basturkmen, 2003, p. 48). The distinction between courses shows the degree of accuracy with which ESP courses pursue their objectives. This indicates that they are not totally devoted to the objectives of the learners' speciality field. Basturkmen (2003, p.50) distinguishes two types of wide-angle courses: those that emphasise a specific language variety (e.g. Academic English, Computer English) and those that address learners' common requirements through reference to specific disciplines or occupations (e.g., English for General Academic Purposes, English for Computing Professionals).

Among the advantages of language-based course designs is that students do not necessarily need to have a high level of English proficiency. Besides, ESP courses that focus on the general

needs of a target group provide advantages of practicality and economy (Basturkmen, 2003). Learners enrolled in these courses may also be interested in subjects other than their narrow specialist discipline or field (Basturkmen, 2003, p. 58). Computer science students are generally interested in the broad scope and diversity of their field. Nevertheless, a disadvantage is that courses with a broader focus frequently overlook students' needs, deficiencies, and desires. Several studies (e.g., De Escorcia, 1984) demonstrate the need to supplement the broad-angle approach with an attempt to define students' specific language needs in their academic or professional scopes. In contrast, the objectives of narrow-angle designs are quite narrow. They aim to provide learners a certain level of competence so that they can handle tasks that are clearly specified. According to Basturkmen (2003, p. 50), a narrow-angle design is based on an analysis of learners' needs in relation to their specific discipline or profession. It is appropriate when needs are very limited (Dudley- Evans & St John, 1998, p. 151). Yet, there are several disadvantages of narrow-angle courses. Presenting a restricted version of the language, narrow-angle courses enable students to use language in that they are restricted to the particular uses of language that enable them to operate in limited contexts. Additionally, such courses may demotivate students and constitute a credibility gap between the learners and their teacher. This is due to the fact that some ESP teachers may lack a sufficient grounding in their students' fields of study, while many students struggle with language on their own without adding supplementary conceptual load (Kennedy & Bolitho, 1984, p. 51). A further point of controversy among ESP scholars is the teaching methodology. Teaching methodology has commonly been neglected in ESP because the focus has been on needs analysis and content. According to Hutchinson and Waters (1987), ESP has paid attention to what people learn rather than how people learn. The predominant approach to ESP has frequently been language-focused rather than learning-focused. However, ESP should first be regarded as a process of learning.

It is worth noting that the definitions provided above place a premium on three fundamental and axiomatic elements: the nature of language, the specific needs and objectives of language

learners, and the specific settings in which language is taught and utilised. ESP is defined in this study as the tertiary level teaching of specialised English to a group of students who will use it in their current academic studies as computer science students and future careers as computer science professionals in order to function effectively in these specific contexts. Therefore, ESP relates language teaching with the communicative needs of FL learners in a particular academic or professional context. It establishes a connection between the field of language instruction and the learners' professional needs in a way that illustrates the usefulness of language in a context where it is actually used. Although ESP is intended to meet the specific needs of students who want to use English in their field of expertise, it is necessary to conduct a careful analysis of their needs and purposes in order to determine the appropriate materials and approaches to use and how courses should be structured in order to effectively carry out instructional tasks and procedures.

#### **1.4.Types of ESP**

Carver (1983) divided ESP into the following three categories: English for Science and Technology (EST), English for Occupational Purposes (EOP), and English for Academic Purposes (EAP). Asadi (1990) describes each category of ESP in depth. The term EST refers to courses that use English to teach computer science, chemistry, biology, environmental science, engineering, and other related topics. This category has a prominent position in ESP as a result of the technological and scientific revolution and because the English language has become the language used by most scientific researchers and communication practices. English for Occupational Purposes refers to courses that use English to enhance students' professional or vocational language skills to succeed in the workplace. An example of EOP could include a computer professional needing to learn English to speak with foreigners in a company or to participate in conferences. EAP refers to English courses offered by academic institutions to students who need to learn English to obtain admission to specific departments. In the current study, the students learned ESP to obtain knowledge of computing English to complete their studies and career in the computer science field.

### **1.5. Features of an ESP Course**

According to Carver (1983), ESP courses are as follows:

- 1) The course should be based on authentic materials (Carver, 1983). The current study used the book *Infotech English for Computer Users* (Cambridge Professional English) by Santiago Remacha Esteras, which includes computing terms along with photos that involve students reading real computing cases with procedures that treat computer professional contexts.
- 2) The course should include activities based on tasks which allow teachers to give students various tasks to encourage different skills (Carver, 1983). Santiago's book aimed to "learn by doing" by providing a learning task on almost every page that asked students to write out answers, answer questions, or fill in blanks with proper terminology.
- 3) The course should include self-study tools to allow students to develop self-autonomy (Carver, 1983). Santiago's book includes study tools and resources such as an audio dictionary for computing terminology, games, and digital flashcards to aid learning.

### **1.6. The Characteristics of ESP Learners and Teachers**

Bojovic (2006) stated that ESP involves courses or programs that require specific goals and objectives based on student needs. There are specific characteristics for teachers who teach the content and the students being engaged in the course content. Fiorito (2005) presents many of the characteristics of good ESP teachers. The teacher must have experience teaching English and designing lesson plans that integrate different instructive methods. The teacher should also have organisational skills that allow the teacher to plan classroom and online activities properly. The teacher should also have skills related to designing course activities with certain goals that will support student engagement and achievement. Teachers should also be able to create a good learning environment that provides students with the opportunity to use the English language in the classroom and should have experience designing suitable assessments to evaluate student knowledge. Fiorito (2005) lists many of the characteristics of good ESP students. An ESP student should feel a responsibility to develop his or her own English skills and should be interested in

learning English in their specific fields. When a student is self-regulated, the student will be more likely to expand his or her English to become more fluent in particular topics and gain more experience for future jobs.

### **1.7. Approaches to ESP Curriculum Development**

Throughout its development, ESP has benefited from language learning theories, general learning approaches, and course design approaches (Richards, 2001). As a result, diverse approaches to ESP teaching and learning have developed. Hutchinson and Waters (1987) separate three distinct ESP approaches: language-based, skill-based, and learning-based. While the previous two approaches focus on analysing the target situation, the learning-centred approach goes one step further by identifying the learning situation (Hutchinson & Waters, 1987). These approaches developed sequentially as ESP progressed through six stages of development. These stages demonstrate that ESP is a self-renewing field (Flowerdew, 1990, p. 327). They are discussed below in roughly chronological order, as suggested by McDonough (1998a, pp.157-158). Due to space limits, only a brief explanation of each stage is presented.

#### **1.7.1. Register Analysis**

Robinson states, "register has been a fruitful term in the field of stylistics, but also the basis of research in ESP" (1991, p. 20). Linguists have given the term several different interpretations. According to Halliday, "the set of meanings, the configuration of semantic patterns, that are typically drawn upon under specific conditions, along with the words and structures that are used in the realisation of these meanings" (1978, p. 23). According to Halliday and Hasan, register comprises three parts: field, tone, and speech style (1985, p. 38). The field is the text's continuous social action, the tone is the participants' social interactions, and the mode is the medium and channel of communication, such as oral or written, according to William (1984, p. 315). A register is generated when these three elements are merged (Halliday, 1978, p. 31). Thus, a register can cover various topics, from everyday language like bills, vouchers, and greeting cards to more

specialised fields like computer science. Transactional data registers, such as those found in marketplaces and corporations, as well as physician-patient and physician-nurse communication registers, are also covered by Halliday. As a result, various jobs correspond to various registrations. The register's ability to discern separate verbal components expressing diverse instructional topics was discovered early on in the development of ESP. Since then, the register has aided ESP researchers in finding different areas of interest in teaching English to a wide range of learners for a variety of reasons, as well as identifying the discursive community for these topics at a later stage of register and ESP research. According to Richards (2001, p. 30), in the language of fields such as computer science, "register analysis studies the language of such fields as journalism, medicine, or law for distinctive patterns of occurrence of vocabulary, verb forms, noun phrases, and tense usage".

Register analysis is frequently used in conjunction with frequency analysis in ESP to identify the linguistic features that students enrolled in an ESP course should exhibit (e.g., Ewer and Latorre, 1969; Ewer and Hughes-Davies, 1972). According to Hutchinson and Waters (1987), the primary goal of register analysis is to create a syllabus that emphasises language patterns that students are likely to encounter in their academic and professional lives rather than those they will never encounter. According to Robinson (1991), the finding of unique linguistic characteristics linked with a given domain or sector has prompted some to hypothesise that a special language will arise when customers in that industry use English in a particular way, as bankers do with "Banking English" (1980, p. 69). This explains how English as a second language is based on GE and hence requires further teaching. In an ESP context, this concept implies that register reflects the view that ESP entails the learner's use of a special language rather than a specific objective. For instance, in the ESP context of the current study, the register would recommend using specialised lexis for computing purposes and specialised structures appropriate to the CS environment's requirements, whether during learning or work. According to De Beaugrande (1989, p. 6), a language for specific purposes does not fulfil the traditional definition of a language

because it is not "composed exclusively for its own recourses" According to Voracek (1987, p. 53), the phrase "special language" is inappropriate. Still, Lauren and Nordman (1986, p. 20) argue that the term "technolect" is more appropriate. As with "-lect," the suffix "dialect" denotes "a form of a language," and hence this term appears to be unique among academics.

The limitation of register analysis and frequency analysis is that they "cannot be used as the main basis for selection" syllabus elements (Coffey, 1984, p. 4). That is, register analysis alone is insufficient as a basis for selecting the material of an ESP syllabus, as determining what constitutes a language register is frequently challenging. Additionally, the register depicts a language rather than elucidates it and so has a greater bearing on quantitative linguistic traits and forms than on function or use (Robinson, 1991).

Kennedy and Bolitho (1984) emphasise that, while these studies are beneficial for teaching a fundamental scientific grammatical code, they do not teach the learner when and how to use the forms in communication. Widdowson (1979) takes a strong stand against the tendency to provide lists of the scientific language, claiming that the pedagogical application of register analysis results has resulted in the teaching of "usage" rather than "use" Widdowson (1979) defined usage as the exemplification of linguistic norms. Whereas language is viewed as a collection of distinct grammatical objects, use is the application of these rules to perform social activities or the capacity to do so. According to Mackay and Palmer (1981), the majority of register analysis studies gloss over language's social functions by labelling texts in broad terms without exposing their particular purposes. This means that, rather than focusing exclusively on lexical items and structures, it is critical to consider the purpose of learning, which is to aid students and workers in obtaining the communicative competence and information necessary for their fields of study and job. ESP is premised on the assumption that social group members use language to accomplish goals and communicate with one another.

These critiques of register analysis resulted in the emergence of the second major ESP trend, discourse or rhetorical analysis (Dudley-Evans & St John, 1998, p. 22).

### **1.7.2. Rhetorical and Discourse Analysis**

The rhetorical and discourse analysis stages of ESP development arose in response to the previous emphasis on register analysis, intending to provide a more comprehensive description of language use outside the sentence boundary (Hutchinson & Waters, 1987; Benesch, 2001). The new strategy was developed due to many shortcomings in the previous one. According to Richards, "Register analysis focused primarily at the word and sentence level and sought to identify the registers that characterised different uses of language, such as business letters, academic textbooks, and technical writing" (2001, p.31). That is, the approach cannot be used to determine the linguistic structure of longer written and spoken texts; nonetheless, in the 1970s, rhetorical and discourse analysis approaches were developed to achieve this goal (Richards, 2001).

Discourse analysis is a technique for examining texts in the context of their social use (Hyland, 2009, p. 20). According to Johns and Dudley-Evans, discourse analysis "refers to the examination of written and oral language, generally to design curricular materials" (1991, p. 299). Unlike register analysis, this technique argues that the significance of features is determined not by their relative frequency of use but by their selection over others during the text's evolution (Robinson, 1991). This signifies that the substance, whether written (for example, reports, directives, or letters) or spoken, takes precedence over the sentence (for example, conversation, lecture, dialogue). The introduction of discourse analysis shifted the emphasis away from sentence structure and toward recognising and comprehending how sentences formed meaning at the discourse level (Hutchinson & Waters, 1987).

This is where grammar transforms into discourse and communication, usage transforms into use, form transforms into function, and usage transforms into use (Bhatia, 1993). The belief that "teaching English as a medium for science and technology must involve us in the teaching of how scientists and technologists use the system of the language to communicate, not just what linguistic elements are most commonly used" may have sparked the movement (Widdowson, 1979, p. 13). Many ESP students already have a basic understanding of grammar and are unlikely

to welcome additional instruction. Instead, they necessitate the ability to "communicate with people and to cause things to be done, to describe and explain events, to qualify and hypothesise" (Kennedy & Bolitho, 1984, p.3). Therefore, teachers should consider students' communicative needs when planning ESP courses. According to Johns and Dudley-Evans (1991), discourse analysis is a distinctive feature of ESP development that separates it from GE. Richards (2001) regards discourse analysis as a significant advancement in ESP. It was a natural progression from the functional-notional approach to language (F-NA), which proposes that meaning extends beyond the words in sentences (Hutchinson & Waters, 1987). In other words, it implies that other major aspects, such as the sentence's context, impact the discourse's meaning (Hutchinson & Waters, 1987). This perspective established a connection between language structure and use, and it became the primary criterion for selecting materials for ESP instruction.

According to Hutchinson and Waters (1987), two instances of incorporating discourse analysis findings into ESP instructional materials can be described. The first is that learners understand the stages involved in certain set-piece transactions associated with particular specialised fields. That is, a particular discourse's transaction occurs in stages. Hutchinson and Waters illustrate this type of analysis in their discussion of Candlin et al.'s (1976) analysis of doctor-patient communication. The second application of discourse analysis in ESP demonstrates how the relative positioning of sentences within a written text creates meaning. Allen and Widdowson (1978) claim that this approach has become a defining characteristic of many ESP textbooks aimed at increasing students' comprehension of how sentences are combined in texts to produce meaningful text. This appears to be an attempt to meet the needs of ESP students by assisting them in performing specific functions (e.g., defining, classifying, comparing, and identifying) within specific communicative contexts.

This approach has been criticised for failing to take into account how functional patterns generate meaning (Coulthard, 1977). Teaching students to construct sentences with particular

structural properties or recognise functional patterns within a discourse does not ensure that they will be able to communicate effectively with these patterns (Hutchinson & Waters, 1987).

### **1.7.3. The Functional-Notional Approach and Communicative Language Teaching**

The F-N approach to developing ESP syllabuses and teaching language emerged in the 1970s in response to the structural approach's limitations (Armstrong, 2005, p. 12), primarily to provide learners with an understanding of how the structures they had learned could be used communicatively (Hutchinson and Waters, 1987, p. 26). These elements include phonological units, grammatical units, grammatical operations, and lexical items (Richards & Rodgers, 1986). The syllabus does not address communication skills in this way; instead, it emphasises the sentence over longer units of discourse and forms over meaning (Richards, 2001, p. 153). These are some of the shortcomings of the structural approach as criticised by proponents of the F-N approach (e.g., Widdowson, 1979).

Krahnke (1987, p. 30) asserts that the F-N approach and language both employ categories to organise instruction principles. The approach is predicated on the premise that learners are acquiring the language for a purpose (West, 1992), and thus the syllabus is typically divided into units based on specific topics drawn from specific situations in order to accomplish specific objectives.

The F-N approach to language education is characterised by its sensitivity to students' needs (Finocchiaro & Brumfit, 1983, p. 9). According to Richards (2001), the functional approach began to influence language teaching in the early 1970s as a result of the Council of Europe's efforts to develop effective methods of teaching European languages, "particularly with the needs of adult learners in mind" (McDonough & Shaw, 1993, p. 21). In other words, the Council of Europe sought to simplify the presentation of language learning syllabuses by avoiding a focus on certain formal features of specific European languages that presented difficulties for their students. That is, there was a need to shift away from teaching language as a grammatical system and toward teaching it as a communicative medium of communication.

Combining the F-N approach with Communicative Language Teaching (CLT) contributed to the F-N approach's development (Krahnke, 1987, p. 29). CLT is defined by Savignon (1991, p. 263) as "methods and curricula that embrace both the goals and the processes of classroom learning, for teaching practise that views competence in terms of social interaction". This means that in CLT, language instruction is predicated on inventories derived from presumed communicative needs. This instructional method is based on a view of language as a communicative tool (Richards & Rodgers, 1986, p. 68).

According to Littlewood (1981, p. 93), one of the most distinctive features of CLT is its systematic attention to both functional and structural aspects of language. Armstrong (2005, p. 13) clarifies that "while the teaching of structures, vocabulary, and pronunciation is not neglected, learners are generally given the opportunity to communicate in speech and writing, with an emphasis on fluency and the primacy of communication". Larsen-Freeman (1986, p. 132) determines the most distinguishing CLT techniques as pair or group collaboration, role-playing, and problem-solving tasks. According to Howatt (1984, p. 279), CLT emphasises language acquisition via communication, not just "activating an existing but inert knowledge of the language, but [...] stimulating the development of the language system itself". That is, the language is used to be learned.

Swales (2000) asserts that ESP has a solid connection to CLT. According to some ESP scholars, CLT best meets the prerequisites of ESP and prepares learners for real-world English use. For example, Widdowson (1979, p. 252) observes that "in ESP, a communicative approach appears to be the obvious choice, as even the most elementary assessment of needs reveals that learners will be required to use the language outside the context of language instruction". The current study examined whether or not teachers of English for computer science used this approach.

Furthermore, the F-N approach is not without drawbacks. According to Hutchinson and Waters (1987), its primary shortcoming is that it was adopted as a substitute for the structural

approach rather than as a syllabus in and of itself. Both approaches are viewed as antagonistic (McDonough, 1984) when they should work together and complement one another, as structure + context = function (Hutchinson & Waters, 1987, p. 32). Richards and Rodgers (1986) criticise the F-N approach for merely substituting lists of grammatical items for lists of concepts and functions, reducing it to a method of specifying products rather than teaching communicative processes.

#### **1.7.4. Skills and Strategies**

While the preceding approaches focused on the surface structures of the language, the skills-strategies approach focuses on the mental processes that underpin language use. According to Hutchinson and Waters (1987), this approach is based on the premise that, beneath all language uses, there are universal interpretation processes that enable to derive meaning from discourse regardless of its surface forms. As a result, there is no reason to limit oneself to the language's surface forms. However, the emphasis should be on the fundamental interpretive strategies that enable learners to deal with surface forms.

That is, effective language learning and instruction involve a grasp of both the nature of language and the psychological processes behind its perception and production. For a long period of time, researchers concentrated their efforts on the psychological mechanisms underlying understanding and output. Widdowson (1978), for example, analyses the interpretative processes utilised by both the reader and listener to derive the meaning of new words in ESP (e.g., guessing their meaning from the context in which they are presented, analysing their meaningful parts). Recent years have seen an increase in research on these strategies (e.g., Schmitt, 2000; Laufer & Yano, 2001).

Course design using a skills-strategies approach is linked to ESP projects that help students to develop specific abilities, skills, and strategies (e.g., works on reading skills include those of Nuttall, 1982; Alderson & Urquhart, 1984). Typically, it is designed to aid learners in improving their skills and strategies both during and after the ESP course. The goal is not to establish a unique corpus of linguistic knowledge but to enhance learners' information processing capacities, based

on the concept that individuals learn by thinking about and making sense of what they see, feel, and hear (Hutchinson & Waters, 1987). According to Kim (2008, p. 8), "learning is a process of relating new events or items to existing concepts in a meaningful way through the senses"

According to Johnson (1996, p. 164), a skills syllabus divides language behaviour into skills, such as reading, writing, listening, and speaking, and then into sub-skills or micro-skills, such as when reading (a macro-skill) is broken down into information reading, skimming, and scanning. The proposed skills syllabus is based on Widdowson's (1981, p. 2) distinction between a "goal-oriented" approach to course design ( focusing on the purposes of learning based on a description of terminal behaviour) and a "process-oriented" approach to course design (focusing on the means of learning based on a description of transitional behaviour). The F-N and structural or grammatical syllabuses address the products or outcomes of the learning/teaching process, whereas the skills syllabus addresses the process of language learning and use (Nunan, 1988a, p. 40).

The skills-based course design can be seen as being connected to the ESP's needs analysis (Benesch, 2001; Hyland, 2006). That is, using NA, course designers can determine the relative importance of the four major language skills in a given situation. Hutchinson and Waters (1987, p. 70) emphasise that NA provides a framework for identifying the underlying competence that enables individuals to perform in target situations.

Traditionally, the skill-centred approach has been criticised for failing to emphasise the development of more integrated and global communicative abilities due to its focus on discrete aspects of performance (Richards, 2001, p. 161). This implies that segmenting language into distinct skills may impair learning and that language should be learned holistically rather than in discrete categories, as the four language skills do not typically occur in isolation in real-life situations. However, a recent trend in language course design has been to integrate all four language skills. Integration of skills is frequently exemplified by adopting the modern "whole language" approach to language curriculum design, in which reading, for instance, is treated as

one of three interrelated skills (Brown H, 2001, p. 232). According to Oxford (2001, p. 5), one significant advantage of the integrated-skills approach is that English language learners are challenged to interact naturally in the language through exposure to authentic language; as a result, they gain a true sense of the richness and complexity of English as a communication language. Given that the ultimate goal of a learner is a real-world professional or academic context, McDonough (1998b, p. 323) observes that there is an inherent connection between the integrated skills teaching principle and the concept of the "target situation" in the field of ESP. The argument is that ESP students can be introduced to and trained on tasks that are similar to those encountered in real-life situations, i.e., "employing the same skills and strategies as would be required in the target situation" (West, 1997, p.34), such as computer professional-manager dialogue for computing purposes.

One of the most frequently used approaches for integrating the four skills is task-based language instruction. This approach in SL teaching utilises tasks (e.g., following directions, giving instructions) as the fundamental units of planning and instruction. That is, language classroom activities are guided by tasks that define syllabuses and establish assessment procedures. In this study, a task is defined as "an activity or goal that is carried out using language"(Richards, 2001, p. 161). To illustrate this, Skehan notes that "tasks are activities which have meaning as their primary focus. Success in tasks is evaluated in terms of achievement of an outcome, and tasks generally bear some resemblance to real-life language use" (1996, p. 20). The task-based approach to ESP is argued to be a feasible response to students' study- and career-related needs. Undoubtedly, many contemporary needs analysts in ESP increasingly focus on tasks, arguing that "learners are far more active and cognitively independent participants in the acquisition process than is assumed by the erroneous belief that what you teach is what they learn, and when you teach it is when they learn it" (Long, 2005b, p. 3).

According to Long and Crookes (1992), designing task-based syllabuses for ESP includes establishing target tasks, categorising them, and deriving instructional activities from these task

categories. The consequence is that task-based approaches to ESP promote learners' interaction in the target language, including authentic texts in learning scenarios, enrich learners' personal experiences, and connect classroom language learning to outside language activation (Nunan, 1991). Still, while task-based education views students as users rather than learners of language, the premise is that "a truly valid approach to ESP must be based on an understanding of the processes of language learning" (Hutchinson & Waters, 1987, p.14).

### **1.7.5. The Learning-Centred Approach**

Hutchinson and Waters (1987) popularised the concept of the learning-centred approach. This new perspective contrasts with the previous four, which focused on descriptions of language use (i.e., what students do with the language) instead of focusing on what students must do in the classroom to learn the language. The issue is that an excessive amount of focus was thought to have been placed on determining the language to be learned and taught in ESP courses, while an insufficient amount was placed on how this language would be learnt and taught. Bowers (1980, p. 66) observes that syllabuses "have been constructed which consider the learner, not qua learner but qua user of the target language in defined communicative contexts". Proponents of the learning-centred approach assert that "a language is best learned when the focus is not on the language, that is, when the learner's attention is focused on understanding, saying, and doing something with language, and not when their attention is focused explicitly on linguistic features" (Kumaravadivelu, 2006, p. 92). According to Hutchinson and Waters (1987), ESP is concerned with language learning rather than language use, though this can help determine course objectives. It is implausible to believe that simply describing and demonstrating how people communicate will aid someone in learning the language. If this were true, language learning would be as simple as reading a grammar book and a dictionary. A thorough understanding of language learning processes is necessary for a truly valid approach to ESP.

The learning-centred approach strives to maximise the potential of the learning situation by going beyond the competence that allows the learner to function and studying how the learner

learns that competence. This may require completing a detailed analysis of the learning process, learner motivations, and preferred learning styles (Dudley-Evans & St. John, 1998). As Holliday (1984) states, the learning-centred approach is more open than previous approaches to ESP.

According to Hutchinson and Waters (1987), a learner-centred approach takes the student into consideration at all stages of the course design process. This has two implications. First, the learning-centred approach considers course design as a negotiated process in which the character of the syllabus, resources, methodology, and evaluation methods are determined by the learning situation and the target situation. As a result, learning is both a psychological and a negotiated process. Second, because course design in this approach is a dynamic process involving changing needs and resources, it is necessary to establish student feedback on the development of the ESP courses.

Hutchinson and Waters (1987) maintain that the process of creating learning-centred courses consists of several stages. It begins with the identification of learners using assessments of both the learning and target environments. The authors emphasise that while the learning situation is connected to learning theory, the target situation is connected to language theory. The second stage entails two tasks: the first is to ascertain learners' attitudes, potential needs and desires, and the constraints inherent in the learning and teaching situation; simultaneously, the skills and knowledge necessary to function in the target situation should be ascertained. This results in the stages of developing the syllabus and materials for using the learning situation to acquire the skills and knowledge necessary for the target situation, evaluating the syllabus, and repeating the previous stages as necessary. As a result, the process is dynamic (Hutchinson & Waters, 1987, p. 74). The learning-centred approach to ESP appears to be unique in that it incorporates evaluation into the process of course design.

According to the learning-centred approach, the analysis of the learning situation and the analysis of the target situation are mutually exclusive. In other words, they are viewed as complementing one another rather than as antagonistic. Bloor (1984, p. 17) asserts that in order to

develop an effective teaching/learning syllabus, it is necessary to conduct an analysis of both the target and learning situations. Similarly, McDonough (1984, p. 31) states that a detailed specification of the target and learning needs is both desirable and necessary.

Hutchinson and Waters distinguish between the terms "learning-centred" and "learner-centred" (1987, p. 72). They prefer the former because the latter implies that "learning is completely determined by the learner" and thus that "a truly learner-centred approach does not exist," whereas "a learning-centred approach" incorporates the learner as a factor in the learning process and implies that learning is "a process of negotiation between individuals and society" (Hutchinson & Waters, 1987, p. 72). This implies that the learning-centred approach is viewed as communicative in the sense that "communicative" means "making decisions appropriate to the educational environment, about whether or not to have pair or group work, and about the lesson's emphasis on speaking, reading, writing, grammar, and pronunciation, among other things, none of which need to be precluded in a communicative approach" (Holliday, 1994, p.7).

This, in turn, entails considering the needs and expectations of all parties involved in the learning process when developing courses and selecting methodologies (Hutchinson & Waters, 1984), i.e., all parties who contribute to the social dynamics and larger social milieu that influence what occurs in the classroom, such as course directors and institute principals (Holliday, 1984). While the negotiated nature of the learning-centred approach is advantageous, it has been criticised for being difficult to implement (Hutchinson & Waters, 1987), which may have limited its use to some extent.

#### **1.7.6. Genre Analysis**

Swales (2004, p. 3) notes that "the first use of the term genre in ESP only occurred in 1981". According to Paltridge (2001), it was first introduced in an ESP Journal article on the language of scientific research reports by Tarone and her associates and Swales (1981).

According to Swales (1990), a genre is a collection of communicative events that serve a common set of communicative purposes. These purposes are acknowledged by experts in the

discourse community and thus serve as the rationale of genre. Swales admits (2004, p.61) that he is "less sanguine about the value and viability of such definitional depictions". Bhatia (1993, p. 13) provides a comprehensive definition of genre based on Swales' and other definitions:

It is a recognisable communication event with a set of communicative purposes (s) that have been established and agreed upon by members of the professional or academic community in which it takes place regularly. The types of permitted contributions are often highly organised and conventionalised in terms of their aim, positioning, form and functional value. Experts in the discourse community, on the other hand, frequently use these constraints to achieve private intentions within the context of socially recognised purposes.

Indeed, there are numerous discrepancies between the definitions mentioned above. Swales, for example, tends to focus solely on the linguistic and sociological aspects of genre, while the definition of Bhatia also includes psychological aspects. It is important to note that there is no universal consensus on defining genre (see Johns, 1993; Hammond & Derewianka, 2001). According to Hyon (1996), ESP researchers have been interested in genre as a tool for analysing and teaching the written and spoken language needed by nonnative speakers in academic and professional contexts. This process is referred to as "genre analysis" ( Bhatia, 1993; Benesch, 2001; Basturkmen, 2002; Hyland, 2006). The scope of ESP has been broadened and made 'thicker' to cover writing, speaking, and possibly interaction genres that ESP students might use in academic and professional discourse groups. According to Swales (2004), there has been a growing interest in integrating the concept of genre into specialised language instruction and the development of professional communication skills. Discussions with insider members of the community to establish which genres are very significant for the group, the communicative objectives of these genres, and expectations held for them may be part of the ESP genre study (Basturkmen, 2006). This form of research can provide linguistic, sociological, and cognitive data as well as insight into the way members of target communities think.

Hyon (1996, p. 694) distinguishes three approaches to genre analysis, which he refers to as "study traditions". The first is ESP Analysis, which mainly comprises Swales' (1981, 1990) and Bhatia's (1993) genre-related publications. The second is the study of North American New Rhetoric, which is exemplified by Berkenkotter and Huckin (1995). The third category is Australian Genre Theories, as shown by the work of systemic functional linguists such as Martin (1989). Belcher (2006) asserts that these three traditions were essential in reorienting ESP toward a socio-rhetorical interpretation of genre. Hammond and Derewianka (2001) show the parallels and differences in how the concept of genre has been taken as a theoretical construct and used to inform practical teaching practices. See Yunick (1997) and Hammond and Derewianka (2001) for in-depth discussions of these traditions.

Robinson (1991, p. 27) notes that "genre analysis" is a fruitful development within ESP. This appears to be the case as research on genre analysis continues to grow at a breakneck pace in both professional and academic settings (e.g. Paltridge, 2001; Samraj, 2002). According to Ford-Sumner (2006, p. 8), genre analysis has gained prominence in the field of computer science, most notably in the context of computing practice and education. Numerous studies have been conducted to examine genre across various CS contexts. This means that genre analysis may be used to deduce the nature of the written and spoken language used in the CS field as well as its social, cultural, and contextual characteristics. It can help in understanding how subject-matter experts communicate and write.

The problem with genre analysis is that it is mostly descriptive in nature, and it usually overlooks important factors influencing students' language learning, such as their learning needs, attitudes, and interests. Similar arguments are made by Dudley-Evans (1997), who claims that applying genre analysis in ESP classrooms can obstruct the development of students' voices. Furthermore, according to West (1997), there has been a disappointing lack of genre analysis research in pedagogy. This shows that not all genre analysis conclusions appear to provide sufficient guidance to course designers or aid in the selection of relevant instructional resources.

The ease with which genre analysis research findings can be translated into pedagogy remains a challenge.

### **1.8. Developments and Current Status of ESP**

The above discussion of approaches to ESP development may lead one to identify the paucity of contemporary literature on this topic. Despite this, the examination demonstrates that the multiple methodologies stated above have undoubtedly benefited ESP, such as register analysis, discourse analysis, and genre analysis. Unlike in the early days of ESP, when one or two of these approaches dominated the field, many various approaches are now acceptable, and individuals are prepared to blend different sorts of materials and methodologies (Dudley-Evans & St John, 1998). However, while it is best understood as a recently developed species that flourishes in certain secluded and restricted forms of the environment (Swales, 1985), it can also be viewed from a different standpoint.

According to Widdowson (1998), English for Specific Purposes means that English is peculiar to the range of principles and procedures that determine that particular profession. As a result, we have particular English associated with a specific form of institutional activity. He investigates the nature of this distinction and concludes that ESP is what English communication, in general, is all about. According to him, communication is inextricably linked to community and culture. That is, communication will be difficult in this situation if they do not share a common worldview, culture, or language category. Widdowson demonstrates through several instances of texts that if a text fails to textualise a discursal connection (despite its clear syntax and semantics), there will be no convergence on shared knowledge and no shared frame of reference. In other words, cohesion can exist in the absence of coherence, and the issue is a discrepancy in worldviews. As a result, making sense of a text without a frame of reference and understanding the relevant discourse is challenging. In other words, comprehension of the grammatical structure of a text does not always entail comprehension of the text as a discursal process.

The overall conclusion is that language proficiency is not always sufficient for communication. As Young (2009, p. 145) points out, "the use of language is only one way in which individuals create a community". In ESP situations, the emphasis is on communication's "discourse community". In this context, Widdowson (1998, p. 7) comments that "communication implies community and membership is mediated with the meaning of the text" Knowing the semantic meanings of words is insufficient because "words are schematically connected to form the conceptualisation of reality which define the culture of a particular discourse community". This implies that familiarity with the cultural features of a discourse community is necessary for effective communication within it.

The implication is that addressing ESP teaching demands helps students improve their language skills while also introducing them to the discourse community's culture. This means that while looking at the needs of ESP students, it is necessary to think of the target scenario and the learning situation as two parts of the same continuum marked by social activity or communicative interaction. As a result, the goal of a course should not be to separate the student from the language they are learning, the language from its context of use, or the act of acquisition from its act of use (Holme, 1997).

Basturkmen (2002, pp. 31-33) identifies several areas of inquiry that ESP researchers should investigate in order to develop the subject of ESP. These unexplored areas include the importance of language in the workplace, academic, and professional environments (How does ESP education depict language's roles in these specific environments? How do people communicate in these environments?), the nature of ESP competency (How can ESP competency be defined?), and the nature of ESP competence (How can ESP competence be defined? What constituents does it contain? How is language proficiency seen in the workplace, academic, and professional arenas, and how does it affect an individual's advancement in these settings? What defines someone as a communicatively competent physician, nurse, or other professional? How are language needs defined? ), the nature of ESP learning (What role does learner motivation play

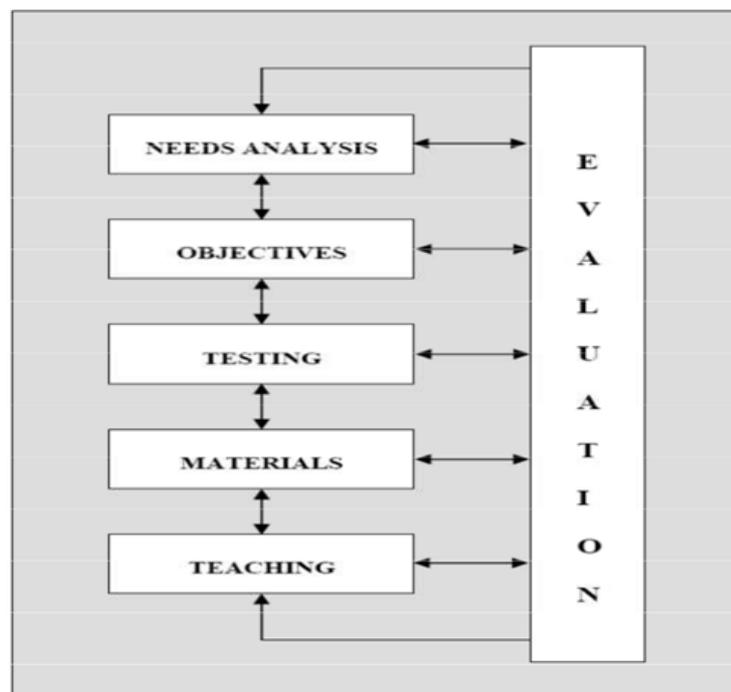
in ESP learning? What particular attributes does the learner need to have to be successful in learning? What elements may contribute to the ESP learner's success or failure?) and the function of ESP instruction (What are the mission statements, goals, and objectives of ESP teaching programmes and courses? What is the role of the ESP instructor? What characteristics and knowledge does a teacher require? What are the teacher's obligations in an ESP classroom?). The current study is motivated by such questions.

According to Basturkmen (2002, p. 29), it is only via examination of these areas that fundamental aspects of ESP may be established. Otherwise, ESP remains mysterious and may continue to be practice-oriented rather than theory-oriented. As a result of examining these domains, a comprehensive theoretical framework for ESP may be developed. This underlying notion may be motivated by the distinctive properties of the texts that learners should master or by the need-based nature of instruction (Dudley-Evans & St. John, 1998). The research has largely focused on the practical aspects of ESP and the interaction between course and material design and learner needs. These themes are discussed in detail in the following sections.

### **1.9. ESP Curriculum Development Processes**

According to Richards (2001, p. 2), language curriculum development begins with the concept of syllabus design, which is a subset of it. Typically, the process of developing a syllabus involves the selection and organisation of a course's content (White et al., 1991; Richards, 2001). The development of an ESP curriculum, it is suggested, is a more involved process than developing a syllabus. For the purposes of this study, curriculum development refers to the processes involved in determining the needs of learners, developing the aims and objectives of a programme to meet those needs developing an appropriate syllabus, course structure, teaching methods, and materials, and conducting an evaluation of the language programme that results from these processes (Richards, 2001). This definition implies that developing an ESP curriculum is a multi-stage or multi-component process. As a result, a systematic approach should be taken to cover these components.

A number of experts in curriculum design have proposed a variety of models for developing language curriculums (e.g., Richards, 2001; Nation and Macalister, 2010). While the emphasis and major components of these models vary, they all have one significant feature in common: they all involve an ongoing cycle of curriculum development. Due to time and resource constraints, the present study makes use of Brown's curriculum development model (1989, p. 235) due to its flexibility and simplicity. As illustrated in Figure 1.1, the curriculum development process consists of six components: needs analysis, objectives, testing, materials, instruction, and evaluation of the curriculum being developed.



**Figure 1. 1. Brown's Language Curriculum Development Model (Brown, 1989, p.235)**

Brown (1989) defines his model as a systematic approach to developing and maintaining a language curriculum. This means that it can be used to supplement an existing language course, such as the ESP course currently being studied. In this model, course curriculum development is viewed as a process that is subject to change and adaptation in response to changing conditions

and requirements. These conditions could include changes in needs and attitudes, as well as in the environment or available resources.

According to Figure 1.1, the six components form a highly integrated and interrelated process. The implication is that if one component is changed, the other components and the entire process are also likely to be affected. Additionally, as Brown (1989, p. 236) notes, Figure 1.1 demonstrates that curriculum evaluation is a critical component that connects and holds all of the components together. That is, each component is evaluated in order to maintain a continuous curriculum development process. While it does not always occur sequentially, this process typically begins with a NA as a critical step. Each of the remaining components is organised in accordance with the data and insights gleaned from the NA. As a result, goals and objectives are developed in response to the learners' needs. The third component is developing appropriate assessment procedures that are aligned with the goals and objectives. Following that, the NA, goals and objectives, and assessment data are used to select and develop appropriate materials and instruction. The final component is an ongoing assessment of the preceding components and the course as a whole for appropriateness and effectiveness.

In summary, a systematic approach to curriculum development, such as the one described above, establishes a direct link between student needs, course objectives, materials, assessment, and instruction. It may be concluded that the logical first step in developing an ESP curriculum is to ascertain the specific needs of learners, as discussed in the following section.

### **1.10. ESP Learners' Needs**

There is a widespread misconception that ESP is primarily intended to address the unique needs of individual learners. Indeed, a substantial body of research on ESP agrees that it is initially motivated by the needs of learners (Hyland, 2006; Harding, 2007, Basturkmen, 2010). By definition, any discussion of learners' needs must begin with a firm grasp of what the term "needs" means in the context of language learning in general and ESP in particular.

### **1.10.1. Definitions and Characteristics of Needs**

To begin, it is necessary to acknowledge that the term 'needs' is "ambiguous and imprecise" (Chambers, 1980, p. 26); it "is not as straightforward as it might appear" (Richards, 2001, p. 54). A number of researchers have offered widely divergent interpretations of the term. Thus, it can refer to a variety of things in the ESP context, including learners' goals, desires, preferences, needs, interests, wants, expectations, deficiencies, and motivations, as well as their awareness of their rights, language proficiency, reasons for enrolling in a course, teaching and learning constraints, gaps in their knowledge, and even their fantasies (Robinson, 1991; Benesch, 2001; Hyland, 2006).

Widdowson (1983, p. 20) claims that "the absence of distinction between aims and objectives leads to an ambiguity in the expression of learner needs". He explains that objectives can refer to the learner's intended use of the language once it is acquired, resulting in a goal-oriented definition of needs that implies they are related to the language acquisition goals. These aims, objectives, or ends are distinct from educational objectives, a term that refers to the activities that the learner must perform in order to acquire the language and whose use implies a process-oriented definition of needs that connects them to the means of acquisition. As these two complementary definitions demonstrate, needs are frequently inextricably linked to the goals or objectives of language learning. Holec (1980, p. 7) emphasises the critical nature of defining objectives when it comes to identifying needs in this area. According to him, three factors influence whether an objective is content- or learner-centred. The first is that all students are required to possess a foundational body of knowledge, which has been predefined through linguistic analysis. This may be dissimilar to the specialised language knowledge desired by a particular group of learners in some ways. The second difference is that the minimal level of competence is defined using criteria that are not dependent on the learner (usually taking the native speaker as a model). Thirdly, the purpose of defining needs is to establish a teaching system and create efficient and cost-effective instructional materials.

While Widdowson (1983) argues that the ambiguity surrounding needs stems from a failure to distinguish between aims and objectives, West (1994) asserts that the ambiguity stems from the needs themselves, as they encompass a variety of contradictory concepts such as necessities or demands (also known as objective, product-oriented, or perceived needs), learners' desires (also known as subjective or felt needs), and the methods or bridging the gap between these two (process-oriented needs). Chambers (1980, p. 26) views this terminological inaccuracy as a persistent problem, asserting that no two projects use the same terminology, even when researchers are primarily interested in the same phenomena. To avoid this problem, it appears as though a researcher must either be exhaustive in considering all possible definitions of the term 'needs' or confine himself to a narrow and unambiguous definition.

According to Robinson (1991, p. 23), needs are "a matter for agreement and judgment, not discovery". This implies that students already have unmet needs that need to be identified. Brindley (1984, p. 29) provides an alternative viewpoint: "need is not a thing that exists and might be encountered ready-made on the street. It is a thing that is constructed". According to Richterich and Chancerel (1987, p. 9), needs "are built up by individuals or groups of individuals from an actual example of experience". Needs do not appear to exist prior to the start of a project in this case but rather appear to be the result of previous educational experiences negotiated by those involved (e.g. language teachers, learners, employers). For many people, the term "needs" connotes that there is a gap between one's current state and a desired future state that must be bridged, or that progress toward the desired goal must be made, or that a change should be made (Graves, 2000). As a result, ESP courses are designed to help learners bridge this gap, or at least a portion of it, by assisting them in making progress and/or realising the desired change.

Although scholars differ in their descriptions of learners' needs, the majority (e.g., Brown, 1995; Harding, 2007) assert that:

- are multiform or multifaceted;
- are amenable to change;

- are not constant or fixed facts;
- vary from one person to another depending on the interaction between individuals and their environment and on their activities;
- are not entirely independent;
- are always constructed;
- can be identified and analysed

Nowadays, it is widely accepted that the term 'needs' refers to a broad range of cognitive and linguistic factors in the context of ESP (Hyland, 2006, p. 73). As Richterich (1983) observes, what is critical is not so much to precisely define the term "need" as it is to pragmatically quantify the educational, ideological, and political effects, scope, and impact of methodological issues surrounding the identification of needs on the actual process of teaching and learning. As a result, the ambiguity and different interpretations of the term should not be seen as a major issue. The study defines ESP learners' needs as their motivations for studying ESP, their current abilities in primary language skills, the language functions, tasks, and activities that will be used in their academic studies and target careers, the level of language proficiency required in each primary language skill in their academic studies and target careers, and the methods for learning and teaching ESP, such as methodological and material preferences, difficulties, or concerns.

### **1.10.2. Types of Needs**

As the above reveals, there is no universal agreement on the concept and thus on the categories of need (Chambers, 1980). This is not to say that recognising what needs exist is difficult; rather, it indicates that the nature of those needs may vary according to who is discussing them. The following subsections discuss various ESP classification schemes.

#### **1.10.2.1. Real Vs. Ideal Needs**

De Escorcía (1985, p. 229) establishes a distinction between two categories of needs. According to his distinction, there are real and ideal needs in English language learning,

particularly in ESP. He defines genuine or what Harding (2007, p. 17) refers to as immediate needs as those that are met in the majority of cases toward the end of a learner's career “when more specialised up-to-date reading material has to be handled”. This has three implications. To begin with, learners may not perceive a real or immediate need for specialised English when they are offered ESP courses; thus, it is critical to raise learners' awareness of the target situation and its associated genuine needs. Second, they should not frequently be expected to make sound judgments about their true needs, as Scrivener (2005, p.71) argues that students frequently do not know what they need or want. Richterich and Chancerel (1987) also observe that experience demonstrates that the learner is generally unaware of his or her own needs and, in particular, unable to articulate them clearly. Additionally, teachers or instructors are accountable for eliciting information about learners' needs and educating them about the importance of expressing and explaining their needs and difficulties. Third, real needs are typically viewed as being closely related to what occurs in the target situation, as opposed to ideal needs, which refer to an ideal situation or state in which learners are expected or supposed to be.

Apparently, this type of need, the ideal need, varies according to one's perspective and circumstances, whereas De Escorcía defines the real or primary need as the bare minimum knowledge that learners must have in order to finish their studies successfully and easily.

#### **1.10.2.2. Objective Vs. Subjective Needs**

A number of scholars (e.g., Brindley 1989; Brown 1995; Van Avermaet and Gysen 2006) distinguish between two distinct and probably contrasting types of need: objective and subjective. On the one hand, Brindley (1989) and Van Avermaet and Gysen (2006) define objective needs as those that can be deduced from facts about learners, their language use in real-world communicative situations, current language proficiency, and language difficulties. That is, objective needs are determined based on data that is objectively observable (Brown, 1995). As a result, meeting objective requirements frequently necessitates the consideration of specific linguistic factors. On the other hand, subjective needs are the desires and expectations of students

in their learning environment that are influenced by cognitive and affective factors such as self-knowledge, awareness of target situations, attitudes toward learning English, wants, and instructional expectations (Belcher, 2006). In other words, subjective needs are unobservable data such as desires (Brown, 1995). One could argue that terms such as 'self-awareness,' 'attitudes,' 'wants,' and 'expectations' refer to broader concepts within needs and may include not only linguistic but also non-linguistic factors. That is, the emphasis appears to be on how learners learn the language, which may include encouraging their participation and investment.

Brindley (1989) claims that data on both subjective and objective needs can be collected, whereas Graves (1996a) asserts that subjective needs are frequently just as important as objective needs and that the latter cannot be met without the former. When creating ESP courses, it is critical to identify and balance objective and subjective needs. While focusing solely on learners' subjective needs without regard to their objective needs may not be in their long-term interests, focusing solely on objective needs may be undesirable as well (Van Avermaet & Gysen, 2006).

#### **1.10.2.3. Target Vs. Learning Needs**

Hutchinson and Waters (1987) define target needs as distinct from learning needs. In general, the former are the skills and knowledge that learners require in the target situation, i.e., the knowledge and abilities necessary to perform at the required level of competence and proficiency in the target situation. Chambers (1980, p. 30) refers to these as "real and long-term needs". Hutchinson and Waters (1987, p. 55) classify target needs into three types:

1. **Necessities:** These are the requirement of the target situation, i.e., what learners have to know in order to function effectively in the target situation, such as linguistic features: discoursal, functional, structural, lexical). Necessities represent the destination.
2. **Lacks:** It is critical to match the target proficiency to the learners' current proficiency. The difference between them is what the learner lacks, for instance, the ability to read

texts in a specific subject area. Lacks are regarded as the starting point of a journey leading to the aforementioned destination.

3. **Wants:** These represent the learners' perceptions of their own needs, i.e., what they believe they require, which may differ from or conflict with the perspectives of other stakeholders such as course designers, teachers, and sponsors (e.g., the learners' personal reasons for studying English). Wants are viewed as a source of contention regarding the appropriate destination (represented by necessities).

In light of the foregoing, one could argue that all subtypes of target needs are primarily concerned with language use, particularly in the target situation, which, as Chambers (1980, p. 29) asserts, has “largely been ignored” in NA research.

It also seems that both necessities and deficiencies appear to represent objective needs, whereas desires appear to represent subjective ones, though the perception of particular needs as objective or subjective varies from person to person. This increases the likelihood of conflicting needs and desires between the parties. For example, Robinson (1991) asserts that students and teachers may have divergent views on ESP needs. Young (2000, p. 73) illustrates a potential conflict in identifying students' needs:

Consider the case of students enrolled in a foundation course at a university prior to enrolling in their desired faculties. Their own perceptions may place emphasis on fluency in informal conversational situations; their teachers may place a premium on the reading comprehension and writing skills necessary to progress successfully through this stage of the system; faculties may require study skills, note-taking, report writing, or the ability to construct an argument; and the larger community to which they will eventually belong may view student needs quite differently, and by no means homogeneously.

This does not mean, however, that the requirements for a particular project are inherently contradictory. Harris and Bell (2003, p. 42) emphasise the fact that “different individuals and different groups will have different needs”, whereas Kennedy and Bolitho (1984, p. 14) are more

optimistic about the possibility of "agreement on needs between teacher and student". As Chambers (1980) suggests, what appears to be required is to define the various levels of need and to allot a system of priority among them.

Porcher (1983, p. 134) indicates three levels of need in language teaching and learning, as follows:

- Why does someone learn a language? What does he desire or intend to do with the language at the conclusion of the course? This, one could argue, is the non-linguistic aspect of the language requirement. How will the acquired language be used?
- What language competencies must the learner possess in order to accomplish these goals? What communicative abilities does he require in order to accomplish what he desires or is obligated to accomplish? This is the translation of language requirements into another language.
- What types of language knowledge must he possess (lexis, morphosyntax, etc.) in order to acquire these competencies in order to acquire these communicative skills? On the other hand, what types of linguistic knowledge does the teacher need to impart? This is the level of content, progressions, methodologies, and curricula; in short, it is the level of all the linguistic-didactic components that comprise a language course.

Porcher argues that these three levels must be viewed sequentially in order to grasp their interdependence. This suggests that concentrating exclusively on a single level may be ineffective. Researchers who are analysing the needs of students are encouraged to categorise their research questions using these levels. Robinson (1991) notes, however, that whereas needs analysis used to focus almost exclusively on course objectives or end-of-course requirements, it is now common to consider students' initial needs, including learning needs. Garcia Mayo refers to instructional needs as "pedagogic needs." (2000, p. 38). These are the activities in which students must engage in order to successfully acquire a language (Hutchinson & Waters, 1987, p. 54). They describe the path learners take from their starting point (lacks) to their destination (necessities), and may include their English knowledge, skills, strategies, preferred styles and methods of language

learning, obstacles encountered along the way, as well as their motivation for and attitudes toward language learning. This demonstrates how educational needs are primarily concerned with the why and how of language acquisition in an educational setting. In other words, it appears as though all educational standards are pedagogical in nature. However, Savage and Storer (2001, p. 141) argue that learning needs can be viewed as "instructional logistics needs" in terms of the course's purpose, instructional resource type, course location, and timing.

#### **1.10.2.4. Investigation of Learners' Needs**

In the field of FL/SL instruction, a greater focus is being placed on completing detailed needs analyses as a prerequisite to effective course design (Long, 2005b, p. 1). They are often identified and assessed as part of the process of conducting a requirements analysis or assessment (Harding, 2007; McCarter & Jakes, 2009). According to West (1994, p. 1), Michael West invented the term "needs analysis" in India in the 1920s as he sought to determine why learners should learn English (answer: to read) and how they should learn it (answer: through reading). According to Boswood (1990), the NA initially focused on scenario analysis but has recently significantly broadened its coverage. Apart from objective data, it now includes an analysis of students' subjective opinions on their learning and life goals, their preferences for methodology and learning styles, and any other stakeholders involved in the courses. This demonstrates that the concept of NA was first relatively simple and limited, until the need for its scope to be expanded became obvious.

While Nunan (2001, p. 57) links the emergence of NA in language learning to CLT, Chambers (1980, p. 33) observes that the term 'needs analysis' is not exclusive to EFL; it has been appropriated from other domains. When it was adopted, it filled a void and served a function by transforming an activity into an object that we can manipulate. However, by adopting someone else's terminology altogether, we have ended up with a term that is by no means entirely appropriate. The term 'needs' has been used in this study to refer to the end product of the analysis.

This implies that NA is inextricably linked to the existence of needs. That is, if no obvious and/or established needs exist, they can be identified and analysed. This indicates that learners' needs in the language learning environment require analysis.

It is critical to analyse them when designing curriculum and courses. Dornyei (2001a) proposes that to ensure that the curriculum and teaching materials are relevant to students, teacher should employ needs analysis methodologies to ascertain his/her students' needs, goals, and interests and include them as much as possible into his/her curriculum. This means that NA contributes to avoiding courses being built around expediency, such as an excessive dependence on published texts as a quick solution. Additionally, there appears to be a widespread recognition that the intuition and understanding of curriculum developers, materials designers, and teachers on specific language and learning needs are insufficient and that identifying and evaluating these needs through an extensive NA is critical.

NA is the systematic collecting and analysis of all subjective and objective data essential to develop and evaluate acceptable curriculum objectives that meet students' language learning requirements within the context of particular institutions (Brown, 1995). According to Graves (2000), NA is not only a methodical approach but also an ongoing process of collecting data about students' needs and preferences, analysing the data, and selecting courses based on the interpretation to satisfy those needs. This suggests that learning preferences which assist learners to acquire particular abilities are another facet of NA that should be taken into account while conducting NA. According to Richards et al. (1992), who cover further facets of NA, it is the process of identifying the purposes for which a student needs a language and prioritising those purposes. Needs analysts elicit subjective and objective data about the learner in order to ascertain the language's purpose, the context in which it will be used, the audience for whom the language will be used, and the required level of competency. This term is considered relevant for the current study, as it appears to encompass a variety of aspects of learners' needs. Richards (2001, p. 52)

identifies some (but not all) of the objectives which NA can serve in language learning and teaching:

- To determine the language skills necessary for a learner to perform a specific role, such as sales manager, tour guide, or university student;
- To determine whether an existing course adequately meets the needs of potential students. -To determine the significance of a change in direction as perceived by members of a reference group;
- To determine a gap between what students are able to do and what they should be able to do;
- To elicit information about a specific problem that learners are experiencing.
- Underlying the NA process is a theoretical framework that determines its accomplishment.

According to West (1994), this is curriculum development. As a result, one could argue that identifying learners' requirements is critical to successful language learning and teaching. Since the early 1960s, three major trends in curriculum development appear to have emerged: enhancing teaching methods, adjusting teaching to the type of learning audience, and training learners in how to learn (Holec, 1980). West (1994, p. 2) asserts that NA "has been rooted in the second of these tendencies and, more recently, the third".

There are two widely accepted methods for analysing a learner's needs. The first is based on Richterich and Chancerel's (1977; 1980) paradigm, while the second is based on Munby's (1978) Communicative Syllabus Design. Richterich and Chancerel (1977) categorise language needs according to their contexts and operations. A language context is composed of three distinct types of data:

- Information about the agents (the people involved in the communication process, e.g., the teachers, the learners, and the employers). These agents would be required to provide information about their identities, telephone numbers, and social and psychological roles;
- Information about the time and frequency of the communication act;

- Information about the location of the communication act, such as its geographical and physical characteristics.

The language operating component is also composed of three types of information:

- Information about the functions or purposes that the act of communication should fulfil (e.g. expression, description, argumentation);
- Information about the objects to which the act of communication will refer (e.g. whether the object of communication is to convey a neutral message, to report an affective state, or to maintain or break social ties);
- Information about the means by which the act of communication will be produced, such as the language skills required, whether the communication will be oral or written.

These two components suggest that the authors' core premise is the act of communication.

Richterich and Chancerel (1987) later expand on their model's definition of needs to make it more complete. The model encompasses the learners' objectives, needs, motivation, and approach, as well as the perspectives of all those involved (e.g., language teachers, subject teachers, and employers). Despite these improvements, one could argue that Richterich and Chancerel's model has some limits. Gardner and Winslow (1983, p. 72) highlight numerous of these flaws in their study following the model's use. To begin, some of the suggested procedures (for example, intelligence tests) would require specialised design. Second, certain categories appear to be redundant and irrelevant (e.g., marital status, number of children, brothers and sisters, religion, occupation of mother and father). Thirdly, it is unlikely that those directly involved in the operation of language classes would have the time or ability to implement the model's procedures. As a result, it appears as though the approach would require the involvement of a team of specialists.

The second well-known model is that provided by Munby (1978), which has been regarded as a watershed and a coming of age for ESP (Braine, 2001) due to its emphasis on the importance of needs in the design of ESP courses (Kim, 2008). McDonough (1984, p. 31) regards that

Munby's model's procedures “are very detailed and [represent] an attempt to be both explicit and comprehensive”. Munby coined the term "Communication Needs Processor" to refer to this set of procedures (CNP). According to West (1994), the model's theoretical underpinnings include modern perspectives on the nature of communicative competence taken from Hymes (1971). Despite the heavy reliance of the model on theoretical assumptions, its proposed techniques have been widely used, modified and unmodified to establish language teaching and learning programmes in many parts of the world (McDonough, 1984).

In attempting to evaluate Munby's model, Hawkey (1980, p. 81) observes that it requires a language-training situation with very specified professional or educational objectives and a relatively homogeneous group of learners. This, Hawkey asserts, enables course designers to achieve two objectives:

- a detailed profile of what the learner needs to be able to do in English in the occupation or studies for which s/he is being trained; and
- a specification of the language skills, functions and forms required to carry out the communication described in the needs profile.

This entails responding to several questions, including the following: Who are the learners? Which study or occupational area will they need English for? With whom? Where and when will they need English? Handling which dialect of English? Handling which media and modes? At what level? To participate in which communicative activities? In what tone? The data gathered in response to these questions can be used to create a profile of communicative needs, which is required for the next stage: determining the language skills required of learners for their target communication (Hawkey, 1980).

McDonough (1984) asserts that what characterises Munby's model is the place of the CNP at the heart of the model: information about the learners' sex, age, nationality, mother tongue, and so on—is fed into the CNP, which consists of a range of categories. Hawkey (1980) clarifies that this is in a two-sector model, which might be represented in a diagram. The variables in the first

sector reflect the model's sociocultural orientation, which Richterich (1983) defined as predictable and generalisable objective needs. The headings under which information is collected in the first sector of the model is organised logically rather than randomly. Munby's model omits sociopolitical, logistical, administrative, psychopedagogic, and methodological variables, as Munby explains because he is interested in the dimension of course design which is subsequent to the syllabus specification. Munby's ultimate purpose, then, appears to be to instruct course designers on how to construct a syllabus. Additionally, Munby confirms that it is difficult to associate a functional specification of a language with actual language use.

Despite its widespread use, Munby's model has been criticised since its introduction. For example, Hawkey (1980, p. 91) regards it as a tool primarily for course designers that overlook those at the centre of the process, the learners. West (1994, p.9) also criticises the model for gathering data rather than from the learners. This means that any determination of needs that is primarily concerned with course design or development will be insufficient if it does not take into account the learners' own perspectives and desires. Recently, it was recognised that learners, as reflective members of their communities, should collaborate with ESP specialists on needs analysis (Benesch, 2001). Besides, Munby's model is primarily performance-based, perceiving communicative events and activities as categories of real-world language use rather than as components of a construct of communicative competence that encompasses the grammatical, discourse, sociolinguistic, and strategic features of communication (West, 1994). Furthermore, as Boswood (1990, p. 56) observes, Munby fails to identify contextual and non- linguistic factors affecting communicative competence. Munby appears to have adopted a performance repertoire that has been debated by other researchers, including Hutchinson and Waters. Munby could also be criticised for failing to identify procedures for gathering relevant data. Munby appears to offer a useful set of data classifications, as well as data inventories from which selections should be made in some cases. The method, on the other hand, appears to be determined by the users. This, in turn, according to Hawkey (1983), results in the collection of a large amount of detailed

information necessary for the application of the model, which is difficult to obtain without practical knowledge of the target environment. Often, this environment will be inaccessible, and collecting data will be both costly and time-consuming, while the method of analysis is unsure.

Generally speaking, however, Jordan (1997, p. 24) observes that, despite his model's apparent weaknesses, "Munby's approach and model have been very influential: either development have stemmed from his work, or as a result of reactions to it". It is frequently cited as a seminal study in NA research, particularly those pertaining to the design of ESP courses.

A critical point to consider is that needs are typically variable and can be reshaped through the analysis process. That is, NA places a premium on establishing the target situation. Additionally, while language proficiency requirements for communication are necessary, they are insufficient. A link between needs and the target community or subculture should exist in the design of ESP courses. Holme (1997, p. 10) emphasises that needs are not about a hypothetical future but rather about the students' relationship to the community into which they wish to integrate, which may not speak the students' L2. With this perspective in mind, Holme recommends that NA begin with the conception of a course as an interaction between students and teachers within a context defined by the target situation. This demonstrates the ongoing nature of NA, which is predicated on an understanding of the target situation. As a result, NA in this context, according to Holme, has two aspects:

- A continuous self-evaluative course that can relocate itself according to its goals and which finds methods that reflect this outlook;
- An understanding of the target situation as a subculture or social group that the student wishes to join.

Holme appears to interpret this by assuming that the ESP course will comprise more than just tasks; language practice will be developed in response to the target situation. Additionally, these tasks are derived from the target situation community's activities, and activating its discourse

clarifies to students what they have to learn in order to become full participants or members of this community.

In conclusion, while NA is viewed as "a defining feature of ESP" ( Flowerdew & Peacock, 2001b , p. 178), Kandil (2008) observes that the subject of NA has not yet received sufficient attention from language teaching professionals and researchers in the Arab world. A possible reason for this is that institutions and learners alike are not yet sufficiently aware of the critical nature of identifying needs and NA. One possible explanation for such ignorance is cultural. For instance , NA studies in language teaching and learning in general, and in ESP in particular , appear to be extremely rare in Algerian university context, where the current study was conducted.

### **1.10.3. Approaches to Needs Analysis**

Target situation analysis (TSA), learning situation analysis (LSA), and present situation analysis (PSA ) are three approaches to analysing learners' needs that have been classified by scholars (West, 1994; Mo, 2005; Hyland, 2006; Kim, 2006). TSA entails identifying the target situation and conducting a thorough analysis of its tasks, activities, linguistic characteristics, and knowledge requirements (Hyland, 2006, Basturkmen, 2010). This demonstrates that TSA is more concerned with actual communication requirements specific to the target situation than with learning needs. PSA could be used to bridge that gap or overcome the limitations of TSA. PSA aims to ascertain students' language proficiency, strengths, and weaknesses at the start of their language course (Robinson, 1991; Hyland, 2006). Jordan (1997, p. 24) notes that students, language teaching institutions, and the user institution are the sources of PSA data (e.g. place of work). According to Robinson (1991), the assumed distinction between TSA and PSA is that the latter imposes constraints on the former, which will have been completed first. Finally, LSA necessitates an examination of the learning environment in order to ascertain how students acquire the ability to use language in the manner in which they do (Hutchinson & Waters, 1987). This suggests that LSA is frequently concerned with identifying the preferred learning styles and strategies of students. Because NA is viewed as a combination of TSA, PSA, and LSA; therefore,

the three approaches are suggested to be complementary. Dudley-Evans and St John (1998, p. 125) define NA in ESP by outlining the following types of data which must be collected:

- A. Professional data regarding the learners: the tasks and activities that they are/will be using English for, via objective analysis and TSA;
- B. Personal data regarding the learners: factors which may affect the way they learn, such as cultural information, previous learning experiences, reasons for attending the course, expectations of it and attitudes to English, i.e. wants and subjective needs;
- C. English language learning regarding the learners: what their current skills and language use are, via PSA, which enables the assessment of (D);
- D. The learners' lacks, defined as the gaps between (C) and (A);
- E. Language learning data: effective ways of learning the language and skills in (D), i.e. learning needs;
- F. Professional communication information regarding (A): knowing how language and skills are used in the target situation, via linguistic analysis, discourse analysis and genre analysis;
- G. What is wanted from the course;
- H. Data regarding the environment in which the course will be run, via means analysis (Dudley-Evans & St John, 1998, p. 125).

The implication is that an inadequate understanding of demands may obstruct analysis or, more likely, render the results insufficient and inapplicable. For example, disregarding affective factors (e.g., motivation and attitudes toward the target language) may result in a reduction of needs to purely linguistic ones. Thus, the term "needs" could be regarded as an umbrella term to cover a range of concepts such as those outlined above (Hutchinson & Waters, 1987; Hyland, 2006). According to West (1994), this approach may reveal interesting differences in perspectives and facilitate the investigation of various forms of NA.

In light of the above discussion, NA is a critical process for gathering information on the needs and situations of learners. Regardless of the method used to gather data, it appears that recognising learners' needs has frequently been a critical and important topic in ESP; each method aims to identify what learners need, as needs are frequently determining factors in course design. However, needs encompass not only the linguistic features of a target situation, but also communicative preparation and integration into the target community; and NA is highly dependent on how these needs are perceived.

#### **1.10.4. ESP Needs Analysis Process**

Dudley-Evans and St John (1998) emphasise that the manner in which NA is approached and conducted depending on the situation. According to Jasso-Aguilar (2005), it is necessary to examine the social context in which the actors live when conducting a NA. This implies that certain contextual factors may influence the manner in which the NA is conducted. Thus, while the importance of needs and NA in language learning in general and ESP in particular cannot be overstated, the process by which NA is undertaken has an almost equal significance.

Jordan (1997, p. 23) provides the following steps for conducting a NA in EAP, which may also be applicable to other types of ESP:

1. Identify the purpose of the analysis;
2. Delimit student sample;
3. Decide upon approaches;
4. Acknowledge constraints/limitations;
5. Select methods of collecting data;
6. Collect data;
7. Analyze and interpret results;
8. Determine objectives;
9. Implement decisions (i.e. decide upon syllabus, content, materials, methods, etc.);

10. Evaluate procedures and result.

It is essential that Jordan's NA process begins with defining its purpose. As a result, the rationale for doing an analysis of learners' needs should be as explicit and specific as Richards' (2001, p.52). For instance, when a NA of prospective computer science professionals is undertaken, as this study seeks to do, the purposes may be:

1. To determine to what extent the present ESP course helps them to improve their language skills (reading, listening, speaking, writing), grammar and vocabulary;
2. To identify language difficulties and problems encountered in their current place of learning English and in their future workplaces;
3. To determine to what extent the present ESP course adequately prepares them both for their studies and for their target careers;
4. To determine to what extent their needs are met by the present ESP course and its materials;
5. To determine the extent to which the English language needs assumed by their sponsors are actual needs;
6. To determine what language skills, activities and tasks will be required to enable them to function effectively in their academic discipline and future workplaces;
7. To identify their attitudes towards learning English and ESP.

Taking these objectives into account and following the model for developing an ESP curriculum illustrated in Figure 1.1, the NA process of the current study begins by defining its main purpose (what information to collect and why), informants, and data collection methods. In NA, triangulation of informants and methods is essential because it allows for the collection of multiple perspectives and data on each aspect of the ESP course and its requirements (Jasso-Aguilar, 2005; Orr, 2005).

The next step is to collect the necessary data on target needs after determining the NA's purpose, informants, and methods. According to Hyland (2006), questionnaires, text analysis of

authentic spoken and written texts, observations, informal consultations with students, ESP teachers, and faculty members, and assessment results are among the most commonly used procedures for gathering data on student needs. However, as Richards (2001, p. 63) points out, it is critical to collect only the data that will be used.

The next step is to organise, analyse, interpret, and report on the data that has been collected. Prior to gathering data, a decision must be made about the statistical techniques to be used for quantitative data analysis and the method (s) to be used for qualitative data analysis. It is possible to create a profile of typical learning and target needs after the data has been analysed and interpreted. While NA findings are relative rather than absolute, needs have to be prioritised because not all of them can be addressed in a language programme, and decisions need to be made about which needs are critical, important, and merely desirable (Richards, 2001). Scrivener (2005, p. 73) proposes a number of options for making use of the data obtained from an NA. They are listed as follows in approximate (increasing) order of the amount of the extent to which account is taken of the data:

- Make no reference to the NA data. Continue on your current course as if no data were collected.
- Review the data, but decide that the original course plan is likely to achieve something very close to the desired outcomes, and thus the original course plan should be followed.
- Continue with the course as usual, but allow the data to influence minor aspects of how to help or deal with students in class.
- Maintain the course as before but add a limited number of additional activities, lessons, or variations to meet some stated needs.
- Re-plan the course in the same way as before, but with the goal of covering the materials in less time (or eliminating elements) in order to add a large number of additional activities or lessons to meet some stated needs.

- Re-plan the course to incorporate significant elements of the needs in addition to pertinent elements from the original plan.
- Put the original course plan to one side and create a new one based entirely on the stated needs.

Given that NA is viewed as the foundation for all subsequent decisions in ESP (Belcher, 2006) and that NA is the starting point for developing ESP courses (Richards, 2001), the NA process outlined above indicates that the primary and ultimate goal of the NA process is to improve an existing ESP course to better meet the needs of students. Nonetheless, the course should be evaluated to assess how well these needs are met.

#### **1.10.5. A Review of Needs Analysis Research Studies**

To complete the ESP students' needs and their analysis, this subsection reviews some NA research studies conducted in a variety of institutions worldwide in the context of academic and professional ESP courses for students enrolled in a number of different disciplines.

Lombardo (1988) used a questionnaire to investigate the needs and attitudes of 200 students at an Italian university's School of Economics toward English learning. A parallel questionnaire was administered to 51 members of the non-language teaching staff. Students were motivated to learn English, according to the survey results, in order to improve their employment prospects. The two most important skills for success in their field were understanding oral reports and reading professional materials. Furthermore, listening skills were ranked first, followed by speaking, reading, and writing. Technical terminology was identified as the main cause of difficulty for students in reading by both students and teachers.

Jafre-Bin-Zainol-Abidin (1992) examined the English language needs of scientific students enrolled in a University of Malaysia English course for business purposes. The researcher distributed questionnaires to students, personnel managers, and employees from a variety of Malaysian organisations. According to students, reading was the most vital skill, while hearing and speaking were deemed more crucial by employees. It was advised that university courses

accommodate students' requirements, that academic studies prioritise reading skills, and that students participate in the selection of study texts.

Alagozlu (1994) examined the English language proficiency requirements of students at Cumhuriyet University's Faculty of Medicine in Turkey. He collected data from three distinct sources: students, teachers, and administrators, using two distinct data collection techniques: questionnaires and interviews. The findings indicated that reading and translation were the learners' most critical language skills. Additionally, large gaps were discovered in students', teachers', and administrators' assessments of students' needs. Additionally, it was discovered that the majority of informants were dissatisfied, to a degree, with the current English language programme, indicating that it did not sufficiently meet the needs of students.

Chan (2001) conducted a large-scale NA study to determine the English language needs of students at the University of Polytechnic in Hong Kong. The aims of the study were to investigate students' views of their needs and wants , to test the judgments of their ability in academic and professional sectors , and to compare their perceptions to those of their teachers. Chan examined 701 tertiary students and 47 English language lecturers using a questionnaire survey.

The findings suggested that students and teachers responded consistently. The activities seen as the most critical for academic studies were reading journals and speaking at seminars and meetings, whereas those regarded most critical for future professions were listening and speaking at conferences , as well as listening on the telephone. The study also indicated that a significant concern for students and teachers was improving their oral communication skills for academic and professional purposes.

While the studies discussed above are critical and valuable in that they provide light on the language demands of non-native students, several of them appear to have methodological flaws when it comes to NA. To begin, some researchers used a single technique for data collecting, namely a questionnaire. Second, while they enrolled a large number of participants, the bulk of

reported studies classified them into only two categories: students and teachers. Many researchers (e.g., Brown, 1995; Kim, 2006) propose analysing learners' needs using multiple methods and sources of information in order to overcome the challenge of identifying irrelevant needs.

In contrast to the above studies, the purpose of the current study was to identify both the target needs and learning needs of students, and this was done by applying two different approaches to collect data from the stakeholders involved. It was anticipated that this engagement of several methods might help to provide a clearer picture of the issue under examination.

While considerable numbers of research studies have been conducted into NA on several ESP courses in different areas of the world, comparatively few NA investigations have taken place in the Arab world. Therefore, as Kandil (2008, p. 7) argues, "the Arab world is in need of extensive research into NA". One of the purposes of the present study is to begin to bridge this gap in the Arab world in general and in the Algerian CS context in particular.

Furthermore, because ESP courses that are based on an analysis of learners' needs are believed to be more motivating and hence more educationally effective (Bloor & Bloor, 1986; Basturkmen, 2006), it is crucial to determine whether previously given courses sufficiently addressed these requirements (Hutchinson & Waters, 1987; Brown, 1989; Richards, 2001). This can be performed through course evaluation, which determines whether the course's objectives have been met, the material and technique are appropriate, the students' needs have been met, and the participants in the course are satisfied. Martin and Lomperis (2002, p. 405) emphasise the critical nature of evaluation and need analysis in the instructional process. Lynch (1996, p. 32) defines NA as "evaluation designed to examine the match between what is desired for the program versus the actual state of the program".

The following section examines evaluation as a necessary tool for investigating the appropriateness and effectiveness of the language course.

### **1.11. ESP Course Evaluation**

Before presenting the major theoretical approaches to language course evaluation, this part explores differing viewpoints on defining course evaluation and its relation to research in general. It is believed that this debate and the assessment of evaluation approaches will guide the researcher's choice of the right evaluation design and methodology, helping to develop an ESP course evaluation framework for the current study.

#### **1.11.1. Defining Course Evaluation**

To begin, it is necessary to distinguish between the terms 'assessment' and 'evaluation' in the context of course evaluation and research. On the surface, these two names appear to be synonymous, and they have frequently been used interchangeably in the field, despite the fact that they have distinct meanings. For example, Popham (1975, p. 8) notes that evaluation involves a formal assessment of the “worth” of educational phenomena. Formal assessment implies the use of only quantitative measurements such as tests (Lynch, 2003), which comprise only one mode of data gathering in current course evaluation practice. According to Streiff (1970), measurement should be used to refer to quantitative descriptions of behaviour, things, or occurrences, whereas evaluation encompasses measurement'. That is, the use of tests in evaluation studies is probable and frequently preferable but not always necessary. Bachman (1990, p. 24) agrees that "not all evaluation involves either measurement or tests".

Assessment is linked to students' language achievement and test performance in educational contexts (Lynch, 2003). According to Nunan (1990), in language instruction, assessment refers to the processes for determining a learner's proficiency. Tests are used to evaluate the product of a language course or its students' gains. As Guba and Lincoln (1981) explained, tests can reveal something about individuals, but nothing about the programmes and curriculum used to educate these individuals. On the other hand, evaluation is a broader concept which may encompass assessment. According to White et al. (1991), evaluation is involved with

gathering evidence about and making judgements about a curriculum in its entirety, including its development, design, and implementation.

Evaluation helps in determining whether a course should be updated or altered in any manner to ensure that objectives are met more successfully. It is crucial to determine why some students are not fulfilling the goals and objectives of the course (Nunan, 1988b). This indicates that course evaluation considers not only the effectiveness of the course or its "worth" (Worthen & Sanders, 1973, p. 19), but also the appropriateness of its content to the objectives, as well as the adequacy of its learning and teaching activities. The evaluation will also reveal any weaknesses or characteristics that were just not appropriate for the specific group of learners (Dudley-Evans & St John, 1998). Thus, course evaluation as an integral part of its development can be an effective tool for identifying possible issue areas and deficiencies.

Evaluation, according to Lynch (1996), is the systematic attempt to collect data in order to make judgements or decisions. As a result, evaluation data could be qualitative and quantitative. However, this definition appears to be excessively wide. Brown (1995) describes course evaluation as the systematic gathering and analysis of all relevant data required to promote the improvement of a curriculum and assess its effectiveness within the context of the institutions involved. A weakness of this definition is that it offers no information about individuals who are performing the evaluation or their audience. The assumption is that a comprehensive definition of course evaluation needs to consider the following characteristics: (a) the types of information required, (b) planned data collection and analysis techniques, (c) potential evaluation purposes, (d) evaluation context specifications, and (e) evaluation conductors and audiences.

One is given to understand that the investigation of the course effectiveness necessitates a product-oriented evaluation and both quantitative and qualitative data collection, whereas evaluating its appropriateness necessitates a process-oriented evaluation and quantitative or qualitative data collection. The appropriateness of a course is critical, especially in ESP, where the course is primarily concerned with the learners' needs and their fulfilment. The whole course

is considered to be appropriate when its content and methodology are relevant to its stated objectives, which are supposed to be based on the needs of the stakeholders.

### **1.11.2. Course Evaluation and Research**

Some researchers hesitate to consider course evaluation as research. To distinguish between evaluation and research, Glass and Worthen (1971, p 150) define research as "the activity aimed at obtaining generalisable knowledge by contriving and testing claims about relationships among variables or describing generalisable phenomena". They argue that course evaluations are not guaranteed to be externally valid. In other words, because "all evaluation studies are case studies" (Stake, 1995, p. 95), their findings cannot be generalised. In contrast to Glass and Worthen (1971) argue that external validity is irrelevant in programme evaluation because the goal is not to arrive at generalisations applicable to other more or less similar programmes in other contexts, but to provide information about how a particular programme operates that will enable its personnel to make informed decisions about change and improvement.

Nunan (1992) believes that external validity can be overlooked in course evaluation, provided that internal validity and reliability are maintained. He proposes the notion of 'continuity' between research and evaluation and finds that course evaluation is research since it includes the necessary characteristics, including research topics, data collection, and data analysis. Thus, he states that "evaluations, even of a single programme, are, in fact, research". (Nunan, 1992, p. 193).

### **1.11.3. Approaches to Course Evaluation**

Language course evaluation approaches are the conceptual frameworks or schemes that form the basis for evaluation studies. Kiely and Rea-Dickins (2005, p. 59) assert that language course evaluation "has been influenced by the trends in general education evaluation". The next section presents a dichotomous classification of methods for evaluating language courses.

#### **1.11.3.1. Experimental VS. Naturalistic Evaluation**

To begin, there is a distinction between experimental and naturalistic evaluation designs as a result of the so called "research paradigms war" (Lynch, 1996). While the former focuses on

the products of the course and employs quantitative methods, the latter focuses on the process and employs qualitative approaches (Brown, 1989). Brown (1989) observes that a significant movement toward process-oriented approaches occurred when educators recognised that while attaining programme goals and objectives was critical, evaluation processes could also be used to encourage curricular reform and improvement. This demonstrates how the two techniques are mutually complimentary.

### **1.11.3.2. Formative VS. Summative Evaluation**

Evaluations of language courses can also be formative or summative in nature (Robinson, 1991; Richards, 2001). According to Richards (2001, p. 288), formative evaluation is used to determine "what is working well, and what is not, and what problems need to be addressed" in order to improve and develop the delivery of the course. ESP practitioners are likely to be concerned with this form of ongoing evaluation (Dudley-Evans & St John, 1998). On the other hand, summative evaluation is targeted to determine the effectiveness and efficiency of a programme, as well as its acceptability to some extent. It takes place after a program has been implemented (Richards, 2001).

According to Jordan (1997, p. 85), Dudley-Evans and St John (1998, p. 128), and Richards (2001, pp. 296-297), both methods of evaluation can be qualitative, relying heavily on subjective judgement (e.g., interviews, observation), or quantitative, relying heavily on numerical data (e.g. questionnaires, test results). Jordan (1997, p. 37) emphasises the importance of gathering data for needs analysis through final evaluation or feedback in the form of questionnaires. It can be beneficial to identify the main characteristics of the course that were liked and disliked, as this can provide some suggestions for improving the next course (Jordan, 1997).

According to Rea-Dickins and Germaine (1992), formative evaluations are ongoing and serve to monitor progress by identifying the strengths and weaknesses of all facets of teaching and learning. Lynch (2003), on the other hand, asserts that the majority of evaluations are a mix of formative and summative in nature. If we are interested in determining the ultimate worth of a

programme, we are typically receptive to explanations of why it is or is not working, as well as recommendations for improvement.' This demonstrates that the two forms of evaluation are viewed as complementary rather than contradictory. According to Scriven (1997, p. 498), formative evaluation is most effectively designed as a summative assessment rather than a holistic assessment. Bennett (2003) defines such a design of course evaluation as a multi-method approach that incorporates formative and summative dimensions, makes use of a variety of research strategies and techniques, and generates qualitative and quantitative data.

#### **1.11.3.3. Intrinsic VS. Extrinsic Evaluation**

In the literature on the course evaluation, a similar distinction is made between intrinsically and extrinsically motivated evaluations (Hopkins, 1989; Weir & Roberts, 1994). Intrinsic evaluation is a developmental process that is motivated and carried out by participants from inside the course. It is thus participatory in nature. A good example of this type is the collaborative evaluation of Mackay et al. (1998). In comparison, extrinsic evaluation, also referred to as bureaucratic evaluation (Weir & Roberts, 1994), is typically imposed on the course, motivated, and carried out by outsiders for the purpose of accountability and accreditation.

#### **1.11.3.4. Wholistic VS. Analytic Evaluation**

Hopkins (1989, p. 18) makes a distinction between "wholistic" and "analytic" evaluations. The former entails an examination of the entire course by the evaluators. That is, they view the programme holistically and conduct case studies to determine how its constituents interact holistically in order to generate an evaluation of the entire course. Analytic evaluations focus on specific key areas of the course, with the aim of determining how these areas affect or are related to one or more other key areas of the course.

The above dichotomies, which are frequently encountered in the literature on a course evaluation, result in a diversity of evaluation models and frameworks. For instance, summative evaluations and the majority of extrinsic ones are quantitative in nature and product-oriented. They are used to determine the effectiveness and/or efficiency of a course and typically employ one of

three major experimental evaluation models, namely the 'true experimental', 'quasi-experimental', or 'pre-experimental' models, as evidenced by the Bangalore project evaluation (Beretta & Davies, 1985) and the Pennsylvanian project evaluation (Clark, 1969). Due to space constraints, these models will not be discussed in detail here; see Lynch (1996), and Cohen et al. (2007) for comprehensive discussions of these and other experimental models.

#### **1.11.3.5. ESP Course Evaluation Framework**

Evaluating everything is unrealistic and may be time consuming (Dudley-Evans & St John, 1998). What appears to be required, then, is to establish the priorities outlined by Hutchinson and Waters (1987, p.153):

The overall aim of the ESP course is to meet two main needs of the learners: their needs as language learners, and their needs as language users. It follows that the 'what' of ESP course evaluation is concerned with assessing the extent to which the course satisfies both kinds of needs.

Thus, the enquiry should begin with questions such as:

- Is the course fulfilling the learners' language learning needs?
- Has the course fulfilled the learners' language using needs?

The following question that needs to be addressed in the evaluation of ESP courses is identifying the areas of need that are not being met or have not been met. Once these issue areas are identified, Hutchinson and Waters (1987) argue that the focus should be on determining the underlying reasons. If such issues are not discovered and addressed effectively, they may continue to accumulate and eventually result in the course failure to meet its objectives.

For the purpose of this study, the researcher has developed a flexible evaluation framework to meet the evaluation context. This framework is believed that it suits the formative evaluation purposes of the study, which are to enhance the quality of the ESP courses through empirically investigating the ongoing process (appropriateness), as well as its products (effectiveness), to diagnose the problematic areas and to suggest possible solutions. Therefore, the fundamental purpose of the evaluation is the enhancement of teaching and learning, by matching the needs of

learners to the systems of teaching, to allow those engaged to share and become aware of each other's needs, perspectives and perceptions (Harris & Bell, 2003).

The overall evaluation framework of the current study was built and adapted from a range of course evaluation models proposed by a number of authors (Sharp, 1990; Lynch, 2003; Kiely & Rea-Dickins, 2005). It is based on the model established by Weir and Roberts (1994, p. 85) for evaluating the University of Reading's pre-sessional English course and the Performance Indicator model produced by Mackay et al (1998, p. 118). Both of these cases offer a list of assessment focuses and the methods utilised to evaluate them. For the purposes of evaluating the current ESP course, several of these evaluation focal points had to be altered or eliminated, either because they were irrelevant to the course under consideration (e.g., the placement test and the self-access centre), or due to funding, resource, and/or time constraints. The final effect of these adjustments was a feasible small-scale evaluation framework designed particularly for the context of this study.

The framework includes five basic components: curricular organisation and syllabus standards, objectives, materials, teaching, and assessment processes. Each component is split down into a number of focal points. While each component has a very separate role, these components are strongly interrelated. It is advocated that the course objectives, syllabus, materials, teaching technique and assessment processes should be mutually consistent with one other. Therefore, present examination seeks to uncover any match or mismatch between these connected components. For example, comparing the teaching strategies employed by teachers with the course objectives can suggest if these approaches are likely to lead to attainment of the objectives.

## **Conclusion**

This chapter discussed ESP in general, including its definition, distinguishing characteristics, and types, as well as the phases of curriculum development and learner needs. Additionally, it examined the concepts of NA and course evaluation, as well as their various implementations. The purpose of this review was to establish a theoretical foundation for the NA and course evaluation designs used in this study. In other words, this review assisted the researcher in developing an appropriate design and methodology while avoiding the pitfalls of previous attempts to ascertain the current and future language needs of computer science students and to evaluate their current ESP courses.

## CHAPTER TWO: THE BLENDED TEACHING APPROACH IN ESP

### Introduction

Web-based technologies have become almost ubiquitous at universities across the world. The spread of technology within these educational institutions has forced faculty and administration alike to reconsider longstanding beliefs about effective means for helping students learn in the university classroom teaching using Information communication technologies (ICTs) are being used extensively for assisting or facilitating learning. The massive development of ICTs has made the process of incorporating technology into ESP classes an easy and accessible task for lecturers. It can be, to some extent, succeeded in removing the traditional teaching obstacles and generated new avenues for interactive communication between students and lecturers. How and why we learn is considered one of the foremost elements of a person's life, with people who educate him or her being critical to his or her life. Research has continued to evaluate these aspects and how they may contribute to elements such as student achievement, thinking, engagement, and motivation. As BL has been developed to boost these aspects, research about the topic should be reviewed and analyzed. In understanding BL in Algeria, an in-depth research is needed.

It is critical to conduct ongoing research on the applications of emerging technologies, whether they are used in or out of the classroom. Because learning a language requires the acquisition and development of four language skills, grammar and vocabulary, language learning applications and software, or those used for that purpose, must emphasise at least one of the four abilities. Students must be aware of strategies for developing and/or enhancing these abilities. As Ward (2005) claims, if students simply click on the text in the software, their use of technology is equivalent to a classroom activity. Typically, a teacher is responsible for selecting the appropriate technology for educational purposes based on the skills they wish to emphasise. Bloch (2013) claims that the following objectives must be addressed in technology-assisted learning: assessing students' needs, selecting appropriate technology, and comprehending how this technology is used. The interaction they enable ; the time during which communication is enabled ( synchronous

and asynchronous communication) ; who uses them - the the user of the material ; and their application in the acquisition and practice of language skills. There are numerous language learning platforms that include the aforementioned tools and applications, as well as technology that facilitates the acquisition and development of linguistic abilities. Learning platforms, Learning management systems (LMSs), virtual learning environments (VLEs), and content management systems (CMSs), are all terms used to describe electronic course management systems (CMSs). A learning platform is a collaborative virtual environment in which teachers and students can work on tasks together. It is an application that simplifies and expedites the management of any type of information (text, image, sound, or video), making it ideal for e-learning. The majority of learning platforms allow for the assignment of roles inside the system as well as the definition of assigned workloads for each position. Administrators, teachers, teaching assistants, and students, for instance, may each have distinct responsibilities (and, in certain cases, visitors) (and, even, guests). Password- protected learning systems can be established to ensure that only authorised participants have access. There are many VLEs available online, but the most popular are Moodle, Edmodo, and Blackboard. The current research introduces Moodle and some of its features that are applicable to ESP classes.

The lack of clarity on the concept of blended learning, which may lead to distorted figures on its implementation, is by no means of a recent nature. In fact, for the last fifteen years a number of scholars have been drawing attention to the fact that blended learning is difficult to define and no uniform definition exists (Oliver & Trigwell, 2005 ; MacDonald 2006). A lack of direction as to what is being blended, how blending can be implemented and the purpose for blending may present a serious challenge for institutional stakeholders charged with designing a blended course. This latter phenomenon is particularly true for teachers unfamiliar with theoretical preparation and practical experience, which as Huang & Zhou (2005, p.299) claim, applies to the majority of teachers in higher education. A multitude of different labels have emerged in recent decades to describe the ever- increasing manifestation of the integration and use of digital learning in

educational settings. For instance, such denotations range from “hybrid or mixed learning” (Stracke, 2007, p.57), to “e-learning”, or “flipped teaching and learning” (Khan, 2011). Yet, besides determining how to label its chosen ‘blended learning’ practice, its sustainable integration and delivery entails require “a thorough course and curriculum redesign“, as well as multiple institutional reforms in terms of staff support, workload and training, leadership or policy development and strategies oriented as continuous improvement (Lim & Morris, 2009). Moreover, as the latter scholars observe, it is important for curriculum developers or course designers to seek guidance from a sound, validated set of guidelines for educational design, which can be subsequently “adapted to their organisation (Goeman & Ubach, 2018).

In summary, it is of paramount importance that faculty responsible for the strategic adoption of blended learning establish a clearer understanding of this construct before implementing it across the study programmes in their own context. Despite the apparent widespread use of ‘blended learning’ in higher education settings and the fact that the literature provides a wide variety of definitions for blended learning, most research does not examine the underlying constructs of the components being blended. Thus in the current chapter the literature will first be reviewed with a view to establishing a conceptual understanding of what is encapsulated by the term ‘blended’ and the terminology associated with the blended learning delivery. Second, models or classifications to inform an institutional design and implementation of a blended learning course will be investigated.

In order to articulate the research questions and identify the research issues, this chapter reviews the literature on BL, the basis for this study. It highlights the diversity in BL definitions and the designs of this type of learning. It explores the advantages and disadvantages of implementing the blended approach in teaching ESP. It also presents information about the adoption of BL in higher education when teaching English to computer science students. Besides, it discusses the underlying theories for BL, the pedagogical principles of BL, the benefits, and the challenges to implementation of BL in ESP instruction.

The chapter also explores BL delivery/ learning management system (LMS), in particular, Moodle and the impact of such tool on teaching, cognitive, and social engagement. Therefore, Moodle and some of its features which found to be beneficial for ESP courses will be presented. ‘Blended learning’ and ‘blended teaching approach’ are investigated and often used interchangeably throughout this thesis.

### **2.1. Blended Teaching in ESP**

Due to the increasing popularity of ESP in ELT, practitioners have been compelled to develop more effective and innovative integration tools. Blended learning has emerged as a new promising environment that enables students to transition from a traditional teacher-centered to a learner-centered classroom. The pedagogical characteristics of blended teaching encourage ESP practitioners and teachers to view the LMS as a collaborative, autonomous, motivating, and knowledge-construction learning and teaching environment. The blended teaching approach also support ESP principles of autonomous learning, flexibility of time and place, and the transformation of teachers from instructors to consultants, guides, and facilitators of learning since ESP is a learner-centered approach.

### **2.2. Empirical Studies in Blending Foreign Language Learning**

According to Mondejar (2013, p.479), blended learning systems provide "personalised learning experiences and support to learners, furnish them with increased access and flexibility of materials [and] foster learner autonomy". Moreover, he adds that in addition to developing language proficiency, blended learning fosters "collaboration and a sense of community among students, accommodates a variety of student learning styles and personalities, and assist [s] learners with developing valuable technical skills" (2013, p.479). Concerning the latter argument, the significance of the rapid growth of ICT and the “digital native” phenomenon cannot be overestimated, even in the foreign language classroom (Al-Mahrooqi & Troudi (2014, p.65). Thus foreign language teaching and learning also involves exploring ways in which technology can be best used to benefit today's digital natives (Mahrooqi & Troudi, 2014, p.65). The latter

phenomenon has been widely reported on in empirical studies, particularly in terms of how 'blended learning 'or 'blended classroom 'settings influence students' learning processes and academic performance.

Moreover, Hung (2015, p.81) describes "blended teaching "as falling into the category of "enhancing blends ", or, in other words, the face-to-face experience is enhanced by means of technology. That is, it can be described as a pedagogical approach, which converts direct instruction from group learning to individual learning space. In his study conducted with English language learners in a Taiwanese higher education setting, Hung (2015) explored the links between 27 blended classrooms and students' academic performance, learning attitudes, and participation levels. The results showed that students who had participated in the enhanced blend, conducted by means of a WebQuest active learning strategy, attained better learning outcomes, developed better attitudes towards learning, and devoted more effort to learning than those in the control group (Hung, 2015). Similar results have been reported from Indonesia. For instance, Ist'annah's (2017) investigated second-semester students' use of the learning management system for grammar learning and found a positive correlation between the regularity of student engagement with the online learning materials and their end- of-semester achievement. Moreover, a qualitative analysis of students' language choice in their reflective journals indicated that the students felt that the online activities had helped them to better understand and practice the materials (Ist'annah's, 2017). The impact of digitalising language activities and dedicating scheduled online units to engage in these, as well as how these influenced summative assessment, was also explored by Scida & Saury (2006). In contrast to Ist'annah's study, which lacked a control group, the latter authors investigated how the blended course model versus the traditional FTF model impacted students' grades in elementary Spanish, Italian and Portuguese courses at a U.S. university, where 3 hours of weekly class time had been replaced by 2 hours of compulsory web-based grammar and vocabulary activities. Although their results do not yield conclusive findings on the effect of the intervention on students' academic performance, the authors concluded that

blended learning improves "students' perceptions of learning and the quality of classroom instruction" (2006, p.528). Their findings derived from the comparison of the student evaluations of the blended course to those of the traditional FTF course indicated a stronger student perception of "greater mastery of form, structure, and vocabulary" in the experimental group, which subsequently influenced motivation to engage in the class and study the language" (Scida & Saury 2006, p.527).

Moreover, Scida & Saury also conclude that the blended approach made FTF time more efficient for both learners and instructors alike as it could be dedicated to "more creative, flexible and meaningful uses of the language", instead of having to use time to deal with "ill-prepared students or students who continue to need further grammar explanations" (Scida & Saury 2006, p.527). Thus, the above studies indicate that incorporating web-based language learning activities can enhance FTF instruction and boost learning motivation. 28 Integrating technology use into blended foreign language learning settings is also becoming an increasingly important focus of research in the European Higher Education context. For instance, Chenchen et al. (2019) conducted a study among 50 second-year students in the French Engineering Institute (INSA Strasbourg) to examine how the use of a new interactive digital teaching tool (self-response system) for in-class activities affects academic performance in mastering EFL grammar. Their findings showed that the application of the SRS as an instructional method increased students' motivation, engagement, and self-efficacy in learning English grammar. However, although the self-response system (SRS) enhanced student engagement and participation in the traditional classroom activities, a comparison of pre-test and post-test results showed that the use of the SRS was not effective in improving students' grammar learning achievement (Chenchen et al. 2019, p.1188). The latter scholars suggest that this result could be attributed to the students' perception of having to expend too much effort to adapt to a new learning approach during a limited period of time (2019). Moreover, as acknowledged by the latter authors, other exogenous factors, such as demographics, may have influenced this result (2019, p.1188). The findings above are also

supported by Müge's (2017) study, which reported pre-service students' academic outcomes, alongside their perceptions of their learning experience in an English Language Teaching materials development course at a Turkish state university. Her findings revealed that students who had participated in a blended classroom model did not show significantly higher academic performance than those in the non-blended control group. However, although self-reported student perceptions indicated a mostly positive and satisfying learning experience, the students expressed concern relating to the heavy workload and time constraints involved in completing the course assignments (Müge 2017, p.218). Müge's findings also underline the importance of a strong teacher presence for students to engage in blended learning activities effectively.

Her students' reflections on their instructors revealed that they expect the teacher to be actively present, "technologically proficient, "and "contemporary "with regard to the ever-changing nature of technology and its impact on the learning environment (Müge 2017,p.217). Moreover, according to Müge (2017, p.220), a clear understanding of the blended learning model may positively influence students' engagement with the learning activities. The latter scholar concludes that preparation and communication are the key to the success of the blended classroom. Moreover, teachers need to be prepared to address the lack of engagement with activities and materials and boost motivation by adding elements, such as gamification activities (2017, p.220). Besides the use of technology in blended learning settings, the literature also reports on teacher and learner insecurity relating to the inherent learner self-directedness required from the online setting. For instance, Na-Wang, Chen & Zhang's (2021) study of 1603 students' perceptions of BL in a Chinese tertiary EFL context investigated students' perceptions relating to their motivation, the effectiveness of the learning environment, their engagement, learning autonomy and overall satisfaction level. While their results suggest that BL design can create an efficient EFL learning environment and gain positive student perceptions, two significant findings emerged in relation to learner engagement and the role of the teacher. Their findings suggest a slightly negative correlation between student engagement and an online environment, which they

attribute to the "innate defects "of online learning (2021, p.17). Na-Wang, Chen & Zhang's (2021, p.17) explain the latter defect as a culturally- driven rejection of online settings as learners are "face-to-face dependent "because this is all they know. Particularly such learners are often challenged by having to learn at their own pace (2021, p.17). Their findings also suggest that the teacher needs to assume multiple roles in a blended learning environment, whereby the students surveyed in the latter study considered the guiding role to be the most important.

The conclusions drawn from the above study indicate that online learning activities require a stronger level of student-directedness than the traditional FTF approach, and teachers must be prepared to assume different roles to support learners who are more 'face-to-face dependent '. These findings are also confirmed by Stracke's (2007) results from a longitudinal study conducted with EFL learners in a German higher education setting. Stracke explored students' and teachers' experience of a blended learning model, which comprised learners' independent self-study phases using a computer and traditional FTF classroom learning. Her results confirmed that affording learners a choice in the activities they engage in helps them take responsibility for their own learning activities and positively influences their perception of the learning experience. However, she also found that learners and instructors struggled to negotiate and adapt to the roles required by the different modes of delivery.

Thus, it is important to acknowledge that teachers and students need time to adapt to and develop in a new teaching and learning environment (Stracke, 2007). The literature reviewed above indicates that while future higher education learning systems will definitely involve some sort of blend, no 'one-size fits all' solution can be offered as to how institutions blend. In fact, as highlighted by Bryan & Volchenkova (2016, p.28), addressing the rationale for blended learning and guidelines for blend design comprises a challenge that is "highly context dependent with a practically infinite number of solutions." Nonetheless, regardless of the blended model adopted, the findings from the literature suggest that although blended learning models may not automatically result in an improvement in academic performance in the short-term, pedagogical

perseverance is necessary to help learners and teachers alike address challenges experienced in the online learning environment, and allow time for both learners and teachers to adapt to the blended learning setting, as well as the technology that is required.

### **2.3.The Origins of Blended Learning**

The origins of blended learning are closely linked to the development of systems which enable learning without having to be physically present at an educational institution. In other words, a system is designed with the aim of literally and figuratively bridging the distance between teaching and learning. As pointed out by Alan Tait (2003, p.1), Professor of Distance Education and Development at the Open University, UK, although the technology and terminology describing this phenomenon have changed throughout the years, the core aspect of what was initiated as a correspondence course by Sir Isaac Pitman in England in 1844 has remained constant. The latter author highlights the fact that despite the physical separation of teacher and student, Pitman's innovative correspondence course enabled the provision of three components: distribution of direct teaching or instructional materials to students, providing feedback in a timely manner on work undertaken by learners, and assisting the student and the institution to assess their understanding (Tait, 2003). In other words, Pitman's correspondence course enabled teaching, learning and assessment to bridge a physical distance. Tait concludes that although alternative labels to 'correspondence course' have emerged in the literature over time—ranging from “distance education” to “open and distance learning”, or “flexible, web-based and e-learning”—such terms continue to encapsulate the core premises of Pitman's ideas relating to education provision (Tait, 2003, p.1). According to Tait (2003, p.1), such developments in technology and the latter's role as a facilitator of the three components of teaching, learning and assessment are also of key importance. It is emphasised that while the correspondence courses of the mid-1800s were facilitated by the developments of railway transport and uniform postage rates across nations, developments in personal computing in the 1980s or the advent of the worldwide web in the 1990s replaced these as the key drivers of the development of new models of teaching, learning and

assessment (Bryan & Volchenkova 2016, p.24). Yet, what was traditionally known as the correspondence course has evolved even further in the twentieth and twenty-first centuries. In other words, teaching, learning and assessment delivery does not only take place by means of a correspondence or distance course but may constitute a combination of distance learning and traditional classroom instruction.

The complexity of such blends or combinations was first theoretically investigated in Bonk & Graham's (2006) seminal work, *The Handbook of Blended Learning: Global Perspective, Local Designs*. In fact, several theoretical models since developed by these authors have established an academically sound framework for investigating the advantages of combining the distance context outlined above and the physical classroom.

In the foreword of the latter publication, Moore (2008, p.xxiv) refers to an emerging view of blended learning as "a mutually respectful relationship between teaching at a distance and teaching in the classroom, where "each can do its proper work" (Graham, 2006,p.xxiv). Yet, as also acknowledged by Moore (Bonk & Graham 2006, p.xxiv), this view is by no means a recent one. He claims that this phenomenon would appear to have its origins as far back as the 1920s, where it was implemented as a "supervised correspondence study" by an innovative high school principal in the US state of Michigan. Moore also states that already by the 1930s, acceptance and adoption of this model as evidenced by it being used by more than 100 public schools across the nation and it is the subject of a national conference held in Cleveland, Ohio in 1932 (Bonk & Graham, 2006, p.xxiv). In Europe, as Moore explains, an understanding that forms of teaching can also take place outside the traditional delivery medium of the classroom is encapsulated by the rapid proliferation of the United Kingdom's Open University (OU) distance teaching model since its inception in 1969 (Bonk & Graham, 2006, p.xxiv). The latter author posits that blended learning represents a fundamental component of the teaching system of the OU and that such teaching encompasses "a dual responsibility" of " providing instruction by correspondence to

distance learners“ and “travelling to study centres and summer schools to meet these students in classrooms“ (2006, p.xxiv).

The two examples outlined above would appear to point to the fact that already by the early 1990s, a mode that could combine, integrate or blend two modes of teaching had firmly established itself in Anglo-American teaching practice in both the US and Europe. Such practice seemed to suggest a dual-mode of instruction consisting of two components: First, the face-to-face teaching component means that learners and teachers are physically co-present in an environment where the bricks and mortar classroom is used as the place of delivery, and the instruction is mediated by the instructor. The second component of instruction encapsulates a mode where learners and teacher are spatially separated from each other, the place of delivery is not the traditional bricks and mortar classroom and instruction is mediated by some form of mechanical or electronic technology (Bonk & Graham 2006, p.xxv).

#### **2.4. Blended Learning (BL): Background and Definitions**

Since the late 1990s, researchers have envisioned blended learning in various ways, designing what some describe as hybrid instructional models (Garnham & Kaleta, 2002) and evaluating them for their effectiveness in bringing about desired learning outcomes. Blended learning has been provided many different definitions of BL by different researchers ; some practical and concrete, others broad and philosophical. It is still being debated by scholars. Usually, scholars label BL as a model, but others label it as an approach, philosophy, type of learning, or instructional strategy.

In the classroom, the combined use of traditional pedagogical techniques and modern web-based technologies is commonly referred to as blended learning (Vaughan, 2007 ; Osguthorpe & Graham, 2003). Sharma (2010) identifies three different concepts used to define BL. These concepts include a mixture of two teaching methods or web-based tools. Torrisi-Steele (2011) viewed BL as an enriched, student- centred learning experience made possible by the harmonious integration of different strategies, achieved by combining face-to-face interaction with

information and ICTs. This definition emphasizes the following three specific aspects that should be taken into account in BL designs: learner-centred educational involvement, teaching strategies, and delivery tools for teaching and learning. In the last few years, the use of technology has resulted in the creation of BL, which involves hybrid learning. This type of learning has been rated as one of the top 10 instructive teaching methods by the American Society for Training and Development (Rooney, 2003). Dziuban, Hartman, & Moskal (2004) stated that BL is an academic approach that provides students with effective web-based and physical engagement opportunities through teachers who use modern instructional methods that lead to active learning and teaching potential. Vaughan (2007) wrote in the journal “Perspectives on Blended Learning in Higher Education” that BL is sometimes viewed as a teaching method that uses technology as an additional tool and is not a new form of teaching. The author states that BL is actually a new approach that provides teachers with tools to design and develop lesson plans that combine face-to-face communication with virtual instruction. Duhaney (2004) stated that BL includes online and classroom activities that support and provide new knowledge. Singh (2003) mentioned that the term “blended learning” was often connected with traditional teaching and online instruction. The term has developed to include many learning strategies and dimensions. A BL course could include virtual and face-to-face techniques while also involving tasks that engage learners in more dynamic communications. Additionally, BL could be a mix of structured and unstructured learning using textbooks, lectures, meetings, and discussions. This type of learning occurs using self-regulation and teacher-directed activities (Singh, 2003). Self-regulated learning activities provide students with self-paced tools and tasks that make them metacognitively, motivational and behavioral active participants in their own learning process. Teacher-directed learning involves teachers playing a key role in direct instruction that includes presenting information and designing activities in BL environments (Singh, 2003).

Blended learning is the delivery of learning through a combination of methods and tools without necessarily incorporating technology, though it is often preferred (Driscoll, 2002).

According to Driscoll (2002), blended learning implementations can take many different forms. Streaming video and audio, virtual classrooms, and text-based online resources are all examples of web-based technologies. For example, using the institutional eLearning system to participate in a virtual classroom and then visiting a blog to write a report about it. Despite their lack of technological support, different teaching styles, such as positivism and constructivism, are extensively used. The current-practice-produce strategy is used in this case (Sharma, 2010). For example, a lecture or video could be used to teach a concept, followed by lab training that allows students to apply the concept in a hands-on setting, and finally, a project that students should complete to demonstrate their expertise. Videotapes, CD-ROMs, web-based eLearning platforms, and films are all examples of instructional technology. For instance, students could be asked to watch a movie and then be instructed to complete activities from their textbook's accompanying CD-ROM (Sharma, 2010). Actual job responsibilities mixed with instructional technology boost learning by enabling students to practice what they have learned in the classroom to real-world situations. Blended learning is the delivery of learning through a combination of methods and tools, without necessarily incorporating technology, though it is often preferred (Driscoll, 2002). Blended learning implementations, according to Driscoll (2002), can take many different forms. Streaming video and audio, virtual classrooms, and text-based online resources are all examples of web-based technologies. For example, using the institution's eLearning system to participate in a virtual classroom and then visiting a blog to write a report about it. Different teaching styles, such as positivism and constructivism, are extensively used, despite their lack of technological support.

A defining feature of blended learning lies in its effort to move beyond the use of technology as little more than a means for introducing a complex concept or supplying additional information within a course taught in a traditional format (Bleed, 2001). Instead, blended learning implies a new conception of the way courses are developed and offered, based on an understanding of how traditional and modern instructional techniques can best be integrated to accomplish goals

for student learning. Garrison and Kanuka (2004) perceive BL as “a fundamental reconceptualization and reorganization of the teaching and learning dynamic... [so that] a quantum shift occurs in terms of the nature and quality of the educational experience ” (p.97).

### **2.5. Features of Blended Teaching in ESP**

According to Huang, Zhou, and Wang (2006), BL exhibits the following characteristics:

(1) the flexibility of a diverse range of educational resources. It is regarded as a method of instruction that is based on a networked environment. (2) promotion of diversity in the learning process. Due to the fact that students' learning styles, competency, and ability vary, BL can assist by enabling differentiated and self-regulated learning. (3) augmentation of the e-learning experience From the standpoint of the faculty, blended learning can help them improve their current teaching approaches. Al Fiky (2011, pp.23-24) asserts that blended learning reimagines the educational concept as follows:

1. Shifting away from lecture-based instruction and toward student-centered instruction.
2. Increasing interaction between teacher and student, student and subject, and student and external resources.
3. Techniques for teachers and students to collaborate on evaluation.
4. Increase the variety of learning environments and opportunities.
5. Assist in course management tasks (Bath & Bourke, 2010, p.1) ; (e.g., communication, assessment submission, marking and feedback).
6. Assist students in obtaining necessary information and resources.
7. Engage and motivate students through interaction and collaboration.

The online component of BL provides a variety of advantages and features for ESP students, including authenticity, study skills, autonomy, and empowerment, and has been referred to as " an inexhaustible source of comprehensive information" (Chuchalin & Danilova 2005, p. 130).

### **2.5.1. Authenticity**

The LMS provides a massive collection of authentic resources related to ESP disciplines. These sources include books on terminology, workshops, encyclopaedias, dictionaries, papers from professional lectures, and academic writings. For educational or professional purposes, ESP students may access, retrieve, and download any of these real resources that are pertinent to their academic or professional fields. Authentic online materials are regarded as rewarding and motivating opportunities for authentic communication and publishing.

The interaction between the academic and professional worlds is made possible by the authenticity of ESP learning, which eliminates the need to modify or simplify information in any way. Additionally, it reinforces knowledge construction from resources relevant to the students' field.

### **2.5.2. Study Skills**

Academic and professional success are frequently linked to students' mastery of specific study abilities (for example, reading, writing, researching, speaking, and debating) that enable ESP students to fulfil tasks in their field of study or job. Students get the digital literacy they need to learn information and communication technology (ICT) skills.

Macia et al. (2009) present numerous strategies for ESP students to develop the four language skills through online teaching. They claim that by combining textual texts with pictures and videos, ICT integration—particularly the Internet—allows students to improve their reading strategies for guessing and predicting. In order to understand technical terminology and difficult words, students can also read authentic texts in their fields while consulting online encyclopaedias, dictionaries, and glossary lists.

Web-based tools can also be utilised to improve student's writing skills. Students can successfully practice the steps of the writing process via WebQuest, email, blogs, and wikis (planning, drafting, editing, rewriting, and final version). Students are encouraged to write and receive immediate feedback from classmates and teachers thanks to the interactive nature of these

tools. ESP students can share their work online, where it can be viewed, revised, evaluated and ranked. Additionally, students have unlimited access to a plethora of sample essays in a range of EAP and EOP writing genres (scientific papers, memos, business letters, computing reports, journals and magazine articles, etc.).

Students who enrol in ESP online courses receive a variety of listening tools that are appropriate for both their academic and professional settings. Students are exposed to a range of English accents and dialects used by native and non-native speakers in diverse academic and professional contexts. From the convenience of their homes, students can view and listen to academic seminars, presentations, and live lectures. The web-based platform may simulate actual listening settings and purposes, allowing ESP students to "access the audio and video input and use a recording tool to save an oral contribution" according to the website (Macia et al., 2009, p.70).

Online practise for speaking is also available. By using interactive tools such as chat rooms and conferencing, students can enhance their oral communications skills. They can save, retrieve, send, and download their oral productions for further evaluation and improvement. Students can communicate verbally with lecturers, professionals, specialists, and academics from diverse ESP disciplines via LMS services.

### **2.5.3. Autonomy**

In general, combining online learning with ESP aims to increase student autonomy. Autonomy refers to a set set of attitudes and skills required to become a more effective learner, not only students learning alone in front of a computer, but also a set of attitudes and skills needed to become effective learners. Students who take online classes are encouraged to set their own pace for learning and to exercise greater responsibility, reflection, and control over their learning. Several ways for increasing autonomy in online instruction were proposed by Macia et al. (2009), including the following:

- Setting learning objectives

- Evaluating their progress
- Constructing language information
- Selecting tasks and activities to deal with
- Having access to personal log to keep track of their progress
- Having access to language resources online (grammar guides, subject-specific dictionaries, glossaries, etc)
- Having an electronic portfolio to save their written and oral productions

Since the ESP teacher is expected to act as a mentor and guide, online courses emphasise the assumption that the teacher is no longer the only source of knowledge.

#### **2.5.4. Empowerment**

In addition to allowing ESP teachers and students to go beyond the boundaries of the traditional classroom, the characteristics of online teaching also allow for the experience of life-long learning. Teachers and Students utilise various online resources to meet their academic and professional needs by providing different facilities for individual and group work. Online instruction premises and promises include empowering students and teachers to be more productive, motivated, and responsible.

Online ESP course development demands not only technological know-how but also pedagogical preconditions and considerations that guarantee the course is pertinent to the disciplines and needs of the learners. The course should encompass purposeful activities that help learners improve their academic and professional skills. Additionally, the course should expose students to authentic input from a variety of academic perspectives in order to foster decision-making, independence, and ongoing learning.

#### **2.6. Designing Online ESP Course**

In order to keep up with the rapid changes in how people live and study, teachers and educational institutions are transitioning from traditional to e-learning. In terms of maintaining current with language delivery and organisational approaches, ESP education has never been an

exception. According to Hockly and Clandfield (2010), the phrase "e-learning" comprises "a broad range of activities, from the use of a virtual learning environment to desktop video conferencing". This implies that e-learning does not have to be totally online; it may be used partially online depending on the principal theme of the course. Acosta and Odhiambo (2009) distinguished three types of e-learning in use: 1) using e-Learning as an addition to face-to-face training, 2) using e-Learning in conjunction with face-to-face teaching, and 3) using e-Learning in place of face-to-face teaching.

E-learning experiences in ESP have been found to help teachers reach out to remote learners who demand English for educational or employment purposes by alleviating time and location constraints. According to Laanemaa (2013), the implementation of E-learning in ESP courses enhances the traditional language learning experience and provides long-distance students with opportunities to learn language skills outside the traditional classroom. E-learning adapts to individual learners' needs, caters for different learning styles, and fosters motivation, in addition to its benefits as an open platform for multimedia learning resources. It also encourages self-directed learning and creates a highly interactive environment using authentic materials.

### **2.6.1. Designing Principles**

To ensure the effectiveness and success of an online course for ESP students, some guidelines should be followed. Kavaliauskiene (2005) establishes four guidelines for developing online courses.

#### **2.6.1.1. Identification of Goals**

The online course designer is responsible for determining the primary objective of the course, which may include practising language skills, technical or sub-technical vocabulary, and grammar. Since ESP courses establish defined objectives for learners, the random posting of online assignments and tasks confuses students and causes them to lose their sense of learning.

### **2.6.1.2. Integration of Activities**

The benefits of both environments are maximised by incorporating online activities with classroom activities into the regular curriculum to increase ESP learners' performance online. For instance, writing emails can be practised as a business English writing assignment first in the classroom with instruction from the teacher on the e-mail structure and format, and then it can be complemented with online practise. Online programmes can easily incorporate online activities thanks to certain systems, such as Moodle.

### **2.6.1.3. Computer Literacy Knowledge Support**

As one of the ESP course design principles is to increase learners' motivation, coping with online problems such as malfunctioning hardware and software, slow website loading, and time-consuming tasks reduces learners' anxiety and motivates them to work confidently safely on online assignments (Kavaliauskiene, 2005). As a result, it is recommended that learners be assisted and guided by a computer assistant throughout their learning activities.

### **2.6.1.4. Learners' involvement**

ESP is a learner-centred approach that necessitates the learner to engage as an active participant and a collaborative agent in the course design process. Online course design is not an exception ; it requires integrating learners in the selection of online activities and associated web technologies. By doing so, learners exhibit their instructional centeredness by demonstrating their primary focus on the future. Course designers are urged to probe learners' expectations and opinions throughout the design process, particularly throughout the NA process.

## **2.6.2. Language Skills Integration in Online ESP Course**

The ultimate goal of ESP instruction is to provide students with opportunities to practise language skills in an authentic setting for communicative purposes. This involves mastery of the so-called macro-skills (speaking, listening, reading and writing) as well as knowledge of grammar and vocabulary. Depending on the students preferences, these skills are practised in traditional classrooms, either individually or in groups. When it comes to online learning, these abilities can

be combined or practised separately. Online, a wealth of audio and video materials, authentic texts, interactive writing tools, content-based vocabulary dictionaries and grammar references can be found. Online resources can be used to practise a variety of language activities and skills. Students are inspired to improve their language skills as they strive for a sense of learning when exposed to authentic resources online. Traditional classrooms and the limited tools they provide might sometimes hinder more than they support.

### **2.6.2.1. Reading skills**

According to their discipline, ESP students read various text genres for different purposes. This includes reading notices, business letters, manual instructions, reports, and journals. Kennedy and Bolitho (1984) outlined a number of reading objectives for ESP students, including identifying key details, determining the major ideas of a text, and interpreting elliptical communications for efficient understanding.

According to Brandle (2002), there are three approaches to incorporating reading materials into the curriculum: learner-determined, teacher-determined, and teacher-facilitated. ESP practitioners suggest learner-determined reading texts that follow an entirely learner-centred to incorporating online materials. Project-based work, which focuses on content learning to simulate real-world reading, is one of the learner-driven online activities. It can be done in small groups, with each member expected to conduct online research on a specific subject and share their findings. Authentic reading materials are also widely available and accessible on the internet, allowing students to read the language in its natural setting. A list of reading materials for a variety of ESP disciplines was provided by Vaičiūnienė and Užpalienė (2010). This involves:

- Day to day objects (for example, photographs, business cards, catalogues, currency, bank leaflets, receipts, reports, bank accounts, instructions, financial statements, application forms, photographs, letters and emails, registration forms, agreements, brochures, bank instructions and diagrams);

- Broader (for example, journals, newspapers, internet websites, documentary comments, film posters, TV and radio scripts)

Exposure to such authentic reading materials enhances learning by eliminating the artificiality of coursebook reading texts and bringing the real world into the classroom. Additionally, the internet provides students with updated reading materials such as periodicals and daily newspapers, which increases their motivation.

### **2.6.2.2. Writing skills**

Writing is one of the most difficult skills for ESP students to master because it entails numerous processes such as planning, drafting, revising, and editing (Kavaliauskiene, 2010). Additionally, students perceive it as a challenging and anxiety-inducing activity that necessitates a self-assured, stress-free and an inspiring environment that the traditional classroom cannot provide. The online learning environment provides ESP students with the necessary environment for practice, including discipline-related documents, authentic texts, multimedia links, and interactive online tools such as Moodle that make writing practise enjoyable and meaningful.

Marko (2001) recommended a number of online writing activities for ESP learners. They include simulation-based tasks such as writing an online scholarship application, a curriculum vitae for a job, and application letters, as well as writing about computing inventions, writing a patent application, and presenting product of a company. The purpose of these activities is to practice writing various text genres in response to online reading materials. These processes for writing genres initiate with a visit to a recommended website for data collection and reflection.

Furthermore, the LMS provides tools such as discussion forums and quizzes for online writing practises. Their advantages include instant online publication, readership, and the ability to create an online portfolio of student written work (Kavaliauskiene, 2010). While creating discussion forums and quizzes requires considerable knowledge and experience that some students lack, their benefits include exposing students to new writing mediums outside of the traditional

classroom and providing additional opportunities in order to enhance their writing skills in a more purposeful and authentic context.

### **2.6.2.3. Listening Skills**

Students learning English as a Second Language (ESP) are taught listening skills to help them recognise the topic of discourse in various registers and trace its development by identifying discourse markers. Additionally, it seeks to assist them in determining the meaning of words based on their purpose, context, sentence structure, and intonation (Dudley-Evans & St John, 1998). Listening to authentic communicative situations in academic or professional settings, such as oral presentations, lectures, seminars, and discussions and one-on-one dialogues, allows ESP learners to listen to the language in its real context (Jordan, 1997). Because such exposure to authentic situations is not possible in the classroom, the Internet provides an excellent opportunity for students to listen to various language functions and discourses via audio and video resources.

The Internet has developed into a goldmine of listening materials (Peterson, 2010). For instance, news station websites offer live streaming of economic, political, and sports news in various English dialects and formalities, enabling students to adjust their listening to their own requirements and skill levels. Listening to these audio or video files online repeatedly is an efficient method for enhancing listening skills because it allows for self-paced listening via pause, play, and replay actions.

These listening materials can range from straightforward, brief passages for beginner or low-level students to challenging, extensive portions for advanced students. They typically come with practice for language skills such as speaking, writing, vocabulary, and pronunciation. Additionally, they can be downloaded with scripts to mobile phone players for self-paced practice.

### **2.6.2.4. Speaking Skills**

Speaking is a crucial skill for the job market since it gives job applicants opportunities to express their ideas, impressions, and attitudes. Speaking with purpose to achieve a certain goal describes using spoken language in a range of academic and professional settings (Jordan, 1997).

This may include giving a speech during lectures, meetings, and seminars, making oral presentations, and having one-on-one interactions with co-workers. The purpose of teaching speaking to ESP students is to allow them to maintain a continuous flow of speech and engage actively in communicative events in order to express and share their ideas with others.

The Internet offers a variety of tools for practising oral communication, including voice chat, chat rooms, Skype, conferencing and forums. They will improve learners' oral proficiency if used appropriately and frequently. To illustrate, a student can use chat rooms and message boards to connect with "penpals" who share a common interest to practice the target language. Students can also sign up for a forum relevant to their field of study to discuss common topics and exchange ideas online. As a result, the purpose of practising speaking online, which is engaging in authentic communication, is achieved. There are also blogs for professionals in particular fields, such as scientists, doctors, business owners, and politicians, where students can communicate with them orally via voice mails, conferencing, and chatting.

A specific interactive LMS may also be developed by the ESP teacher to enable students to practice speaking through simulations, role plays, and online discussions. Nevertheless, to avoid technical difficulties that lead to failure and, as a result, dissatisfaction and demotivation to perform similar activities, these activities require networking knowledge and user-friendly software.

#### **2.6.2.5. Vocabulary**

All language skills require working vocabulary knowledge as a prerequisite to master them. Students in the ESP programme aim to expand their vocabulary through dictionaries, word lists, and glossaries to cope with unfamiliar oral and written discourses. However, paper-based dictionaries frequently lack the jargon and technical terms required of ESP students. According to Jordan (1997), two types of vocabulary are distinguished in ESP instruction: technical and semi-technical. The former refers to terms that are used exclusively in specialised texts, whereas the

latter refers to terms that are frequently used across a range of academic fields. Both types necessitate extensive reading and writing practice, which are easily accessible online.

The internet is a never-ending source of reading material that contains a wide variety of technical and sub-technical vocabulary. The ESP student can select a topic of personal interest and concentrate on the vocabulary presented in the text. Additionally, Kiliçkaya and Krajka (2010) conducted a comparison of traditional and online vocabulary learning strategies and discovered that online vocabulary activities such as "online glossing tool, WordChamp" are more effective at teaching academic vocabulary than other traditional paper-based activities or strategies. Glossing tools convert the words on any webpage into links, allowing students to quickly search for them. Additionally, it links each word to an online dictionary or glossary that is content-specific. WordChamp is an educational website that provides vocabulary drills for a variety of purposes, including listening comprehension, translation, language-specific drills, and dictation. Additionally, online word banks, dictionaries, and interactive word databases are prevalent online tools for expanding one's vocabulary.

#### **2.6.2.6. Grammar**

Due to the difficulties ESP students encounter, particularly in the productive skills, grammar and vocabulary should not be eliminated from ESP instruction (Dudley-Evans & St. John, 1998, p.74). As a result, students should concentrate on their grammatical deficiencies. Despite their widespread availability on various library shelves, guides and grammar books do not always meet the unique needs of ESP students. Additionally, grammar books are typically written for GE and contain detailed grammar rules, drills, and practice exercises that are not content-area-specific. As a result, online assisted-grammar courses are tailored to the specific needs of ESP students.

Online quizzes that can be tailored and organised to match the needs of the students, whose levels of fluency vary depending on their experience with and exposure to the language, can be used to learn grammar in context while reading and listening to authentic materials. To

accommodate learners' varying levels of grammar proficiency, these quizzes categorise the exercises as the beginning, medium, or advanced levels. Additionally, they are presented in a variety of formats, including multiple-choice, fill-in-the-gaps, matching techniques, and true/false questions. Certain quizzes are divided into categories based on language abilities (reading, writing, listening, and speaking) to allow for context-based grammar practice. Simultaneously, learners receive instant online feedback in the form of scores, green ticks, etc. Teachers develop these quizzes to assist learners in developing their grammar proficiency at their own pace and according to their specific needs.

## **2.7. Unpacking the Blended Learning Components**

In the previous section, it has already been established that blended learning is regarded as education that includes some aspects of face-to-face (FTF) learning and online learning. Thus, before elaborating on the reasons for such lack of clarity relating to the concept of 'blended', the literature will be consulted to establish a clearer understanding of what is encapsulated by the terms FTF and online delivery formats. The FTF format is characterised as "traditional". In other words, as Nortvig et al. (2018, p.47) emphasise, It is considered to be the mode with the "longest history" of the three formats, in comparison to which online and BL represent a more contemporary or innovative intervention. "Following a meta-analysis of current literature with a view to comparing diverse online formats with face-to-face formats, the latter authors conclude that theoretically FTF is unanimously understood to be an "instructional format that involves a physical classroom and the synchronous physical presence of all participants (i.e. teachers and students "(Nortvig et al. 2018, p.47). 17 In contrast, Nortvig et al. (2018, p.47) refer to online learning's most predominant feature as being "the absence of the physical classroom. "They argue that the latter is replaced by the use of web-based technologies that allow for out-of-class learning regardless of time, place, and pace. (Nortvig et al., 2018). Such technologies could be "learning management systems (LMS) ", or "virtual learning environments (VLE) ", such as "Moodle "and "Blackboard ", respectively (Pellas & Kazanidis, 2015, p.447). Thus, the literature suggests that

online learning is characterised by "distance "from the physical classroom, where technology serves to both mediate and support the learning experience. The idea of this distance from set times and places is essentially captured by Webster & Hackley's (1997, p.1284) definition of "distance learning "as an approach that offers more flexible learning opportunities by "freeing learners from the constraints of time and place ". According to the literature above, a closer analysis of the FTF and online constructs would appear to yield four underlying dimensions: place, persons participating in the teaching and learning setting, how instruction is directed or facilitated, and the question of time. In other words, teaching and learning take place in-class or are not restricted to the walls of the classroom ; the setting may or may not feature the physical presence of the teacher; the instructional driver of the learning environment may be characterised by either the teacher or technology ; and learning may take place at the pace of an entire body of students while all participants are physically present, or may occur in a setting not restricted by time, place, path or pace. The multi-dimensionality of the two constructs outlined above is formally evidenced by the number of different terms emerging in the literature to denote the bi-modality of course delivery. To address this issue, Friesen (2012) presents a taxonomy of opposite sets of forms, contexts, and practices, which is illustrated in Table 2.1 below. The latter scholar posits that these labels can be used synonymously or interchangeably to tap into the constructs of FTF and online (Friesen, 2012, p.5).

Physical-Co-Presence	Technical-Mediation
<ul style="list-style-type: none"> <li>▪ Face-to-Face (F2F) (Graham, 2006; Stacey &amp; Gerbic, 2009)</li> <li>▪ Oral communication (Garrison &amp; Vaughan, 2007)</li> <li>▪ In-class instruction (Chase, 2012)</li> <li>▪ Place of the classroom (Friesen, 2011)</li> <li>▪ Bricks, mortar (Schute, 2011)</li> <li>▪ A supervised brick-and-mortar location away from home (Staker &amp; Horn, 2012)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Online (Graham, 2006; Stacey &amp; Gerbic, 2009)</li> <li>▪ Written communication (Garrison &amp; Vaughan, 2007)</li> <li>▪ Distributed learning (Graham, 2006)</li> <li>▪ Online delivery of content and instruction (Staker &amp; Horn, 2012)</li> <li>▪ "space of the screen" (Friesen, 2011)</li> </ul>

**Table 2. 1. Opposed Forms, Contexts and Practices in Blended Learning (Friesen, 2012, p.5)**

First, Friesen (2012, p.5) suggests using "physical co-presence" as an umbrella term to represent conceptually the construct of the 'traditional' classroom. Semantically, this term seems to evoke the idea of a context characterised by the spatial and temporal co-presence of the teacher and learner and the co-presence of learners within a physical environment. This paradigm also appears to come strongly to the fore in Graham's (2006) denotation of "Face-to-Face"(FTF), Schulte's (2011) "bricks, mortar", and Staker & Horn's (2012) concept of "a supervised brick-and-mortar location away from home". To highlight an opposite form and context to that of physical co-presence, Friesen presents the term "technical mediation". This label suggests that teaching and learning take place in a context mediated by technology instead of by the teacher. Or, put differently, a technological resource fills the distance that is created by the temporal or spatial separation of teachers and students (Casarotti et al., 2002, p.37).

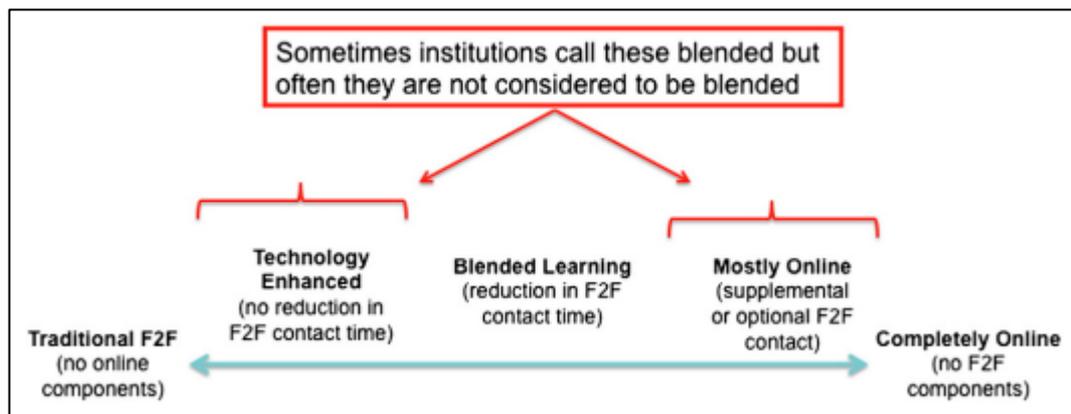
Friesen's "space of the screen [my emphasis]" and Graham's "Online" labels would also appear to encapsulate instructional mediation that takes place in a space which is distant from the traditional classroom. However, it must also be considered that space serves to host some mode of interaction, which is perhaps what Friesen refers to as "practice" (2012, p.5). For instance, a space featuring technology-mediated instruction may be seen as an alternative to a space characterised by teacher-driven instruction. Thus, the modality of the interaction may be facilitated by either the teacher or technology, meaning that either the former or latter become the facilitator or 'enabler' of the interaction. Thus, it could be argued that Chase's (2012) denotation of "In-class instruction [my emphasis]" or Staker & Horn's (2012) concept of "a supervised brick-and-mortar location away from home [my emphasis]" may signal an understanding that the teacher is the lead driver in the delivery of content and instruction, while the "technical mediation" term coined by Friesen's (2012) or Schulte's notion of "clicks, virtual" reinforce the idea of technology being the key enabler in the instructional process. Moreover, besides perhaps being the driver of the learning and teaching process, technical mediation can also be seen as a multidimensional form of the way teaching and learning happen or are experienced. This paradigm is addressed by Lee (2008,

p.3034), who states that The form of the mediated interaction is determined by the number of people involved in message construction and reception as well as the modality used (e.g., text versus full-motion video, etc). Moreover, constant developments in technology over the last 15 years have resulted in changing constellations of people or technology, who or which may drive the interaction as well an ever-increasing range of interaction modalities. For instance, while what Graham (2006, p.1) refers to as a ‘computer-mediated (or distributed) learning environment‘ was once characterised by a written text-based modality of interaction, where the participants tended to be largely separated by time and space, technological innovations have blurred the bimodal view of interaction. For instance, contemporary technical mediation may involve video conferencing, where participants are spatially separated but not separated by time. It is clear that the labels outlined in Friesen’s taxonomy cannot be reduced to the bi-dimensional concepts of the place where the learning takes place but also serve to yield underlying paradigms relating to the mode of delivery of content and instruction. Thus, it is suggested that course designers not only develop a keener awareness of such multi-dimensionality but carefully reflect on the desired learning and teaching paradigms before the appropriation of terminology becomes formalised in a course design context.

## **2.8. The Role of Setting and Technology**

As discussed in the previous section, naming conventions of course delivery modes and the underlying practice they are understood to embody vary significantly in the higher education landscape. Graham, Woodfield and Buckley Harrison (2013, p.4) emphasise that while higher education institutions seem to be able to draw a clear distinction between traditional face-to-face and online course delivery, a distinct lack of clarity exists on what to call the mode of delivery in between these forms. Yet, not only does the labelling of the in-between forms appear problematic, but also the underlying practice associated with such forms are subject to various interpretation. In their spectrum of course delivery modalities in higher education, Graham et al. (2013, p.5)

address the very fluidity of what occurs when higher education institutions commit to changing a mode of delivery that was previously delivered either fully FTF or fully online.



**Figure 2. 1. Spectrum of course delivery modalities in higher education (Graham et al., 2013, p.5)**

As clearly illustrated in Figure 2.1, a traditional FTF is seen by the authors to have no online components. On the opposite side of the spectrum, a completely online mode of delivery has no FTF components.

According to Graham et al., three delivery options, which may be considered by institutions as constituting blended learning, lie between traditional FTF and completely online modes. According to the same authors, two of the three options cannot be called blended learning. First, the technology-enhanced delivery mode presented in the model above implies that technology is used to enhance teaching and learning. However, the student time or workload dedicated to using this technology is not accounted for in the institutional scheduling of contact time. Second, the ‘mostly online‘ delivery option outlined in Graham’s model entails supplemental or optional FTF contact, which also means that from a student perspective attending FTF sessions is not accounted for in the scheduling of contact time. Thus, Graham et al.’s classification suggest that a course can only be called blended if it includes a mixture of FTF and online contact time that has been explicitly designated as such in the schedules of teachers and students. While Graham’s blended learning model focuses on the scheduled time for the use of technology, other authors appear to define blending across a continuum defined in terms of to what extent the technology is used. For instance, Launer (2010, p.9) defines BL as “the combination of

technology-supported self or distance study settings and face-to-face settings”. Thus, he seems to argue that while the face-to-face setting does not feature 21 technology support, any type of technology support already implies the onset of blended learning. Launer’s definition appears to find support in the European higher education context. Data presented in the EU-commissioned 2018 Bologna Implementation Report shows that of degree programme delivery modes offered by HEIs across the European Higher Education Area, the most commonly reported mode of course delivery is blended learning. This report features a definition of blended learning programmes as constituting “traditional, campus-based“ programmes“, which have “some components that are delivered online“ (Gaebel & Zhang, 2018, p.59). Thus, it may be argued that in European education, adoption of blended learning encompasses a paradigmatic view of the FTF classroom or campus as providing the setting or context for the lead mode of delivery, which is primarily teacher-directed. The alternative to the FTF mode of delivery is an online mode of delivery. In a similar vein to Friesen’s (2012) taxonomy, Gaebel et al.’s (2014) definition of online learning would appear to present the dimensions of online learning as opposite forms of FTF contexts and practices. For instance, they (2014, p.17) see online learning as “taking place primarily via the Internet“, which implies learning is mediated by technology. Yet, learning with technology is also denoted by the term ‘e- learning’. Thus, the question arises as to whether e-learning can only take place away from the FTF classroom. In one of the first attempts to report on the state of play of e-learning in European HEIs, Gaebel et al. (2014) provide clarity on several constructs often subject to varying degrees of interpretation. The tertiary education institutions from European systems, comprising EU and wider Europe, who had participated in the survey were provided with the following definitions: E-learning is defined as a generic expression for all learning involving the use of ICT to support both learning and teaching. Moreover, the same authors state that the term e-learning is normally synonymous with ICT-based learning (Gaebel et al., 2014). Yet, the latter authors also state that the use of different technologies and tools to support learning can take place in diverse learning settings, including face-to-face and distance contexts. When technology is used

to support learning in a combination of FTF and distance learning settings, then e-learning is usually called BL (Gaebel et al., 2014). Based on the latter definitions, it may be concluded that e-learning can also take place in the FTF classroom. Moreover, blended learning encapsulates a blend of FTF and distance learning settings, in which technology can play a supporting role in either setting.

### **2.9. Planning the Balance of FTF and Online Time**

However, besides adopting the premise that blended learning entails a reduction in FTF contact time and enhanced use of technology, blended learning designers may need to make a firm decision as to how FTF contact time should be balanced with online components. This decision may have a significant impact on the scheduling plan of the teachers and learners involved in the blended learning experience. Thus, it seems advisable for course planners to make a strategic decision as to whether FTF or online is the lead mode of delivery. In this respect, the Online Learning Consortium (OLC), a thinktank dedicated to fostering quality digital teaching experiences in US higher education, presents two options.

Mayadas, Miller & Sener (2015) suggest distinguishing between a “blended classroom course” and a “blended online course”. The former mode is defined as a setting where online activity is mixed with classroom meetings, replacing a significant percentage, but not all required FTF instructional activities (Mayadas, Miller & Sener, 2015). The latter mode describes a setting in which “[m]ost course activity is done online, but there are some required FTF instructional activities, such as lectures, discussions, or other in-person learning activities. While the latter thinktank does not prescribe what “significant” means in quantitative terms, several other scholars suggest the use of quantitative descriptors to determine a scheduled balance between FTF and online components. For instance, Allen, Seaman and Garrett (2007, p.5) propose a blended model that has between 30%-79% online. On a less prescriptivist note, Picciano (2002, p.10), for example, suggests that institutions define independently which “portion of face-to-face time is replaced by online activity.

Planning blended courses can also entail determining for which learning and teaching purpose technology is being used. For instance, Smith & Kurthen (2007, p.457) propose classifying course delivery modes into four distinct categories: First, they define web-enhanced courses as those that integrate a minimal number of online elements, such as the syllabus and course announcements into an otherwise traditional FTF course. Their definition would seem to concur with Graham et al.'s notion of technology-enhanced delivery. As a concrete example from an implementation perspective, the authors suggest that the use of the Learning Management System (LMS) as a resource to display and access information would constitute web or technology enhancement (Smith & Kurthen 2007, p.457). Second, Smith & Kurthen see a blended course as one in which the teacher adds, beyond an online syllabus and a few online documents, some significant online activities. In this case, the same authors suggest assigning online quizzes or online discussions, which account for a small percentage of the course grade. Yet, they also state that while such online activities do not replace scheduled FTF class meetings, they may account for up to 45% of course activities (2007, p.457). This definition would appear to imply that although the learning is technically mediated, it is seen as supplemental self-study and may involve the allocation of points as an incentive to encourage students to engage in this form of self-study. Thus if this delivery mode were to be placed on Graham's continuum, it would represent a more intense form of technology-enhanced delivery but would not qualify for the label of blended. Third, if online activities replace 45% to 80% of FTF meetings, the course is hybrid (2007, p.457). The fourth category is considered "fully online" if it entails classes, where e-learning activities constitute 80% or more of the contact time (2007, p.457). In summary, if blended learning is to be appropriately implemented, it entails a meaningful blend of time allocation and learning activities.

### **2.10. Reasons for Use**

Osguthorpe and Graham (2003, p.231) identified six reasons why an educator would use a blended learning model for instruction in his or her classroom: ( 1) pedagogical richness, (2)

access to knowledge, (3) social interaction, (4) personal agency, (5) cost- effectiveness, and (6) ease of revision. According to the authors, the central purpose that should drive all other motives [for using blended learning] is to improve student learning. They use the term pedagogical richness – the degree to which instruction succeeds in facilitating student learning – to describe the primary reason why any educator should adopt a blended learning model. The authors’ second reason, access to knowledge, speaks to the wealth of information technology can introduce to the classroom. Through courseware platforms, educational software, and the internet, a blended learning environment provides an instructor with a greater array of options than other models for introducing course material and allowing students to explore relevant course content and information.

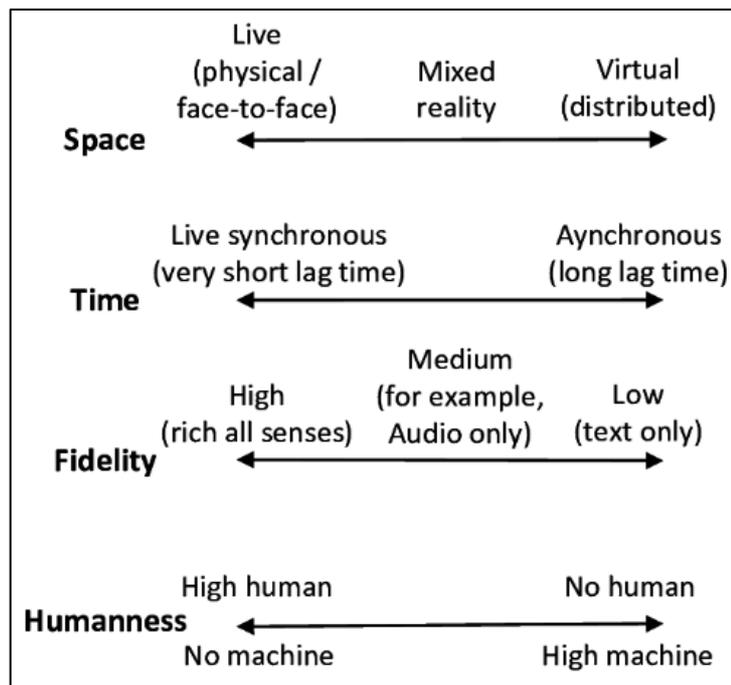
A blended learning model also offers students enhanced opportunities for social interaction, Osguthorpe and Graham’s (2003) third reason. Social interaction is considered critical for its role in motivating questioning, idea generation, and idea contemplation, which can lead to greater mastery of concepts as well as an enhanced understanding of self. In the blended learning classroom, the interaction between students can occur in either a face-to-face or virtual fashion. Students can discuss course content either in the classroom, through small group discussions, or online, through a variety of means for chatting or posting comments. The authors’ fourth reason, personal agency, is considered valuable for placing control and direction over learning in the hands of students. In blended learning models, where students are expected to access course materials online, students must take increased responsibility for both the pace and manner in which they process course content. The authors’ fifth reason, cost-effectiveness, suggests potential financial benefits stemming from the manner in which institutional resources (e.g., instructors, classrooms, computers) are utilized. Finally, the authors’ sixth reason, ease of revision, stems from the fact that most blended environments are developed by course instructors who wish to enhance existing classroom environments. The authors point out that, as course designers, these instructors often take advantage of the opportunity to create a learning atmosphere that is flexible, responsive, and

spontaneous. Tuckman (2002) cites an additional reason for blending technology with traditional classroom pedagogy. According to the author, the use of technology in the classroom can serve the dual purpose of facilitating student learning and enabling regular assessment of student progress.

Unlike traditional classrooms, which provide instructors with limited opportunities for assessing student understanding (e.g. mid- term exam, final exam, term paper), blended learning classrooms can offer enhanced opportunities for instructors to assess their students' performance on a frequent and consistent basis. Tuckman (2002) notes that by tightly incorporating instruction and assessment, the latter becomes an integral part of the former, with meaning for the student that extends well beyond earning a grade.

### **2.11. Affordances of FTF And Online Learning Environments**

In addition to determining which blended learning components to deliver and how these will be delivered from an educator's perspective, the dimensions of student- teacher interaction in live and virtual environments must also be addressed. Graham's (2006) taxonomy of the four dimensions of interaction in FTF and distributed learning environments provides a useful framework for institutional planning relating to the relationship between delivery form and learning activities.



**Figure 2. 2. Four dimensions of interaction in F2F and distributed learning environments (Graham, 2006)**

In the taxonomy illustrated in Figure 2.2., Graham (2006, p.5) posits that both “Live” and “Virtual” learning environments constitute a dimension of “space, time, fidelity and humanness“. These are represented from left to right on a continuum that shows the extent of interaction between the stakeholders of the learning environment. The spatial dimension ranges from “live, physical, FTF interaction “to “virtual or distributed” (2006, p.5). The time dimension is represented as “live synchronous, which implies a very short lag time of interaction”, to “asynchronous (long lag time of interaction)” (2006, p.5). According to Graham, fidelity measures the “richness of communication“ and extends along a continuum ranging from “ high (rich all senses)“ to “ low (text only)“ (2006, p.5). The fourth dimension humanness refers to “high human presence“, with no use of technology to “no human“, which involves a high degree of technology use (2006, p.5).

As explained by Graham, the FTF learning environment traditionally operated at the left hand side of each of these dimensions, or in other words, it “ typically occurred in a teacher-directed environment with person-to-person interaction in a live synchronous, high-fidelity environment “ (2006, p.5). Moreover, Graham (2006, p.1) sees a “computer-mediated (or

distributed) learning environment“ as one in which the participants tend to be largely separated by time and space, and as a setting traditionally characterised by “ self-paced learning and learning materials interactions that typically occur in an asynchronous, low-fidelity (text only) environment “ (2006, p.1). However, technological innovations have since challenged this view of interaction. For instance, contemporary technical mediation may involve video conferencing, where although participants are spatially separated, they are not separated by time. For instance, the phenomenon of ‘real-time‘ interaction can also be observed in a real-time chat forum.

In a practical sense, the affordances of the physical classroom environment emphasise human interaction and foster a sense of community, connectedness and satisfaction. In other words, a FTF setting facilitates what Graham (2006) refers to as ‘humanness‘. For instance, the inherent characteristics of this setting facilitate an environment, where both educators and peers can move between different groups of learners and support diverse needs with more personalised and immediate support as necessary. Second, such an environment may be suitable for what Hattie & Timperley (2007) refer to as a “feed forward“ process, which entails more teacher facilitation in helping students to determine where they are going. In other words, particularly at the beginning of a course, high-fidelity mediation of the learning contents and direction, as well as strategies on how to engage in independent learning are essential in helping students to “gradually assume more responsibility over their learning” (Beckers et al, 2018, p.261). As discussed above, developments in technology have enormously impacted the alternative to the traditional classroom setting. For instance, an asynchronous online discussion (AOD), e.g. blogging, could be seen as constituting a form of learning that supports critical discussion outside of the physical classroom. As underscored by Loncar, Barrett & Liu (2014, p.94), this learning form provides students with “the time and space to work with, explore, and critically discuss topics“. Moreover, an asynchronous online environment provides a potentially “less stressful practice environment“ as learners are not in the physical presence of teachers or peers (Mondejar, 2013 p.276), and. can work at their own pace, which is particularly beneficial for learners with different needs (Berényi & Deutsch, 2018,

p.39). Yet, several challenges associated with the asynchronous nature of online communication have also been identified. For instance, its potential for ‘disconnectedness‘ has been addressed by several studies. For instance, the lack of teacher presence may present a challenge for learners unwilling or unable to demonstrate autonomy, self-regulation and independence correspond to a “limited capability“ of student engagement in the learning experience due to having to “overcome challenges“ that require “the persistence and determination, typically required of self-directed learners (Shea & Bidjerano, 2012, p.318).

Moreover, for stakeholders in the online interaction a lack of non-verbal cues may lead to difficulties in understanding “the importance of information“ and “interpretat[ing] the meaning of silence or non-reply by others“ (Powell et al, 2004, p.9). As a consequence, social presence may be adversely impacted. Social presence in its simplest form is defined as “a student's sense of being and belonging in a course and the ability to interact with other students and an instructor in an online course although physical contact is not available” (Picciano, 2002, p.22). As this sense of belonging, or lack thereof, could also be applicable in a FTF setting, Swan & Shih (2005, p.115) extend this definition to include the sense of belonging during technology-mediated communication, and define social presence as “the degree to which participants in computer-mediated communication feel affectively connected to one another “ (Swan & Shih, 2005, p.115). Thus, social presence is key to building relationships, group cohesion and trust, all of which foster motivation and learning success (Powell, 2004, p.9) A lack of perceived social presence may hinder the the building of relationships, group connectedness and trust, which may have an adverse impact on students‘ satisfaction with online learning activities and possibly on the intended learning outcomes (Picciano, 2002, p.118).

## **2.12. Design and Implementation**

Great variation exists between different blended learning designs based on the needs and goals of the designer and instructor (Garrison & Kanuka, 2004 ; Osguthorpe & Graham, 2003). Voos (2003) notes that the success of blended learning courses lies in careful course design that

focuses on utilizing different instructional and media options for their strengths in bringing about student learning. The author explains how “blended designs can enhance student and faculty satisfaction with learning, when the design, the training and development, and the systems and support are well organized” (Voos, 2003, p.4).

Several authors have noted that the online component within a blended learning environment makes it possible, and sometimes preferable, to reduce the amount of time students are required to spend in class (Garrison, Kanuka, & Hawes, 2002 ; Voos, 2003; Vaughan, 2007; So & Brush, 2008). These authors posit that since most online activities are designed to be completed independently, it is unnecessary to require students to complete them during class time. In addition, Vaughan (2007) points out that most students appreciate having the flexibility to complete activities like these on their own time.

One effect of utilizing online technologies during out-of-class time is that instructors can shift the focus of class time from passive learning (e.g. lecturing) to active learning, including opportunities for increased interaction and discussion between students. So and Brush (2008) warn, however, that a reduction in class time leads to an increased need for self-regulation among students, who must possess the necessary motivation and time management skills to complete their coursework in a timely fashion. Voos’ (2003) comment above underscores the need for careful planning and deliberate choices on the part of course designer in the face of a multitude of technological and pedagogical options. Graham (2006) highlights this necessity, pointing 30 out that a poorly designed blended learning environment can combine the least effective aspects of traditional and online instruction and thus create a negative learning experience for the affected students. With his co-author, he alerts course designers to “the threat of an out-of-balance, discordant blend that frustrates both student and teacher” (Osguthorpe & Graham, 2003, p.229).

In light of the rapid growth and near pervasiveness of technology in higher educational settings, a number of authors have seen fit to voice concern over potential pitfalls with blended learning in the college classroom. These authors challenge the unquestioned effectiveness of

technology-based pedagogy and warn educators of the dangers of using it in the absence of adequate knowledge, forethought, and planning. Watson (2001) cites previous evaluation studies by Cuban (1986) to support the notion “that unreflexive and unabashed optimism about the necessarily transformative nature of new educational technologies is both naïve and historically unfounded” (p.261).

According to Bennett, Priest, and Macpherson (1999), “from a pedagogical perspective... web based strategies have the potential to be just as inflexible and inappropriate as any other form of poor instruction” (p.208). Torrisi- Steele (2011) explains that “inadequate knowledge of the potential of new [online] technologies together with the hype surrounding new technologies in the teaching and learning arena may lead to the mistaken belief that simply translating teaching materials inherently results in improving the quality of the learning environment” (p.2).

### **2.13. Dimensions**

A number of authors (Margaryan & Bianco, 2002 ; Singh, 2003 ; Troha, 2002; Verkroost, Meijerink, Lintsen, & Veen, 2008) have seen fit to describe blended learning in terms of the various dimensions along which it can vary. The work of Verkroost, Meijerink, Lintsen, and Veen (2008) draws from the research of Troha (2002), though unlike these authors it focuses specifically upon blended learning in a higher educational setting. The authors identify four dimensions of blended learning for courses at the college or university level: (1) Structured versus Unstructured Learning, (2) Individual versus Group Learning, (3) Face-to-Face versus Distance Learning, and (4) Self Learning versus Teacher Directed Learning. The authors acknowledge that various preconditions, including course, curriculum, resources, student demographics, and teacher background knowledge, will impact every course designer’s decisions with regard to the balance of the blend along these dimensions. The first of the authors’ (Verkroost, Meijerink, Lintsen, & Veen, 2008) dimensions (Structured versus Unstructured Learning) relates to both content and pacing. The level of structure in content reflects the amount of freedom students are given with respect to approaching, analyzing, and comprehending course concepts. The level of pacing

reflects the degree of freedom students are given in controlling their rate of processing course materials.

The second dimension (Individual versus Group Learning) relates to social interaction between classmates. Individual learning implies solitary consideration of course concepts, while group learning implies interpersonal communication among classmates for the sharing of knowledge and analysis of course concepts. The third dimension (Face-to-Face versus Distance Learning) relates to location. When learning occurs in a classroom, it is described as face-to-face; when it occurs from remote locations through online activities, it is described as distance. The final dimension (Self Learning versus Teacher Directed Learning) relates to responsibility. It reflects the degree to which students are given responsibility for self-regulating their learning and exerting control over the learning process.

#### **2.14. Impact on Students**

Several studies have examined blended learning in light of its strengths in encouraging interaction, enhancing engagement, building community, and forming connections between students. In an early study of this type, Aspden and Helm (1984) assessed whether college students in a blended learning environment experienced an increased sense of connectedness with their classmates, instructors, and institution.

The authors used qualitative data obtained from student diaries and interviews carried out during the second phase of a formative evaluation of on-campus students' online learning experiences. During this phase, the authors observed issues emerging from the data with respect to the nature of contact between students, instructors, and the university. They thus sought to investigate student interaction and engagement within the blended learning environment students were experiencing. According to the authors, "on-campus, students have the physical embodiment of the institution – the architecture, the setting, the people, the resources – with which they can identify and a sense of being at [college] is supported 33 by recognition of this environment" (p.249). The authors concluded that the strength of the blended learning environment - and its

online component specifically - lies in its ability to simulate “the presence of the institution” for students when they leave campus, allowing them to retain their connection with their classmates and their engagement with their studies. Garrison and Kanuka (2004) argue for blended learning as a means for enhancing both the nature and quality of students’ overall educational experience . According to the authors, “the heart of this argument is the quality and quantity of the interaction and the sense of engagement in a community of inquiry and learning” ( Garrison & Kanuka, 2004, p.97). Within a blended learning environment, the authors view community as the stabilizing force that binds students to one another in a setting where access to information and an open dialogue about course topics are considered essential. The authors conceptualize a community of inquiry as resultant from the interconnectedness of three elements: social presence, cognitive presence, and teaching presence. At the intersections of these elements are the pedagogical concepts of content, climate, and discourse. Discourse, which rests at the intersection of social and cognitive presence, represents the interaction between members of the learning community through dialogue designed to promote the construction of meaning and the confirmation of understanding. The authors view this discourse as a necessary means for challenging existing beliefs, arguing that isolated learning cannot accomplish similar goals.

Rovai and Jordan (2004) investigated sense of community within classroom, blended, and fully online graduate courses at a small, urban university in the southeastern 34 United States. One of the authors (Rovai, 2002) had previously determined that a key component to low retention rates and diminished cognitive learning in fully online courses related to the reduced sense of community among learners. In the present study, the authors used a self-report measure to assess student connectedness and learning in three sections of a course, each employing a different instructional format as indicated above. Students in the blended section of the course scored significantly higher than those in the other two sections on both variables. The authors noted that the blended learning section successfully avoided the feelings of isolation that the fully online

section produced while offering enhanced communication options for students that the classroom section could not.

Smith and Kurthen (2007) investigated how students interacted in the online and face-to-face aspects of the blended courses at their university, collecting qualitative data through instructor interviews, structured classroom observations, and the analysis of online postings on discussion boards. They concluded that student interaction was enhanced when between 40% and 80% of the course components were online, but that interactions were impeded when less than 40% were online. They attributed this finding, in part, to norm internalization, suggesting that students have to “overcome some resistance and internalize the norms and rules of another learning modality” (p.241) if they are to embrace it. Thus, according to the authors, when online components are only minimally used within a course, students may be more likely to resist accepting them as a valid or attention-worthy medium for interaction. With this in mind, the authors caution 35 instructors of blended learning courses to avoid increasing online components capriciously or for reasons unrelated to student comprehension of course content.

### **2.15. Adoption of Blended Learning in Higher Education for Teaching English for Specific Purposes**

Ellis et al., (2006) conducted qualitative research to explore student experiences while learning psychology using a BL method. The teacher designed discussion topics for classroom sessions and had students continue the discussions that started in the classroom online. The authors used different data collection tools including open-ended questionnaires and semi-structured interviews to explore student opinions about the experience. According to the results, students reported that discussing topics using the blended method increased their cognitive skills and led to more cohesive and coherent thinking. These increases positively impacted the grades of many students.

Davies et al., (2005) observed the impact of BL on the development of analytical skills of physiotherapy students at the University of Birmingham. The design of web-based activities

that included video clips of patients provided students with authentic materials that exposed them to real situations and prompted a higher level of critical thinking. The study highlights the importance of integrating online modules with classroom learning to link theoretical and practical experience when assessing health issues in a clinical setting. There is also recognition of the role that BL plays on discussions and tasks when developing student skills as reflective practitioners. The analysis of the online discussions showed that students involved in BL are able to share knowledge and reflect on their experiences (Guldberg and Pilkington, 2006). Cox et al., (2004) assessed the educational effectiveness of web-based discussions on learning business. The results of this work found that the impact of BL resulted in better learning outcomes. Webb et al., (2005) suggested that the BL model of teaching supported learning in a course called “Management Information Systems” (MIS). The authors’ findings suggest that the use of advanced technology helped college teachers to involve students in a learning environment and to motivate students to achieve higher levels of knowledge. In computer science departments, BL is becoming increasingly popular as more computer science departments integrate technology into their educational system. The mixture of traditional and online learning generates a more integrated approach for instructors and learners that successfully applied these teaching strategies in the computer science. Integrating competency-based BL in a computer science classroom can help to meet the needs of students. This approach creates a positive learning atmosphere by having teachers use more tools to develop certain skills.

### **2.16. Blended Delivery Systems/ Learning Management systems**

Many technologies can be integrated in BL environments including classroom technologies such as PowerPoint presentations and interactive whiteboards and virtual communication tools to help teachers design activities to help students engage in chat and group discussions. In addition, social networking applications that enable students and teachers to socialize with one another using instant messages, YouTube videos, Wikis, and e-learning management systems to allow teachers to communicate with students using online conferencing

systems, group collaborative software, and sites can be useful tools. Finally, mobile learning provides students and teachers with the ability to download platforms such as Moodle to their personal mobile devices to allow them to communicate and learn using their phones from any location. Thorne (2003, p.2) found BL to be a way of meeting “the challenges of tailoring learning and development to the needs of individuals. It represents an opportunity to integrate the innovative and technological advances offered by online learning with the interaction and participation offered in the best of traditional learning.” As a result, BL provides teachers and students with educational tools to design courses that meet student needs while taking into consideration their learning level and selecting the right technologies to allow them to learn effectively (Thorne, 2003). Singh (2003) mentioned that using one teaching tool may not provide students with sufficient learning opportunities, involvement, interaction, and resources for their academic needs. A BL approach is the best solution for this issue that can lead to successful learning outcomes. Singh states that BL depends on using various tools that allow teachers to create different activity types using face-to-face instruction, online learning, and self-paced learning approach (Singh, 2003).

### **2.16.1. Current eLearning Platform: Moodle**

Moodle is an open-source tool that is one of the most modern examples of tools designed to serve as e-learning platforms. It is the most popular, the most frequently updated, and the most comprehensive in terms of the variety of content that can be managed, created, but also supported. Additionally, it is a significant source of software development. Moodle is a widely used eLearning platform. Moodle is fully equipped to create online courses and course websites.

Martin Dougiamas founded Moodle LMS while pursuing his Ph.D. with the goal of developing a "social constructionist framework" for learning based on information technologies (Oztek, Kong & Uysal, 2010). Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment. It is a free, open-source educational platform for students, educators, and programmers. When used as a verb, it refers to the act of casually exploring a subject. One distinct

advantage is that an individual can quickly and easily create an online learning environment that can be enhanced as the course progresses with new perspectives and creativity. Moodle adheres to the standards established by those involved in online education (students and teachers alike). Moodle is copyrighted Open Source software (licensed under the GNU Public License), which means that users may copy, use, and modify it as long as they agree to (1) make the source code available to others, (2) maintain the original copyrights and licence, and (3) use the same licence for any future developed components. Moodle's primary concepts are "activities" and "resources." The customizable activities include forums, wikis, glossaries, assignments, quizzes, polls, SCORM 6 players, and databases. The primary strength of Moodle's activity-based model is its ability to organise activities into sequences and groups. This method guides participants through a series of tasks, each one building on the outcomes of the previous one. It is easier to form learning communities when additional tools such as blogs, messaging, participant lists, grading, and reporting are used. It is also possible to integrate with other systems.

Moodle makes an attempt to facilitate the learning environment of Social Constructivism. According to Hodson (1998), software such as Moodle transforms the current model of education, which emphasises individualism (i.e. an instructor creates an activity, such as a formative exam, and each student must complete it independently to demonstrate their grasp of the taught concepts), into a more rich environment that offers activities. According to SCORMExplained (2013), SCORM is a set of technical standards for e-learning software products. A SCORM editor is a software application that assists eLearning developers in developing eLearning programmes that incorporate social constructivism features such as wikis, in which all students and possibly the instructor contribute to the creation and development of knowledge. Hodson (1998) argues for a shift in emphasis away from personal construction by individual learners and toward social construction within the scientific community, as well as toward a view of learning as a process of enculturation, as Vygotsky proposed. Such a strategy would necessitate the intervention of a teacher." As a result, Hodson concludes that ultimately, everything rests with the instructor, which

is valid for Moodle. Moodle provides all the building blocks necessary to create different constructivist tools, but not the finished product. Someone needs to build, or at the very least, introduce the foundations of the applicable learning method so that learners can begin using it to build knowledge for themselves and their group peers. Thus, the reality is that trained instructors must be involved in using these tools effectively, meaningfully, and constructively. However, this is not simple training.

An LMS course builder not only needs to be technically proficient and thoroughly trained in the platform in question, but he or she also needs to possess extensive knowledge of learning theories and likely some teaching experience in order to develop a course that incorporates constructivist specifications. Finally, Moodle is free to use as Open Source software, which means there are no upfront costs or licence fees. However, assistance is required and is not provided for free. Moodle.org provides community-supported Moodle courses, forums, and documents. Moodle is essentially self-sufficient in terms of application support. As a result, there are a variety of courses and learning tools available, with the forums topping the list. Nonetheless, installing Moodle entails the absence of on-site support and a lack of 24/7 technicians available to assist at any time. That may be a disadvantage, but unlike other systems such as banking or e-commerce, eLearning platforms typically do not encounter frequent emergencies. On the other hand, the forums attract a sizable community that responds quickly with answers and solutions. These solutions are frequently superior, condensed, and more comprehensive than commercial support. This response quality can be justified by the fact that forums are community-based tools, which means that the responses you receive are not always from Moodle technical developers but rather from moodlers, Moodle users who have built courses and encountered similar issues to yours. Often, these are teachers who have mastered the application. They were motivated to implement courses by the vision of computer-based collaborative constructivism. These individuals are the ones who can provide solutions to the majority of problems encountered. Nonetheless, it is acceptable for HEI to lack confidence in its core eLearning application because it is not officially

supported by a group of specialists rather than the community and publicly available documentation. Numerous organisations provide this type of support, of which some, dubbed Moodle Partners, have been officially authorised to provide service and support to Moodle installations located throughout the world. Indeed, such services are commercial and are not provided for free.

Furthermore, Martin Dougiamas, who holds postgraduate degrees in both computer science and education, is the creator of Moodle. The development of Moodle by a person with a background in both Computer Science and Education demonstrates an added benefit in terms of providing a supportive community environment led by someone with whom you can relate in terms of both technical and learning challenges. Finally, it is necessary to acknowledge the surprising expertise of teachers from all levels of education in technical issues. They have contributed not only their expertise in developing, implementing, and testing online courses but also their willingness to share insights from their personal experience using the platform for their classes, not only on a technical level but also in terms of constructivist learning, enabling the installation of Moodle and the implementation of learning activities for the purpose of this research.

#### **2.16.1.1. Moodle LMS**

It is now widely recognised that modern technologies enable numerous possibilities for language teaching and learning, which can also be applied to English for Specific Purposes (ESP). On a global scale, Virtual Learning Environments (VLEs) are widely used to provide online spaces for teachers to organise their own and their students' work. As one of the most widely used VLEs, Moodle has established itself as one of the most beneficial technological tools for ESP teaching and learning. It promotes communicative and collaborative learning and can help students improve their communication and four-language skills, as well as their specialised vocabulary and ability to simulate real-world situations. It will be discussed how to use Moodle blocks and modules to

provide students with adequate teaching materials, as well as how to assign students to various activities. Finally, the critical role of the teacher in integrating Moodle into ESP will be discussed.

Moodle is a free, open-source e-learning platform that enables users to manage their own educational resources. It is the empty box where linguistic data can be stored. It is also an incredibly easy-to-use platform that does not require users to have any special computer skills. Additionally, the book *Moodle for Second Language Learning* was and continues to be an invaluable resource for learning how to use Moodle for language teaching.

Stanford (2009), the author of the book, outlines the features of the learning platform that support the critical characteristics of communicative language learning and can be applied to ESP teaching: social nature of learning, student autonomy, curricular integration, emphasis on diversity, meaning, thinking skills, alternative assessment, and teachers as co-learners. Ward (2005) asserts that activities such as forum, chat, news, and workshops can be used to enhance communicative language learning and student-centred learning. Additionally, a wiki, a blog, a glossary, a questionnaire, a quiz, and various types of assignments are found to be beneficial for ESP courses using Moodle.

#### **2.16.1.2. Conclusions for Moodle**

The environment is a flexible platform that can be used to create a wide range of content for a variety of purposes. This produces what is commonly referred to as an eLearning tool in education. The fact that the tools provide a foundation for construction, however, has no bearing on what will be built. Thus, even if users of such tools eventually have the environment required to construct cognitive modules, the question remains as to whether they know what to do with it and whether they have the time to complete the task. As a result, it appears that creating eLearning content and applications is neither simple nor straightforward. Indeed, in order to consider a successful implementation, teachers may need to combine several expertise-related characteristics.

The following characteristics have been summarised as a result of the previous findings:

- Learning (pedagogy) expertise: In order to create such eLearning activities, the developer of an eLearning module must understand the principles of cognitive learning.
- User Technical expertise: The vast majority of eLearning activities do not necessitate technical expertise such as programming. Moodle and other LMSs are sophisticated programmes. While their environment is designed to be as user-friendly as possible, they do not recommend a preferred platform in order to provide a diverse range of options and the flexibility to create learning building blocks for a variety of different learning requirements. Training and time investment are required for users of such tools to experiment with the various options available. The required training is both complex and time-consuming, and it can be considered partially experimental because trainers lack sufficient experience. Unfortunately, both training and time are expensive.
- IT services know- how: While most educational institutions' IT services have technical expertise in installing and maintaining hardware, software, and networks, they are not experts in eLearning applications.
- Cost of maintenance: Personnel, hardware, and software costs associated with running such applications on 24/7 basis.

### **2.16.1.3. Some Features of Moodle for English for Specific Purposes**

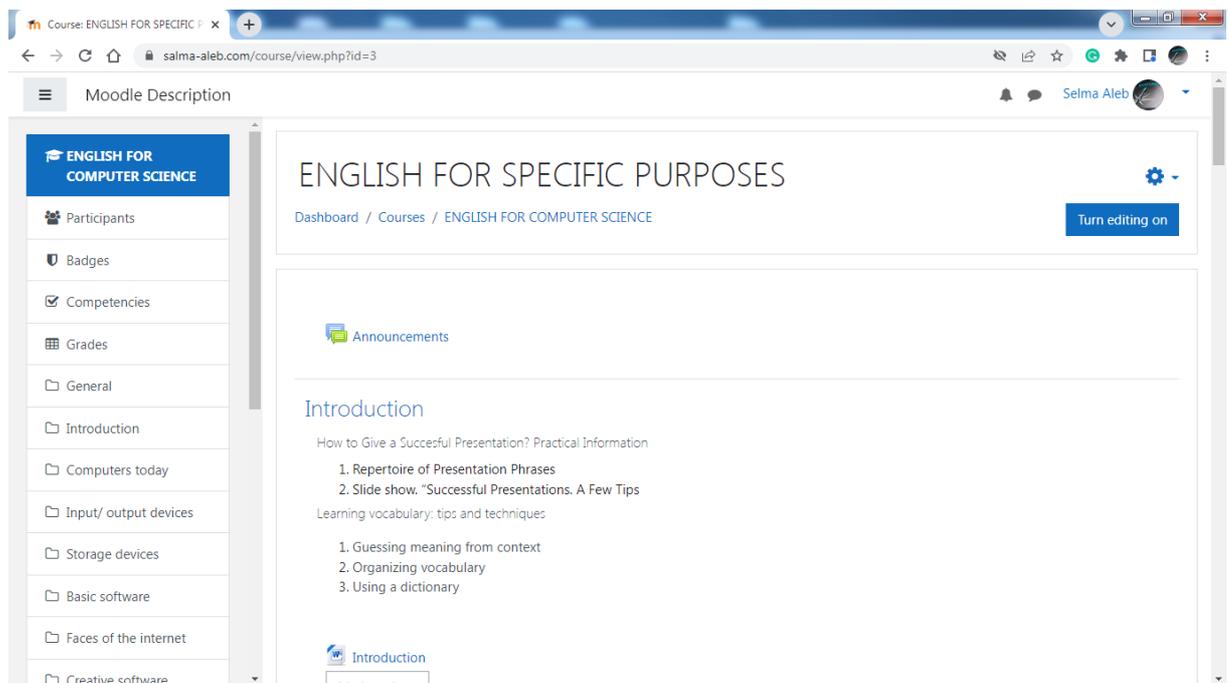
Moodle has been used at the Faculty of Information Technology, Mostaganem University, Algeria for more than five years. My colleagues and I have noticed an increase in student activity since the beginning of the implementation of Moodle at the FIT. It is extremely beneficial for students who work or are otherwise unable to attend classes, as they can follow the course just as if they were in the classroom by accessing the teaching materials, forums, and messages. Moodle is also beneficial for students who attend classes on a consistent basis because they have

access to all courses on the platform and can peruse the teaching materials in case they missed or misunderstood something during class. They are all capable of administering tests, submitting homework, reading texts and books, completing questionnaires, and a variety of other tasks. It is clear that students not only access materials and provide feedback but also regularly interact with their teachers.

One of the advantages of Moodle is that the materials it contains, as well as all of the system's features, can be used in the classroom as well. Thus, FIT students can access the materials directly in the classroom, take additional notes and information during classes, and participate in exercises and planned activities during seminars. Additionally, students can listen to audio and/or video materials, take tests, and access various websites via provided links. On a daily basis, we communicate via forums and messages, and students receive information via the news block.

Students' Moodle accounts are linked directly to their email addresses, which means that any news or messages posted on a course are forwarded directly to their email address, keeping them informed about everything related to the course.

As illustrated in Figure 2.3, a Moodle page is divided into three sections: a left panel and a right panel, each of which contains various blocks that can be made visible or invisible to users. This means you can add them to (or remove them from) your course as needed. Occasionally, your administrator may restrict the use of blocks to protect your institution's server and prevent it from becoming overloaded.



**Figure 2. 3. A Moodlepage**

The middle part contains core modules that comprise the content of the course. By providing students with a variety of resources presented in a variety of media formats, teachers give students the opportunity to choose and discover the best method for expanding their language knowledge and developing language skills, all while feeling as if they were in the classroom. Additionally, the teacher can engage them in a variety of activities presented in Add an activity. Because the majority of Moodle activities include grading capabilities, they are well-suited for alternative assessment. Assignments are extremely beneficial when students are required to submit and upload essays, translations, reports, audio and/or video materials, photographs, or any other type of digital content. Moodle supports four different types of assignments, but I prefer to use Advanced file uploading and Uploading a simple file. The only distinction between these two assignments is the number of files required for uploading. After deciding on the type of assignment to give his students, the teacher must name and describe it, i.e. explain what the students are expected to do. Define grading (if applicable), as well as the date range between when the assignment becomes available and when it is due. Select the appropriate yes or no options in the following fields, make them visible, and then click Save and return to the course. Figure 2.4 presents how students see the assignment:

**Figure 2. 4. Students' view of the assignment**

One of the most distinguishing characteristics of ESP is using a specific vocabulary. Coxhead cites Nation stating that ESP vocabularies are between 1,000 and 5,000 words in length, depending on the subject area (2013, p.116). Glossary in Moodle is an extremely beneficial activity for expanding students' ESP vocabulary. The teacher can add an activity by selecting it from the Add an activity menu, giving it a name and adding a description (e.g., This is the key vocabulary of Unit 1). Then, in the following fields, choose the options that are most appropriate for you. Finally, click Save and display, and begin typing the following words: click on add new entry and enter a new word in the Concept field, followed by an explanation in the Description field. You may include an illustration in Choose file to help illustrate the word. If you wish to create distinct categories of words, for example, nouns, verbs, adjectives, or computer programmes, programming languages, and so on, follow these steps: Browse by category Edit existing categories Create a new category. Students follow the same procedure when adding new words, and you can track their progress in Browse by author.

#### **2.16.1.3.2. Questionnaire**

Questionnaire is extremely beneficial if you want to obtain feedback from your students once or more frequently (daily, weekly, or monthly), and they can be completed anonymously or

in their full names. Additionally, it can be used as a quiz because students can be graded. I use it to evaluate the activities I use in my classes, as I am interested in how students perceive them and whether they are useful.

#### **2.16.1.3.3. Quiz**

It is a type of activity that can be used as a form of exercise or assessment. The first step is to populate the quiz's fields: give it a name, specify the dates for opening and closing the quiz, and specify the quiz's (optimal) time limit. I recommend selecting yes for Shuffle questions and Shuffle within questions, particularly if you have a limited number of questions. This reduces the likelihood that students will receive identical quizzes. In the Review section, I check If the quiz is graded as an assignment after the quiz is closed. This way, students will only see the feedback after the quiz has been completed. Finally, click on the Save button and then on the Display button.

Now, select a category and begin creating questions: from the drop-down menu, choose the type of question you want to create and begin creating questions. There are various question types available, including multiple-choice, check box, cloze, matching, true/false, essay, and short answer. Not all of the available question types are appropriate for language learning. On the other hand, I have not used cloze for my quizzes yet due to its complexity. To my mind, it requires a great deal of typing and can be successfully replaced by other types of questions. Take extreme care when typing correct responses – even a single incorrect letter can result in negative points for students.

After creating a bank of questions, click on Add and select a number of random questions (bottom right corner). This way, your students' quizzes will contain a variety of question combinations. If you want them to share the same questions, click on Add to quiz and then on specific questions. On the left side of the page, you will now see the number of questions you selected (Figure 2.5). Calculate the grade for each question and then click Save changes.

The image displays two screenshots of a Moodle quiz interface. The top screenshot shows the 'Networking Quiz' page with a sidebar menu on the left containing items like 'Participants', 'Badges', 'Competencies', 'Grades', 'General', 'Introduction', 'Computers today', 'Input/output devices', 'Storage devices', 'Basic software', and 'Faces of the internet'. The main content area features four diagrams illustrating network types: a basic network (two computers connected by cable), a WAN (wide area network covering multiple countries), Ethernet cables connecting devices, and Wi-Fi technology. The bottom screenshot shows the quiz question: 'This network typically consists of two or more local area networks, covering a large geographical area.' with options a. WAN, b. LAN, and c. Intranet. The interface includes navigation buttons like 'Next page', 'Finish attempt...', and 'Start a new preview'.

**Figure 2. 5. Moodle Quiz**

To see a preview of the quiz, click on the button preview. After your students submit their responses, you can view their grades (along with the responses to each question) by clicking on the button Results. If a student requests a detailed explanation of their score, you can show them where they made errors. Additionally, if you make an error (in a question or an answer), you can manually grade it.

The last Moodle activity that I use and recommend is Wiki. A wiki is a type of website that enables collaborative text creation and editing. The original idea behind Wiki was to create a website whose content could be edited, changed, and improved collaboratively by a group of people, ensuring that the website remained current. The most well-known Wiki is Wikipedia, which is edited in a variety of languages by users from all over the world. By editing a wiki, students can interact with one another and exchange knowledge while also improving their reading and writing skills. Students assume responsibility for their own learning in this way (learner autonomy is a critical feature of ESP). However, this activity requires teachers to be fully engaged, as they have to monitor students' work, guide them, and provide feedback on regular basis.

The use of technology in language learning for the sake of technology is useless unless it is monitored and mediated by a teacher. Additionally, teachers have to keep in mind that technology, an application, or a tool has to have its purpose: what they want to be achieved by their students when they use technology, an application or a tool. They have to choose an appropriate and flexible methodology in order to accomplish their objective of enabling their students to improve their language, mainly their four language skills and specialised vocabulary in both ESP and General English. Exploring new possibilities for implementing Moodle in ESP is critical for all teachers who are going to deal with this approach to English language teaching and learning.

## CONCLUSION

This chapter has presented a critical review of the literature on BL, its implementation, the underlying theories and pedagogical principles, and the possible affordances and challenges of implementing BL. It demonstrated the lack of a universal agreement on how BL can be defined and categorised, but general advocacy for the implementation of BL for its potential to construct an ideal environment for teaching ESP in HEIs and provide learning experiences of increased quality convenience and efficiency. This type of learning environment provides students with various characteristics and needs, such as being responsible for the development of their own English skills since they are allowed to select what materials they use and work independently and on their own time.

The implementation can be presented with considerable challenges, which can be reduced or eliminated only if the teachers have a clear understanding of blended learning and are provided with sufficient support and training throughout the implementation of BL. Teachers should design the course in a way that allows students to engage in individual and group tasks to stimulate their cognitive and social learning skills. Teachers should also integrate pedagogy with technology tools that give students a self-paced environment that allows them to be self-regulated in their learning. This type of learning environment provides students with various characteristics, such as being responsible for developing their own English skills since they are allowed to select what materials they use and work independently and on their own time.

The literature review presents suggestions that can help teachers build a successful BL community that increases teaching, social, and cognitive presence through the use of activities available in Moodle LMS. Therefore, the literature review has yielded a conceptual framework for the research and acknowledged the issues required to be investigated about students' readiness and perceptions of BL and the factors affecting their perceptions. The subsequent chapter will present the conceptual framework and the research design adopted to examine the research problem.

## **CHAPTER THREE: NEEDS ANALYSIS OF COMPUTER SCIENCE STUDENTS**

### **Introduction**

This chapter analyses data relevant to the English language needs and purposes of CS students in accordance with the systematic ESP curriculum development process defined in Chapter One (Figure 1.1). Thus, the fourth chapter analyses data from the course evaluation in order to establish the extent to which these goals and aims are realised inside the BL environment. The purpose of this dual analysis is to synthesise the data obtained during the course development process.

This chapter is divided into two portions, the first of which handles the first study topic provided in Chapter One. Thus, the first section addresses the language needs and objectives of ESP students in regard to their academic courses, while the second section addresses their language needs and objectives in relation to their careers. All of the important data of the study are combined to provide a collective response to each research question. That is, both qualitative and quantitative findings are presented concurrently for each question.

### **3.1. Needs Analysis Rationale**

#### **3.1.1. Interviews**

One of the primary methods for collecting qualitative data for this study was through interviews with research participants. The interview, widely regarded as the "the gold standard of qualitative research" (Silverman, 2000, p.51), is defined as a "conversation with a purpose" (Burgess, 1984, p.102) that enables the researcher to delve beneath the surface of issues in order to fully understand them from the perspective of each participant (Richards, 2009).

The interview can be used both as a primary instrument for collecting data necessary to meet the objectives of the study and as a validating instrument for validating and confirming data gathered through other research methods (Cohen et al., 2007, p.351). In the current study, interviews were used for three purposes: (1) to collect data necessary to answer the research

questions, (2) to interpret, clarify, and validate data collected through other research instruments (document analysis and questionnaires), and (3) to assist in the design and formulation of the questionnaire. In other words, interviews were employed in conjunction with the questionnaire survey to elicit additional information about numerous associated features and challenges. Several themes were covered, including language demands, problems and difficulties faced by students when learning ESP, their motives and attitudes toward ESP learning, and linguistic obstacles encountered by employees when communicating in English at work.

Due to the fact that interviews are frequently beneficial for determining which topics, issues, and questions should be addressed or focused on in questionnaires (Richards, 2001), one of the primary reasons for conducting interviews in this study was to elicit information about the ESP courses and students' language needs in their academic studies and target careers, in order to aid in the formulation and design of the questionnaires. In other words, interviews aided the researcher in compiling a list of relevant themes, selecting appropriate questions, and comprehending the central issues. The researcher ran the risk of being confined by his own beliefs or of overlooking certain forms of goal demands or learning needs that would be difficult to identify or classify without consulting those involved.

Interviews are a frequently used tool for analysing and evaluating needs ( Hutchinson & Waters, 1987 ; West, 1994 ; Graves, 2000; Richards, 2001; Lynch, 2003 ; Scrivener, 2005; Hyland, 2006). According to Long (2005c, p.37), 'interviews are frequently mentioned in NAs in ESP' (e.g., Miyake & Tremarco, 2005; Kaewpet, 2009). They can provide detailed information on the needs of students (Kim, 2006). In current and earlier evaluation studies, interviews have also been used (e.g., Ridley, 2006; Dooley, 2010).

Interviews were selected for certain sections of this study after careful consideration of their benefits, particularly in comparison to other data collection methods, although, as Richards (2009, p.195) notes, 'all data collection methods, including interviews, have drawbacks.' For example, the current study used an interview rather than observation, which is defined as 'the

conscious noticing and detailed examination of participants' behaviour in a naturalistic setting ' (Richards, 2009, p.166) because 'we cannot observe everything. We are oblivious to our own emotions, thoughts, and intentions. We are unable to observe previous behaviours' and 'we must investigate these matters' (Patton, 2002, p.341). This reveals the critical importance of eliciting data about participants' perceptions, feelings, attitudes, and needs via a more appropriate research method, such as an interview.

Individual semi-structured face-to-face interviews, rather than unstructured or structured interviews, were deemed more appropriate for this study. The primary distinction between these three types, according to Cohen et al. (2007, p.354), is the degree of structure in the interview process , which reflects the interview 's purpose . Semi-structured interviews, according to O'Leary (2005, p.164), "begin with a predetermined set of questions but progress into a [relatively] conversational style of interviewing". In order to ensure thorough coverage of the subject and to guide the interview itself, the interviewer follows a guide or schedule, which includes pre-planning a key list of questions, topics, and sub-topics (Richards, 2009). The interview schedule can assist the interviewer in five ways: (a) it can ensure that all necessary information is covered ; (b) it can act as a template for the opening statement; (c) it can suggest appropriate question wording; (d) it can act as a list of follow-up probe questions if necessary; and (e) it can act as a list of comments (Dornyei, 2007, p.137). The interview schedule aided the researcher in eliciting useful and fruitful responses from participants in this study.

For this study, a semi-structured interview was chosen due to its advantages over the other two types and because NAs in ESP are frequently conducted using it (Long, 2005c; Kim, 2006). It was utilised to obtain data from participants regarding their perceptions, attitudes, needs, and preferences regarding the ESP course. Additionally, it was used to collect data on the problems encountered in Algeria when learning, teaching, and utilising English in the context of computer science. Finally, it aided the researcher in deciding which skills, needs, and activities should be addressed in the questionnaires.

### **3.1.1.1. The Interview Sample**

Purposive sampling was used to select interviewees whose knowledge and experience were deemed representative of the research objective. Six ESP students participated in this study. The student sample consisted of two males and four females from Mostagaenm University's computer science department. All were native Arabic speakers from Algeria and had previously studied English as a foreign language during their middle and secondary schooling. They enrolled in the ESP course at the department of computer science in 2018/2019.

### **3.1.1.2. Interview Preparation and Schedule Design**

"It is critical to prepare thoroughly for interviews. This involves piloting, developing a workable schedule, and paying close attention to practical details like timing and location" (Richards, 2009, p.169). I began determining my overall objective for the interviews and considering the key questions and topics that needed to be covered after familiarising myself with the background to the primary topic through a literature review and examination of some pertinent documents, as well as after attending some courses on conducting research interviews. Then, when compiling the interview schedules, I tried to categorise the questions and organise them so that they naturally evolved into a line of inquiry (Richards, 2009, p.187). I followed several critical guidelines for wording the questions suggested by a number of scholars when I constructed the interview schedules (Drever, 2003; Dornyei, 2007).

I asked two experienced ESP teachers to look over and comment on the two preliminary interview schedules after they were completed. We received invaluable feedback on both the wording and structure of the interview schedules, and as a result, considerable revisions were made until the final draft of the interview schedules were ready for piloting.

### **3.1.1.3. Piloting the Interviews**

A pilot study is defined as a small-scale 'first evaluation of proposed techniques, materials, and methodologies' (Mackey & Gass, 2005, p.43). It enables the proposed instruments and data collecting and analysis techniques to be examined and tested to ensure that they are viable and

create useful data, as well as to make any necessary changes and alterations prior to the start of the study (Dornyei, 2007). Additionally, it can save time and energy by identifying potential difficulties that can be addressed prior to doing the major study (Mackey & Gass, 2005).

Thus, to avoid time-consuming interview issues and to eliminate any potential ambiguity in the schedules' structure and substance, the interviews were piloted with one representative from each group. The major purpose in this situation was to create appropriate schedules that would allow the researcher to collect some of the necessary data. Additionally, it provided an opportunity to practise the analysis processes that would be utilised in the preliminary study.

In 2018, pilot interviews were conducted. I spent some time at the beginning of each interview discussing the objectives of the study and the interview, and then asked the interviewee to remark on the interview schedule's logic and effectiveness. Feedback helped determine the inclusion or exclusion of specific questions, as well as the explanation of any unclear or ambiguous elements.

These pilot interviews provided significant information and training in interviewing and related skills such as tape recording, taking notes, approaching interviewees, creating rapport, and following up on leads with prompts and probes. This resulted in a more logical organisation of the scheduling queries. While transcribing the pilot interviews, I realised I needed to ask more probing and provocative questions to get clarity from respondents and follow up on significant issues and ideas. Additionally, I chose not to take notes during any recorded interview because it was superfluous and could be distracting (Dornyei, 2007; Richards, 2009). Interviews should be taped "so that the interviewer can truly listen rather than take lots of notes" (Dudley-Evans & St John, 1998, p.135). If a person agrees to be interviewed but does not wish to be videotaped, it should be agreed that notes will be taken.

Additionally, this piloting process allowed me to determine the duration of each interview and to collect some critical documents, including the framework for the first year programme, the

English language teaching plan used by teachers in their classes, workplace texts, and other pertinent documents. The next phase was to conduct the interviews, which are detailed below.

#### **3.3.1.4. Conducting the Interviews**

The refined and revised interview schedules (see Appendix 1) were distributed to participants in advance to allow for preparation, which may have aided in preventing potential misunderstandings of questions and thus reducing the likelihood of unprofitable responses. The objective was not to assess participants' recall of facts, but to provide them with a clear understanding of the purpose of the interviews and the nature of the questions in order for them to reflect on them and for the interviews to yield more useful information.

Each interview schedule was accompanied by a letter summarising the overall objective of the study and the interview's specific objective, scope, and nature. Additionally, the letter included a brief description of how the interview data would be handled, as well as a statement of confidentiality and anonymity. The participant was assured that his or her data would be used solely for research purposes and that he or she could withdraw at any time. Additionally, the letter estimated the duration of the interview (35- 45 minutes), explained why taking notes or using a tape recorder was necessary, and requested permission from the interviewee.

Prior to conducting the interviews, I needed to choose a suitable and comfortable location, because, as Richards (2009, p.189) remarks, 'certain locations are likely to influence the type of responses.' To minimise the possibility of interference or discomfort during the interviews, I asked each participant to choose an appropriate location and time for the interview. Interviews were conducted at the university. Four students preferred to be interviewed in the classroom, while two requested to be interviewed in the library study room.

I arrived early for each interview to prepare for the interview and to test any equipment used. As mentioned previously, I used a tape recorder wherever available to assist me in listening intently to the interviewee and providing a reference for future research. While the presence of a tape recorder may frighten or make some interviewees anxious, many individuals forget about it

once the interview begins (May, 2001, p.138). Additionally, I saw that many interviewees were extremely content to have their voices recorded because they believed their voices were valuable and desirable and that someone was interested in hearing and sharing their personal thoughts, feelings, and experiences.

Prior to each interview session, I explained to the interviewee the rationale for the interview and the purpose of the study and reassured her/him that anything s/he said would be kept secret and that s/he would remain anonymous. I then set out to establish a casual and friendly setting in which the interviewee would feel secure enough to speak freely and offer helpful feedback. Additionally, I wanted to establish a strong relationship with each subject before getting into the first question. I asked each individual who agreed to be recorded whether he or she was comfortable with my turning on the recorder. If that is the case, the interview will begin and s/he will be thanked. All interviewees consented to having their voices recorded.

I avoided expressing my personal opinions or conveying my thoughts by facial expressions, gestures, intonation, or any other subtle clues during the interviews in order to prevent influencing the results. Additionally, when developing the interview questions, I avoided leading questions, which indicate specific responses to the interviewees (Brown, 2009, p.207), in order to reduce the likelihood that interviewees would provide me with answers they believed I wanted to hear rather than those they believed were correct. Additionally, I avoided prestige questions, which are those that candidates are likely to answer in a certain way in order to appear more impressive (Brown, 2009, p.207). In summary, I attempted to be an objective and impartial academic researcher whose goal was to let the collected data determine the outcome and to ensure that my own ideas did not affect those expressed by the interviewees.

As Richards (2009, p.188) implies, the order of the questions and themes in the interviews moved from the general to the more specific. The critical questions and subjects were often placed in the middle of the interviews, as respondents may be anxious at the start and bored or exhausted by the end (Mackey & Gass, 2005, p.175). While adhering to the interview schedule, I also used

clarifying and exploratory inquiries (Davies, 2007, p.110) to 'go deeper and increase the variety and depth of the responses' (Dornyei, 2007, p.138).

I concluded each interview by providing an opportunity for the interviewee to respond or contribute anything. I also allowed the interviewee to voice her/his impressions of the procedure and the content of the interview at the conclusion of each session. This methodological input was critical since it may assist identify any issues and improve the interviewing process before moving on to the next interviewee. I also expressed my deep appreciation and respect for each interviewee's valuable participation and effort, before repeating the confidentiality and anonymity assurances and informing the interviewee that s/he had the full right to request a copy of the transcript and recording of the interview in case s/he desired to review and amend the transcript. Only one person (an ESP teacher) requested a copy of his interview, which he received within a week.

I immediately took notes after leaving the location of each interview session of any new emergent topics or questions and areas to be investigated in subsequent interviews. This could have aided in the collecting of additional data (Richards, 2009, p.188).

#### **3.3.1.5. Analysis of Interview Data**

The overall objective of analysis is to generate an account that is intelligible, coherent, and valid (Dey, 1993). To accomplish this, the interview data analysis procedure included three stages: preparation, analysis, and summary (Drever, 2003). The objective of the preparation stage was to make the material manageable while maintaining as much of the original information as feasible and avoiding distortion (Drever, 2003). Thus, the initial task was to convert the interview recordings to textual form (Dornyei, 2007). This critical transcription process was time intensive (Cohen et al., 2007; Davies, 2007; Dornyei, 2007; Richards, 2009), but it afforded me the opportunity to become deeply familiar with the data (Dornyei, 2007).

I transcribed the audio-recorded interviews verbatim and made them available in physical formats in order to make the work of sifting through them easy. All interviews done in Arabic

were transcribed and translated into English, the translated transcriptions being confirmed by a bilingual expert. Those interviews conducted in English were directly transcribed. The transcription procedure included all unfinished sentences, phrases, expressions and pauses.

The analytical stage consisted of two stages: pre-coding and coding (Dornyei, 2007, p.250). While pre-coding entails reading the transcripts and meditating on them in order to identify key concepts and topics pertinent to the research questions, coding entails highlighting and labelling extracts from the transcribed material in such a way that they may be easily identified, retrieved, or grouped (Dornyei, 2007). As such, the job for this phase was to read each transcript and break it down into small chunks, each carrying a unit of meaning, in order to categorise them.

These chunks (short passages uttered by an interviewee that express a specific idea or concept) were carefully read in order to identify major themes or categories. It was "a process of funnelling data into relevant categories" in order to "make much more effective comparisons between cases" (Dey, 1993, p.42). The aims of this study and the research questions, as well as the assessment methodology, influenced the classification of the data into several topics or groups. The categorisation was also aided by the literature examined in Chapter Two. While this could be interpreted as imposing a predefined classification that risks distorting the data in order to suit it (Drever, 2003, p.68), I was also flexible and aware of new themes that emerged from the data.

The final step of the analysis process entailed summarising, synthesising, and drawing conclusions from the findings of the previous stages in order to address the research questions. Other analyses, such as questionnaires, were incorporated during this phase to validate and triangulate the results.

### **3.1.2. Questionnaires**

While a precise definition is difficult to provide (Dornyei, 2007, p.102), questionnaires are defined as any written instrument that presents a series of questions or statements to which respondents are asked to respond either by writing out their responses or selecting answers among existing responses (Brown, 2001). through Questionnaires, second language researchers are

allowed to collect information on learners' beliefs about learning, motivations to learn, reactions and attitudes to learning, instruction and classroom activities, information on language use and communication difficulties (Mackey & Gass, 2005).

In comparison to interviews, questionnaires offer greater flexibility and timeliness, since respondents can “complete a questionnaire on their own time, at their own pace, and according to their schedule” (Brown, 2001, p.77). Additionally, when completing a questionnaire, individuals are typically free of the stress and anxiety associated with face-to-face interviews. Cohen et al. (2007, p.333) state that “the absence of face-to-face interaction between the researcher and the respondents in a questionnaire might facilitate responses to sensitive materials”.

However, there are several drawbacks to using a questionnaire as a research instrument. One common issue is that questionnaire items must be basic enough for respondents to understand (Dornyei, 2007, p.115); hence, poorly constructed questionnaires may give superficial, imprecise, and unreliable data. Another issue is that, while it is generally claimed that questionnaires help researchers control bias (Mackey & Gass, 2005, p.96), it is possible for bias to enter into them through the questions asked and the way they are phrased. This demonstrates the importance of conducting interviews as a preparatory step in constructing the questionnaire, in order to determine which questions to ask and how to formulate the questionnaire's components (Richards, 2001; Brown & Rodgers, 2002). This was taken into account in the current study, as mentioned below. According to Vandermeeren (2005, p.166), questionnaires provide insight into respondents' true perceptions of language demands. Additionally, they can be used to ascertain respondents' views and interests (Dornyei, 2007, p.102). As a result, surveys were utilised to ascertain students' English language requirements for academic studies and target occupations, as well as their perceptions of the appropriateness and effectiveness of the ESP course. The questionnaires were used to assess participants' satisfaction with the course in terms of language needs and to identify areas where students felt their needs were not being met.

In NA and evaluation studies, questionnaires are one of the most often utilised instruments (Brown, 2001; Brown & Rodgers, 2002; McConnell, 2003). As Long (2005c, p.64) notes, 'questionnaire surveys are unquestionably the most overused and overrated method to NA at the moment'. Numerous NA research in ESP have collected data via questionnaires (e.g., Lehtonen & Karjalainen, 2008; Mazdayasna & Tahririan, 2008). Additionally, they have been used in evaluative studies (e.g., Alderson & Scott, 1992; Atherton, 2006; Ridley, 2006).

There are usually two types of questionnaire items: open-ended and closed-ended (Cohen et al., 2007; Dornyei, 2007; Brown, 2009). A closed-ended question requires respondents to select an answer from a predetermined list, whereas an open-ended question allows respondents to respond in their own words by filling in a blank space (Dornyei, 2007; Brown, 2009). While both types have drawbacks, Brown (2009, p.201) notes that 'many questionnaires contain both types, and they are typically viewed as complementary'. Both types were used in this study, because it was believed that they would serve different useful purposes.

### **3.1.2.1. The Questionnaire Sample**

Questionnaire data were obtained from current ESP students. It was expected that by comparing the individuals, similarities and variations in their needs would become apparent. While 'there are no hard and fast criteria for determining the appropriate sample size' (Dornyei, 2007, p.99), 50 individuals completed questionnaires. Purposive random sampling procedures were used to choose these participants.

The sample was composed of 50 first-year master's students in computer science. All were Algerians, 17 (34%) males and 33 (66%) females, native Arabic speakers ranging in age from 20 to 25 years, indicating their homogeneity and their similar learning experience. Computer Science has often been a male-targeted discipline; nevertheless, female students have recently become interested in the field due to the professional opportunities available. Female students have established themselves as legitimate competitors with male students in Computer Science, frequently getting the highest grades in different exams and tests.

They had all studied English as a foreign language at their middle and secondary schools, as well as at the university level. Their ESP course was divided into two semesters and lasted a year. This group was chosen as a primary source since they had some experience with the ESP course and thus gave material that was 'grounded in experience' (Graves, 2000, p.114).

### **3.1.2.2. Developing and Piloting the Questionnaire**

'Developing and piloting of a questionnaire is a stepwise process' (Dornyei, 2007, p.112). The researcher gathered ideas and inspiration for the initial draughts of this work from two sources. The first type of data was collected qualitatively through semi- structured interviews. The objective of this logically preceding endeavour was to have a better understanding of the ESP learners' demands in order to classify and list them in the questionnaires rather than designing them according to a preconceived classification. The second source was published questionnaires for NA and course evaluations ( e.g. Hutchinson & Waters, 1987 ; Jordan, 1997; Richards, 2001). Guidelines on how to develop a questionnaire were also consulted, as proposed by several scholars ( e.g., Dornyei, 2003; Cohen et al., 2007).

The researcher drafted two preliminary questionnaires and asked two experienced ESP teachers to review the items and provide feedback on the questionnaires' design and appropriateness for ESP purposes. Both the wording and the format received a lot of helpful input. As a result, a significant number of revisions and modifications were performed until the questionnaires were near-final and suitable for piloting.

The piloting stage's primary objective was to improve the questionnaires' feasibility, reliability, and validity (Cohen et al., 2007, p.341). Additionally, the piloting stage was critical to ensuring that the questionnaires had all of the information necessary to satisfy the study objectives. Additionally, it aided in determining the items' clarity, readability, and comprehension, allowing for the correction of any errors or ambiguities. Additionally, it was critical to determine the time required by respondents to complete them. Finally, piloting provided an excellent opportunity to practise the statistical and analytic techniques that will be employed in the preliminary study.

A feedback sheet was supplied with the pilot questionnaires to gather written responses to any questions that were confusing or troublesome. The following questions were included on the sheet:

1- Is the aim of the questionnaire clear and understandable?

Yes ( ) Slightly ( ) No ( )

2- Are the questionnaire's instructions clear?

Yes ( ) Slightly ( ) No ( )

3- Is the manner in which you are answering the questions simple for you?

Yes ( ) Slightly ( ) No ( )

4- If you have identified any confusing questions, please write their numbers below.

On the last page of the questionnaire, participants were requested to provide comments and suggestions.

The pilot study received a satisfactory response from students. As expected, 20-25 minutes were spent responding to the questionnaire. The findings revealed that certain modifications were needed. For instance, certain items, such as age and level of education, were determined to be unnecessary or unlikely to elicit meaningful responses. Other things have been deleted, reworded, or replaced with new ones to make them more comprehensible. On the feedback sheet, 80% of respondents indicated that the questionnaire's purpose, content, and way of answering were understandable and clear to them; 85% stated that the questionnaire's wording and instructions were clear and easy to follow, and 5% stated that the questionnaire was too lengthy.

In general, the pilot study was quite beneficial in determining the clarity of the questionnaire items, allowing for the correction or modification of any faults or ambiguous instructions. It provided beneficial instruction for the researcher on how to approach participants and give the questionnaires. Additionally, it aided in the estimation of the time required to perform the surveys, allowed for the collection of some critical papers, and allowed the researcher to experiment with various ways for analysing the questionnaire data in order to identify any

potential problems. This assisted in eliminating any elements that had not worked or in excluding those that were irrelevant.

### **3.1.2.3. Content and Format of the Final Questionnaire**

The questionnaire was written in English and then translated into Arabic (the respondents' native language) to avoid any misinterpretation of the items and to make it easier and less time-consuming for respondents, particularly those with limited English skills, thus helping to ensure valid responses.

A consent for participation was requested before the distribution of the questionnaires. This encouraged participants to participate in the study by emphasising the importance and utility of their participation and requesting honest responses. Additionally, the researcher explained the purpose of the study, stated that there were no correct or incorrect responses, assured confidentiality and anonymity, and expressed gratitude and respect. The researcher's name, mobile phone number, and email address were all included.

The questionnaire comprised a variety of question types. It included closed-ended and open-ended questions. Three different types of closed items were used: fill-in question, checklist questions, and Likert-scale questions (see Appendix 3).

In order to avoid the tendency of certain participants of selecting the middle option rather than expressing a definite opinion, an even number of options (4-point scale) was utilised (Brown, 2001; Lynch, 2003). This was also a conscious attempt to avoid the 'do not know' option, since 'many people do not like to accept their ignorance' (Davies, 2007, p.73).

The closed questions were aimed to elicit respondents' motivations for studying English, their perceptions toward the ESP course and its components, their levels of English proficiency, and students' language requirements for academic studies and target vocations. It includes a list of skills drawn from the descriptions of the ESP course curriculum. The final page of the questionnaire had two major open-ended questions. The first question requested respondents to describe any challenges they had when learning/teaching ESP, and the second inquiry inquired

about issues they encountered while using English in or out of university. The third was the most responsive, inviting respondents to make additional comments about any component of the ESP course. These three open-ended questions were designed to elicit qualitative data.

#### 3.1.2.4. Administering the Questionnaires

A total of 80 copies of the questionnaire were distributed to students. All incomplete, unreliable, and late responses were excluded from the study, leaving 50 valid responses, as detailed in Table 3.1.

<b>Number of Copies administered</b>	80
<b>Number of Copies Considered</b>	50
<b>Response rate</b>	62.5%

**Table 3. 1. Number of questionnaires administered and considered**

To administer the questionnaires to students, specific procedures were used. At the start of the semester, the questionnaire was distributed anonymously to 80 ESP students. This was an appropriate time of year for the students to reflect on something they had already accomplished and to base their responses and comments on concrete experiences. The dean of the department granted permission to administer the questionnaires to students during class. The researcher administered the questionnaire during the ESP class in order to encourage students to participate in the study and to complete the questionnaires completely and truthfully. All questionnaires were completed by students in the presence of the researcher, allowing them to enquire about anything vague or ambiguous, thereby decreasing the possibility of random responses.

The respondents were greeted and informed about the general background, the purpose of the study and the potential significance of its results. This was followed by an explanation of the questionnaire's content, how to respond to the various items, and the estimated time required to complete it (20-25 minutes). The researcher assured respondents of their confidentiality and anonymity explained that there were no correct or incorrect responses and that their perspectives

were valuable, emphasised that they could withdraw from the questionnaires at any time, and expressed his profound thanks for their patience and cooperation. They were gently urged to submit as much information as possible. Additionally, they were reminded repeatedly to complete all questionnaire items. There were a total of 80 questionnaires distributed (62.5 % response rate). Of these, 30 were disregarded as incomplete, leaving 50 valid responses.

### **3.1.2.5. Analysis of questionnaire data**

The responses to closed questionnaire items were statistically analysed using the Statistical Package for the Social Sciences (SPSS) software, a widely used programme in applied linguistics and educational research (Dornyei, 2007, p.198). As a result, SPSS was used to code the quantitative questionnaire data and calculate descriptive and inferential statistics. Means, percentages, and frequencies of closed responses were included in the descriptive statistics. These statistics can aid in the summarization of quantitative results by describing the general trends in the data and the overall distribution of the scores (Dornyei, 2007 ). They also formed the basis of the inferential statistics employed in this study.

The data collected by the open-ended questionnaire items were mainly qualitative, which were analysed in the same way as the interview data. This is because, as Brown (2001, p.212) notes, the data collected through open-ended questionnaire items are highly similar to what individuals say in response to interview questions. The qualitative data gathered through these open questions were primarily used to supplement, validate, and illuminate the data collected through interviews and questionnaires.

### **3.1.2.6.: Some Inconveniences of the Pilot Questionnaire**

The wording of the questions, which contained new vocabulary, presented the biggest difficulty for the participants. For instance, there are five frequency adverbs in the frequency scale used to determine agreement and disagreement (always, often, sometimes, rarely, and never), several of which are unfamiliar to some participants, most notably 'often' and 'rarely'. As a result, it was necessary to differentiate and explain the adverbs in order to assist the respondent during

the response process. Additionally, the questionnaire contains acronyms such as 'ESP', 'GE', and 'NA' that required clarification. Another issue that came up during the pilot version was redundancy. For example, two questions inquire about the opportunity to work in groups and pairs; thus, one was omitted. Additionally, because participants were unfamiliar with certain vocabulary items, their responses were inappropriate, which necessitated a brief explanation. The final questionnaire version considered and integrated all emerging piloting inconveniences.

### 3.2. Analysis and Discussion of the Results

#### 3.2.1. Language Needs for Academic Studies

To what extent are the four main English language skills required in the CS students' academic studies?

This question was mainly aimed at ascertaining the relative importance of the four main English language skills (speaking, listening, writing, and reading) to the academic studies of CS students and determining the types of sub-skills required for each of these four skills.

First, it was necessary to determine how interested students were in learning EAP. As a result, students were polled about their motivations for learning English (Q1 in NA Questionnaire, Appendix 2). According to their responses, 74% of students were learning English to aid their academic studies. This indicates that the majority of the students wanted to learn English for academic purposes and thus understood the significance of English in their academic success.

In the interviews, the students were asked to rate the significance of the four major English language skills in their academic studies (Q3 in the Interview, Appendix 1). The responses are summarised in Table 3.2.

Interviewee	Speaking	Listening	Writing	Reading
Student 1	very important	important to a great extent	important	very important

Student 2	Important	Important	very important	important
Student 3	Sometimes important	fairly important	very important	very important
Student 4	Unimportant	important to some extent	important	very important
Student 5	not very important	Important	not very important	important
Student 6	Important	very important	important	very important

**Table 3. 2. Views on the importance of English language skills for students' academic studies**

As shown in Table 3.2, the majority of interviewees (4 of 6) viewed all four skills as important for their academic studies. To varying degrees, all of the interviewees agreed on the importance of reading. One student clarified, "I believe reading is important because, in my subject areas, I am required to read extensively in order to obtain the necessary knowledge from the teacher's handouts". When asked about the other skills, the same student responded:

Listening is important to some extent because I need to understand what my subject teacher is saying during lectures. writing is important, especially during exams when we are asked to write short paragraphs on a variety of computing topics. I want to speak English, but our teachers limit our speaking time, so I do not think it is important. (Student 4)

Student 5 stated: "Reading is important and necessary because teachers regularly ask us to consult textbooks and dictionaries to check definitions of computing terminology. Indeed, I am not required to speak in order to succeed in my academic studies, so speaking is not important". When asked why he believed writing was unimportant, he responded, "Because I only have to write short sentences in exams".

It can be inferred from the above responses that students associated the importance of each English language skill with a specific factor. It can be argued that the subject course

instructors' teaching styles influenced students' perceptions of the importance of each skill and why they needed it.

Three students (1, 2 & 6) responded that they required speaking and listening skills in order to ask and answer questions during lectures and to comprehend what their teachers were saying when delivering information. Five students (1, 3, 4, 5 & 6) indicated a strong need for reading skills (skimming and scanning) because they were frequently required to extract important information from subject textbooks, teachers' handouts, and computing dictionaries, as well as to quickly read the questions on quizzes and final exams.

Students were asked to rate the importance of each of the four skills for their academic studies in the questionnaire (Q6 in the Students' Needs Analysis Questionnaire, Appendix 3). The ratings were assigned on a four-point Likert scale, with the values "very important," "quite important," "not very important," and "not at all." The responses to this question are summarised in Table 3.3.

Rating Terms	LISTENING		SPEAKING		READING		WRITING	
	Freq	%	Freq	%	Freq	%	Freq	%
Very important	16	32	19	38	27	54	23	46
Quite important	22	44	20	40	19	38	18	36
Not very important	10	20	9	18	3	6	8	16
Not important at all	2	4	2	4	1	2	1	2

**Table 3. 3. Perceptions of the importance of English language skills for students' academic studies**

Overall, the majority of students rated all skills as "quite important" or "very important" for their academic studies, with reading receiving the highest percentage of "very important" (54%), followed by writing (46%). This is in line with the findings of the interview. One possible interpretation is that students believed their reading and writing skills were much stronger than their speaking and listening, leading them to believe reading and writing were more important than speaking and listening. Ribes and Ros (2006, p.4) notice that the need to speak "will only

appear if you have developed the ability to speak in a correct manner; otherwise, you will avoid it for fear of being considered not fluent in English".

### **Results Summary**

To summarise, the findings suggest that English was very important and indispensable for students' academic success. This suggestion is in line with the observation of Mauranen et al. (2010) that recent studies suggest English language proficiency plays a role in academic success. Reading was rated as the most important English language skill in students' academic studies, ahead of writing, listening, and speaking. This finding supports Jordan's (1997) claim that reading academic texts is the most important requirement for students learning English as a second language. Flowerdew and Peacock (2001b, p.185) agree that "reading is probably the skill needed by the greatest number of EAP students throughout the world".

#### **3.2.2. Language Needs for Target Careers**

To what extent are the four main English language skills required in the CS students' target careers?

This question was primarily concerned with identifying the relative importance of the four major English language skills for the CS students' target careers and the types of sub-skills required in each.

To start with, when students were asked why they were learning English (Q1 in Students' Needs Analysis Questionnaire, Appendix 2), 78% answered it was because it would be useful in their target careers, while 56% believed it would help them succeed in their computing careers. This indicates that the large majority of students were aware of the importance of English in their future careers.

The students were interviewed (Q2) on their perceptions of the importance of the four major English language skills for their target careers. Their responses are summarised in Table 3.4.

Interviewee	Speaking	Listening	Writing	Reading
Student 1	very important	Important	Important	very important
Student 2	very important	very important	not very important	very important
Student 3	very important	very important	Important	very important
Student 4	very important	very important	Important	important
Student 5	very important	very important	Important	important
Student 6	most important	very important	Important	very important

**Table 3. 4. Views on the importance of English language skills for students' target careers**

Thus, all interviewees indicated that they regarded all four skills for their target careers. Four of them (Students 2, 3, 4, and 6) agreed that the most important skill was speaking. One of them (Student 6) noted: "There is no doubt that English skills are important in the places where we are going to work... in the computing field, where the language is English. The most important skill is speaking, followed by listening, as you need to comprehend what your foreign work colleagues are saying. You also have to be able to read and write".

However, one of the interviewees (Student 1) responded differently: "I believe that all skills are important, but reading is the most important, followed by speaking and writing".

In the questionnaire, the participants were asked to rate the importance of each major skill for their target careers (Q6 in the Needs Analysis Questionnaire). The ratings were assigned using a four-point Likert scale: "very important", "quite important", "not very important" and "not important at all". The responses are summarised in Table 3.5.

Rating Terms	LISTENING		SPEAKING		READING		WRITING	
	Freq	%	Freq	%	Freq	%	Freq	%
Very important	31	62	42		37	74	34	68
Quite important	13	26	6	12	9	18	13	26
Not very important	4	8	2	4	4	8	3	6
Not important at all	2	4	0	0	0	0	0	0

**Table 3. 5. Perceptions of importance of English language skills for students' target careers**

Generally speaking, consistent with the interviews, the majority of students rated all four skills as quite important or very important for their target careers, with the speaking skill receiving the highest percentage of "very important" responses. It is worth noting that the majority of student respondents had not yet experienced the use of English in their target careers. As a result, their responses here have been based mainly on their expectations.

### Results Summary

Overall, students are rightly expected to require a high level of English proficiency in their target careers. All the traditional language skills were considered to be very important. In general, the findings corroborate Hernandez-Gantes and Blank's (2009, p.5) assertion that the ability to communicate in English in the computer science workplace "has become as important as specific occupational skills".

#### 3.2.3. Appropriateness of the ESP Course

To what extent is the ESP course appropriate?

A process-based approach to ESP course evaluation was adopted to address this question. This approach entailed delving deeply into some of the constituent parts of the course and its processes in order to identify potential issues, propose potential solutions, and highlight its strengths. The data collected on the specified aspects of the course (curriculum organisation and syllabus specifications, teaching materials and aids, classroom activities and methodologies, and assessment procedures) are analysed qualitatively and quantitatively to determine whether these areas are appropriate for students' learning and target needs, and thus for the course objectives.

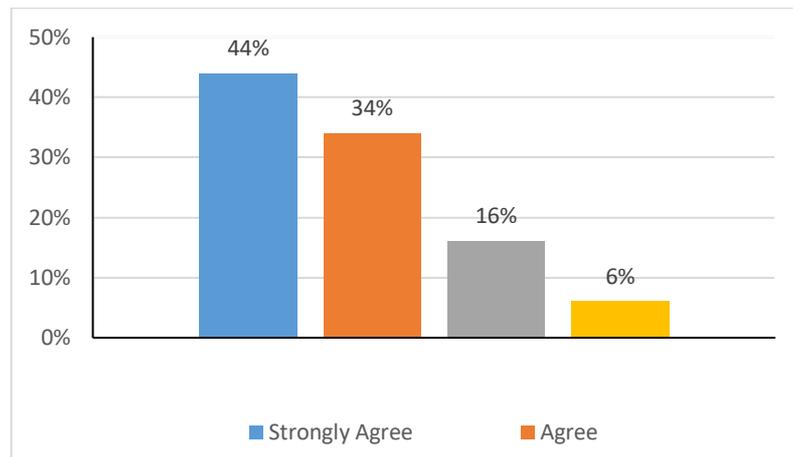
### **3.2.3.1. ESP Curriculum Organization**

The purpose of this section is to highlight some important specifications of the ESP course: its duration, focus, and objectives, as well as the qualifications, roles, and training of the teachers.

#### **3.2.3.1.1. Course Duration**

The current number of hours devoted to the ESP course (1 h 30 per week for two semesters) was insufficient to meet the needs of all six student interviewees. Student 3 complained that "The computer science department devotes more time to other subjects... This complicates our focus on learning English". Student 2 (another interviewee) argues that " A one-year English course is relatively short...To cope with our academic studies and future jobs, we require more time for English instruction".

This area of concern was further explored in the questionnaire, which asked students at the conclusion of the ESP course if they agreed that the time allotted for ESP instruction was insufficient and that additional time should be allocated to ESP instruction (Q12f). The percentages of the 50 respondents are depicted in Figure 3.1. The mean and standard deviation (SD) figures are for scores on a four-point Likert scale, with 1 indicating strong disagreement and 4 indicating strong agreement. Over three-quarters (78%) of respondents agreed or strongly agreed that the course was too short and that more time should be devoted to ESP instruction, while only 22% disagreed or strongly disagreed. These results generally support what was expressed in the interviews.



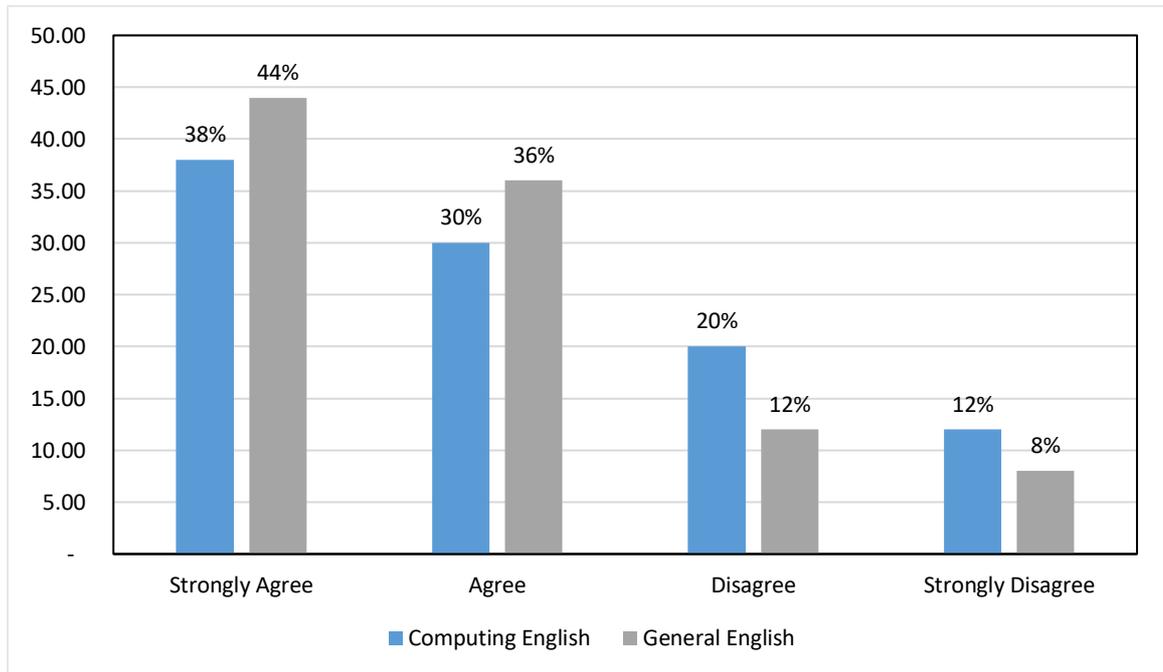
**Figure 3. 1. Percentage of students agreeing that the ESP course duration was inadequate (Mean= 3.16, SD= 0.898)**

Given that the ESP students were likely to have varying levels of English proficiency and were not streamed due to the lack of an official placement test, it is possible that the less proficient students perceived 1 h 30 per week as insufficient, whereas the more proficient students perceived it as sufficient. However, a sizable majority of students preferred an increase in contact hours. This was also one of the most frequently expressed points (by 22 students) in response to the open-ended questionnaire item seeking suggestions to increase the effectiveness and appropriateness of the course.

### 3.2.3.1.2. Course Focus

Four of the six students interviewed believed that ESP instruction should place more emphasis on computing than on general English. Their comments included: "The courses are not related to the computing field. I am not sure why there are so few computing topics" (Student 2); "The majority of the course content is general English. There is no computing content included in the reading" (Student 5). As a result, it was critical to inquire about students' levels of agreement with the following two concepts in the questionnaire: The focus of ESP instruction should be on CE (Q12d in Questionnaires); the focus of ESP instruction should be on GE (Q12d in Questionnaires). As illustrated in Figure 3.2, the results do not match the interview responses: 80% of students agreed or strongly agreed that the course should focus on GE, while only 68 %

agreed or strongly agreed that the course should focus on CE, while nearly a third (32%) disagreed or strongly disagreed with a focus on CE.



**Figure 3. 2. Percentage of students agreeing that the ESP course should focus on Computing English and General English (CE: mean=2.92, SD=1.038; GE: mean=3.15, SD=0.932)**

### Results Summary

To recapitulate, while the majority of interviewees (5 of 6) advocated for a focus on CE, the questionnaire respondents expressed a stronger preference for a focus on GE. This implies that there were still many students perceived to require improvement in their GE proficiency, which was thus regarded to be insufficient. In answering the second open-ended question, many students admitted that they could not construct a grammatical sentence .

This indicates that the majority of students favour balancing the course focus on GE and CE. It can be concluded that the current ESP course's course focus is another general weakness.

### **3.2.3.2. Objectives of Course Components**

The scope and limitations of the course are presumed to be defined by its stated objectives. Most importantly, these objectives must be consistent, feasible, realistic, relevant, and appropriate. The primary focus of this section is to determine whether the instructional objectives stated for each of the four course components are appropriate and relevant to the needs of the students. When asked what they hoped to be able to do in English while studying computer science and after graduation, one student (Student 1) stated: "I want to be able to communicate in computer-oriented and general situations using all of the language skills".

According to GDHCI (2007), the overall goal of the ESP course is to improve students' English language proficiency so that they can communicate and study effectively in English. This broad objective is further subdivided into more specific instructional objectives for each language component of the ESP course. Each component, which includes writing and grammar, listening and speaking, reading, and computing terminology, has a distinct set of stated objectives outlining what students should be able to do at the end of each component. Indeed, there is no simple or single method for determining the appropriateness of course objectives. However, the findings of this investigation can help us understand their significance in general.

In the questionnaire (Q11), students were asked to rate the relative importance of the stated objectives of each language component to their academic studies and target careers in order to identify any mismatch between the planned curriculum and the perceptions of the course participants. A four-point scale was used: 4 = very important, 3 = quite important, 2 = not very important, and 1 = not at all. Their responses were statistically compared to identify any significant differences. To ensure clarity, the statistical findings are presented separately for each course component, followed by a summary of these findings.

#### **3.2.3.2.1. Writing & Grammar**

In this language component, writing was integrated with grammar. The results of rating the relative importance of each of the four stated objectives of Writing & Grammar to the students'

academic studies and target careers are presented in Table 3.6, which has the mean rank statistics for each component objective.

Objectives of Writing & Grammar	*MR (academic studies)	*MR (target careers)
1. To write a text using the acquired writing techniques	114.88	116.51
2. To produce good writing by taking care of spelling, punctuation, cursive handwriting and grammatical points	115.02	110.00
3. To express ideas correctly and follow writing techniques	112.85	107.87
4. To apply all grammatical points in both spoken and written English	119.45	107.75

\*MR=mean rank

**Table 3. 6. Students' perceptions of the importance of Writing & Grammar objectives for academic studies and target careers**

Generally, the mean ranks indicate that none of these four objectives was considered not at all important. A comparison between students' ratings of the importance of the four stated objectives to academic studies and target career shows that students tended to place more importance on the following objectives than on all four objectives: For academic studies (Objective 4): To apply all grammatical points in both spoken and written English, and for target career (Objective 1): To write a text using the acquired writing techniques.

Statistically significant differences were found in the students' responses to all four objectives, as shown in Table 3.6.

#### **3.2.3.2.2. Listening & Speaking**

In this component, which had four stated objectives, listening was integrated with speaking. Table 3.7 summarizes the results of rating the importance of these objectives for the students' academic studies and target careers. The responses of the students are combined and compared.

Objectives of Writing & Grammar	*MR (academic studies)	*MR (target careers)
1. To understand any spoken or written instruction in English	113.05	117.14
2. To form everyday statements and Questions	120.85	108.70
3. To explain student's related problems to the teachers in spoken English with fluency of speech and accuracy of pronunciation	109.82	113.21
4. To comprehend lectures in English and to take notes and dictation in English	117.45	114.31

\*MR=Mean Rank

**Table 3. 7. Students' perceptions of the importance of Listening & Speaking objectives for academic studies and target careers**

According to Table 3.7, the respondents' ratings on the objectives that yielded the highest mean rank were as follows: for academic studies (objective 2): To form everyday statements and Questions, and for target careers (objective 1): To understand any spoken or written instruction in English .

Regarding academic studies, the statistics indicated that there was a significant difference in the mean ranks of the respondents with regard to rating the importance of Objectives 1, 3, and 4 . As for target careers, the mean ranks for the students suggest that the majority of them considered all four stated objectives of listening and speaking to be very important or quite important for their target careers.

Comparing the mean ranks of the students indicates that mean rank of objective 1: To understand any spoken or written instruction in English were higher than those of the other objectives. Table 3.7 shows that there were statistically significant differences among the mean ranks of the students in terms of rating the importance of Objectives 2, 3, and 4.

**3.2.3.2.3. Reading**

This component had eight stated objectives. The results of rating the relative importance of each of these for the students' academic studies and target careers are presented in Table 3.8. An inspection of the mean ranks suggests that students tended to place more importance on objectives 2 and 1 for academic studies and target careers, respectively, than the other objectives.

Objectives of Reading	*MR (academic studies)	*MR (target careers)
1. To read English with pleasure and interest and comprehend what you read	112.96	121.25
2. To read faster and read in ways that meet the students' Expectations	120.13	117.95
3. To understand and practice the English reading strategies	118.42	118.83
4. To talk and think about a text in new ways	114.19	112.68
5. To formulate and articulate ideas more precisely	113.40	109.96
6. To experience the connections between reading and writing	113.28	113.91
7. To find out new ideas, facts and Experiences	112.20	110.69
8. To think in English and build linguistic competence as well as Performance	119.55	113.81

\*MR=Mean Rank

**Table 3. 8. Students' perceptions of the importance of reading objectives for academic studies and target careers**

As summarized in Table 3.8, the results demonstrate that responses related to Objectives 1, 4, 5, 6, and 7 for academic studies were significantly different. In the same way, the students rated the importance of the stated objectives to their target careers. There were statistically significant differences between the responses regarding Objectives 2, 3, 4, 5, 6, 7, and 8, with students placing more importance on Objective 1 than on all eight objectives.

### 3.2.3.2.4. Computing Terminology

The Computing Terminology component had five stated objectives. The results of rating the relative importance of each of these to the students' academic studies and target careers are summarized in Table 3.9.

Objectives of Reading	*MR (academic studies)	*MR (target careers)
1. To use the new Computing terms in all four skills of language	104.62	112.28
2. To use the Computing terms in professional communication	97.29	110.08
3. To recognize all computer systems with their names and Computing courses	117.64	110.95
4. To comprehend and write short Computing situations using the Computing terms	105.08	107.80
5. To understand, read and write short Computing reports	104.94	119.35

\*MR=Mean Rank

**Table 3. 9. Students' perceptions of the importance of Computing Terminology objectives for academic studies and target careers**

Table 3.9 shows that there were significant differences in the students' ratings with regard to four out of the five objectives. In terms of Objectives 1, 2, 4, and 5, the statistics indicated that the differences were statistically significant among students.

The students also rated the importance of each of the five objectives of computing terminology for their target careers. The results as presented in Table 3.9 shows significant differences in the students' ratings with regard to four of the five objectives. For Objectives 1, 2, 3, and 4, there were statistically significant differences among students.

### Results Summary

To summarise, the statistical analysis indicates that there were significant differences in students' evaluations of the relative importance of the course components objectives for their academic studies and target careers. As a result, it appears that the students' perceptions differed

significantly. It is worth noting that the target careers' average ranks were significantly higher than those of academic studies.

Comparatively speaking, the students' mean ranks in rating the importance of the stated objectives for their target careers were higher than those of their academic studies. This suggests that the stated course component objectives were more relevant to their target careers than their academic studies. Regardless, it seems reasonable to conclude that there was a high degree of correspondence between the planned syllabus (stated objectives) and the students' perceptions of their needs in general. However, this does not mean that what was planned was necessarily or could have been taught or learned. This chapter investigates the extent to which the course objectives were met. Meanwhile, the roles and preparedness of ESP teachers are discussed in the following subsection.

### **3.2.3.3. ESP Teachers' Qualifications, Roles and Training**

"It is the teachers themselves who ultimately determine the success of a programme" (Richards, 2001, p.209). Delivering the course's four components requires a specialised teaching workforce, and thus this evaluative focus on the qualifications and performance of ESP course teachers falls under the key area of Curriculum Specifications. The ESP course description states that teaching staff members should hold doctoral, master's, or bachelor's degrees in English. The specification contains no further details about English language proficiency levels, whether teachers should be native or non-native speakers, teaching experience, or professional qualifications in TEFL, ESP, or other related fields.

#### **3.2.3.3.1. Language Teachers' Roles**

A committee should be established to oversee the revision and development of each course component's content. Members of the committee are required to meet once a year, typically at the start of the academic year, to evaluate the courses' appropriateness and, if necessary, to suggest alternative courses. This unsystematic and unplanned course evaluation is based on members' impressions of the material, or what Cunningsworth (1995, p.1) refers to as an

"impressionistic overview." For instance, at one of its annual meetings, the committee might decide that the current grammar courses are quite useful for the first semester, but we should select courses that are more relevant to CS students in the second semester. At a later meeting, the committee may decide to continue using the current reading, writing, and listening courses. They should, however, request that the author delete certain sections of the courses that are repetitive and replace them with new material. Due to the fact that the nature and form of this new content cannot be fully explained or described, it can be left undefined. Because course selection has such a significant impact on students and teachers, McGrath (2002) asserts that the decision-making process must be exhaustive and systematic. Because ESP teachers are already overloaded with teaching hours, they may be hesitant to create culture-specific in-house materials, although such materials "potentially have a dynamic and maximal relevance to local needs" (Sheldon, 1988, p.238).

#### **3.2.3.3.2. Language Teachers' Training**

Because not all teachers in an institution possess the specialised knowledge and skills required by a programme, it may be necessary to select staff for specialised training to meet these requirements (Richards, 2001). At the time of this study, such support for ESP course instructors appeared to have been overlooked. They were typically English literature, applied linguistics, TESOL, or TEFL experts who had never taught ESP, let alone of CE.

ESP teachers in Algerian universities did not receive this type of training. This type of training is critical for teachers to enhance their instructional abilities, performance, and subject knowledge. Due to a chronic shortage of teaching staff, administrators may be unable to release teachers for such training courses. These assertions appear to corroborate McDonough and French's (1981b, p.5) and Kennedy's (1983, p.74) assertions that many ESP programmes lack teacher-training provision.

### **3.2.3.3.3. Evaluating Teaching**

"It is very important that teachers' performance be regularly evaluated in order to provide quality teaching in any programme" (Richards, 2001, p.220). Nevertheless, interviews with ESP students revealed that there had been no formal evaluation of ESP teachers' performance. Student 3 explained: "Sometimes, our teachers ask us to evaluate their English language teaching efforts". None of the six ESP students interviewed, on the other hand, stated that they had ever received a formal evaluation. One student (Student 4) claimed to have "no idea about any kind of evaluation," whereas Student 5 stated, "I have never heard of any evaluation, and I am not aware of any report or evaluation that concerns teachers' performance."

### **Results Summary**

In conclusion, the focal point of teachers' qualifications appears to constitute a good feature of the current ESP courses. Nevertheless, other aspects of the ESP courses examined in this study, such as teacher roles, training, and evaluation, seem to constitute weaknesses of the ESP courses.

### **3.2.3.4. Teaching and Learning Materials and Aids**

None of the current ESP courses has a self-access learning centre. Additionally, other teaching aids and facilities, such as course textbooks, audio-visual materials, and language laboratories, were lauded. Due to time and space constraints, this section's evaluation will focus on the course textbooks used, in light of Sheldon's (1988, p.237) thoughtful observation that "Whether we like it or not, these [courses] represent the visible heart of any ELT programme for both students and teachers". Following that, a closer examination of the primary teaching and learning materials, namely textbooks, is conducted to determine their suitability for meeting the stated objectives of the four course components. The use of supplementary materials such as audio-visual aids in ESP classrooms is then examined.

#### **3.2.3.4.1. Evaluation of the ESP Course**

Five students stated in their interviews that one of the difficulties they encountered in the ESP class was the inadequacy of the handouts. "I am not happy with the handouts for writing, listening and speaking, grammar and reading," one student (Student 3) stated emphatically. They cover a wide variety of subjects, the majority of which have nothing to do with my desired careers." "I learn listening and speaking," another stated (Student 4). The handout for this component is extremely difficult... and not graded appropriately. Additionally, it is discouraging and irrelevant to my requirements." "Most of the topics in the listening and speaking courses are difficult for me to understand," Student 1 observed. "My level is far below the level of the reading texts". Finally, Student 2 mentioned that: "the handouts are sourced from a variety of sources. There is a lack of coordination among the various abilities". Five students interviewed expressed dissatisfaction with the courses for being unrelated to their field of study and being above their language level. Student 1 complained: "The courses are more suitable for those who have a solid command of general English, which we do not have. The courses are very difficult". Student 2 added: "I struggle to comprehend everything, particularly in listening and speaking courses, as well as reading courses". Student 3 expressed a similar sentiment: "When we first began studying them, the courses were significantly more difficult than our English language proficiency. There was a significant gap between our skill level and the course requirements".

The students were asked to evaluate the ESP courses in general terms (Q10) on a four-point Likert scale. Their impressionistic evaluations are summarised in Table 3.10 along with calculating the frequencies and percentages for each evaluation term among respondents.

Evaluation Terms	F*	%
4=Very successful & effective	5	10
3=Successful & effective in most aspects	29	58
2=Successful & effective in a few aspects	12	24
1=Not successful & effective at all	4	8

\*F= frequency, %= percentage

**Table 3. 10. The students' impressionistic evaluations of the ESP course**

Overall, the average percentages displayed in Table 3.10 provide an accurate representation of students' overall attitudes toward the ESP courses. The majority of students (68%) believed that the courses were successful and effective in most areas, while 24 % believed they were successful and effective in a few areas and only 8% considered it unsuccessful and ineffective in its entirety. In conclusion, the vast majority of students rated the ESP course as successful and effective, though their assessments varied significantly in terms of effectiveness.

The results presented above are intended to serve as a general indicator of course effectiveness. To maximise the reliability and validity of these findings, language proficiency tests could be used. Nevertheless, this does not preclude the possibility of evaluating a course through student testing (Sharp, 1990). It is argued that if tests are not taken seriously by students, their answers are not sufficient samples of their ability. Thus endangering score meaning and thus validity (Fulcher, 1999). According to Richards (2001), it is not easy to ensure that changes in learning as measured by tests are a direct result of teaching. In addition, sound tests that reflect the validity and reliability principles are not easy to construct. As a result, students' achievement levels were considered in the evaluation process in this study rather than testing.

The students also indicated the extent of their agreement or disagreement with the view that the content of the courses was above their English language level (Q12g). Table 3.11 presents

all responses in frequencies and percentages for each agreement and disagreement term among students.

Agreement/Disagreement Terms	F*	%
4=Strongly Agree	16	32
3=Agree	21	42
2=Disagree	8	16
1=Strongly Disagree	5	10

\*F= frequency, %= percentage

**Table 3. 11. Whether the content of the courses was above the students' English language level**

Table 3.11 indicates that the majority of students (74%) agreed or strongly agreed that the course content was above their proficiency level, as compared with 26% who disagreed or strongly disagreed . According to the course descriptions, the courses are designed primarily for students with an intermediate proficiency level . Though , previous findings indicated that their content was difficult for CS students due to inconsistency with their English proficiency level. This suggests that the proficiency of the majority of students was below the intermediate level.

According to data gathered from student interviews, the majority of them entered the course with extremely limited English skills. This is highly in line with the Waters remark (1993, p.15) that in recent years, the audience for ESP has begun to cover a much higher percentage of learners with only a limited command of English. Overall, the interview and questionnaire findings support those of the previously presented two-stage of evaluation. On the other hand, more reliable evaluations and similar conclusions should be expected only when all respondents agree upon and use the predefined evaluation parameters.

### 3.2.3.4.2. Supplementary Materials

Teaching and learning ESP requires the use of supplementary materials such as audio and videotapes, overhead transparencies, and computers (Dudley-Evans & St John, 1998). As a result, it was necessary to determine the extent to which such supplemental materials were used in ESP classes. The respondents were asked (Q12i) whether they agreed that supplementary materials were used in ESP classes. The results are summarised in Table 3.12.

Agreement/Disagreement Terms	Freq	%
4=Strongly Agree	4	8
3=Agree	11	22
2=Disagree	16	32
1=Strongly Disagree	19	38

\*F= frequency, %= percentage

**Table 3. 12. Whether supplementary materials were successfully used in ESP classrooms**

The average percentages displayed in Table 3.12 indicate that 70% of all respondents disagreed or strongly disagreed with the claim that audio-video tapes, overhead transparencies, and computers were used in their ESP classrooms. In comparison, only 30% agreed or strongly agreed.

### 3.2.3.5. Classroom Activities and Methodologies

According to the evaluation framework of current study (Table 2.3), teaching methodologies and student motivation and participation are potential classroom categories. The first category is concerned with the activities suggested by the course description and the methodologies used by ESP teachers, while the second is concerned with the level of motivation and participation of students in the classroom.

### 3.2.3.5.1. Teaching Methodologies

The majority of students expressed dissatisfaction with the course materials in their evaluations (Table 3.10). This may be because the students used various criteria to determine their appropriateness. For instance, many students may have been dissatisfied with the instructional methods used to deliver the course material. Kumaravadivelu defines teaching methodologies as "what practising teachers actually do in the classroom to achieve their stated or unstated teaching objectives" (2006, p.84).

Following the course description under consideration, the primary classroom activities for teaching the ESP courses should be pair- and group-work. Therefore, teachers should employ a communicative approach in which students work in pairs or groups. While the ESP course instructions explicitly state that students should work in pairs, to encourage students to work in pairs or groups, such as "Work in pairs" or "Compare your answer with your partner," are not found in the corresponding courses.

The students were asked to rate their degree of agreement with the proposition that they were allowed to work in pairs or groups to ascertain the extent to which such activities were used to teach course components (Q12j). According to Table 3.13, the majority of students (70%) disagreed or strongly disagreed that they were allowed to work in pairs or groups.

Agreement/Disagreement Terms	Freq	%
4=Strongly Agree	8	16
3=Agree	7	14
2=Disagree	26	52
1=Strongly Disagree	9	18

**Table 3. 13. Are students given the opportunity to work in groups or pairs?**

The findings indicated a statistically significant difference in the responses of students. One plausible interpretation of the disparities between students is that while teachers may have occasionally asked students to work in pairs or groups, many were perhaps unsuccessful in organizing such learning activities in practice. According to Ur (1996), pair and group work success depends heavily on the careful and effective organization. Factors such as class size and allotted time may make it more difficult for teachers to conduct group/pair work successfully.

It can be tentatively suggested that large class sizes do not generally allow for successful participation in group or pair work. Ferris (1998) corroborates this by concluding that larger classes are less likely than smaller classes to allow for small group work. Richards (2001, p.208) notes that "class size affects the quality of instruction". Large class sizes are a well-known issue in developing countries when it comes to ESP learning (Oladejo, 1993). On the other hand, observation of classroom practises would have aided in confirming this.

#### **3.2.3.5.2. Language Teachers' Methodologies and Performance**

When asked about the difficulties they encountered while learning English in their language classes, some students cited the issue of some language teachers' ineffective teaching methods (Q9 in Interviews and Q13 in Questionnaires). For instance, one interviewee (Student 3) stated, "In listening and speaking classes, there is no actual practise... The teacher simply gives us some instructions before asking us to complete the exercises". Student 4 added, "The method of explaining and clarifying the lesson is not good at all". A third student stated (student 5), "While some textbooks are excellent, teachers frequently fail to explain key points... Additionally, they do little to engage students in the lessons". Student 1 stated "I think the reading courses are complicated. The reading classes are taught incorrectly. Some [teachers] used spoon-feeding methods of teaching". Additionally, Student 4 expressed dissatisfaction with grammar classes, stating that "Grammar classes were extremely difficult... I believe it was because the teacher delivered the material ineffectively". The respondents were asked to indicate their level of agreement or disagreement with the assertion that teaching methodologies used by language

teachers were appropriate and useful (Q12h). Table 3.14 summarises their responses to this question.

Agreement/Disagreement Terms	Freq	%
4=Strongly Agree	5	10
3=Agree	7	14
2=Disagree	24	48
1=Strongly Disagree	14	28

**Table 3. 14. Whether teaching methodologies were appropriate and useful**

According to Table 3.14, a large majority of respondents (76%) disagree or strongly disagree that language teachers' instructional methods are appropriate and useful, while only 24% agree.

The extent to which ESP teachers were helpful and successful in their teaching was necessary since language teachers are the ones who adopt and implement teaching methodologies. During the interviews, four students (1, 3, 4, and 5) expressed two recurring concerns about their ESP teachers' classroom performance. The first problem was that some teachers lacked the ability to convey information clearly. Additionally, 15 students described this as one of the difficulties they experienced while learning ESP in the open-ended item (Q 13). In the interviews and questionnaires, some students expressed dissatisfaction with certain language teachers' unintelligible accents.

According to student 3, "There is an issue with certain teachers. Due to their incomprehensible speech, I cannot comprehend what they are saying when explaining the course". Student 5 was admitted: "To be honest, I do not understand what the ESP teachers is talking about, mostly in listening and speaking courses, because the way they speak is not clear". According to interviewee 6, "The faculty was made up of non- native English speakers. Several participants lacked a solid command of the English language. They frequently mispronounce the English

words ". The difficulty of not understanding the ESP teacher's speech was mentioned by 34 respondents in the open- ended item (Q13).

Students were surveyed regarding their perceptions of how helpful ESP teachers are in their classrooms (Q12L). The findings are summarised in Table 3. 15.

Agreement Rate	Freq	%
4=Strongly Agree	7	14
3=Agree	22	44
2=Disagree	16	32
1=Strongly Disagree	5	10

**Table 3. 15. Whether ESP teachers were helpful in their teaching**

As shown in Table 3.15, there was a statistically significant difference in the students' responses. The overwhelming majority (58 %) of respondents agreed or strongly agreed that language teachers were beneficial. On the other hand, 42% of students disagreed or strongly disagreed.

While one can argue against the reliability of students' ratings because they are frequently "more indicative of students' needs or desires than they are of teaching quality" (Henning, 1987, p.150), the findings above indicate that language teachers' methodologies were generally ineffective. The traditional teacher-centred approach, in which teachers considered themselves as information transmitters and students were rarely given opportunities to interact or participate, appears to be a popular method of instruction. This could have been confirmed if a different research instrument had been used (for example, classroom observation).

### **3.2.3.5.3. Students' Motivation and Participation in the ESP Classroom**

According to Richards (2001), effective teachers can compensate for their curriculum and teaching materials deficiencies, and their "skills in motivating learners should be seen as central to teaching effectiveness" (Dornyei, 2001b, p.116).

Four of the six student interviewees stated that they were not always encouraged by their language teachers to participate. It is possible that some students lacked the motivation to work hard because their teachers consistently viewed them as passive and thus did not encourage them to participate. Nonetheless, Lee and Ng (2010, p.312) conclude that various factors contribute to students' reluctance to participate in language classrooms, including the teacher's interaction strategy, the lesson objectives and activities, and the students' proficiency level.

Respondents were asked if they agreed that ESP teachers motivated them in English classes (Q12k). The majority of students agreed or strongly agreed with that view (Table 3.16).

Agreement/Disagreement Terms	Freq	%
4=Strongly Agree	10	20
3=Agree	20	40
2=Disagree	14	28
1=Strongly Disagree	6	12

**Table 3. 16. Whether ESP teachers motivated the students in English classes**

The results indicated that there were significant differences between the responses of students. This was expected because no students disagreed with the proposition.

### **Results Summary**

It would be challenging to provide a clearer picture of the aforementioned categories or subcategories because no authentic classroom observations were conducted to investigate them. However, the findings indicate that, at least in some classes, the teaching methodologies as well as the level of student interaction, participation, and motivation were ineffective and needed to be improved. These findings appear to corroborate Waters' (1993, p.16) observation that ESP was "increasingly taught to large classes of poorly-motivated learners by inexperienced teachers with very limited resources".

### 3.2.3.6. Language Assessment Procedures

The investigation into the adequacy of the ESP course, which included four components (Writing & Grammar, Listening & Speaking, Reading, and Computing Terminology) in each of its two semesters, concludes with a discussion of assessment procedures. Each semester was graded on a twenty-point scale. The sum of a student's final test score out of twenty represented his or her final grade in each language component. Each student needed a minimum of ten marks to pass at the end of each semester. The standard grading system was as follows: less than ten was considered a failure, ten to twenty was considered a pass.

All six interviewees expressed dissatisfaction with the current assessment system for various reasons. "Each semester, we have two quizzes and two monthly tests," Student 1 grumbled. This is excessively taxing... It is exhausting for teachers and students alike, and it is time-consuming." "The current assessment scheme leads our students to focus entirely on the English course and ignore other subjects in the first year programme," Student 2 complained. "The students' assessment in each language component is largely dependent on three tests [two monthly and one final] and two quizzes," he explained. This means that throughout the semester, students will have a high volume of tests and quizzes... As a result, they may be under constant stress, which may have an effect on their academic performance, not just in language components, but in other academic subjects as well."

When five students were interviewed, only student 2 believed the assessment procedures used in the ESP course were inappropriate. There appeared to be no reason why students could not be informed of their grades in each language component, in addition to their overall average final grades. They would, at the very least, be able to revise their own calculations.

To prevent students from ignoring particular components, student 1 (a proponent of the current assessment procedures) proposed that the pass mark be applied separately to each language component from the overall average grade. Assigning a pass mark for each component, on the

other hand, would be ineffective if the failure was the result of assessment methodology difficulties and flaws.

In the interview, three students expressed their dissatisfaction with the course evaluation procedures. "Having so many tests and quizzes makes me tense and nervous," Student 3 objected. I am concerned and possessed by the prospect of earning a high grade." "The course assessment scheme creates the idea that I should get as many marks as possible, regardless of how many languages I actually learn," Student 4 added. Student 2 echoed these sentiments, stating, "The assessment system makes us care more about marks than knowledge."

The questionnaire participants were asked if the current assessment procedures used in the course were appropriate for the students' needs (Q12m). Only 6% agreed or strongly agreed that the course evaluation procedures were adequate, while 94% disagreed or strongly disagreed (Table 3.17).

Agreement/Disagreement Terms	Freq	%
4=Strongly Agree	1	2
3=Agree	2	4
2=Disagree	4	8
1=Strongly Disagree	43	86

**Table 3. 17. Whether the assessment procedures used in the course were appropriate to students' needs**

### Results Summary

The results reveal that the assessment scheme constitutes a weak point of the ESP course. Ineffective assessment procedures "tend seriously to undermine programme effectiveness." (Gaffney & Mason, 1983, p.98). As a result, it is necessary to investigate the effectiveness of the ESP course.

#### 3.2.4. Effectiveness of the ESP Course

To what extent is the ESP course effective?

This question sought to ascertain the effectiveness of the ESP course in terms of general English language proficiency and equipping students with the skills necessary to communicate effectively in the target situation. When answering this question, it is critical to consider the course objectives, learning outcomes (students' language achievement), and the course's responsiveness to students' needs.

This section examines current students' perceptions of the ESP course's effectiveness. The experience of course stakeholders or participants holds the key to unlocking the 'black box' of course quality (Kiely and Rea-Dickin s, 2005, p.11). Their assessments of a course are occasionally used as a barometer of success. This kind of measure is strongly recommended by Sharp (1991) when he urges practitioners to consider course effectiveness from a broad standpoint. As a result, this section discusses key stakeholders' perceptions of the importance of the ESP course, their level of satisfaction with it in terms of meeting needs, achieving objectives, and overall evaluations.

### 3.2.4.1. Importance of the Course

First, the students was surveyed to determine the importance of the ESP course to their academic studies and desired careers (Q4 & Q5). According to the average percentages in Tables 3.18 and 3.19, more than 80% of respondents rated the course as very important or quite important to their academic studies and target careers, with less than 20% rating it as less important.

Importance Rating	Freq	%
4=Very important	30	60
3=Quite important	11	22
2=Not very important	7	14
1=Not important at all	2	4

**Table 3. 18. The importance of the course to students' academic studies**

Importance Rating	Freq	%
4=Very important	31	62
3=Quite important	13	26
2=Not very important	4	8
1=Not important at all	2	4

**Table 3. 19. The importance of the course to students' target careers**

The findings indicated no significant differences in students' perceptions of the course's importance to their academic studies and desired careers. The ESP course was deemed necessary to assist students not only in their academic studies but also in their future careers. The majority of students appeared to understand the importance of the ESP course and was likely to be partially dependent on their ability to use English as a medium of instruction (EMI) at university and of communication in the workplace. The implication is that they will be more receptive to changes recommended to enhance their ESP course's effectiveness and success.

#### 3.2.4.2. Fulfilment of Students' Language Needs

In item Q12a of the questionnaire, students were asked if they thought the course had met their language needs, allowing them to function satisfactorily in their academic studies. According to Table 3.20, the majority of students (64%) responded positively, while 36% responded negatively.

Satisfaction Rate	Freq	%
4=Strongly agree	3	6
3=Agree	29	58
2=Disagree	13	26
1=Strongly disagree	5	10

**Table 3. 20. Whether the course had met students' language needs to function in their academic studies**

Additionally, students were asked if they agreed that the course satisfied their language needs and prepared them to function satisfactorily in their target careers (Q12b). Around 56% of them felt that the course had met these language needs, while 44% did not (Table 3.21).

Satisfaction Rate	Freq	%
4=Strongly agree	5	10
3=Agree	23	46
2=Disagree	18	36
1=Strongly disagree	4	8

**Table 3. 21. Whether the course had met students' language needs to function in their target careers**

According to the statistical analysis, the percentage of respondents who agreed that the course met their functional language needs related to their academic studies was significantly greater than the percentage who agreed that the course met their functional language needs related to their target careers. This indicates that students were dissatisfied with how the existing course addressed the language needs of those in target careers. This also appears to imply that the stated goal of the ESP course, namely to meet students' current and future English language needs, was not fully met during the course's teaching and learning. However, this preliminary conclusion should be supported by examining the course's four specific objectives to determine how well they were met. This is considered next.

### 3.2.4.3. Achievement of Objectives of Course Components

The participants were asked to rate the extent to which they felt the stated course objectives had been met on a four-point scale: 1 = not achieved at all, 2 = minimally achieved, 3 = partially achieved, and 4 = fully achieved. Their answers were analysed to assess if there were statistically significant differences among students. Frequencies and percentages have been omitted from this section due to space constraints. The results for each course component are summarised in the table below.

1. The first chapter delves into both types of language needs thoroughly.
2. This procedure was recently used by Atherton (2006, p.16) to evaluate the effectiveness of the e EAP course at Kingston University in the United Kingdom.

### 3.3.4.3.1. Writing & Grammar

The students' ratings of the four writing and grammar component objectives are statistically compared and summarised in Table 3.22. While they were all considered important for students' academic studies and target careers, the mean rankings indicate that they were not fully achieved.

Objectives of Writing & Grammar	*MR
1. To write a text using the acquired writing techniques	114.88
2. To produce good writing by taking care of spelling, punctuation, cursive handwriting and grammatical points	115.02
3. To express ideas correctly and follow writing techniques	112.85
4. To apply all grammatical points in both spoken and written English	119.45

\*MR=mean rank

**Table 3. 22. Students' views on the achievement of Writing & Grammar objectives**

The mean ranks of students suggest that the majority thought that all four objectives had been minimally achieved. The results indicated statistically significant differences in the students' responses to Objectives 1, 2 and 3.

### 3.3.4.3.2. Listening & Speaking

Similarly, the students were asked to rate the extent to which they believed the four stated listening and speaking objectives were met. The findings are summarised and compared in Table 3.23. Overall, the mean rankings indicate that these objectives were not fully or even partially met, despite their importance to academic studies and target careers.

Objectives of Listening & Speaking	*MR
1. To understand any spoken or written instruction in English	119.14
2. To form everyday statements and Questions	120.34
3. To explain students' related problems to the teachers in spoken English with fluency of speech and accuracy of pronunciation	113.17
4. To comprehend lectures in English language; take notes and dictation in English language	121.32

\*MR=Mean Rank

**Table 3. 23. Students' views on the achievement of Listening & Speaking objectives**

Table 3.23 shows that there were significant differences in the mean ranks of the students with regard to Objectives 1, 2 and 3.

#### 3.3.4.3.3. Reading

The achievement levels of the eight objectives of the reading component were also rated by students. Table 3.24 below compares the mean ranks of the students to these objectives.

Objectives of Reading	*MR
1. To read English with pleasure and interest and comprehend what you read	122.10
2. To read faster and in ways that meet students' expectations	116.72
3. To understand and practise the English reading strategies	120.35
4. To talk and think about a text in new ways	117.28
5. To formulate and articulate ideas more precisely	115.32
6. To experience the connections between reading and writing	120.81
7. To find out new ideas, facts and experiences	109.26
8. To think in English and build linguistic competence as well as performance	119.57

\*MR=Mean Rank

**Table 3. 24. Students' views on the achievement of Reading objectives**

As for rating the achievements of reading objectives, there was a statistically significant difference between the students in Objectives 2, 3, 4, 5, and 7.

#### 3.3.4.3.4. Computing Terminology

The results of rating the achievement levels of the five objectives of the Computing Terminology component are displayed in Table 3.25.

Objectives of Reading	*MR
1. To use the newly given Computing terms in all four skills of language	124.52
2. To use the Computing terms in professional communication	117.50
3. To recognize all body systems with their names and Computing courses	128.68
4. To comprehend and write short Computing situations using Computing Terms	108.99
5. To understand, read and write short Computing reports	110.74

\*MR=Mean Rank

**Table 3. 25. Students' views on the achievement of Computing Terminology objectives**

The statistical results indicate significant differences in the students' responses to Objectives 3, 4 and 5.

#### Results Summary

According to the findings, students perceived that 20 of the 21 objectives were only partially met. While students recognised the significance of the stated objectives for their academic studies and future careers, they did not believe they had been met to their full potential.

Based on the above findings, it appears reasonable to conclude that the course failed to achieve its objectives or, more broadly, 'target performance' (Scott & Scott, 1984, p.213). That is, it appeared as though the planned activities had been carried out and completed in a substandard manner. This supports Nunan's (1989, p.185) observation that "teachers do not always teach what

has been planned." This could be due to a variety of factors, including the use of ineffective textbooks, ineffective teaching styles and methodologies, insufficient time devoted to objectives achievement, and large classes. Several of these objectives may also be questioned, mainly if they are implausible, excessively ambitious, or invalid due to their origins being secondary to an examination of students' needs. According to Xenodohidis (2002), students will become demotivated if the goals and objectives of the ESP curriculum are unrealistic. Due to the dynamic nature of "learning situations," one may also wonder if these objectives will change during implementation (Weir & Roberts, 1994, p.21).

However, any conclusions drawn from these findings can only be tentative. Classroom observation procedures could be used to evaluate course objectives in order to reach more reliable conclusions, as observation is the only method for gathering direct data "on the reality of programme implementation" (Weir & Roberts, 1994, p.164). This is not to say that accomplishing objectives accurately reflects the effectiveness of a course (Richards, 2001). As a result, the following section evaluates the course's effectiveness in terms of enhancing students' main language skills, such as grammar and vocabulary.

#### **3.2.4.4. Helpfulness of the Course**

In any language course, the "bottom line" is the extent to which students' language abilities improve (Weir & Roberts, 1994, p.87). Six students were then interviewed about the course's effectiveness in terms of overall English proficiency improvement (Q7).

Each of the six students expressed dissatisfaction with the course's capacity to assist them in improving their level of English proficiency. Student 2 stated, "It has aided me about 10% in writing, listening, and reading [and] not at all in speaking," Student 3 stated that the course "helped a little bit in terms of listening, writing, reading, and grammar... but not nearly enough in terms of speaking." Student 4 was less complimentary, stating, "Honestly, it did not help me much except for grammar and computing terminology, which improved slightly."

Students were asked to rate the course's usefulness in terms of improving their language proficiency level on a four-point Likert scale: 4 = very helpful, 3 = somewhat helpful, 2 = not very helpful, and 1 = not at all helpful (see Tables 3.26 & 3.27).

Helpfulness	Speaking		Listening		Writing		Reading		Grammar		General Vocab.		Computing Vocab.	
	F*	%	F	%	F	%	F	%	F	%	F	%	F	%
4= Very	5	10	3	6	8	16	17	34	10	20	9	18	12	24
3= Somewhat	23	46	16	32	25	50	24	48	23	46	23	46	21	42
2= Not very	19	38	22	44	14	28	7	14	13	26	15	30	13	26
1= Not at all	3	6	9	18	3	6	2	4	4	8	3	6	4	8

\*F= frequency, % = percentage.

**Table 3. 26. Evaluation of course helpfulness in improving their main skills, grammar and vocabulary**

The statistics were used to assess the differences between the students in the evaluations shown in Tables 3.24, 3.25 and 3.26. The results are shown in Table 3.27 below.

Objectives of Reading	*MR
Speaking	<b>124.66</b>
Listening	<b>109.52</b>
Writing	<b>121.46</b>
Reading	<b>127.55</b>
Grammar	<b>127.47</b>
General Vocabulary	<b>118.37</b>
Computing Vocabulary	<b>117.52</b>

\*MR=Mean Rank

**Table 3. 27. Evaluations of course helpfulness**

The average ranks in Table 3.27 demonstrate that the degree of perceived usefulness varied across skills. A cross-tabulation revealed that the most beneficial skill was improving reading, followed by vocabulary computing. This could be because reading and computing

vocabulary are the only two components of the course that are taught separately. Additionally, the cross-tabulation revealed that the course provided roughly equivalent assistance with writing and general vocabulary. Finally, the course was considered to be the least beneficial for improving listening skills, trailing only grammar and speaking. This is consistent with the interview results. Additionally, the findings indicate statistically significant differences in students' perceptions of the program's effectiveness in improving listening, reading, grammar, general, and computing vocabulary.

Despite these differences, it appeared as though the majority of students agreed that the course was highly beneficial in terms of improving their reading abilities. This corresponds to students' responses when asked which language skill they felt had improved the most (Q8 in Questionnaire). The results are summarised in Table 3.28.

Skill	Freq	%
Reading	23	46
Writing	12	24
Speaking	11	22
Listening	4	8

**Table 3. 28. The most improved skill**

According to the average percentages in Table 3.28, reading was the most improved skill of the four major language skills, followed by writing, speaking, and listening. No statistically significant differences in the students' evaluations were discovered.

In light of the aforementioned findings, two conclusions are possible. To begin with, when combined with the findings from Chapter Four regarding the perceived importance of language skills for academic studies, this result indicates that the current course was more beneficial in improving those skills that were more critical for students' academic studies and less beneficial in improving those skills that were less frequently required. Simultaneously, it is possible that the course will fail to help students improve their speaking abilities, which are regarded as the most critical skill for their intended careers. According to Tables 3.20 and 3.21,

the proportion of respondents who were generally satisfied with the course in terms of providing students with the language skills necessary to function satisfactorily in their academic studies was significantly higher than the proportion who felt similarly about target career skills.

Additionally, the participants were asked to evaluate the helpfulness of the course in improving their overall English language ability. The results are outlined in Table 3.29.

Helpfulness	Freq	%
4=Very	4	8
3=Somewhat	32	64
2=Not very	13	26
1=Not at all	1	2

\*F= frequency, %= percentage

**Table 3. 29. Evaluation of course helpfulness in improving students' English language ability**

In general, the majority of students rated the course as moderately helpful in terms of improving their overall English ability.

### 3.3. Summary of the Needs Analysis and Its Key Findings

The primary objective of this needs analysis and course evaluation study was to ascertain student needs and develop the current ESP curriculum in the Departments of Computer Science. As a result, the ESP curriculum development process began by assessing students' English language needs both during their university years and during the early stages of their future computer science careers. The current ESP course was then evaluated to determine its appropriateness and effectiveness. Finally, the results were analysed in order to make recommendations for improving the integration of academic and workplace language needs, thereby improving students' immediate and future achievement.

As high school graduates, the majority of students enter the computer science field with a limited level of communicative English proficiency. They are best described as EFL students at

the low intermediate level. As a result, enhancing their general language ability and providing them with the skills necessary to communicate effectively in the target situation should be a legitimate first objective of the ESP course. CS departments have frequently claimed that the ESP course does not provide students with adequate English skills to aid their academic studies and enable them to function effectively in their fields of study and target careers. The course's primary flaws were believed to stem from the fact that two critical development steps, needs analysis and course evaluation, had never been completed since the course's inception in 1991. This research aims to address these critical requirements.

The study addressed the main research questions in order to accomplish its objective. Qualitative and quantitative research instruments such as interviews and questionnaires were developed to address the above questions. The problem statement and research questions, as well as a theoretical discussion of needs analysis and course evaluation, served as the foundation for the research methodology. In terms of data collection tools, triangulation was used in this study. The information gathered was analysed both qualitatively and quantitatively. The study yielded a number of findings, produced a profile of needs and provided some recommendations, all of which contributed to answering the research questions and achieving the primary objectives of the study. The results are divided into three major themes based on the research questions. They are summarised below in that order.

### **3.3.1. English Skills Needed in Students' Academic Studies**

According to the data, the majority of students understood the importance of English in their academic work. According to data gathered through interviews and questionnaires, the vast majority of respondents believed that all four major skills were very important for academic studies, with reading being the most critical, followed by listening, speaking and writing. Nevertheless, statistical analysis revealed significant differences in perceptions of the importance of reading, writing, and listening skills among students, particularly in terms of perceptions of the importance of listening, reading and writing skills.

The analysis of the interviews and questionnaires revealed that CS students needed a variety of English language sub-skills in order to complete academic tasks. These are summarised as follows:

1. Reading lecture handouts and notes, subject course textbooks, and other references in the students' own field of study;
2. Reading both computing and general dictionaries;
3. Reading with the goal of extracting relevant academic knowledge;
4. Reading and comprehending graphic information: tables, diagrams, charts and graphs;
5. Skimming and scanning to find the required information quickly;
6. Understanding the differences between computing concepts;
7. Understanding quizzes, tests, and exam questions and writing appropriate answers;
8. Understanding exam terminology (e.g. 'define', 'match', 'classify', 'discuss');
9. Coping with computing terms and recognizing their definitions;
10. Understanding mathematical vocabulary and symbols;
11. Making notes from academic texts;
12. Writing essays of different types for various purposes (e.g. summary, explanation, definition, cause and effect, comparison and contrast);
13. Writing short sentences, paragraphs, and lab reports;
14. Writing clearly, taking care of spelling and cursive handwriting;
15. Listening to and comprehending academic lectures and discussions;
16. Comprehending spoken instructions in a range of natural pronunciation;
17. Asking and answering questions during lectures;
18. Asking for clarification and repetition;
19. Translating academic texts from English into Arabic.

### 3.3.2. English Skills Needed in Students' Target Careers

The research reveals that English is viewed as important for students' intended careers. Additionally, the findings indicate that having a command of both oral and written English is a necessary component of being a successful CS professional. The majority of interviewees and questionnaire respondents viewed all four language abilities as equally important for students' target careers. They believed that communication skills such as speaking, listening, writing, and reading were critical in the workplace. However, student interviewees indicated that writing was not important for their target careers.

While statistical analysis of the questionnaire responses indicates significant differences between students, all respondents agreed that the most important skills needed for students' target careers were speaking and reading. Students were expected to read more than they were expected to write, according to an analysis of authentic workplace texts.

The analysis of the interviews and questionnaires indicates that students should anticipate performing a variety of tasks requiring English language sub-skills during their target careers. These are summarised as follows:

1. Reading CS' files and history/progress reports;
2. Comprehending and filling out request and report forms;
3. Reading and comprehending the handwriting of physicians and other computing personnel in requests, reports, memos, prescriptions and other related forms;
4. Reading and comprehending computing terminology and vocabulary items, abbreviations and acronyms;
5. Writing labels, memos, short notes (e.g. computing notes) with clear handwriting and accurate spelling.
6. Comprehending computer scientists' oral instructions and directions;
7. Communicating satisfactorily with co-workers;

8. Discussing computing reports, computing issues and other computing-related topics with computing staff;
9. Communicating with computing professionals (in Arabic and English);
10. Pronouncing words intelligibly and correctly; Translating computing reports from English into Arabic;
11. Interpreting from English into Arabic.

### **3.3.3. Strengths and Weaknesses of the ESP Course**

Overall, the results of the interviews and questionnaires indicate that the ESP course was effective and beneficial in some ways in terms of improving students' language ability. The majority of course participants agreed that the course adequately prepared students for academic studies. Approximately 44%, on the other hand, disagreed that the course adequately prepares students for their desired careers. Given that no language course is perfect, a developmental approach to ESP course evaluation should have identified its weak points while emphasising its strong ones.

## **Conclusion**

This chapter presented, discussed, and analysed findings regarding the academic and professional language needs of CS students, as well as an evaluation of traditional ESP courses, specifically the extent to which the current ESP course met the academic and professional language needs of its students, as well as their language learning needs.

The researchers used a combination of methods, including semi-structured interviews with six participants and questionnaires completed by 50 participants. A comparison between the responses of the participants was performed to determine differences.

The results of the language needs analysis has revealed that English was critical for the students' academic studies and target careers. Generally, the data indicate that all four main language abilities were necessary for their studies and desired careers. More precisely, the data indicate that, while academic studies place a premium on reading and writing skills, speaking and reading skills are frequently required more than writing and listening skills in students' target careers.

This chapter has addressed the question of the appropriateness and effectiveness of the ESP course. It began by analysing qualitative and quantitative data on specific aspects of the course gathered from stakeholders then analysed those on students' language achievement.

In general, the data indicate that the ESP course was effective to some extent. However, this claim of effectiveness does not necessarily imply that all aspects of the course are completely appropriate. The underlying assumption for the analysis of data from interviews and questionnaires was that the ESP course's overall organisation was not based on an accurate assessment of its context or the specific needs of its participants, and thus that its current duration, focus, components, materials, methodology, and assessment procedures are likely in need of improvement.

## **CHAPTER FOUR: QUASI-EXPERIMENT ON THE EFFECT OF IMPLEMENTING THE BLENDED TEACHING APPROACH ON ESP STUDENTS' ACHIEVEMENT**

### **INTRODUCTION**

The NA questionnaire elicited information about the participants' target academic and professional needs, as well as the different difficulties they encounter in ESP class that prevent them from improving their language skills performance, particularly their productive skills. To address participants' unsatisfactory language achievement, it is necessary to intervene in order to reveal their concern and suggest a treatment to address this problem. As a result, the blended teaching approach was introduced as a treatment and experimentally tested with students over the course of one semester to determine its efficacy in improving students' language performance. Thus, this chapter discusses a pretest-posttest quasi-experimental study carried out as a serious endeavor to practically investigate the current research issue.

#### **4.1. Rationale**

'Course grades are regularly used as the primary indicator of student academic success in higher education,' and they can be interpreted as a 'direct indicator of individual achievement or learning' (Norris, 2008, p. 210). This implies that achievement grades can be used to quantify changes in language learning on a broad scale (Richards, 2001). This data (students' final grades) was used to determine whether there was any significant improvement in students' language ability by the end of the course.

True experimental research designs are frequently used to determine whether an intervention or instructional programme is effective at changing and/or improving students' performance. Yet, random assignment of students to control and experimental groups is not always feasible. As a result, quasi-experimental studies may be more appropriate and feasible. Levy and Ellis demonstrate the complexity of conducting true experiments in educational settings by

utilising participant randomisation, which obstructs the researcher "to have the luxury of complete control over the research" (2011, p. 152). Thus, conducting a study without randomly assigning participants to a control or treatment group results in "pre-assigned group assignment" (Levy & Ellis 2011, p. 155), which may reduce the validity of the findings. In spite of this, quasi-experiments share some characteristics with true experiments, most notably the goal of establishing a causal relationship between variables as a result of a particular treatment or manipulation.

Quasi-experimental studies can be designed in different ways, including the following:

- One-group pre- and post-test design
- Time-series design
- Non-equivalent control group design (Cohen, Manion, & Morison, 2007, p. 275)

While none of these designs can definitively confirm alterations in programme results or ascertain causality, they can facilitate "discussions of cause and effect relationships" between the research variables (Moore, 2008).

This research, which examines the effectiveness and efficiency of blended instruction in ESP classes, employs a quasi-experimental design for a variety of reasons. First, random assignment of participants to control and treatment groups was considered infeasible practice in this study due to administrative constraints.

In practice, the participants of the study are divided administratively into two groups representing distinct areas of Computer Science, namely 'Réseaux sans fil et mobiles-ReSys' and 'Ingénierie des Systèmes d' Information-ISI'. Due to departmental requirements and their respective study schedule constraints, the researcher was unable to conduct a true experiment, and to randomly assign the two groups. According to Cohan, Manion, and Morison (2007, p. 282), a quasi-experiment is the alternative research design that is used in situations "where random assignment of schools and classrooms is quite impractical." As a result, the "one-group pretest-posttest design" has been chosen to investigate the effects of implementing the blended teaching

approach in English for Computing purposes courses. The main purpose is to determine the relationship between variables of the study (the intervention and students' performance).

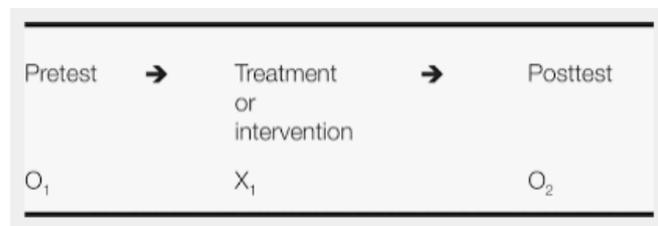
The use of a quasi-experimental design can be extremely beneficial, particularly in terms of providing pertinent data about the participants undergoing treatment in terms of their educational background, readiness, and attitudes (Moore, 2008). Additionally, it seek anticipated changes in participants' performance and outcomes, as well as their magnitude. Moreover, it elucidates whether expected changes occur in some subgroups but not others and whether the intervention is more effective for some participants than others. The quasi-experiment provides useful data about whether certain outcomes are changing and others are not. For instance, while students are undergoing the experimental instruction, they may demonstrate significant progress in particular language skills and functions more than others.

Apart from the unfeasibility of random group assignment, one of the primary reasons for using quasi-experiment in this study is that the intervention is still being developed. As Moore (2008) states, "it is appropriate to conduct a random assignment after a programme has been well developed and has settled into a clear and consistent set of activities".

Another reason for opting for a quasi-experiment is the inability of the control group to be "contaminated" by the intervention in the true experiment (Moore, 2008). Accordingly, it was considered impossible to prevent students in the control group from maintaining contact with those in the experimental group throughout the duration of the programme or even outside of the intervention programme. Thus, the control group would not be immune to treatment influence and contamination during the duration of the experimental treatment. This can take place as a result of students exchanging and discussing lectures and tasks as part of their daily study schedule. In this case, a cautious attitude has been developed toward the reliability of using the true experiment in the current study.

#### 4.2. Pretest-Posttest Design

the quasi-experiment was conducted using a one-group pretest-posttest design. Data collection on a group of participants' performance and results both before and after the experimental treatment is necessary for such test design. By comparing the outcomes of the pretest and posttest, it enables the researcher to draw conclusions about the effectiveness of the intervention. Pre- and post-treatment scores are intended to provide information about participants' performance and acquired competencies. Additionally, a well-designed test "can assist trainers [researchers] in determining which concepts or competencies were effectively taught during the training [treatment] and which ones require additional time or alternative methods of instruction" (I-TECH, 2008, p.1). The pretest ensures that all group members are on the same page and equal before treatment begins. It establishes the existence of pre-existing differences in skills or other features between group members (Ladico et al., 2006). The following formula illustrates this design:



**Figure 4 1. Pretest-Posttest Design**

Pretest-posttest designs typically include a treatment level and pretest and posttest measurements of the dependent variable to determine the variance between pretest and posttest means. Kirk (1995, p. 26) states that this design allows for the existence of two hypotheses: the null and the alternative hypotheses.

The pretest-posttest design enables the researcher to measure the possible impact of intervention over time. However, caution should be exercised when interpreting the experiment's results, as undesirable effects of extraneous variables may limit of the validity of the study and impair its outcomes.

It is highly recommended to gather multiple types of data for this type of research design in order to make pertinent interpretations and inferences about the study results. Specifically, the participants' demographic information, the test construction process, the context and purpose of the intervention, and finally, the results will be examined. The qualitative data, such as test results, will be used to support the quantitative data, which will be gathered in the form of a course evaluation that the students will complete at the end of the intervention.

#### **4.2.1. Participants**

The sample of the study was 50 first year master's students of Computer Science. as Ross (2005, p. 1) notes explicitly, "the information derived from the resulting sample is customarily used to develop useful generalisations about the population". Therefore, the researcher can generalise the findings by using a sample of individuals from the entire population. Administratively, the students were split into two groups according to their areas of specialisation, and they were assigned to study ESP courses for an hour and a half each week. They are made up of 27 females and 23 males. They studied ESP as a secondary unit in the programme over the course of their three years (six semesters) of computer science study for their licence underneath the LMD system.

To ensure a high level of test validity, students were not notified that they would be undergoing a particular experiment for the purposes of the research in order to maintain their normal study routine and avoid any attitudes toward the treatment. Due to the LMD regulations, attendance was mandatory; yet, not all participants attended the course on a consistent basis for a variety of reasons. To ensure that all participants received lessons, activities, and assignments, the teacher (who was also the researcher) developed online Moodle courses to maintain the running and well- management of the intervention. Course activities were accompanied by pertinent online links and were routinely distributed to students via Moodle platform at the conclusion of each unit to provide them with additional reading and practice of the material covered in the traditional classroom. They were carefully chosen to correspond to the course objectives and the students'

level. As a result, all participants have the opportunity to participate in the experiment, read the course materials, and practice the assigned activities.

#### **4.2.2. The Experimental Intervention**

To reveal the effect of the blended teaching approach on the students' performance, the researcher developed a focused and purposeful course with the goal of increasing students' proficiency in a variety of areas, most notably productive skills, grammar and vocabulary. Two study units were established in accordance with the results of the Needs Analysis. They are broadly divided into three main themes: (1) computer applications, (2) programming languages and (3) artificial intelligence.

The main theme is supported in each of the three study units by supporting sub-themes that help students practise various language skills and functions while also supporting the main unit core goals. Each unit starts with a warm-up activity (a 4-6 minute video) about the unit is theme to stimulate students' schema, remind them of previously learned skills, and get them ready for the targeted skills. This is followed by a listening or reading passage that provides background information about the unit is theme as well as opportunities for vocabulary construction, writing production, and grammar practice.

The programme is delivered through two modes of instruction: classroom lectures and online assignments (using online tools such as documents, YouTube videos, and online dictionaries) that have been designed to address students' needs while also improving their study skills. Students were regularly emailed class lectures for revision and feedback, while online assignments provided additional exploration, comprehension, and practice.

The general objective of this experimental intervention is to guarantee that theoretical and pragmatic principles of ESP instruction are followed. The theoretical principle emphasises that learners' target purpose should be to continue to develop the receptive and productive skills needed to understand or produce written or spoken discourse. On the other hand, the pragmatic

principle provides students the opportunity to develop specific skills and knowledge that will enable them to respond to any target discourse in their field.

The teacher manages the course collaboratively with her students, as the ESP course emphasises the learner's role as a critical participant in making course-related decisions. Throughout the programme, the teacher encourages students to come up with their own ideas, share, choose, and suggest activities, methods, and materials that are appropriate for them. As a prerequisite for the ESP course in this experimental programme, the teacher serves as a facilitator or consultant. Throughout the programme, the instructor encourages teamwork, collaborative practice in class, and peer consultation to the extent that the course requires such learning routines. Meanwhile, in order to maintain the programme flexible and engaging, students were urged to provide the instructor personal feedback on the assignments presented in class and online using Moodle LMS.

Through learner-teacher online interaction, the process of "individualisation of communication" is highlighted throughout the programme. In order to maintain a comfortable and secure learning environment, all students are allowed to send or ask the teacher for clarification, explanations, or further learning resources before or after class. Students' assignments were reinforced by specialised online dictionaries to facilitate, expedite, and successfully complete them.

#### **4.2.3. The Blended Class Procedures**

Practitioner research entails investigating a specific situation in order to identify and solve a specific problem (Burton & Bartlett, 2005). Nunan (1997) claim that practitioner research has three main advantages. It addresses real-world issues, encourages effective practice, and contributes to the development of new knowledge in the field of ESP teaching and learning. The present practice-based research is an interventionist study that aimed to address the problem of disengagement of students in ESP courses by implementing a novel teaching approach in the field of computer science, namely blended instruction. This research contributes to the researcher's own

teaching practice improvement, advances knowledge about a critical aspect of student learning, namely student engagement in ESP courses, and adds practical knowledge to ESP teaching in the Algerian educational context.

The ESP module at this institution is divided into five major components: listening, speaking, reading, writing, grammar, and computing terminology. To illustrate, the blended teaching approach was used in the course's academic writing component, which frequently constitutes a major challenge for students. Academic writing is intended to assist students in developing their ability to write two distinct types of essays (comparison and contrast and evaluation), as well as to describe graphs. Additionally, the syllabus is designed to familiarise students with active and passive voice, collocations, and other grammatical features associated with the essay genres covered. The students are assessed both formatively (by the quantity and quality of essays they produce) and summatively (by a final examination).

In a traditional writing classroom, the teacher frequently shows students examples of effective writing and instructs them to copy them without considering the rhetorical or social functions of the writing (Coffin et al., 2003). The analysis is completed in class, and it is frequently followed by an implementation phase that extends online in the form of writing assignments that students complete and submit in the next class.

This study examined a blended course that incorporated a task-based approach that involves learners in understanding, manipulating, producing, or interacting in the target language. The theoretical component of the course is introduced outside the classroom in a variety of ways, While students participate in practical and enriching learning activities in class. The following section summarises the main tasks that students in blended classrooms participated in both inside and outside the classroom. During the first week of the BL implementation phase, students were introduced to the blended classroom layout and associated activities.

#### **4.2.4. Out-of-Class Learning Activities**

One of the main components of the out-of-class activities was viewing videos and/ or PowerPoint slides. The learning management system Moodle provided students with access to a variety of educational videos. Several of these YouTube videos were hand-picked for their relevance and use of plain language. They covered basic computer science concepts like computer applications, artificial intelligence, and programming, as well as language skills like essay structure and effective presentation. The purpose of the video was twofold. To begin, Çelik and Aytin (2014) claim that digital tools like videos can help students become more motivated and develop positive attitudes toward learning. Second, according to Köler and Nitzschner (2014), videos are more effective than written texts at assisting comprehension of unfamiliar concepts and ideas. When necessary, and especially when YouTube videos fell short of covering the range of concepts required for a given course, PowerPoint presentations focusing on those specific concepts were created and shared with the students.

The length of the videos and presentations used in the blended course varied between 5 and 15 minutes. Morisse (2015) recommend using brief videos to aid comprehension and empower students to take control of their learning, as lengthy videos could be ineffective and could lead to disengagement.

Students in the blended classroom completed weekly brief online quizzes in addition to watching videos to gauge their comprehension of the concepts and ideas discussed in the videos and presentations. Quizzes were divided into three categories: true/false, multiple-choice, and short answers. The LMS reports aided the researcher in identifying content areas where additional explanation was required in class. According to Kim et al. (2014), providing immediate feedback to students enables them to identify areas of weakness in their understanding and areas on which they need to do further work.

Outside of class, students reviewed two types of reading: authentic reading materials and model essays, such as articles that addressed some of the topics they discussed in class. According

to Wang (2013), providing sample essays helps students become familiar with the generic characteristics of the writing genres being studied. Additionally, Yayli (2011) argue that this encourages students to develop a more positive attitude toward essay writing in general and to incorporate information about those generic features into their own work. The brainstorming process was supplemented with authentic reading materials. According to Rao (2007), providing reading materials to students prior to class aids in comprehension and idea generation for in-class writing assignments. Additionally, students participated in an online bulletin board where they discussed essay topics and increased their knowledge of the subjects discussed.

Participating in discussions on the LMS was another component of the out-of-class assignments (see Appendix 10). The majority of the topics discussed were debatable. They required students to take a position on a particular subject and to support their positions with arguments. Moreover, the LMS was used for a variety of other purposes, including posing questions, communicating with peers and teachers, and receiving feedback on one's performance.

Pre-class learning activities were useful for three reasons. To begin, Boslaugh (2013) contends that involving students in pre-class activities helps them prepare for in-class activities. Pre-class tasks required students to use lower-order thinking skills such as comprehending and remembering particular concepts and facts, which helped them understand and complete in-class activities. Second, the pre-class activities were created to keep students engaged with the ESP module content, as well as their peers and teacher, outside of class, which would not have been possible in a "traditional" classroom. Finally, through electronically generated reports, these activities were designed to assist teachers in keeping track of students' extracurricular activities, or lack thereof, as well as their academic progress.

#### **4.2.5. In-Class Learning Activities**

Kim et al. (2014) emphasise the critical importance of aligning and connecting pre- and in-class learning activities in order to maximise student engagement and learning in a blended classroom design. Unlike the out-of-class activities examined in this study, the blended classroom

learning activities examined in this study required students to use higher-order thinking skills such as analysis, evaluation, and creation, which are more challenging to complete and require both student collaboration and teacher assistance. Each class began with a ten-minute review to ensure students' understanding of key concepts. Students took part in live online quizzes as needed via Moodle LMS (see Appendix 11). Moodle LMS provided an excellent opportunity to reinforce correct information and to address concerns about students' comprehension of reviewed concepts and materials.

Following the quiz, students engaged in activities that reinforced previously introduced information and concepts and aimed to allow students to put them into practice. These activities included, but were not limited to, analysing model essay structures, constructing and deconstructing model essays, evaluating various text purposes and their cohesion and coherence, and creating a variety of texts for a variety of purposes, including evaluation, comparison, and contrast.

#### **4.2.3. Tests Construction**

In testing, researchers have a powerful method for data collection at their disposal (Cohen et al., 2007). All participants were randomly assigned to an experimental pretest-posttest in the second semester after a subset of participants (25 students) underwent a pilot pretest-posttest in the first semester to collect pertinent data on participants' performance before and after the experimental intervention. As a result, non-parametric assessments are used in the pilot and experimental phases because they provide teachers an invaluable opportunity to give students immediate, accurate, and relevant feedback on their performance. Non-parametric tests also meet the criteria for small samples and extremely specific contexts, as in the case of the current study.

The pretest was designed as a placement test with the primary objective of diagnosing students' weaknesses, strengths, and deficiencies as a preliminary procedure for determining the necessary prerequisites for beginning the programme. Whereas, the posttest was designed as an

achievement test, allowing for evaluating the effectiveness of the intervention and the degree of students' improvement.

In practice, the pilot pretest investigates the theme of "computer applications" in a significantly balanced and revised format that combines language practise for grammar and vocabulary as well as language skills (reading and writing). There are a variety of objectives to prevent the test from being boring and to accommodate the students' diverse learning styles (text comprehension questions, gaps filling, and paragraph composition). The posttest, on the other hand, is a modified and improved version of the pretest that is used to evaluate the performance of the participants at the end of the pilot study.

The experimental pretest examines the theme of "programming languages" and its associated issues as a prerequisite to the commencement of the intervention program. The participants were required to write a maximum of 12-line essay about the "principles of programming languages" using words, expressions, and structures they were already familiar with. The experimental posttest, on the other hand, assesses students' reading and writing abilities, which are the most critical for success in the ESP courses. It comprises a variety of questions but adheres to the theme of the pretest.

### **4.3. Pilot Study**

In a "pilot test" a representative sample of the population defined as the pilot group participates in the experiment as a "dress rehearsal" (Ladico et al., 2006, p. 135). The researcher is thus able to generalise the intervention to the entire population thanks to the pilot group, verifying the validity of the treatment. In the same vein, Cohen et al. (2007, p. 287) emphasis the importance of carrying out a pilot research before starting the experiment in order "to identify potential snags in connection with any aspect of the investigation," as well as to ensure that the treatment is elaborated and refined cooperatively.

The pilot group of the current study was created after taking into account participants' requirements and wants for learning English through a Needs Analysis questionnaire. To ascertain the students' level of proficiency in language skills and functions before to the initiation of the pilot treatment, a placement test was developed as a pretest for the experiment. The production phase of the pilot pretest layout includes a brief paragraph writing task after the grammar and vocabulary exercises that follow the reading comprehension segment. While grammar, vocabulary, and writing serve as the genuine content to meet the requirements of ESP tests, the text serves as the carrier content, representing the participants' discipline. Participants were retested as part of a pilot posttest after completing the pilot intervention, which was customised to their language abilities, functions, and vocabulary. On unauthorised documents, students were tested one-on-one for an hour and a half. Participants can evaluate their responses appropriately because the grading scale for the tests is stated on the question sheet. Calculating the Mean, Variance, and Standard Deviation from the test results allowed researchers to compare the two tests and identify any differences.

#### **4.4. Experimental Study**

The experimental group was formed in the current study after taking into account participants' desires and needs to study English through a Needs Analysis questionnaire. A placement test was designed to represent the students' level of proficiency in language skills and functions before the treatment. The pretest format comprises of questions on reading comprehension, activities in vocabulary and grammar, and a production stage where students should compose a brief paragraph. While the grammar, vocabulary, and writing serve as the actual material to meet the requirements of ESP tests, the text acts as the carrier content, representing the students' discipline.

Following the intervention or treatment phase, which included the implementation of a BL programme tailored to students' needs in terms of language skills, functions, and vocabulary,

in a group of 50 participants during the first semester, valuable feedback at various levels (pedagogical and structural) was received from students through course evaluation checklist administered to them at the end of the intervention as a summative evaluation of the course. Posttest was administered to all participants. They were each subjected to a one- and-a-half-hour non-authorized document examination. The grading scale for the tests is indicated on the question sheet, allowing students to make informed choices about their responses. The scores of tests were gathered and subjected to statistical analysis in order to determine the difference between the two tests by calculating the Mean, Variance, and Standard Deviation.

The purpose of the quasi-experimental study is to allow for generalisation of the programme and allow the researcher to establish reliability and validity. Throughout and at the end of this study, participants consistently made explicit suggestions, comments, and remarks to improve the content, structure, and management of the course. The students' motivation and engagement in the programme led to the development of these proposals, which had a significant impact on the subsequent success of the course.

To illustrate, the students suggested shortening YouTube videos (to a maximum of 5 minutes) or dividing lengthy trucks into individual short clips to permit students to follow the speech rate at a flexible pace and facilitate comprehension of the discourse content. The online texts were partially revised and adjusted in response to participant feedback, particularly regarding the text's difficulty level, level of jargon, and vocabulary selection. In terms of writing, the programme now includes a new online task in which the instructor addresses specific writing issues such as spelling and idea generation to assist students in overcoming their writing difficulties. Due to the notable disparity in proficiency levels among students in the same class, collaborative tasks and teamwork were also supported based on students' preferences in order for them to support one another and foster a competitive environment. Several participants proposed the creation of a class website where students would have full access to course lectures, resources,

and activities as well as full online instruction based on asynchronous learning; though, the idea was disrupted by pedagogical and administrative constraints.

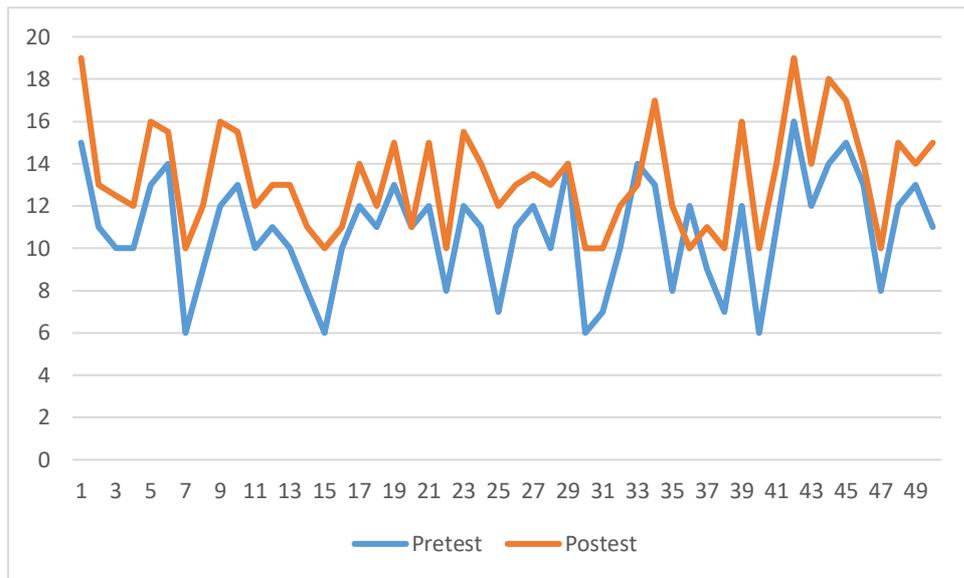
The participants underwent a pretest to determine how similar their language abilities were prior to beginning treatment. While the posttest is a reading comprehension version of the pretest that includes a variety of questions that need vocabulary knowledge and writing skill, the pretest was a one and a half hour writing activity that also examined other sub-skills (vocabulary and grammar). After that, the students underwent treatment, which involved using software resources while undertaking the ESP course.

The instructional principles for the ESP course were purposefully taken into account, including the specialty-based content (carrier content) and the academic and professional language functions required for the students' discipline, as well as the linguistic features that best meet the course prerequisites. The use of online tools (discussion forums, videos, encyclopaedias, and documents, among others) was purposefully limited to meet the course objectives and the focus of the unit themes. To emphasise the learner-centred approach principle of the ESP courses, students collaborated as active participants by providing suggestions, comments, and feedback on the course content, material selection and classroom management.

At the end of the experimental program, students' scores on pre-and post-tests were collected and statistically analysed, as well as graphically represented, using the conventional statistical descriptions used in experimental research, namely the Mean, Standard Deviation, T-test, and hypothesis testing. Graph 4.2 displays the final pretest and posttest scores of each participant.

#### **4.4.1. The Pretest and Posttest Scores**

After the administration of the pretest and posttest to the participants (50 participants), the score values shown in the figure below are obtained out of 20.



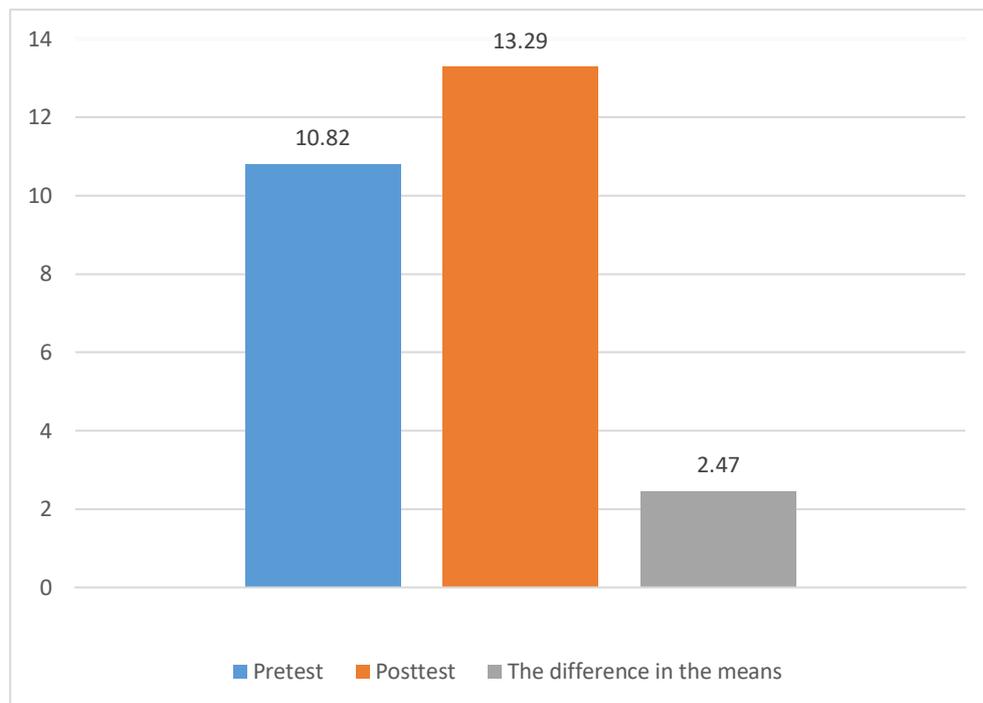
**Figure 4 2. The Pretest and Posttest Scores**

According to the analysis of graph 4.2, participants' scores increased from the pretest to the posttest as indicated by the sum of scores (541 vs. 664,5) and the difference in means (10,82 vs. 13,29). The problem will be clarified by statistically comparing the means of the scores on the two tests the participants performed.

Tests	Means	The difference
Pretest	<b>10,82</b>	2,47
Posttest	<b>13,29</b>	

**Table 4. 1. The Means of Scores in the Pretest-Posttest**

The general illustration of the means of scores in the pre and post-test is represented graphically as follows.



**Figure 4 3. Mean scores of the Pretest-Posttest**

According to the results, participants performed significantly better on the posttest than on the pretest, with a mean difference of 2.47, indicating that this improvement was caused by the blended instructional treatment participants received. The participants were able to engage effectively in the class and receive instant feedback from the tutor via discussion forums, in addition to playing an active role as critical partners and agents in the teaching and learning process, as a result of their exposure to authentic online material, comfortable and flexible interaction between the teacher and students through Moodle LMS, and a collaborative learning, among other blended teaching features. As a result, they improved their performance on the posttest. The treatment's instructional benefits improve students' effectiveness and focus, especially when multimedia tasks are combined. As illustrated in table 4.1 and graph 4.3, the considerable difference in students' scores from pretest to posttest is revealed as a difference in the mean of their scores, which primarily indicates students' progress on the test. Therefore, one could immediately make inferences about the students' improved performance and assert cautiously that it is due to the modified blended instructional treatment.

To account for posttest overscoring, it is necessary to acknowledge the intervention's role and the benefits of the blended teaching approach in terms of improving students' posttest scores. Due to the incorporation of YouTube videos about the unit theme and the expansion of their vocabulary knowledge and its diverse applications, students gained familiarity with the vocabulary used in a specific context to express specific functions. Additionally, it is critical to recognise the significant role of blended assignments in improving students' writing techniques and skills through the varied instructions accompanying each assignment. Similarly, the use of specialised online encyclopedias and dictionaries augments the number of vocabulary items that students have to research and double-check for spelling, meaning, and application. Additionally, students lauded and appreciated the online texts for reading comprehension as authentic, current, and speciality-based content that enables them to familiarise themselves with a variety of sentence structures, grammar uses, and, most importantly, the most recent information presented in each of the selected texts. The continuous interaction between the instructor and the whole class through online communication, which aided in the delivery and management of the course, is another outstanding factor that helps students stay on track with the course as a whole.

The posttest results support the current hypothesis of the study that incorporating blended instruction into ESP classes improves students' performance and motivation, thereby enabling them to achieve higher proficiency levels in a variety of language skills. The participants' improved posttest scores initially support the research hypothesis that incorporating a blended teaching approach improves students' achievement in ESP courses.

#### **4.4.2. Analysis and Interpretation of the Results**

Any statistical study that uses "descriptive statistics" and "graphic representations" to "understand the logic of experimental research" must show how participants performed on each test in order to "understand the logic of experimental research" (Nunan, 1999, p. 28). Calculating the frequency distribution of test scores, variance, and standard deviation, and then validating all statistical results using the t-test is an example of statistical descriptions that can be used in the

final pre-and post-test. According to Calder and Sapsford (2006), these statistics are the most commonly employed measures in reports and research papers. The following tables display the descriptive statistics of pre-and post-test.

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pretest	10,8200	50	2,56897	,36331
Posttest	13,2900	50	2,46628	,34879

**Table 4. 2. Paired Samples Statistics**

	Pretest	Posttest
N Valid	50	50
Missing	50	50
Mean	10,8200	13,2900
Median	11,0000	13,0000
Mode	12,00	10,00
Std. Deviation	2,56897	2,46628
Variance	6,600	6,083
Range	10,00	9,00
Minimum	6,00	10,00
Maximum	16,00	19,00
Sum	541,00	664,50

**Table 4. 3. Overall Statistics**

To determine the statistical inferences required for the above-mentioned scores, one should first indicate the range of score values on both tests, including the lowest and highest scores and the scores below and above the average. The rationale behind emphasising these elements is to allow for pertinent implications and assumptions about the scores in relation to the experimental intervention received by the students. To begin, the following observations are made:

- Pretest scores range between 6 and 16, with 12 being the highest.
- 4 of the scores are lower than the average of 10, while 7 are higher.

- The pretest has the highest frequency of scores 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, whereas the pretest has only one frequency of score 16.

Graph 4.2 reveals the following concerning the posttest:

- The posttest scores range from 10 to 19, with ten being the most significant
- There are no scores below 10 and 13 above 10.
- The posttest frequency distribution shows that the scores 10, 11, 12, 13, 14, 15, 15.5, 16, 17, and 19 have the highest frequency, whereas the other scores have only one frequency.

#### **4.4.3. Statistical Considerations**

To determine "to what extent the data are similar and the degree to which data differ" (Nunan 1999, p. 28) in a detailed statistical representation, one needs first to conduct the quantitative data by calculating the mean, variance, and standard deviation.

##### **a. The mean**

The mean, the average of a collection of numerical data, is the most commonly used measure of similarity (numbers).

##### **b. The Standard Deviation**

To determine the degree to which a set of scores deviates from the mean, the standard deviation SD is used to quantify the mean's dispersion. That is, "it gives the average distance of individual measurement observations from the group mean" (Fisher & Foreit, 2002).

The degree of similarity and difference between pretest and posttest scores can be determined by calculating the mean, variance, and standard deviation from the final pretest's quantitative data. Descriptive statistics are used to transform raw data to a more meaningful form. They are widely used in quantitative studies to support the statistics in a graph or table; as suggested by Sapsford (2006, p. 189), "never let the figures speak for themselves". As a result, statistical analysis of the scores enables a more complete understanding of the logic behind the numbers.

#### 4.4.4. Statistical Considerations for Posttest

The tables below summarises the frequency, mean, and standard deviation of post-test score values. The expected differences between the two tests are depicted in table 4.4 and graph 4.4, respectively, by comparing the descriptive statistics of the two tests.

Comparing the descriptive statistics of the two tests indicates the difference in the Mean and Standard Deviation between the pre- and post-test.

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 Pretest	10,8200	50	2,56897	,36331
Posttest	13,2900	50	2,46628	,34879

**Table 4. 4. Comparison of the Mean and Standard Deviation of Pretest and Posttest**

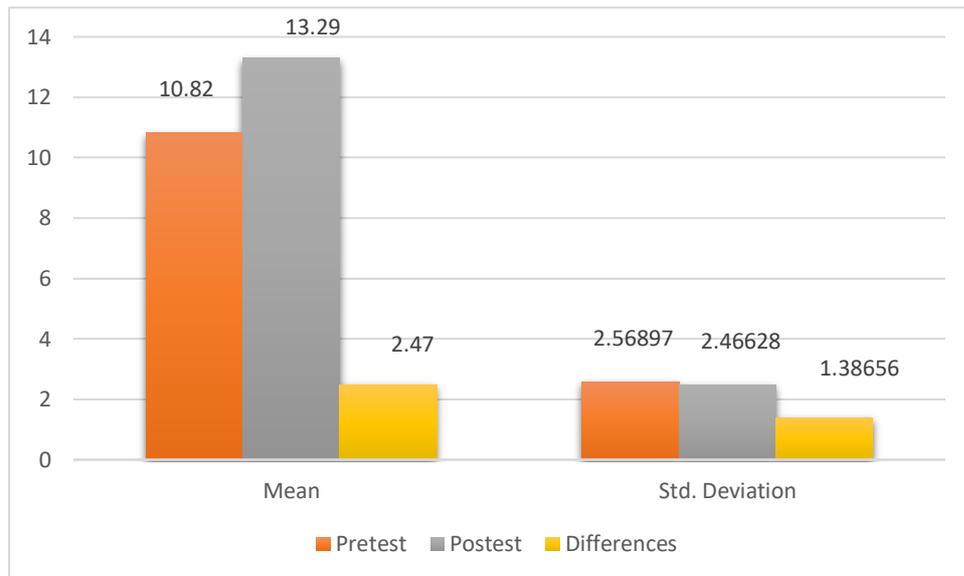
	N	Correlation	Sig.
Pair 1 Pretest & Posttest	50	,849	,000

**Table 4. 5. Paired Samples Correlations**

	Paired Differences		t	Df	Sig. (2-tailed)
	Mean	Std. Deviation			
Pair1 Pretest – Posttest	-2,47000	1,38656	-12,596	49	,000

**Table 4. 6. Paired Samples Test**

A histogram is used to represent the above statistics graphically and illustrate the difference in the Mean and Standard Deviation of the tests.



**Figure 4.4. Comparison of the Pretest and Posttest Statistics**

According to the results, one could claim that the blended teaching approach (the treatment that the participants received) lead to a higher level of achievement on the post-test. The difference in the means (2,47) and standard deviation (0.10) of the two tests indicates that the students' test scores improved. The differences in the statistics support the research hypothesis that a blended teaching approach improves students' language skills performance. Therefore, it is undeniable that the treatment had a beneficial effect on students' grades, as evidenced by the majority of participants making noticeable progress. Additional descriptive statistics, such as the t-test, are required to confirm this statistically.

#### 4.4.5. T-test Calculation

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	10,8200	50	2,56897	0,36331
	Posttest	13,2900	50	2,46628	0,34879

**Table 4.7. Paired Samples Statistics**

		N	Correlation	Sig.
Pair 1	Pretest & Posttest	50	0,849	0,000

**Table 4. 8. Paired Samples Correlations**

The t-test is widely regarded to be the most appropriate test for comparing the means. It is employed to determine the statistical differences between tests.

The (T) value of the test is equal to (12.596), and its degree of significance (Sig) is equal to (0.000), which is less than the level of significance (0.05), indicating that the test is statistically significant and that there are statistically significant differences between the pre and post-tests when compared. The differences between the arithmetic averages favour the post-test, indicating that the blended teaching programme has a positive effect.

To calculate the Standard Error (SE), the following statistics are need to be considered:

$$X_{post} = 13,2900$$

$$X_{pre} = 10,8200$$

$$SD_{post} = 2,46628$$

$$SD_{pre} = 2,56897$$

**SD:** Standard Deviation      **N:** The number of the sample

$$SE = \frac{SD}{N} = \mathbf{0,01452}$$

The following are obtained from the application of the above t-test formula:

- **Alpha Decision Level**

Brown (1995) suggests that the language researcher have to pre-set the alpha decision level once again. If more certainty is required in the decision-making process, the level may be at  $\alpha \leq 0.05$  or at the more conservative  $\alpha < 0.01$ . We chose an alpha of .05 for the current pretest and posttest studies, indicating that a 5% chance of error is considered acceptable. The test is directional (tailed), as one mean is theoretically and logically superior to the other (the blended

teaching treatment). According to a one-tailed test, students will perform significantly better on the posttest than on the pretest. Therefore, it is preferable over the two-tailed test since it establishes expectations regarding the population and direction of the result.

#### - Hypothesis Testing

Now, the necessary data for testing the hypothesis have been collected.

$$\text{Statistical hypotheses: } H_0 : \overline{X}_{post} = \overline{X}_{pre}$$
$$H_1 : \overline{X}_{post} > \overline{X}_{pre}$$

The null hypothesis  $H_0$  indicates that the pretest and posttest means are not statistically significant. The alternative hypothesis,  $H_1$ , suggests that the difference between the pretest and posttest means is statistically significant.

#### 4.4.6. Statistical Significance and Size Effect

At  $P > .05$ ., the null hypothesis is rejected because the observed statistics exceed the critical value of  $2.47 > 1.67$ . After the null hypothesis is rejected, the alternative hypothesis is consequentially accepted. This indicates that there is a 5% chance that the noticed mean difference:  $X_{post} > X_{pre}$  ( $13,2900 > 10,8200$ ) occurred randomly, and a 95% chance that it was caused by non-random factors. The null hypothesis is rejected, indicating that the dependent variable (posttest scores) and the independent variable (the blended teaching treatment) have no coincidental relationship. As a result, the alternative causal hypothesis  $H_1$  can be supported, which states that instructional input influences students' ability to produce better output (the blended teaching treatment).

The statistical significance of the test results is established mathematically, implying that "chance is an unlikely explanation". Yet, "the blunt edge of statistical significance" is regarded as "an unacceptable index of effect" and does not indicate treatment effectiveness (Cohen et al., 2007, p. 515). As a result, the researcher must ascertain the "effect size" of the treatment. The effect size

(Eta squared) is calculated for a paired sample t-test “which implies that the same group is examining the same variable at two distinct points in time” (Cohen et al., 2007, p. 522).

According to Cohen's guidelines, this effect (0.14) indicates that the input (X) has a significant effect on the output (Y), where the input is the blended teaching approach, and the output is the students' posttest scores (1988). As a result, the effect size indicates a statistically significant difference between pretest and posttest scores, indicating that students were exposed to an instructional treatment designed to ascertain the effect of implementing the blended teaching approach in ESP courses on students' performance.

## CONCLUSION

The participants were exposed to a variety of online resources during the blended teaching treatment phase in order to determine the impact of such intervention on students' performance. The significant improvement of the students in the posttest has statistically proven the benefits of blended instruction in improving the performance of ESP students. As a result, the null hypothesis is disproved at an alpha level of  $P > .05$ , indicating that the success of the intervention was primarily due to the intervention and not other random elements that the size effect calculation had eliminated. The claim is strengthened by evidence supporting the alternative hypothesis, which reveals how effective blended teaching is as an approach in the ESP field. It is worth noting that the pilot study made a significant contribution to the administration of the final version of the intervention through students' feedback. Any conclusions drawn from students' achievement grades should be considered tentative at best. It can be argued that "grades are themselves susceptible to a variety of potential intervening variables from both the student's (e.g., variable performance) and teacher's (e.g., grade inflation) side of the grade equation, leading to instability in the exact meaning of an individual student's grade." (Norris, 2008, p. 210). Furthermore, students' success in the entire ESP course does not necessarily imply the ability to use English effectively in communicative situations. That is, "it is possible for a student to pursue his course of studies uttering hardly a word" (Jordan & Matthews, 1978, p. 8).

## **CHAPTER FIVE: STUDENTS' EVALUATION OF THE BLENDED COURSES**

### **INTRODUCTION**

After presenting the NA findings, it is necessary to investigate the extent to which the specified needs and purposes are met through ESP courses when a blended teaching approach is used. Students' evaluations of programme effectiveness have developed into a critical source of data for teachers when making decisions about the operation of the course and determining the success or failure of their teaching. While student ratings are not the only indicator of teaching effectiveness, they do appear to be useful in determining the extent to which the teacher succeeds in bridging the course objectives to the students' needs.

Therefore, this chapter presents the data gathered to address the second primary research question, which concerns the appropriateness and effectiveness of ESP courses delivered in the BL environment. The evaluation is divided into two parts: the appropriateness of the courses and their effectiveness. The evaluation data for the blended ESP course were gathered through questionnaires that elicited students' perspectives and attitudes toward the ESP course.

### **5.1. Rationale**

Computer science students at Mostaganem University participated in a blended ESP course to improve their communication skills. The teaching program was divided into two semesters of instruction, with a summative evaluation at the end to determine students' perspectives of the success or failure of the intervention, as well as their evaluation of the teaching effectiveness. The purpose of summative data is to check whether the objectives of the program have been achieved. The researcher used an "objective-based approach" to evaluate the current ESP programme, which examines the degree to which course objectives are met as stated in the program design.

Undoubtedly, in the current day, In the field of education, online instruction in particular has become prominent. However, because "these innovative approaches to training have been constrained by a scarcity of scientifically credible evaluation"(Atwell, 2006, p. 7). Its efficacy has yet to be shown empirically on a large scale. As a result, the current evaluation of a blended Computing English course contributes to the enhancement of blended learning standards and quality since it is being widely tested to determine its effectiveness in improving learners' achievement and engagement in the teaching and learning process. A focus on technological advancements in systems at the expense of pedagogical consequences and adaptations has resulted in a scarcity of comprehensive empirical assessment studies on BL. If any exist, they are either descriptive rather than predictive, or comparative studies that contrast traditional classroom training with recently introduced blended learning programmes.

The need of evaluating online instruction has gained universal support among institutions and instructors in order to better understanding and consideration of the difficulties that face the profession. To do so, a number of instructional approaches have been combined with a variety of data gathering tools in order to make course evaluation feasible and fruitful.

A checklist survey and interviews were used in the present evaluation of the Blended ESP course. Students completed a summative evaluation checklist at the end of the instructional program to determine their evaluations of its effectiveness and efficiency. The checklists were handed out in class and collected as soon as students finished their responses. These assessments are used to meet the criteria for rating on a Likert scale, in which students were asked to indicate their agreement or disagreement with the statements. Such tool is employed because checklists, when carefully written, validated, and deployed, are exceptionally useful evaluation instruments. In addition, course evaluation interview is used to achieve the objectives of the research and to allow for detailed and an in-depth analysis of the students' insights regarding the blended teaching format, semi structured interviews formats were used. According to Mackey and Gass (2016), in

the qualitative research approach, existing situations are observed and questions begin to emanate, leading to hypotheses formulation. With the consent of the students, semi-structured interviews were conducted on focus group basis. Responses were gathered through focus-group interviews. The questions aimed to explore students' views on blended classrooms and how their learning experiences in blended classes differed from those in conventional classes. This helped in gaining further data from students concerning the feasibility of the blended teaching approach in ESP context. Three focus-group interviews, which together lasted for 1 hour and 30 minutes with a total of 15 participants from the blended class, were conducted. Focus groups were used rather than one-to-one formats, to generate richer feedback from participants who share similar background in terms of age, discipline, course attended, and learning experience. The interviews focused on students' attitudes towards blended instruction. Participants were also asked to provide feedback and reflect on their feelings and views regarding blended course content, materials, activities, assessment, and how the blended approach were compared with the traditional approach. The focus-group interviews aimed to explore students' feelings about learning in the blended class as compared with conventional classes. This assisted in gaining additional perceptions on the feasibility of the blended teaching approach. All responses were recorded, transcribed, coded, and categorised into related themes. While the interviews with the students helped in understanding the students' adaptability to the BL model, the findings thereof may also serve to assist future researchers in improving and perfecting this teaching model in the future. Confidentiality was ensured by creating a pseudonym for each interviewee.

## **5.2. ESP Course Evaluation**

Evaluation is a broad term that refers to a series of procedures conducted at various instructional levels in order to determine the value of a specific teaching approach and to improve its quality. The teachers can use this tool to determine whether an instructional approach or

programme is being implemented according to plan and to determine the extent to which stated objectives are being met. Given the significant association between effective teaching and student results, it is a process that is interrelated to programme quality decisions. Additionally, Johnstone (2005, p. 2) defined evaluation as "the process by which a course or a curriculum change can be monitored to determine if it is, in fact, what it claims to be and if it achieves the intended outcomes in students".

Student evaluation is a type of questionnaire in which students are asked to assess and evaluate various aspects of teaching in exchange for feedback on course content, classroom practises, and teacher behaviour. Additionally, Boggino (2009) believes that evaluating teachers' effectiveness has become advantageous and necessary because it enables teachers to make instructional decisions that are consistent with learners' potentials and outcomes in order to increase output. As a result, the purpose of programme evaluation is to improve educational efforts and to allow teachers to raise students' performance and make necessary modifications to the materials and objectives of the program, as well as to collect ongoing feedback from students in order to improve teaching standards. Effective evaluation, according to Keane and Labhrainn (2005), results in substantial changes to a course or programme. Additionally, it assesses the degree to which the programme is implemented and the extent to which its objectives are met in order to make curriculum revision recommendations.

While student evaluations are not the only or best instrument for determining a language instructional program's success or failure, their use as primary determinants of teaching effectiveness is gaining traction in an increasing number of educational institutions worldwide (Keane & Labhrainn 2005). For example, Murray (2005, p. 1) asserts that it has been more than 40 years since North American institutions used student evaluations of teaching. Despite academic criticism, educational institutions and individual tutors have continued to teach despite the limitations of the method.

This demonstrates the critical nature of such assessments in pursuing educational perfection and continuously improving the quality of instruction in order to achieve desired outcomes. Consent from all educational stakeholders for the use of student ratings in programme evaluation established legitimate justifications for the procedure to be widely used to evaluate course administration, teacher performance and student outcomes.

Chen and Hoshower (2003, p. 71) emphasised the importance of student evaluation, describing it as "a routine in the majority of universities " for promoting and ensuring course quality, as well as providing direct feedback to teachers. They assert that student evaluations serve three primary purposes: (1) to establish a standard of instruction effectiveness for decision-making ; (2) to provide formative feedback to aid in the development of instruction, course content, and structure; and (3) to inform students about courses and teachers. The evaluation objectives of any programme are as follows, as summarised by Keane and Labhrainn (2005, p.5):

- providing formative and diagnostic feedback (to improve teaching and course design, for example);
- providing summative feedback (e.g., in personnel and administrative decision-making);
- providing prospective students in terms of course units and materials selection, and
- providing data for educational research studies

The educational programme gains higher value if students appropriately judge the usefulness and convenience of the educational program in preparing them for their objectives. Additionally, learner evaluations are viewed as a reliable indicator of the teacher's performance , the learners' outcomes, and the instructional value received. Teachers are encouraged to consider their students' ratings when modifying their courses, taking into account their beliefs and attitudes about the course's objectives, strengths, and weaknesses. To summarise, evaluation is a process that is used to determine the effectiveness of a programme in terms of implementation and goal achievement.

Due to the proliferation of variables that can affect the parameters and outcomes, evaluating ESP courses has become more complicated; thus, "it has become significantly more difficult" (Hatam & Shafiei, 2012).

Evaluation is a critical component of course development in the context of ESP teaching because it provides answers to specific questions about the effectiveness, achievement of objectives of the course, and effective use of instructional materials. Evaluation in the context of ESP is concerned with determining the efficacy of instruction and the achievement of learning objectives.

Thus, programme evaluation is used in ESP instruction to ascertain the extent to which learners' target goals are met and to draw pertinent inferences about both the effective and ineffective instructional components. NA is critical to the evaluation process because it identifies early in the course the learners' objectives and needs and establishes appropriate metrics to meet them. Additionally, ESP views NA as a necessary pre-processing step that must be completed in order to validate the existence of all course components through the learner's reflective lens. By defining precise needs and objectives from the start, instructors and other ESP enterprise partners are relieved of the burden of extensive evaluation. Hutchinson and Waters (1987, p. 152) view evaluation in ESP context as a "starting point for any necessary course revisions, and may also serve as a guide for the design of other similar courses" that serve a similar drive of meeting academic or professional / occupational requirements. In a similar vein, they assert that "evaluation of learners reflects not only the learners' performance but also, to a degree, the effectiveness or otherwise of the course" (152). As a result, any flaw identified by learners during the evaluation process is frequently referred to as a design weakness of the course.

Course evaluation is a critical phase that can be summative or formative and is used to make critical programme modifications, establish cost-effectiveness, estimate teaching staff needs, discover unintended consequences, and clarify objectives. As a result, evaluation occurs in order

to create constructive feedback that leads to a properly redesigned course that is targeted to certain learning tasks. Because it provides features and judgments about the success and failure of the course, Dudley-Evans and St John (1998, p. 128) regard it as "a source of input to be fed into repeated versions or related activities"

### **5.3. Aspects of ESP Course Evaluation**

Administrative procedures, syllabus content, objectives, teaching approaches, instructional resources, classroom practises, and testing and assessment criteria should all be considered while evaluating each component of the course. This is because evaluation demonstrates the teacher's accomplishments and contributes to the program's improvement. Meanwhile, who evaluates, how, and when the evaluation may occur are all predetermined questions that must be addressed during the ESP evaluation process. Hutchinson and Waters (1987, p.152) assert that four critical components of ESP course evaluation should not be disregarded. The following are the types of questions that have to be asked:

- What criteria should be used to evaluate?
- How can an evaluation be conducted?
- Who should be a part of the evaluation process?
- When and how frequently should evaluation take place?

First, the main purpose of ESP course evaluation is to ascertain the course's "effectiveness and efficiency of learning" in terms of meeting the needs of students as "language learners and language users" (Dudley-Evans & St. John, 1998, p.129). Thus, if the aforementioned requirements are not met, it becomes necessary to investigate the root cause of the failure, which may have something to do with the course design or implementation. In both instances, evaluation reveals flaws in the syllabus, instructional materials, teaching approaches, logistical arrangements, testing procedures, and system of course evaluation. Thus, the answer to the question "what should be

evaluated?" is nearly everything, even if simply reviewing decisions and modifying course versions is deemed "unrealistic" (Dudley- Evans & St. John, 1998, p. 129). To respond to the question briefly, evaluation may concentrate on the instructional materials utilised, classroom activities, course design, approaches, out-of-class support, assessment role, or any other component of the teaching and learning context.

To accomplish such a strenuous task, the institution, teachers, administrators, and, most importantly, learners must all be involved, as well as anyone else with a connection to the course, in order to ensure a comprehensive evaluation that results in useful decisions. However, a constructive evaluation is not without severe restrictions, such as the ability to collect authentic data and to use it honestly, without regard for one's own judgments or concerns about causing others annoyance. To address the second question in ESP evaluation, "How can an ESP course be evaluated?" practitioners frequently employ a variety of techniques, depending on the teaching scenario, such as suggestions, questionnaires, interviews, observations and checklists.

Additionally, teachers can evaluate their programmes based on students' performance on assignments, research projects, and standardised tests. Due to the varying interpretations of the term "evaluation" there is no single recipe for evaluation that can be relied upon as "the best" method (Taylor-Powell, Steele, & Douglass, 1996). Nonetheless, the majority of programme evaluations are cyclical in nature, beginning with data collection and continues with analysis and discussion of the findings with all stakeholders involved in the process. This is followed by reporting a detailed description of the findings as well as additional suggestions for improving the quality of the teaching programme by emphasising its strengths and avoiding its weaknesses.

The evaluation process is aimed at obtaining student feedback on teaching quality. It begins with the definition of objectives and context in order to develop a data collection strategy that is appropriate for the situation. The analysis and interpretation of data result in a recommendation for instructional quality improvement. Regarding the parties involved in the evaluation process, it goes

without saying that both internal and external stakeholders within the ESP enterprise contribute to the instructive input. They frequently disagree about the evaluation concept as a whole because of their own interests and concerns, which reflect their perceptions and may have a beneficial or detrimental effect on the evaluation's outcomes. In an ESP course, the primary sources of evaluation are the learners and their counterparts, teachers, and test records (Dudley-Evans & St John, 1998). To ensure and "promote frank and useful feedback," it is necessary to ensure the collaborative nature of the relationship between these elements (Hutchinson & Waters, 1987, p. 154).

Finally, when evaluating ESP, it is necessary to consider the duration and frequency of conduction. Summative and formative evaluations appear to be crucial for course improvement, although "it is difficult to prescribe the frequency with which course evaluations should be conducted" (Hutchinson & Waters, 1987, p. 155) due to the fact that it varies depending on the teaching scenario. The evaluation may occur at various points during the course. Hutchinson and Waters (1987) identified four appropriate intervals to conduct evaluations: during the first week of the programme, at regular intervals throughout the programme, at the end of the programme, and immediately after the course. Moreover, the type of evaluation, i.e. formative or summative, is determined by the nature of the assessment. The fact that it appears at different moments throughout the course illustrates its on-going nature of gathering as much relevant data on the course's delivery as possible. The three phases of the course (before, during, and post) allow ESP teachers and practitioners to evaluate fit in order to monitor the success of the lesson and make appropriate adjustments. As a result, it is proposed that students use the various course intervals to focus on regulating the teaching and learning environment in order to achieve objectives more successfully.

## **5.4. Analysis and Interpretation of the Results**

### **5.4.1. Course Evaluation Checklist**

The summative evaluation involved 50 students who filled out forms and participated in the course rating procedure. The rating method of the first part was based on a likert scale of agreement and disagreement statements, whereas the rating system of the second part was based on agreement and frequency scales. The participants were asked to answer the questionnaire by giving each statement a number value that reflected their point of view. The teacher, class assignments, instructional materials, courses, and activities, as well as objectives and tests, are all evaluated in the first phase. The findings are summarised below.

#### **5.4.1.1. Evaluating the Instructor**

ESP teachers have become a controversial issue among academics as a result of the regularly raised query of who is more qualified to teach ESP: EFL teachers or discipline specialised teachers. EFL instructors are heavily involved in unfamiliar areas of specific discourse and genres, necessitating extensive exposure to the discipline's authenticity, despite their lack of formal training as ESP instructors. While the ESP teacher is frequently viewed as a subject matter expert in the students' field of study, his or her main objective is to ensure communicative competence in situations requiring English. As a result, the teacher's knowledge of the subject plays a significant role in students' evaluations of the subject's significance and controversy.

Students were asked whether they agreed or disagreed with statements about the teachers' subject expertise, class preparation, promoting course involvement, responding to students' queries, and displaying excitement in this area of the checklist. The objective is to determine whether or not students were satisfied with their teacher's education and whether or not they met their expectations. Table 5.1 presents a summary of the findings.

Statements	Strongly Agree	Agree	Unsure	Disagree	Strongly disagree	No answer
Lecturer is knowledgeable about the subject	17	30	3	00	00	
	34%	60%	6%	00%	00%	
Lecturer is prepared	27	12	8	3	00	
	54%	24%	16%	6%	00%	
Lecturer motivates participation	28	18	4	00	00	
	56%	36%	8%	00%	00%	
lecturer is helpful in her teaching	30	13	7	00	00	
	60%	26%	14%	00%	00%	
Lecturer is enthusiastic about teaching	20	24	6	00	00	
	40%	48%	12%	00%	00%	

**Table 5. 1. Evaluating the Instructor**

Students' perceptions of the major instructional components that are directly related to the lecturer's teaching style are summarised in Table 5.1. To begin, 17 participants (34%) believe the teacher is knowledgeable about the subject, whereas 30 students (60%) strongly agree and 3 participants (6%) disagree. The fact that more than half of the respondents believe the lecturer is knowledgeable about the subject (English for Computer Science) supports the theory that an ESP lecturer must exhibit a reasonable comprehension of the learners' area of specialisation through taking into account the disciplines and professional tasks in which the students are involved. Being in an unfamiliar context other than ELT such as science or technology necessitates frequent contact between ESP teachers and subject teachers to resolve any difficulties encountered in understanding certain technical aspects of the subject. Otherwise, "students are likely to lose confidence in what the teacher says, as experience has revealed" (Khuwaileh, 1995, p. 46). Due to the difficulties, they encounter when communicating with their students' subject areas, particularly with regard to technical and semi-technical lexis, many ESP instructors identify as scientific, technological, or business learners.

Teaching ESP requires a thorough understanding of the students' discipline; hence, the ESP instructor must be well acquainted and prepared with the different thematic knowledge the discipline covers. Therefore, the results indicate that 27 participants (54%) strongly agree with the

claims, 12 students (24%) agree, 8 students (16%) are unsure, and 3 students disagree (6 % ). The majority of respondents gave the lecturer high scores for subject preparation due to the well-planned lecture and activities, as well as the logical sequencing of the instructional stages. Since a result, classroom preparation must be prioritised, as it has a considerable impact on the smooth operation and delivery of the courses. Significant pedagogical and psychological preparation is required in order to deal with a variety of teaching styles, both planned and spontaneous, as well as student learning behaviours. A well-prepared teacher wins the students' respect and active engagement throughout the class sequences, as well as their overall happiness with the course administration, which all contribute to the ultimate outcomes.

When it comes to encouraging participation, 56% of respondents strongly agree that the ESP instructor pushes them to participate actively in classroom activities. Only 36% of respondents concur with the statement, while 8% are unsure. This high rate of positive feedback corresponds to the instructor's idea of ESP practice, which views involvement as a "productive work habit" (Turner & Patrick, 2004) and a vital "predictor of academic achievement" (Willms, 2003). Classroom involvement also helps students enhance their engagement and communication with peers and teachers by exhibiting specialist knowledge in a context unrelated to their areas of competency, such as science or technology. As a result, the teacher's encouragement of student participation in ESP courses attempts to provide opportunities for passive students to display active engagement behaviours with assignments through the use of prior specialised knowledge. Students can use participation to acquire and practise new skills and learning strategies, explain their cognition and explore their thinking processes. Besides, it helps instructors to diagnose learning difficulties and assess student progress, as well as scaffolding, or providing cognitive and affective supports for students' comprehension.

As a result, participation connects students' thinking to teachers' instructional strategies, enabling both stakeholders to maintain effective communication that serves the learners' academic

or professional needs. By doing so, the ESP instructor contributes to one of the ESP teaching ideals: the practical application of language in the academic or professional environment of the students. Students formed various connections that reflected their personalities and perspectives on classroom language participation.

Practically speaking, students engaged in a variety of classroom activities that reflected their personalities and perspectives on classroom participation. Although preparation, contribution to a discussion, communication skills, and group skills were common strategies for participation during the ESP course treatment, students' common participation strategies included responding to teacher's questions voluntarily or when prompted, sharing ideas with their peers, and clarifying and commenting on specific ideas (Dancer & Kamvounias, 2005). The most challenging aspect of classroom participation for computer science students was their understanding of engagement, which differed significantly from that of their speciality courses. That is, they are accustomed to passively participating in CS courses by completing exercises, assignments, and practical projects on their own. As a result, transforming students' attitudes toward classroom participation (productive work habit) from passive to active engagement was an undeniable instructional success.

The instructor's ability to respond to students' questions and assist them in the classroom is the next criterion for student evaluations. The pedagogical aspect of classroom practise, which encourages teachers and students to communicate largely through question-and-answer scenarios, explains the 'intimate' connection between this and the prior item. According to the results, 30 (60%) of the 50 students strongly agree that the teacher responds to their questions. 13 students (26%) disagree with the statement, while 7 students (14%) are unsure. While students may possess greater knowledge of the carrier content than the teacher in an ESP context, responding to students' questions builds trust between the students seeking immediate and convenient answers to their questions and the instructor, who may not be the main source of knowledge in speciality-oriented

courses. It reflects the teacher's preparedness and knowledge, as well as the students' participation in classroom activities. When a student receives a persuading response to a question, he or she becomes more enthused and motivated to ask additional questions, which promotes learning and increases classroom interaction.

Finally, instructors are evaluated based on how enthusiastic they are about instructing. As indicated in Table 5.1, 20 of the participants (or 40%) highly feel that their ESP teacher enjoys teaching. 24 students (48%) agree, while 6 (12%) are undecided. These encouraging data show that engaging students with genuine excitement and energy impresses them and creates a motivating atmosphere for effective learning. According to Wood (1998), teacher's enthusiasm is regarded as to be a motivational and achievement enhancer both inside and outside the classroom. As long as they are motivated and enthusiastic, passionate teachers tend to empower and energise their students' learning practises. In other words, both the teacher's passion and the students' response contribute to the classroom's vitality. Students will almost probably not respond positively to non-enthusiastic teachers since they do not invigorate them. A teacher's lack of "spark" and inspiration is one of the most common causes of classroom boredom, whether in general English or ESP. The amazing thing about a teacher's passion in the classroom is that it can 'contaminate' anyone who is motivated by the teacher's enthusiasm in an interactive instructional process known as "give and take" (Metcalfe & Game, 2006, p. 100).

Motivation and enthusiasm are critical elements in the ESP context. According to Barrantes (2009), the instructor can boost motivation by bringing in fun, meaningful resources and engaging activities that combine those things to class. As a result, the ESP teacher must be enthusiastic, especially when dealing with a subject where the student is the expert and the instructor serves as more of a consultant than a teller, offering guidance, and allowing the student to make educated judgments. ESP teachers should recognise that exhibiting an interest in the content they teach meets

the students' expectations and motivates them to make better learning decisions as a result of the aforementioned teaching strategies.

#### **5.4.1.2. Evaluating Learning Materials**

Many teachers rely on instructional materials because they provide feedback and expose students to course material. The consistency with the course objectives, variety, authenticity, motivating element, and, most significantly, their ability to persuade students to engage effectively in the course should all be carefully considered. Furthermore, rather of serving as a reservoir of content knowledge that obstructs learners' learning progress, well-prepared and designed course materials aid them in learning efficiently.

In the ESP context, learning materials are crucial because they are closely tied to the students' academic or professional topic areas. This necessitates teachers' vigilance in selecting relevant material that suits students' needs, as well as the establishment of a meaningful instructional relationship between core knowledge and field-specific language elements. This means that ESP practitioners should examine four techniques when it comes to giving materials: using what is available creatively, modifying activities and assignments to meet learners' needs, using printed or multimedia resources, and providing supplemental input. In order to make material selection easy and flexible, ESP teachers should now include the language skills, functions, and terminology that will be necessary of members of a particular group in their present academic or target professional context. As a result, they must be knowledgeable about and interested in the students' fields of study.

CS students are requested to rate the instructional materials, both in class and online, using the current rating form (see appendix 3), based on how much they agree with the following statements:

Statements	Strongly Agree	Agree	Unsure	Disagree	Strongly disagree	No answer
Variety of learning materials (e.g. videos, audios, encyclopaedias, and texts) are used.	11	17	08	07	03	04
	22%	34%	16%	14%	6%	8%
The materials fit the course objectives.	13	23	10	01	00	03
	26%	46%	20%	2%	00%	6%
Learning materials help me in improving my learning	30	15	02	01	00	02
	60%	30%	4%	2%	00%	4%
Learning materials motivate me to learn more	25	08	06	04	02	05
	50%	16%	12%	8%	4%	10%
The materials motivate me to be more engaged in the learning process.	15	28	03	03	00	01
	30%	56%	6%	6%	00%	2%

**Table 5. 2. Evaluating the Learning Materials**

The majority of students agreed with comments on the importance of learning resources in helping them complete course requirements, as shown in Table 5.2. First, 28 respondents (56%) strongly agree or agree that the teacher uses a range of instructional materials in class and online, whereas 8 respondents (16%) are unsure, 7 respondents (14%) disagree, 3 respondents (6%) strongly disagree, and 4 respondents (8%) did not express an opinion. More than half of the participants expressed their appreciation for the diversity of materials used in class, showing that the teacher made an effort to cover a wide range of subject matter in order to prevent boredom and keep the class motivating.

ESP materials range from textbook adaptations to materials tailored specifically to the needs of individual students. The teacher used traditional classroom materials in the first phase before transitioning completely to blended materials in the second treatment phase, as the current program's objective is to integrate online materials into the ESP course. The in-class resources are based on textbooks for CS students who need to improve their English language skills in order to

apply them in academic or professional settings. This section includes literature on a range of computer topics, as well as practise with language and vocabulary, and, on occasion, production assignments (writing or speaking). Because of their familiarity with these materials, students took part in the course to varied degrees. Meanwhile, online materials range from audio clips to online reading texts, all of which are supported by discourse analysis in the pre-during-during stages. When students were exposed to a variety of authentic materials produced by native academics and experts in their field of study during content-based education, the resources' authenticity had a substantial impact on the students' performance. Making connections between concepts and establishing a realistic learning environment are both made possible through the use of real-world and specialised resources by students. For ESP students, whose main motivation for participating in ESP programmes is to be able to communicate effectively in real-world situations, authentic materials can be helpful tools for presenting language in its natural state. As a result, authenticity fosters genuine communication, as well as a knowledge of and commitment to learning and participation.

When it came to the relevance of the learning materials for the course objectives, students acknowledged this association on the assessment form. For 46 (72%) of the 50 students, the materials were relevant to the course objectives, suggesting that the goal of ESP education is to enable students to demonstrate certain knowledge, skills, and attitudes by the end of the course. Setting course objectives offers both the teacher and the student with a guiding vision of education, enabling them to define priorities and make important decisions. When selecting resources that are appropriate for the course objectives, teachers should be cautious, as this clarifies the purpose of the lesson and guides it in the right direction.

Students were able to study more effectively because to the range of materials utilised in the class and their fit with the course objectives. This is especially true when the materials establish

a significant link between the students' real-world experiences and the communication purpose. According to the table, 90% of students agreed or strongly agreed that the materials assisted their learning. As a result, it is clear that students learn better in an environment that offers a variety of learning materials, ranging from subject-specific to general, that address the various learning needs identified in the NA questionnaire and interview. In practice, teachers used subject-specific materials to assist students in meeting academic or career requirements. They depended on easily available resources, on the other hand, to address various areas of broad communication (oral or written). Since a result, the students' observed learning flexibility is a result of the materials' relevance to their field of study, as they provide them with the necessary knowledge and skills for study purposes.

The correlation between material appropriateness and learning motivation is clearly important. According to the table, 33 students (66%) believe that educational materials encourage them to learn more because they value "purposeful learning" (Vii, 2011). Purposeful learning assists ESP students in making sense of data by eliciting specialty-related language functions and forms as they are exposed to the most common discourse and structural resources in their subject field. Above all, students' capacity to make sense of what they are learning distinguishes ESP from normal English education and influences their motivation. As a result, the majority of students actively engaged as a sign of motivation during class practise, especially when dealing with computer science-related content.

The effective engagement in the course is the final component of the learning materials assessment. According to the table, 43 of 50 students (86%) agreed or strongly agreed with the statement explaining the relationship between effective involvement and the selected instructional materials. Effective classroom engagement is measured by the percentage of students that participate, complete assignments, interact, and, most importantly, learn. As an indicator of the

"purposeful learning" that ESP instruction attempts to produce, students can demonstrate their classroom engagement in a variety of ways with the use of relevant materials.

As a result, ESP teachers should focus on materials that expose students to various authentic and subject-related discourses and encourage their participation in a variety of classroom activities as an effective technique to motivate students to improve their learning habits when selecting, designing, or implementing learning materials.

#### **5.4.1.3. Evaluating Courses and Activities**

The learning materials consist of a series of lessons and exercises that introduce students to several study and practise alternatives. It is called "material development" (Graves, 2000, p. 161) and it is a planning process that includes the creation of units, lessons, and activities in order to reach the goal. No course can stand and survive unless lessons and activities have been prepared and designed in advance to address students' study or career areas. As a result, delivering lessons and activities necessitates a comprehensive approach that starts with NA, during which lesson and activity material is conceptualised, and ends with student feedback, which provides insight into content improvement.

In order to allow "carrier content" and "real content" to coexist in a purposeful framework that promotes meaningful learning," the content of the courses and activities is conceptualised based on the course's goal and the students' areas of interest. Additionally, the practise of lessons and activities in the classroom frequently results in a more sophisticated course design method, in which decisions are made about tasks, skills, and knowledge.

Concerning students' evaluations of the content of lessons and activities, it is critical to note that the statements are based on Hutchinson and Waters's (1987) suggested absolute and variable characteristics of ESP. Thus, students are asked to evaluate the lessons' relevance to their field of expertise and their preparation for future academic and professional contexts in which they will

need to use English. Additionally, they are asked to rate the language aspects in relation to their discipline (computer science). The results are depicted in Table 5.4.

Statements	Strongly Agree	Agree	Unsure	Disagree	Strongly disagree	No answer
Courses and activities are related in content to computer science discipline.	24	16	06	00	01	03
	48%	32%	12%	00%	2%	6%
Courses have met my needs to function satisfactorily in my academic studies and target career.	09	21	10	09	01	00
	18%	42%	20%	18%	2%	00%
The language used in the courses is related to my discipline	19	24	07	00	00	00
	38%	48%	14%	00%	00%	00%

**Table 5. 3. Evaluating Courses and Activities**

The students' agreement with the the first and last claims, as well as their disagreement with the second, is displayed in Table 5.3.

24 students (48 %) strongly agree, 16 students (32 %) agree, 6 students (12 %) are unsure, and one student (2 %) strongly disagrees that there is a relationship between the teachings and activities and the students' discipline.

Because one of the most defining qualities of ESP teaching is the applicability of information to the learners' subject-specific area, the courses and activities are related to computer science. The teacher used a variety of courses and activities to teach students the skills and knowledge associated with discipline-specific topics like computer applications, database management, and artificial intelligence that were adopted and ready-made in the coursebooks. This is an illustration of how the principle is put into practice. It is evident that this procedure encourages students to successfully interact in courses by speaking with the instructor and peers and sharing their prior knowledge of the subject since they are believed to be much more aware about the theme content than the teacher. Additionally, while language productive skills form the structure of the

courses in relation to the unit is objective, activities include brainstorming, guessing, problem-solving, and production assignments.

Only 9 students (18 %) strongly agree with the statement that ESP prepares learners for academic and professional settings, according to the table; 21 students (42 %) agree, 10 students (20 %) are unsure, 9 students (18 %) disagree, and 1 student (2 %) strongly disagree.

This may be the case because, in contrast to Arabic and French, which are the working languages in Algerian academic and professional contexts, students view English as a foreign language with no practical application in daily life. Despite being a language that is utilised in both the workplace and academia, it is still not universally recognised in today's world. The potential of the ESP computing course to educate students to survive in the cutthroat worlds of academia and profession was thus questioned by students who voiced doubt or disagreement with the statement expressing this idea.

By contrast, the majority of the respondents agreed that the language components of the course, particularly the grammar, vocabulary, and skills, were appropriate for their discipline. According to the table, 86% of students say that the linguistic characteristics they meet in class represent the nature of computer science, which is defined by technical jargon, functional language, and discourse. Vocabulary education is the finest example, in which students bring their existing knowledge and learning experiences to the classroom and employ computer science-related technical and semi-technical phrases to better comprehend the materials for the skill they are practising. Although the macro skills (listening, speaking, reading, and writing) are modified to fit the technical character of the subject in order to satisfy the demands of students, which is the ultimate purpose of any ESP instruction.

#### **5.4.4. Evaluating Course Objectives**

Despite the fact that objectives and goals are not synonymous, they are used synonymously in this context. Objectives should be established at the beginning of any teaching since they are

one of the crucial steps in course design that influence the success or failure of the course. In terms of class sequencing, activity and assignment accomplishment, evaluation of students' success, and expectations at each level of the course, they serve as basis of contact between the teacher and the students. The instructor is not solely responsible for accomplishing objectives; learners are also active participants in the teaching/learning process, particularly in ESP, which emphasises a learner-centred approach to instruction. As a result, the current item in the evaluation assesses both goal attainment and goal simplicity and specificity. The responses as reported by the students are as follows.

Statements	Strongly Agree	Agree	Unsure	Disagree	Strongly disagree	No answer
My learning objectives are specific.	16	11	19	03	00	01
	32%	22%	38%	6%	00%	2%
The course objectives are clearly identified.	26	10	07	02	02	03
	52%	20%	14%	4%	4%	6%
The course objectives are entirely achieved.	05	12	17	14	00	02
	10%	24%	34%	28%	00%	4%

**Table 5. 4. Evaluating the Course Objectives**

Out of 50 participants, 36 (72%) believe the course objectives are obvious, whereas 7 (14%) are unsure, 4 disagree, and 3 have no answer. The course objectives appear to be well to half of the students in that they aid in helping them develop a distinct learning vision and point them in the direction of their target need. "Statement of goals aids in defining priorities and making choices," writes Graves (2000, p. 79). "Clear objectives contribute to the purposefulness of teaching." As a result, purposeful teaching with clear objectives usually leads to meaningful learning that fulfils the requirements of the students, which is the primary aim of ESP instruction.

Concerning objective specificity, 16 students (32%) strongly agreed that the objectives are clear, 11 students (22%) agreed with the statement expressing objective specificity, and three

students (6%) disagreed. According to the table, 19 students (38%) are unsure about the specificity of the objectives. Specific objectives, it is commonly acknowledged, make teaching and learning useful and comprehensible and, more importantly, objective-oriented so that goals and needs can be effectively connected through the specification of well-defined classroom performance criteria, and evaluation. Particular objectives appear to be critical in the ESP teaching-learning process. As a result, eliminating broad course objectives simplifies and expedites the process of meeting students' needs. Appropriate direction is given to the teacher and students, which is one of the principles of effective teaching. Therefore, it is worth noting that the current goals of the ESP course are to prepare students to apply what they have learned in class to specific academic and work-related purposes that are relevant to their needs.

The assessment of students' achievement of their learning objectives during the first semester of the ESP programme is the final objective of the process. A sizable portion of the participants did not fulfil their objectives as planned at this stage in the course due to the short period of learning they had previously experienced. In the table, it is indicated that 17 students (34%) are unsure whether they met their objectives because students frequently have to wait until the end of class to confirm or deny the fulfillment of their objectives. Additionally, 14 respondents (28%) completely disagreed with the statement indicating that objectives had been met, but 17 respondents (34%) confirmed that they had been met during this phase of the course. Students frequently express dissatisfaction with their grades and a desire to improve because they frequently evaluate their achievement of objectives in terms of their performance on tests and exams. As a result, the findings confirmed the hypothesis that students evaluate their learning based on their grades rather than on the knowledge and skills acquired as specified in the objectives list. This naturally leads to a discussion about exams and how they are graded.

### 5.4.1.5. Evaluating Tests

Regardless of their distinctions, both terms refer to the same process of evaluating students' performance on tests and official exams in this context. Testing in ESP is frequently regarded as "feedback and an aid to learning" rather than as a means of quantitatively assessing performance (Dudley-Evans & St. John, 1998, p. 210). It provides students feedback on their work and helps them retain and consolidate what they have learnt. Specific purpose testing is primarily focused with assisting students in performing specific communicative tasks, offering feedback on teaching, confirming what the students have mastered and identifying the abilities that require further attention, fostering learning, and tracking improvement.

Thus, tests in ESP are frequently used to ascertain learners' proficiency levels, monitor their learning progress, and ascertain which language skills and functions should be reviewed, adjusted, and consolidated. They are typically administered in classroom settings and serve three purposes: placement, progress, and proficiency testing.

The ability to perform language activities in authentic contexts was assessed using two proficiency tests given to computer science students in the ESP course. Students are requested to rate the difficulty level, content, and grading system of the proficiency tests on the current evaluation form. Table 5.6 is a summary of the findings.

Statements	Strongly Agree	Agree	Unsure	Disagree	Strongly disagree	No answer
The difficulty level of tests is appropriate	14	16	10	03	03	04
	28%	32%	20%	6%	6%	8%
The tests cover all the learning points	17	18	05	05	00	05
	34%	36%	10%	10%	00%	10%
The tests' grading scale is acceptable	20	11	16	00	00	03
	40%	22%	32%	00%	00%	6%

**Table 5. 5. Evaluating Tests**

According to Table 5.5, the majority of students (sum of 30, or 60%) agree that the level of difficulty of tests was appropriate, not too easy or too difficult. Ten (20%) students are unsure of the statement, and six (12%) students disagree or strongly disagree with it. The appropriate level of the test ensures that all students have an equal opportunity to succeed, as the instructor's objective is not to assess their abilities but to evaluate their performance in ordinary situations. As a result, the evaluations address issues that have been covered in class and online through Moodle assignments, guaranteeing that students can accomplish related tasks.

Students' learning themes, which they have encountered and been exposed to throughout the course units, are frequently covered in good test content, ensuring that they feel confident when answering test questions. Dudley-Evans and St John (1998, p. 225) claim that "Every item type that is used on a test should also be used in teaching, though they would be handled differently". In order to assess students' capacity to apply what they have learned in a specific environment, the content of examinations reflects what is taught as skills and competences in a unique way. When learners are assessed on objects they have not seen before, they are likely to be disappointed, and they may struggle to perform the numerous activities included in the test.

Thus, the current item in evaluating tests assesses students' attitudes toward the alignment of test content and taught items. As shown in the table, 35 students (70 %) expressed satisfaction with the content of tests because it covered what they learned in class. The assumption that the question topics of the test match to the skills and knowledge that are learned, however, was disagreed by 5 students (10%). The answers to the tests indicated that the majority of the students correctly addressed the topics that had been emphasised and thoroughly covered throughout the course.

In terms of grading scales, they are viewed as a critical component of any test's success. During the evaluation of the current course, students were asked to assess if the rating scale that was used in the tests was appropriate. The table indicates that 20 students (or 40%) strongly agreed that the grading scale is acceptable, 11 students (or 22%) agreed that it is acceptable, and 16 students (or 32%) expressed uncertainty about the acceptability of the grading scale.

It is therefore important to score the various components of a given test fairly in order to produce a balanced grading scale because the perception of students' success or failure will strongly depend on how many scores are assigned to each component of the test. Each section of a well-written test is graded equally, which increases students' chances of success. For instance, students' test scores were evenly distributed across the four sections of the test, with five scores for each section. Due to the balanced grading scale, students were pleased with their test scores. As shown in the table, the majority of students (31 out of 50) are satisfied with their test scores.

To summarise, the first section of the evaluation form is primarily intended to analyse the effectiveness of the teaching programme and its effects on the academic performance of the students. It revealed the overall satisfaction of students with the various components of the blended ESP course. Because the elements of online instruction were not explicitly addressed in this section, the second section of the evaluation form focuses on instructional components, such as online materials and assignments.

#### **5.4.1.6. Evaluating the Classroom Assignments**

Students are asked to approve statements concerning classroom assignments, such as their level of difficulty, how they assist students in learning the content, their level of interest, and the amount to which they fit students' needs, in this section of the evaluation. Assignments and homework are thought to help students learn more effectively by providing practise, knowledge

augmentation, and active interaction with course material. As part of their engagement with the learning content, assignments allow students to apply what they have learnt in class and to boost their intake. They also improve their self-reliance, responsibility, and time management abilities. On the other hand, students frequently complain about homework as a required task that should be completed or they will be penalised. Therefore, teachers place a premium on the difficulty, purpose, and significance of the homework. The table below summarises the viewpoints of computer science students on the ESP class assignments.

Statements	Strongly agree	Agree	Unsure	Disagree	Strongly disagree	NA
Assignments are in the right level of difficulty of the course	12	20	09	05	00	04
	24%	40%	18%	10%	00%	8%
Assignments help me learn the Material	14	20	10	04	00	02
	28%	40%	20%	8%	00%	4%
Assignments given for class are interesting	18	24	08	00	00	00
	36%	48%	16%	00%	00%	00%
Assignments meet my learning Needs	14	19	10	03	00	04
	28%	38%	20%	6%	00%	8%

**Table 5. 6. Evaluating the Classroom Assignments**

The students' apparent pleasure with the effectiveness of tasks in helping them understand the courses may be seen in Table 5.6. All statements about the importance of assignments in learning received statistical agreement (agree or strongly agree) from 34 respondents (68 %).

To begin, students frequently cite the difficulty of class assignments as a reason for their failure to be completed. They are often enthusiastic about completing tasks that are doable and feasible because they do not need a lot of time and effort. On the other hand, making assignments effortless and comfortable reduces their value and utility in meeting course objectives. As a result, balancing task difficulty increases students' performance and motivates them to keep working on them even when they are unmotivated or challenged. The teacher is therefore responsible for assigning assignments that are sufficiently difficult to motivate students to complete them. As

indicated in the table, 20% of students (40%) believe that assignments are appropriate for the course's difficulty level, while 12 students (24%) strongly agree and 9 students (18%) are unsure. These statistics demonstrate that the assignments were well-designed and had a positive impact on students' programme evaluations. Through production-based projects and further practise, the class and take-home assignments were designed to reinforce students' understanding of the course material (e.g., summarising a text, writing a paragraph about studied topic, answering post-listening questions).

In practise, students were routinely issued homework at the end of each lesson to ensure that they reviewed essential concepts and practised necessary abilities. Some students failed to complete assignments at the start of the intervention because they had preconceived notions about their involvement in the learning process. The teacher, on the other hand, argued on the assignments' value in enhancing students' performance, persuading them to reconsider. Eventually, the entire class becomes accustomed to the assignment schedule and recognises its value in attaining the learning objectives. Despite this, a considerable percentage of students (20%) expressed scepticism about the role of assignments in increasing their learning outcomes, which may be due to their prior perception of assignments as time-consuming, effort-intensive, and extra-devotional study tasks.

#### **5.4.1.7. Evaluating the Online Assignments**

Online assignments, which Demirci (2010, p. 159) describes as "the possible alternative for the traditional pen and paper methods", are a critical component of online instruction because they enable students to interact with the material. Students receive all their assigned work in one location and have the freedom to log in and out as needed without feeling pressured to complete the assignment on paper and have it corrected by the teacher. Despite the controversy surrounding online assignments' efficacy in improving learners' performance and achievement (Doorn, Janssen, & O'Brian, 2010), Altun (2008) listed several benefits of online assignments, including the

following: acquiring new knowledge and skills through the additional practice of the course activities, increasing the retention level, autonomous learning; and receiving immediate feedback. Altun (2008, p.16) asserts that online assignments "increase student motivation and academic achievement and should continue to take part in educational process". Apart from these advantages, online assignments "automate" homework tasks, allowing teachers to devote their attention to other aspects of the classroom rather than distributing, collecting, and correcting assignments (Demirci, 2010).

Students can submit their assignments using the Moodle LMS and get immediate feedback on their answers from instructors, as well as the opportunity to submit the assignment again if necessary. Other features of online assignments include customised content for each student. The teacher may create, change, activate, or delete any provided assignment. Assignments include tests, multiple-choice questions, and interactive tasks, all of which are highly structured and rely on cutting-edge technology. Online assignments allow students to track their progress and practise self-assessment, increasing learning autonomy while also increasing self-awareness of their strengths and weaknesses. This is in addition to saving teachers' time and effort in collecting and correcting assignment papers. Additionally, creating these types of assignments necessitates the inclusion of online links for additional practice and revision, which aids students' comprehension of the course content and objectives.

Online assignments effectively provide students with personalised feedback on their performance and motivate students to perform better than traditional homework, according to several studies (Hodge, Richardson, & York, 2009; Shen, 2005). In a study of 680 students from various disciplines, Doorn, Janssen, and O'Brian (2010) discovered that the majority of students acknowledged the benefits of online assignments in terms of improving their understanding of the learning content, boosting their motivation, and enabling them to effectively prepare for tests.

Online assignment is a time-saving system for distribution, collecting, and grading. As a result, online assignments have become widely used in online instruction, though the benefits of online paperless assignments over traditional homework in terms of improving learners' performance and outcomes have yet to be proven.

This component of the evaluation form evaluates students' views and opinions regarding the appropriateness and effectiveness of online assignments in satisfying their learning needs. The first section seeks input from students on the assignment's overall design and construction. Students were given regular projects to check and complete after each unit was completed for a variety of reasons, including preparing for the following exercise, revising previous content, and assessing their understanding of the course. The students' agreement or disagreement with several assertions about the assignment layout is reported in Table 5.7.

Statements	Strongly agree	Agree	unsure	Disagree	Strongly disagree	No answer
Assignments are explicitly instructed.	16	26	5	0	0	3
	32%	52%	10%	00%	00%	6%
Assignments are in the appropriate level of difficulty of the course	9	18	14	5	0	4
	18%	36%	28%	10%	00%	8%
Assignments help me learn The material.	7	20	18	2	1	2
	14%	40%	36%	4%	2%	4%
Assignments serve the objectives of the course.	15	25	5	1	0	4
	30%	50%	10%	2%	00%	8%
Assignments have motivated me to develop the needed language skills of the course.	15	23	09	01	00	02
	30%	46%	18%	2%	00%	4%
Assignments meet my needs	07	19	20	02	00	02
	14%	38%	40%	4%	00%	4%
Assignments make learning dynamic.	10	25	11	01	00	03
	20%	50%	22%	2%	00%	6%
Assignments are interesting	12	23	9	03	00	03
	24%	46%	18%	6%	00%	6%
I am given the opportunity to work in groups or pairs	14	23	9	03	00	01
	28%	46%	18%	6%	00%	2%

**Table 5. 7. Evaluating the Online Assignments**

16 respondents (32%) strongly agreed and 26 respondents (52%) agreed that the assignments were well-written. 4 respondents (10%) expressed uncertainty about the well-instruction and proper writing of assignments, while 3 respondents (6%) had no opinion. The majority of respondents (42%) claimed that the online assignments are properly stated and clearly instructed, implying that the teacher pays special attention to the overall design of assignments in order to be completed successfully. Assignments are typically written and instructed so that they

direct learners to the correct keys for the questions and keep them on track without introducing ambiguity into the instructions, which can result in misunderstanding and thus misinterpretation of the assignment as a failure to accomplish it. This can be avoided by using the appropriate language forms, such as goal-oriented instructions and simple, explicit questions with understandable answers.

The majority of students struggle to accomplish their assignments due to poor writing and unclear instructions, which confuses them and leads them to consider aspects of the assignment that are not intended to be considered by the instructor. Online assignments should therefore be valued if they are easy to use, thoughtfully planned, integrated with the course material, and supported by the teachers and instructional assistants.

Another important aspect of the online assignments is the course's difficulty level. Even if the assignment is well-written and well-instructed, completing it effectively may be challenging if it does not correspond to the course level and is inappropriate for the students' level.

According to Table 5.7, 9 respondents (18%) strongly agreed that the online assignments were appropriate in terms of difficulty, while the remaining 18 (36%) agreed. Meanwhile, 14 (28%) were unsure about the difficulty of the assignments and responded neutrally. The remaining five respondents disagreed with the statement, believing that assignment difficulty does not correspond to course level, and three participants did not respond at all. The data indicate that the majority of participants (27) consider the assignments are neither easy nor difficult. Assuring that assignments are of an appropriate level of difficulty motivates students to complete them and benefit from them. As a result, the instructor must exercise caution to ensure that assignments are neither excessively easy nor excessively difficult in order to meet the course objectives. Because the teacher occasionally intends for assignments to be slightly challenging, leading some students to doubt their difficulty level, 14 respondents selected the "unsure" option on the evaluation form. The intellectual challenge presented by some assignments is intended to stimulate learners' intellectual

abilities to function at a higher level than is typical of assignments, which are typically very tedious and do not promote creativity. As a result, the difficulty level of assignment should be carefully considered and purposefully designed to accomplish specific objectives that contribute to the overall objective of the course. Additionally, assignments are designed to broaden the scope of the lesson and engage learners in active learning by exposing them to the various dimensions of the course.

The assignments also serve to help students learn the topic by compelling them to complete them. A total of 27 participants (54%) agreed or strongly agreed that the online assignments assist them in better learning the content. 18 participants (36%) disagreed strongly or strongly disagreed with the supplied statement, while two students did not respond. These statistics indicate that learning does not end when a course is completed, but can continue with assignments, which can be regarded as a learning support in that they provide more practise for students to better understand the topic. In ESP education, the "learner-centered" concept is best shown in online assignments, in which students are self-directed and autonomous in answering questions and using the online programme to enhance their understanding of the topic. As a result, online learning through assignments prepares ESP students to be lifelong autonomous learners.

The rate of completion is the second factor to consider when judging online assignments. The goal is to determine whether students check and finish assignments on a frequent basis, and if they enjoy or are imposed to complete them.

#### 5.4.1.8. Evaluating the Accomplishment of Online Assignments

Statements	Always	Often	Sometimes	Rarely	Never	No answer
How often do you check the assignments?	27	12	07	03	00	01
	54%	24%	14%	06%	00%	02%
How often do you accomplish the assignments?	21	14	11	02	02	00
	42%	28%	22%	04%	04%	00%
How often do you copy the answers from your classmates?	02	11	07	06	24	00
	04%	22%	14%	12%	48%	00%
How often do you enjoy doing the assignments?	11	08	13	10	6	02
	22%	16%	26%	20%	12%	04%
How often do you find the assignments relevant to the course?	17	15	13	04	01	00
	34%	30%	26%	08%	02%	00%
How often do you receive feedback from the instructor?	20	07	11	01	07	04
	40%	14%	22%	02%	14%	08%
How often do you use the resources to accomplish the assignments?	13	08	12	10	05	02
	26%	16%	24%	20%	10%	04%

**Table 5. 8. Evaluating the Accomplishment of Online Assignments**

Each time the instructor distributes an assignment to students via online class, the instructor ensures that they review and complete it. According to Table 5.8, more than half of the sample (54%) stated that they always check assignments, 24% stated that they frequently check assignments, 7 respondents (14%) stated that they occasionally check online assignments, and finally, 6% stated that they rarely check assignments. Nobody asserted that he or she never double-checks assignments. According to the statistics, students are particularly interested in completing required assignments and receiving feedback on their answers. However, only half of the sample checked assignment materials on a regular basis, revealing a lack of interest, unfamiliarity with the blended teaching approach, and a negative attitude toward the assignment.

The table includes a variety of statistics regarding homework completion. While half of the sample stated that they always double-check their assignments, only 21 respondents (42% of

respondents) stated that they always complete them. 14 students (28%) stated that they frequently do so, while 11 participants (22%) stated that they are inconsistent with their assignment completion. They are rarely, if ever, performed by two students. These statistics cast doubt on the effectiveness of online assignments in motivating students to complete course-required homework. Indeed, while it was anticipated that the majority of students would embrace online assignments, homework remains an unappealing practise for learners regardless of the format in which it is delivered, as it exacerbates students' anxiety about receiving negative feedback. However, one the situation should not be exaggerated, as the highest percentage (42% of respondents who stated they checked and completed assignments on a regular basis) indicates the total of participants who always complete assignments because they find them useful for expanding their knowledge and allowing them to self-assess their skills.

Many students, just like they do with traditional assignments, copy the keys to assignments from peers who have previously finished them. This is considered cheating because there is no 'human' monitoring over the completion process, which is one of the acknowledged disadvantages of online assignments. This section of the evaluation form is used to assess students' autonomy in their learning. According to Table 5.8, 24 students (48 %) out of 50 claim never to copy others' answers; however, 11 claim to do so frequently. Web applications and tools, in theory, make learning easier and more autonomous in terms of self-pacing and progressing; as a result, the majority of respondents claim to be able to complete online assignments independently. Students that copy the keys to homework exercises on a regular or irregular basis are usually uninterested in the course and just care about their teachers' approval. Students may copy the answers due to their low competence level, they are unable to cope with the activities, which may prevent them from finishing the assignments efficiently.

Traditional or online assignments have historically been a burden for many students due to the effort and time required, as well as the anxiety and pressure they cause. Learners' negative

attitude toward assignments is frequently manifested in their failure to complete assigned work and their constant nagging about being overburdened. As a result, students are generally unenthusiastic about homework unless it is graded and factored into their overall achievement average. As a result, students generally dislike homework unless it is graded and factored into their overall achievement average. Web assignments served a variety of purposes in the current ESP course that computing students took; they were used to measure students' commitment, assess their understanding, grade them for evaluation reasons, and provide feedback on their progress. As a result, students complete them correctly, with the majority completing the task solely for the evaluation purpose.

For the reasons stated previously, Table 5.8 reveals that the participants express varying degrees of enjoyment when completing assignments. 11 students (22 %) stated that they always enjoy completing assignments; however, 6 students (12 %) stated that they never do. Nonetheless, 13 students (26%) fall somewhere in the middle (they occasionally recognise the value of the assignments and enjoy doing them). This could be due to the instructor's lack of encouragement, which caused them to become unmotivated and unsatisfied with their assignments.

The majority of students replied positively when asked about the online assignments' relevance and efficacy in the course; 17 students (34%) find them always relevant, 15 students (30%) find them frequently, and 13 students (26%) find them rarely. Online assignments undeniably benefit students by providing additional practise with instructional materials, increasing their knowledge, and honing their skills. In this study, students were given homework that was frequently a follow-up to the course, allowing them to strengthen their understanding through a series of questions, many of which were accompanied by relevant online links that highlighted key concepts. Their utility fosters a sense of learning, particularly for ESP students who wish to link their English learning to their area of study through purposeful practise. As a result, the majority of learners who declared online assignments to be relevant to the course

confirmed the growing popularity of online assignments in a variety of learning environments and institutions.

One of the advantages of online assignments is the instant feedback, particularly if the correction system is technically designed for a 'trial and error' process with multiple attempts; however, feedback is provided for current assignments both online through Moodle and face-to-face through remedial sessions for target skills. According to the data, respondents (40%) stated that they get feedback from their teachers on a regular/regular basis, while only 8 students (16 %) said they never or seldom get it. The feedback sessions were tailored to address students' deficiencies by giving remedial practise in class or connecting them to suitable online resources that addressed comparable goals. Those who claimed they had not received feedback did so because they did not attend class on a regular basis or did not check the Moodle assignment feedback.

Finally, the reliance on Moodle learning resources to complete assignments is a criterion for evaluating their accomplishment. 13 (26%) of 50 students always use them, while 8 (04%) do so on a regular basis. However, 10% of students (20%) use these tools infrequently, and 5% never use them at all. 12 students (24%) occasionally use online tools to assist them in completing assignments and exercises. Students' differing perspectives on the utility and usefulness of online tools for successfully completing assignments are reflected in this argument. Some students gather relevant material for homework difficulties from a variety of online resources on related topics, while others rely on course knowledge and draw appropriate conclusions to answer the questions of the assignment. They may perceive Moodle's richness of information as a hindrance rather than a benefit because it diverts their focus away from the aim of the assignment. As a result, the teacher frequently includes connections to relevant resources, such as tutorials, films, and web sites, that are pertinent to the subject of the questions.

Due to several advantages they provide in terms of high-quality materials required for individual task completion and instant feedback, the evaluation of the layout and accomplishments of the assignments revealed a significantly positive attitude toward online assignments among CS students.

#### **5.4.2. Interviews**

The results were arranged around each research question. The overall results revealed that the students provided positive feedback. As a result of blending pedagogical and technological delivery approaches, students experienced a new way of learning and were able to report the advantages that they gained from blended teaching approach. The interviews were conducted with students to elicit the reasons behind their enhanced learning. The interviews were also intended to elicit the students' experiences and perspectives of participating in blended courses. During the interviews, students were asked about their attitudes regarding the effects of the blended approach on their learning to evaluate the quality and functioning of the course content and online platform. They were also asked to provide any suggestions for course improvements. The following comments provide examples of students' views regarding both positive and negative aspects of implementing the blended teaching approach. The themes are identified based on their opinions, and representative quotations have been summarised as follows.

##### **5.4.2.1. Student-Reported Benefits of the Blended Teaching Approach**

###### **Enabling Convenient and Flexible Access to Course Materials**

“I like this teaching program because the materials provided in the online sessions are simply accessible anytime and anywhere I prefer” (Group A, Student 2).

“I like learning materials to be available on the platform because it is faster and easier for me to refer to them. I can review course materials whenever I want. This makes me enjoy learning and feel more comfortable doing the tasks at home” (Group B, Student 1).

“Blended learning experience increased my opportunities to access and use learning resources”  
(Group B, Student 5).

“The online courses offer flexibility to learn at my own pace, anywhere, anytime. It motivates me to study by myself” (Group C, Student 3).

### **Preparing Students to be Autonomous Learners**

“Traditional classroom is a teacher-centred, but in e-learning, we do everything by ourselves”  
(Group A, Student 2).

“Traditional course becomes exciting because it was combined with online course .I feel free to organise my study.” (Group A, Student 4).

“Traditional classroom is teacher-centred, but in e-learning, I am encouraged to take responsibility for my learning” (Group C, Student 2).

“It is very important to take the responsibility for my own learning. I find the online learning method experienced very useful method. It allows me to be exposed to learning outside the classroom and work independently on enhancing ESP learning” (Group C, Student 4).

### **Developing Language Skills and Vocabulary Learning**

“I feel satisfied with the blended teaching approach; it helps me to enhance my skills and make learning more interesting” (Group A, Student 2).

“I like to use this learning program. It is very useful to have all skills practice in one place. I have more opportunities to practice all language skills” (Group A, Student 4).

“I am quite satisfied with the blended course because it enabled me to enhance my skills in a productive and interactive way. For example, before taking this course, I was able to write only 80-word paragraphs, and I had few chances to speak. But this course helped me to improve my writing and presentation skills, I had the opportunity to produce 300-word paragraphs and five-minute presentations” (Group B, Student 1).

"I am quite satisfied with online learning portion. It improved my reading skills. I can read and understand faster" (Group B, Student 3).

"The online platform was quite useful for improving my listening skills. I can listen many times at my own pace until I understand what is said" (Group B, Student 5).

"Concerning listening, all audio files are uploaded to the online platform with scripts. I can listen again and again. By doing so, I understand more. This improves my listening skills. Also, reading tasks is one of my favourite parts because they are very fruitful in content" (Group C, Student 4).

"It is my first time I have experienced ESP learning via online platform. For me, it was not totally successful, but it still has good side. For example, it has some visual designs and this helped me a lot in enriching my technical vocabulary" (Group C, Student 3).

"I find online platform as a homework. When I go home, I always have some tasks to practice ESP. Also, it helped me to memorise the newly learnt computing vocabulary" (Group C, Student 4).

### **Motivating Students to Learn More**

"My learning experience was fruitful and satisfying because I gained a lot of knowledge to prepare myself to the real corporate world. The online tools like online discussion, quizzes, and videos made this course pleasant and meaningful to me" (Group A, Student 1).

"The blended learning environment makes me feel comfortable and enjoy learning. Also, I have a better attitude towards learning ESP. It motivates me to learn more and succeed because I am actively engaged in the learning process" (Group B, Student 5).

"I like it very much; it helped me a lot especially in my field of study. In general, I enjoyed my class and learnt a lot from online platform. I felt no stress or pressure" (Group C, Student 2).

### **Providing Instant Comments**

"I prefer online tasks as I get instant and helpful feedback" (Group A, Student 1).

"To be honest, I found that receiving advice on the assignments was clear and easy to understand" (Group A, Student 4).

“Unlike feedback on papers, I can look back on feedback online and review my mistakes whenever I want to and I do not need to worry about misplacing feedback on papers” (Group B, Student 1).

“I was able to see the mistakes I made, which helped me recognise my gaps in ESP discipline. Also, pointing out to the strengths and weaknesses of my assignments have given me a sense of self-confidence” (Group B, Student 5).

### **Reinforcing Classroom Learning**

“I think it is a pleasant and productive way of learning. It provides access to more learning materials outside the regular classroom” (Group A, Student 1).

“I like this program as it supplements classroom teaching. It helped me better understand the course materials because the supplementary courses covered similar content” (Group A, Student 2).

“I really like online learning program because the courses are very similar to the in-class courses. I can use the knowledge I already have to link with the new knowledge” (Group A, Student 4).

“Although the content of classroom and online learning are similar, the online learning seems to expand what we learnt in class” (Group B, Student 3).

“The online learning lessons help me understand the subject better because I can find online what I don't quite understand in the classroom” (Group B, Student 1).

“I feel that this e-learning program enhanced my classroom learning experience” (Group B, Student 3).

“I had more chances to reflect on what I learnt in the blended classes” (Group B, Student 5).

“Regarding assignments, the blended course encourages me to apply knowledge and skills that I've learnt in the classroom” (Group C, Student 2).

“I think it also has a complementary role. I can revise the points I missed in classroom” (Group C, Student 3).

“Through online tasks, I can do my own revision or add extra knowledge about a given topic when surfing the internet. For example, when I am searching on the questions and answers for job interview assessment” (Group C, Student 4).

### **Facilitating and Increasing Interactive Communication**

“BL facilitates my participation and discussions compared to pure face-to-face instruction” (Group A, Student 1).

“I like the blended teaching approach, especially because it substantially increased the bond between students and teacher with many online tools, such as instant messages and online discussions. It enables me to connect with the teacher and coursemates in or out of the classroom immediately, especially when I want to ask something that I do not understand” (Group C, Student 2).

### **Creating a Warm and Less Threatening Learning Environment**

“I am anxious and not confident enough to express my thoughts and opinions in the presence of my coursemates, but since the assignments were submitted online, I was able to express myself freely” (Group A, Student 2).

“BL is the only good choice for me to learn from the teacher who gave me very helpful tips and guidance. The bonding with my coursemates is also better” (Group C, Student 2).

#### **5.6.2.2. Student-Reported Difficulties of the Blended Course**

The major advantages, complaints, and difficulties encountered in the blended course that are highlighted by the interviewees are displayed as follows.

#### **Lack of Actual Face-to-Face Feedback**

“I prefer to study in the classroom because I can interact with my teacher. When I don't understand something in the course I ask her directly” (Group A, Student 3).

“I prefer to get direct feedback from my teacher in the classroom rather than online” (Group A, Student 5).

“If I have a difficulty to understand an idea in the online lesson, no one is there to explain it to me as I have in a classroom” (Group B, Student 2).

“I like face-to-face feedback because I find it more personal and effective” (Group C, Student 1).

“Overall, the feedback was helpful, but I wish I can get face-to-face feedback on the assignments. Because it is easier to instantly understand the problem, correct myself, and get feedback once more” (Group C, Student 5).

**Implementation(Slow Computer or Network)**

“I feel that there are difficulties in using BL such as low internet connection speed” (Group A, Student 3).

“In general, it is a good idea, but its implication is inadequate in terms of the technical feature of the online platform; it doesn't help me practice because sometimes the internet connection is so slow or unavailable, so I can't use e-learning” (Group B, Student 2).

### **Task Difficulty**

“I think online learning format is less effective. It seems like a burden to me and I am kind of get bored” (Group A, Student 3).

“I felt the online program is insufficient because it did not afford me enough speaking practice” (Group A, Student 5).

“I enjoyed this learning program so much, especially discussion-based courses. But I don't like online activities. I found them more like boring and unnecessary homework” (Group B, Student 2).

“Online platform waste my time. I think if I had more paper-based exercises rather than the online platform, it would be easy for me to improve my proficiency” (Group B, Student 4).

The causes of the problems were reasonably justified by one student as follows:

“Overall, it is okay, but there are some things that need to be adjusted to some extent. It is a new teaching model in our university; maybe that's why we face difficulties with it” (Group C, Student 1).

The results of the current study lend support to the results of several studies in the existing ESP literature concerning the positive contribution of the blended teaching approach to students' performance. This study investigates the utility of implementing blended teaching programs in the ESP learning of computer science students to determine students' perceptions of online, in-class, and blended versions of ESP course design.

The data analysis and interpretation of the results indicate a considerable difference in class satisfaction between groups, with the blended group reporting a higher degree of satisfaction than the traditional group. The data collected from the two sources reveal that the students taught using the blended approach in ESP classes in the field of computing performed better than those who were taught in the conventional classroom and that blended teaching programmes had positive impacts on students' learning. Specifically, the ESP students enrolled in computer science programmes mostly performed poorly in ESP classes due to their low proficiency level and a lack

of convenient materials. Therefore, the implementation of the blended teaching approach may be a key factor in increasing their performance by eliminating these debilitating aspects. Although the results cannot be generalised to the entire population of students studying in the computer science department (due to the diverse nature of students), the blended group's performance offers significant insights into the effectiveness of implementing the blended teaching approach. The findings of this study provide insight into the effects of using an online delivery format as a supplementary tool to the in-class delivery format in terms of various aspects, which are discussed in this section.

Learning within the blended teaching environment were found to be academically more successful than within the traditional teaching environment. These findings indicate superior performance on the part of the students after the implementation of the BL intervention, which provides strong support for the use of BL in ESP courses as an effective tool to enhance student learning. The online component of the course received both positive and negative feedback. Through the online platform, courses could be delivered fully or partially online to complement the traditional classes. Students appeared to be content with the online platform through which services such as lectures, assignments, and grades are accessed online. A sizeable percentage of interviewees found that the online platform facilitates learning in the sense that it enables the presentation of ESP course materials in a sequential and logical way. It thus seems clear that teachers should allow students to access online resources through purposely engaging them in various parts of the course. In the interviews, students maintained that content delivered online is as effective as content delivered in-class. The supplementary online programme enhanced students' ESP learning in a more significant manner than face-to-face instruction alone. It reinforced and expanded classroom materials and activities, thereby allowing students to revisit tasks intended to build their knowledge and skills and further develop that which had already attained. Furthermore, it motivated them to

study independently and to become more engaged in learning, which further fostered their ESP proficiency.

Among the most recognised advantages of blended delivery is its flexible format, which enables a reduction of time and costs for in-class sessions. Indeed, most participants agreed that blended courses offer flexible access to instructional opportunities. Regarding preferences for the in-class or blended delivery formats, a minority of interviewees felt uncomfortable with the blended format and indicated they would rather access the in-class format instead. However, the majority of participants favoured the blended delivery format because of the flexibility it offers, among other factors. The usefulness of blended teaching is due to the educational effectiveness, flexibility, accessibility, interaction, and necessity for current learners to meet their study, daily functional, and professional life demands. Indeed, coming to university is often challenging for a number of students; hence, minimising the number of required classroom sessions can assist students to better manage.

One participant stated the following: “Traditional classroom is a teacher-centred, but, in e-learning, we do everything by ourselves.” This response reveals the changes in roles that occur when shifting from a teacher-centred model to a student self-directed model. According to Poon (2013), BL represents a new teaching design and a paradigm shift from a classical teacher-centred approach to an innovative learner-centred approach. Furthermore, the change in the teacher’s role from lecturer to facilitator allows learners to become actively involved participants who take charge of their own learning while receiving support from their teacher. Students appreciated this transformation of the teacher’s role to a scaffolding builder/facilitator. They considered this program to be helpful to them, as it enabled them to study independently. Each learner can set their own learning schedule and pace within an integrated teaching environment.

The data obtained from interviews (see results under “Preparing Students to Be Autonomous/Self-Directed Learners”) reveal that respondents were positive towards the implementation of the online

platform because it increases their motivation and engagement within their studies. Besides, it can motivate students for more responsibility and willingness to be involved, which is referred to as “learner’s autonomy” (Dornyei, 2001b). In addition, positive attitudes and increased motivation on the part of learners lead to greater learning autonomy. Learner motivation is recognised as a fundamental factor affecting the success of learning (Ellis, 1994). Results of the current study illustrate that motivation enhances student learning and that self-directed online learning encourages them to achieve greater learning autonomy.

While it may not be appropriate to attribute students’ success completely to their use of BL, students exhibited improved performance due to its impact on their ability to become fully engaged with the topic and teaching method. Most participants within the blended group were involved in classroom tasks and usually completed the online activities voluntarily. In blended ESP teaching, the students responded to online programmes in an interactive way; they competed through guessing the correct answers, and the teacher only explained answers that were incorrect.

BL is a course design format that flexibly presents course content in a manner that allows for in-class as well as online meetings. Models such as BL, which present multiple approaches, can prove advantageous for ESP classes, where learners arrive with different proficiency levels and backgrounds regarding specialised subject matter. Participants in this study expressed that the amount of student–teacher interaction in blended courses is adequate for successful learning due to the fact that in the blended format students can communicate with the teacher directly (in class) and have their queries answered online. Within the framework of blended courses, it is the instructor’s responsibility to support student learning, mainly in terms of accessing online resources. There were a variety of responses regarding the extent to which the facilitation of and participation in discussions was comparable between in-class and blended courses. Responses demonstrate that most students found that the two were comparable. However, BL is best suited to fulfilling the different needs of learners. It was also noted that some students find their voices in the online

learning environment in a way that they cannot in traditional classrooms. To illustrate, introverted learners who rarely speak in traditional classrooms may interact to a greater extent online, where they have additional time to consider their ideas before sharing their comments. Online learning environments also appeared to be less threatening and thus ultimate for encouraging student participation, particularly in assisting those who are less verbal (Gould, 2003). Among the essential elements of the teaching process is the assessment of students through assignments and exams to confirm that learning has occurred. It is thus imperative for the ESP teacher to interact with learners regarding their assignments.

Assignments enable students to assess their learning progress. Almost all students found that the assignments in blended courses stimulated their application of computer science knowledge and skills. Britt (2015) asserted that the online portion must be motivating through relating what students learn (language form) to their real-world experiences (language use). That is, learning should feature authentic tasks that correspond to the realistic situations that computer science majors are likely to encounter in practice. ESP teachers can augment authenticity of learning when learners are actively involved in working with abstract concepts and facts within a valid and highly social context. Most interviewees indicated that receiving feedback and comments on graded assignments improved their ESP learning. They were pleased with interactions related to completion requirements and course expectations. Communication should therefore be considered a standard for evaluating the extent to which a blended teaching programme/intervention is successful in improving student performance. The strength of BL depends on providing multiple paths of communication for students (either directly or online) and opportunities for individual, personal enquiries through online or face-to-face appointments. Indeed, almost all participants found that the time taken by the teacher to respond to their questions in blended courses was sufficient to allow for the accomplishment of assignments in a timely manner. While online instruction provides a flexible environment and facilitates teachers' time management, the in-class

instruction environment can offer social interactivity, which allows for better learning. The current study investigates a situation in which both online and in-class instruction environments were implemented. Students could access electronic course material at anytime anywhere through the internet. The blended instruction setting promoted students' communication. They were able to connect with their teacher through the blended instruction environment, which offered rich channels of communication (e.g., discussion forums, web tools, chatrooms, and social media).

Although the blended teaching approach has several advantages, it was challenging for some participants to cope with the lack of instant feedback from their instructor. Some interviewees assumed that lecturers could apply web-based teaching to support regular learning, but it should not substitute face-to-face communication between lecturers and students. Key (1980) stresses the value of human (face-to-face) communication in terms of providing a sense of social connectedness that is not feasible in virtual interaction. To overcome the inconveniences resulting from a lack of actual human communication, it is possible to create a blended teaching environment that offers more interactive communication. This can be achieved through revisiting the blended teaching amalgamation to include more face-to-face classroom proportion.

Regarding student attitudes towards the in-class portion, the majority of students argued that it is an invaluable tool for interacting with their teacher and classmates and explaining the technology in use. The traditional delivery portion under the direction of a teacher has a long history as a pedagogical approach. Among the advantages of the traditional delivery mode is the fact that it allows students to have their queries answered directly. They can also maintain familiarity and communication with their teacher and classmates regarding assignments. Participants also agreed that classroom tasks were a valuable tool for excelling in course content.

While it can be stated that some learners favour face-to-face communication, the results of the online programme indicate an increase in learner motivation and autonomous learning. The students' preference for actual human-based interactions during classroom appointments reveals

the social feature of learning. This view fits well with the social learning theory (Bandura & Walters, 1975), which proposes that modelling learners' behaviours, attitudes, and emotions while they complete goal-directed tasks in interactive groups is effective. That is, learners influence one another through their behaviours, attitudes, and emotional reactions while engaging in group work or discussing concepts within traditional classroom settings. Social interaction is essential in cognitive development (Vygotsky, 1978). Thus, the traditional course format continues to provide opportunities for collaboration in classroom tasks as part of a blended instruction setting focused on social interaction. Although the majority of participants vouched for direct interaction, a minority were either neutral concerning its importance or dismissed it altogether. Furthermore, there were a variety of views regarding technology-based interactions and whether they are as useful as human-based interactions for responding to queries. Most students found that technology-based interactions in blended instruction were as useful as in-person interactions in this context. This finding stresses the necessity for teachers to employ multiple paths to reach their students through virtual and face-to-face appointments.

## **CONCLUSION**

Students' evaluations of the success of their courses have long been a dependable source for grading the teaching they experience, despite their limitations and reliance on a single rating dimension. According to the evaluation, the blended ESP teaching for computer science students has many benefits and drawbacks. Students' effective participation in various classroom and online practises has been supported by the meticulous design of the course. Furthermore, students welcomed feedback because it allowed them to revise their learning. The majority of respondents agreed that autonomous learning is beneficial. Due to the overwhelming domination of Arabic and French in their discipline, one of the unexpected responses to this course is that it fails to sufficiently prepare students for real-world situations. As a result, some students study ESP as a graduation requirement rather than as a course that is required in their real-world or professional context.

## **CHAPTER SIX: CONCLUSION AND SUGGESTIONS**

### **INTRODUCTION**

The current study employed a needs analysis, a quasi-experiment, and course evaluation in order to examine the effectiveness of implementing a blended teaching approach in ESP courses. The results revealed a variety of controversial topics with ESP instruction in a blended learning environment. This chapter contributes to the subject of blended ESP teaching by seeking to lay out some significant pedagogical implications for improving ESP courses that might serve as the basis for better practices in the academic and professional arenas of blended ESP teaching. Additionally, it makes recommendations for further study. In order to better meet students' evolving demands in the digital age, the first section of this chapter begins by re-evaluating the principles behind the design of NA and ESP courses. In addition, it discusses the role of the teacher in ESP and the fundamental components that correspond to the structure of both EAP and EOP instruction in the various e-learning courseware used in teacher education and training, which have grown to be prerequisites for the ESP profession. The last section of this chapter provides recommendation on how to create blended courses that combine pedagogy and technology to improve ESP teaching. Before summarising the researcher's reflections and the most important lessons learned from conducting the study, the chapter continues by discussing the limitations of the study.

### **6.1. Recommendations for Changes in the ESP Course and Future Research**

While this study is highly context-specific, it has some broader implications that can be drawn before moving on to those relevant to the immediate context. The importance of English as a CS international language is one implication. As a result, a successful computing professional requires a strong command of written and spoken English. Another implication is that professional experience can help English language learners improve their communication abilities. ESP course

designers can benefit significantly from such experience. Course designers can see how the content, skills, and tasks they want to base the course on are used by workers in the real world by spending time in the workplace. As a result, an accurate NA of ESP students should include these target requirements. To gain a deeper understanding of learning and target needs, multiple types of data from various NA and course evaluation sources should be gathered. The following sections contain recommendations and implications for the future development of the ESP course under investigation. Using the ESP course development model (Figure 1.1) introduced in Chapter Two, the NA and course evaluation findings are applied to other parts of the course development process, such as course objectives, materials, classroom teaching, and assessment procedures. That is, the data and insights gathered from the NA and course evaluation are used to develop course objectives, lay the groundwork for a teaching strategy, and choose tasks, materials, and assessment procedures that would lead to the desired learning outcomes.

### **6.1.1. Aims and Objectives**

According to the ESP curriculum development model (Figure 1.1), the needs analysis and course evaluation (particularly its formative component) should inform decision-making on all other aspects of curriculum development, involving resetting and adjusting the curriculum's objectives and aims as needed. According to the questionnaire responses, most students believed that most course objectives had not been met fully. The low achievement rate of objectives appears to be partially due to their articulation. The current objectives, it is argued, lack clarity and specificity and do not adequately describe the communicative skills students will need in their academic studies and target careers. As a result of the NA and formative evaluation findings, clarifications and amendments to the formulation may be required.

The overall objective of the course is to help students improve their English language to use it effectively in their studies and communication. Aside from the ambiguity in the expression "students' English language", it appears that the objective is to improve communication skills. The

conversational skills of listening and speaking are covered in the ESP component 'listening and speaking. If the overall goal of the ESP course were to improve oral communication skills only, the other components of the course, such as reading, writing, and grammar, would be unnecessary. Rather, the course's overall objective should be to improve both literacy and fluency in computing English. The students have to read textbooks and articles, as well as write essays and short reports. The primacy of the two language components of reading and writing and grammar should be articulated. A brief account is also required to rationalise and guide the overall organisation of the course. For instance, it is necessary to emphasise students' entry-level proficiency and the importance of presenting language components in a more realistic and integrated manner that is more akin to the target language in use and meets learners' current and target language needs. These language presentation guidelines should be followed throughout the course, including classroom and during assessments. The course should help students bridge the gap between their limited general English skills and the specialised English skills required in the target situation. As a result, the two primary objectives of the new ESP course are to improve students' general language abilities while also providing them with the literacy and fluency skills in computing English that they will need to communicate and function effectively in their academic studies and target careers.

The instructional objectives of the course components should be derived from the various target tasks identified above in order to match objectives to needs. As explained below, such tasks can serve as the foundation for designing pedagogical tasks.

### **6.1.2. Classroom Activities and Methodologies**

The findings indicated that traditional teaching approaches were generally inappropriate and ineffective. A part of the problem may be that the teacher has become "so bogged down in course content that he loses sight of course objectives" due to time constraints and large class size (Scott & Scott, 1984, p. 215). The primary instructional strategies for the course components, i.e., reading, writing, grammar, and computing terminology, include, but are not limited to, pair-work and group-

work. In this case, the use of such activities by some teachers may be considered ineffective. As a result, teachers should act and regard themselves as learning facilitators rather than information providers when using these dynamic classroom techniques and activities. According to the researchers, the interaction between students in pairs and groups is critical for the improvement of linguistic and communicative competence because, as claimed by Richards and Lockhart (1996, p. 153), it "increases the amount of student participation in the class" and "enables the teacher to work more as a facilitator and consultant". Nevertheless, "any classroom activity has the potential for conflict if students do not have the meta-language required for taking turns in pair-work or group-work" (McCarter & Jakes, 2009, p. 160). As a result, teachers are strongly recommended not to ask their learners to work in pairs or groups until they become more advanced. Additionally, each class should have a teacher qualified to manage such interactive activities and achieve the course component objectives necessary to meet the relevant needs. Besides, it is strongly recommended that teachers become aware of the benefits of such classroom interaction activities and are trained to use them. "A teacher's self-awareness, knowing why we teach the way we do, is central to our effectiveness as teachers, our job satisfaction, and our professional development" (Hyland, 2006, p. 293).

The ESP staff can teach more effectively by encouraging direct contact and closer collaboration between language and subject teachers. This type of purposeful collaboration may take the form of "team-teaching" in the future, in which language teachers and subject teachers collaborate (Dudley-Evans & St. John, 1998). Since "joint teaching" is "time-consuming" (Jordan, 1997), it may be most effective throughout the proposed intensive computing English phase. This approach is mainly useful for improving one's English fluency. In practice, the latter may prepare and deliver a relevant subject lecture due to extensive collaboration between language and subject tutors, with students required to take notes. Instructors and students can then engage in academic computing discourse in the appropriate language genre. One significant advantage of team teaching,

as claimed by Jordan (1997, p.121), is that "the students see that their subject tutors take the [ESP] classes seriously". Simultaneously, it assists teachers in compensating for their limited subject knowledge (Belcher, 2006).

To be successful, however, this teaching procedure necessitates "willingness", "openness", and "flexibility" from all participants, particularly subject specialists (Dudley-Evans & St. John, 1998). Only subject teachers who have a positive attitude toward the ESP course, sympathise with its teachers and students, and are interested in ESP issues may be asked to join the venture, especially in its early stages (Hutchinson & Waters, 1987).

### **6.1.3. Assessment Procedures**

In general, it was determined that the course evaluation procedure lacked adequate planning and implementation. Under the proposed integration scheme, all of the problems associated with assigning equal weight to each of the four language components in assessment and students' obvious disregard for certain components should be eliminated. Additionally, the course integration should not be considered complete once the integration plan is achieved. Individual variations in language proficiency are to be expected and should be considered. To ensure that integrated courses meet the needs of students, a diagnostic test should be administered at the start of the course. Certain students should be exempted from following parts of the course that are too easy and insufficiently informative, with the initial test serving as a placement tool.

In addition, Quizzes, presentations, assignments, and end-of-term exams should all be used as forms of continuous assessment. Quizzes and an end-of-term exam would be used in the first term of the course under the new assessment scheme (the intensive GE phase). Students who achieved well in the first term would be allowed to continue. To reduce reliance on exams in the second term, various assessment tools (quizzes, presentations, assignments, and end-of-term exams) could be used. Each student's final average grade during his second term would determine

whether or not he passed the ESP course. The weight given to each language component should be determined by its importance.

It is highly recommended that exam requirements in the second term reflect the students' academic and professional purposes rather than pass or fail ones. In other words, exams should assess students' skills and knowledge relevant to their current academic studies and desired careers, resulting in a positive washback effect. This can be accomplished by using authentic assessments that require the students to complete real-life tasks that they may encounter in their target contexts.

## **6.2. Recommendations for Incorporating Blended Teaching within the ESP Context**

The following implications are all centered in raising the teacher's awareness towards certain aspects and features that emerged from this research study.

### **6.2.1. Educating Teachers in Blended Pedagogy**

It appears that the key to developing successful ESP programs is when language integration is driven by pedagogy-informed technology use. For this to happen, teacher education lies at the center of it all. The key participant, the teacher in this study and his educational background, his teaching experience and interests, his keenness in e-learning and tech-tools and constant dissatisfaction with the system got him into exploring new avenues in search of a satisfactory system and answer. As discussed at the beginning of this chapter, the teacher became an integral component, the driving force directing the pedagogical and contextual factors that shaped students' beliefs in this study. Pierre's theory-informed pedagogical approaches and strategies leveraged the affordances and also cautioned him of the constraints in adapting and modifying educational technologies used within the ESP course. Kessler, et al. (2012) reiterates the importance of pedagogical reflection promoting guidance towards more extensive preparation and subsequently that being an essential for future tech-driven teaching approaches. These authors believe that the "co-evolution of technology,

pedagogy, and the nexus of the two” will create opportunities for wholly new environments and experiences (p. 106) that teachers and educators must be prepared for. Johnston and Lawrence (2018) also state that “instructors can benefit from adopting a theoretically-informed pedagogical approach” in teaching that can facilitate “an empowering, supportive learning community that fosters identity investment, facilitates multimodal interactions and develops supportive, social, teaching and cognitive presence” (p. 4). Kessler (2018) calls for the “world language teachers of the 21<sup>st</sup> century” to have an awareness for the potential of adopting digital tools and artifacts from real-world language practice so that they can be adapted for the language classroom” (p. 214) as he quotes the ACTFL position statement in 2017 in strong support of technology integration by language teachers. Therefore, it is important for ESP teachers’ blended practices and beliefs to be grounded in theory as that will direct the teacher to adopt specific tech tools that leverage the ESP course requisites, goals and outcomes to be met within the stipulated timeframe.

Furthermore, a community of practice can be deemed necessary to enable teachers, teacher-educators to share their successes and pitfalls either at the institution level or at the regional level so that shared practices can further benefit the ESP community. “[T]eachers’ personal and professional online networks can facilitate the sharing of technology skills, lesson plans and collaboration across disciplines, which enable more effective use of technology in the ESP classroom.” (Yim & Warschauer, 2016, p. 604).

### **6.2.2. Teacher Intervention in Educating Students: What, Why, How.**

One of the other important implications that came out of the findings is the need for educating students about the specific technologies that are being used by the teacher, why they are being used and of course how to maximize their use in learning language. Levy (2015) calls for “planning a classroom intervention” in highlighting “complexities involved in closing in on the learner’s experience” (p. 566). Aubrey (2014) stresses the importance of teachers

adequately training students on how to use the different features of technological tool/s prior to implementation for successful and complete use (p. 77). Kumaravadivelu (2001) in talking about postmethod pedagogy calls for implementation of learner training for both language learners and teachers as it would “make learners more active participants in their language learning while at the same time mak[e] teachers more sensitive to learner diversity and learning difficulties” (p. 546). Kessler (2018) convenes all language teachers for a refocus of education with the learner as the point of leverage “by attending to students’ learning styles or helping learners to develop awareness of how they best learn” (p. 209).

The researcher intervention part can be replicated and facilitated by the teacher. At the very beginning of the course the teacher explains the benefits and need for using certain tools/apps and can continue to support students by holding fairly regular weekly meetings/conversations. This can result in successful tech integration and development of academic autonomy. Particularly with ESP programs, as some of these are high stakes, in terms of finances and time spent by students, on the one hand, and a load of academic goals to be completed within a very short period of time by the teacher on the other, makes it a very challenging and tedious program as well as unique from other general ESL or EFL courses. Therefore, the integration of technological tools can definitely alleviate the stress by saving time and energy spent by both teacher and students towards successful course completion. Developing such collaborative autonomous language learning abilities within students will also prepare them for new and unanticipated opportunities (Kessler, et al., 2012, p. 106) that may rise in these tech-mediated environments.

### **6.2.3. Leveraging Students’ Digital Resources**

Another important implication of this study has been the fact that success in tech integration can be achieved by leveraging student-found tools. As reflected in the belief related outcomes of the study, where some of the students are found searching and using tools/apps on

the web of their own accord and realized the benefits experienced. They were also introducing those to their classmates, having benefitted from tools like, Youdao, Baidu, Grammarly, One Checker. This can lead to successful integration of tech-tools that have proven to be beneficial and relevant to their ESP course through practice by both teacher and students. As Yim and Warschauer reiterated, “ESP teachers and researchers are also advised to consider students’ naturally-occurring technological practices and discover ways to incorporate them into their curriculum and instruction. This will help teachers better understand how technology relates to both the personal and academic lives of L2 learners, and thus enhance student engagement” (2016, p. 603).

#### **6.2.4. Ongoing Critical and Reflective Practices**

Ongoing critical and reflective practices can be beneficial for any teacher integrating blended practices as they continue to upgrade the tools used as well as strategies and methods employed. In terms of an ESP teacher’s expected role in blended integration, Yim and Warschauer (2016) claimed, “ESP teachers should embrace their multiple roles as co-inquirers, researchers, and instructors during the process of utilizing digital media in instruction” (pp. 603-604). Pierre’s agreement to participating in this research can be viewed as his being a conscientious ESP teacher. Teachers can do a type of reflective research or action research in different forms on their own as well. Participating in research studies when presented with the opportunity, or even holding weekly meetings with individual students and learning from their perspectives can be very informative.

Teachers can continue to maintain a journal recording outcomes, initial reactions, successful or unsuccessful attempts at introducing a new tool from conducting online surveys/feedback of students and incorporating their suggestions when or where possible. These can be beneficial to teaching in especially these constantly evolving tech-enhanced environments. Video recording of particular sessions in the class and going through the recorded

clips later for identifying pitfalls or successful moments with the new tool being used can be of great value in providing accurate information of tool integration. In being a teacher, one must be ready to respond to surprises, unexpected events and be adaptable to emerging situations in tech-mediated approaches. Thus, the need for this specific aspect surfaced from the one-on-one interactions between students and the researcher and used those as springboards to a richer understanding of students' beliefs. The issues, concerns and questions that arose in the phase II of the study made me realize how at times misinformed and misinterpreted or even completely ignored a teacher's intentions or goals for using technology can be. In order to continue to remain conversant with evolving tech-tools, their functionality, benefits and constraints, to be better equipped in understanding how "to meet our students in [the] new participatory environments" (Kessler, 2013, p. 215), ongoing critical reflections on one's teaching practices is much needed.

#### **6.2.5. Balancing Technology with Pedagogy**

The study has conceptualised the relationship between pedagogy and technology, between a technologically advanced classroom with a teacher who is equally adept at using it, and between students who are prepared to modify their learning styles to meet the demands of both professional and academic learning. Teachers need to recognise that using technology in the classroom should enhance learning rather than detract from it. Utilizing technological tools and apps that adhere to the purpose, content, and educational techniques is necessary to achieve balance. In order to have a positive impact on students' accomplishment, current technologies should be compatible with the pedagogies that have been established. In order to create a methodology that the students like to utilise in language classes, teachers should identify new pedagogies in accordance with the technology chosen. To ensure the best use of technology, it is also necessary to support pre-service and in-service training programmes for instructors. To sum up, the area of ESP instruction has the potential to develop a synchronous partnership between pedagogy and technology to provide students a better environment for language

learning.

### **6.3. Principles of Effective Online Teaching**

Novice practitioners of online teaching are advised to consult a computer scientist on a regular basis to ensure the course's proper operation, delivery, and administration. These suggestions are summarised in what is referred to as "the seven principles of good practice framework", which is well suited for guiding quality online teaching design and delivery (Graham, Cagilty, Craner, Lim, & Duffy, 2001). These guiding principles encourage the following practices:

#### **6.3.1. Student-Faculty Contact**

Frequent contact between students and faculty, both in and out of class, is the most important factor determining student motivation and engagement. Faculty concern enables students to persevere through difficult times and continue working. Knowing a few faculty members intimately strengthens students' intellectual commitment and inspires them to consider their own values and future plans.

Student-faculty interaction has been identified as a critical component of motivating students to succeed. Friendship, concern for students' learning, enthusiasm, effective communication skills, and accessibility have all been identified as beneficial teacher characteristics for student-faculty relationships. These characteristics contribute to the creation of a classroom environment that encourages students to approach the instructor for help with difficult course assignments. Students are more likely to complete assigned tasks when teacher comments are delivered in a non-threatening and encouraging manner. This leads to higher achievement levels. At LMS, email was mostly used to communicate between individuals and study groups. Course announcements, assignments, in-depth explanations of statistical concepts and general course information were shared via email. It was especially useful for conveying detailed instructions on how to use different LMS tools. Email was used, for example, to explain how to use the LMS assignment tool to upload assignment files. Furthermore, the instructor interacted with students

through threaded discussions that sparked debate about how various statistical concepts should be applied. Individual meetings between students and instructors should take place during scheduled instructor office hours to allow students and faculty to interact productively and reply to their queries via mail through a specified timeline to avoid delays or misunderstanding.

### **6.3.2. Cooperation Among Students**

When learning occurs as a collaborative effort, it is enhanced. As with good work, effective learning is collaborative and social in nature, rather than competitive and isolated. Collaboration with others frequently increases student engagement. Sharing one's thoughts and responding to others' responses strengthens one's thinking and comprehension.

Constructivist instructional models are based on the assumption that social interaction supports learning (Astin, 1993; Cooper & Mueck, 1990). When students are allowed to share and respond to one another's ideas, their thinking and comprehension improve. Students were assigned weekly problems requiring the application of statistical concepts. Each study group established private discussion rooms in which members could post their work, compare and discuss their peers' answers, and compile a final document containing solved problems for submission to the teacher via the LMS discussion tool. Additionally, chat rooms were established to enable students to communicate synchronously with members of their study groups or other class members regarding weekly issues.

Collaboration and social engagement among students are encouraged, which leads to effective learning. It is suitable for use in collaborative projects and assignments carried out online. Members who have similar academic and/or professional interests are encouraged to feel a feeling of community. More relevant and purposeful tasks and assignments promote collaboration, which enables peers to comment on and evaluate one another's performance in addition to the instructors. Before engaging in online discussion, it is commonly advised that students meet in person to introduce themselves to one another and choose their groups. Later on in the course, this can lead

to more inclusive interactions among all of the students. A great technique to boost student engagement and encourage active participation in online group projects is to grade their contributions and cooperative work.

### **6.3.3. Active Learning**

Students cannot acquire substantial knowledge by simply attending classes, paying attention to teachers, memorising pre-packaged assignments, and stating answers. They should communicate and write about their experiences, draw connections between them, and apply what they have learned in their daily lives. They are responsible for integrating newly acquired data. Structured exercises, contentious debates, collaborative projects, and peer criticism are used in schools to promote active learning. Active learning is possible outside of the classroom. Due to the fact that the World Wide Web supports a diverse range of media types, modern course creation tools make it easier than ever to create more accessible and available online courses. By integrating links, audio and video into virtual worlds, teachers can create authentic, interactive, and problem-solving activities that support students' active construction of meaningful information.

Active learning encourages students to incorporate their educational experiences into their daily routines, providing an opportunity for reflection and making sense of their experiences. This increases learners' motivation when they connect what they learn to their real-world experiences, which is consistent with the ESP setting of students learning the language for practical applications in their academic or professional lives. Online LMS boards and social networking sites enable students to submit work and assignments for instructor and peer assessment as well as receiving feedback and questions. This serves as a proactive strategy to involve the entire class in productive and real-world learning experiences.

#### **6.3.4. Prompt Feedback**

Students benefit from their classes when they receive constructive feedback on their performance. They require opportunities to reflect on what they have learned, what they still need to learn, and how to self-assess at various points throughout their academic studies. Without assessment, for instance, feedback is impossible. On the other hand, an assessment that is not accompanied by timely feedback has no effect on student learning. Many colleges and universities offer periodic counselling to students regarding their academic progress and future plans, along with instructor feedback. Numerous studies have demonstrated the effectiveness of precise and timely feedback in improving students' performance. Instructor feedback is most effective when given immediately after completing a task (Kluger & DeNisi, 1996). In the present study, Moodle LMS's email and discussion tools were primarily used to provide timely, customised feedback to students. The assignment tool was mainly beneficial for providing detailed corrective and evaluative feedback on their assignments, allowing them to revise and resubmit them. Additionally, email was used to communicate with students experiencing difficulties with the LMS or submitting assignments. Additionally, students were kept informed of their progress on all completed assignments via the LMS tool.

Each learner completes their assigned tasks in order to receive feedback on their comprehension and performance. It can be begins by giving feedback on students' performance, acknowledging their efforts, marking their projects and assignments, and responding to their questions and responses. Learners are permitted and encouraged to offer constructive feedback by providing a clear feedback policy that details the number of questions, the timeframe for responses, and the posting deadlines. Create a blog or bulletin board for the class where students may talk about assignments and offer feedback on each other's achievements. This is a great approach to get online comments. A quick acknowledgement to the learner that the instructor has received his or

her email and that the learner's request has been received, followed, if feasible, by a suitable response, will leave a good impression and regain rapport between the teacher and the student.

### **6.3.5. Deadlines and Consistent Patterns of Course Activities**

Due to its efficiency in instilling a feeling of responsibility and punctuality, especially in task completion, time management is one of the primary qualities a good learner can have. Students learn to schedule their performance around deadlines and time constraints by setting deadlines for assignments and projects. In this manner, a study regimen will be practised throughout the course, and the pace of the course will remain constant. You may easily keep track of the passing of time by posting a calendar or reminder on the home page of your website, blog, or bulletin board. In order to help students finish tasks or projects on time, it is also advised that useful links containing pertinent materials and study resources be attached. Allocating reasonable amounts of time enables both students and faculty to learn more effectively.

How a school defines time expectations for administrators, teachers, students, and other professional staff may affect student performance. Due to the asynchronous nature of online learning environments, students can join classes at any time and from any location, increasing the amount of time available to complete tasks that will assist them in achieving their learning objectives (Billings, 2000). Moodle was not only simple to use but also well-structured, which aided students in concentrating their efforts on completing course assignments. Students were directed to a welcome page in the first- course log that included the syllabus, schedule, course orientation, calendar, assignments, and communication links. When students clicked on the assignment link, they were directed to a page including links to content modules and assignments for ESP courses. Moodle content modules include links to worked examples and interpretative reports, instructional objectives of each topic, and assignments. Moodle assignment tool aided in promoting time on task since students were automatically reminded of new assignment postings

and assignment due dates. Students relied on these reminders and immediately notified the teacher when completing assignments without a submission deadline.

### **6.3.6. Establishing High Expectations**

In order to encourage students to evaluate their performance and strive for excellence and quality when completing assignments, teachers frequently need to establish high expectations for their students. Listing the expectations on the homepage of the LMS at the beginning of the semester encourages students to seek the best ways to promote their performance for the class. In order to motivate students' performance, it is proposed that the teacher provide modals for assignment completion.

Teachers can set clear expectations for high-quality student performance by using effective examples. They serve as role models for instructors and provide students with detailed instructions on how to complete assignments competently. Demonstrating solutions to real-world problems benefits instructors because it helps students develop a cognitive scheme that would help them evaluate future uses of newly acquired knowledge and skills (Lim & Moore, 2002). Links to ESP themes were included within the content modules of Moodle courses to scaffold student learning through real-world examples. Instructors can use scoring rubrics to communicate their performance expectations for discussion postings and reports on the Moodle assignment page.

### **6.3.7. Respecting the Diverse Talents and Ways of Learning**

Every learner brings his or her own experiences to class and enriches the learning environment and practises. As a result of the diverse learning styles and talents demonstrated during the instruction procedures, each session is a one-of-a-kind experience. This diversity in learning and talents should be valued, and teachers should be encouraged to include all students in the classroom by listening to their opinions and accepting their differences. Students should be given the opportunity to demonstrate their abilities and learn in ways that are suitable for them. They can then be pushed to learn in ways that are not as natural to them as before. With personalised

instruction systems and mastery learning, students can work at their own pace. As a result, in an online course, using different methods and tools to accommodate a variety of learning styles ensures that all students have an equal opportunity to communicate their opinions.

These seven principles necessitate acquiring knowledge and skills in online teaching through periodic training and practice. As a result, it becomes critical to place novice teachers in training in order to maintain the quality of teaching.

#### **6.4. Suggestions for Planning and Improving the BL Course**

Based on the results of this study, it is possible to identify implications and make suggestions for ESP curriculum designers, administrators, and teachers in terms of planning and improving the BL course, specifically in HEIs. First, to ensure the integrity of blended instruction, the entire teaching process and instructional design must follow the teaching objectives; in this manner, the continuity of the teaching-learning process can be guaranteed. Second, teachers should understand the relationship between online teaching and classroom teaching. Classroom teaching mainly focuses on teaching materials, whereas online teaching is largely performed to extend extra-curricular knowledge. Teachers should also ensure that online teaching and classroom teaching have strong complementarity, and they should make strong attempts to ensure the effects of teaching can be maximised. Third, in blended instruction, both instructors and students should develop the habit of continuous reflection. They should consistently identify deficiencies in the teaching approach and enhance teaching effectiveness by addressing any problems.

Although network connectivity is still limited in several regions, teachers and learners must be trained in how to integrate it into blended classes. An effective and efficient blended teaching approach should involve becoming more flexible, personalised, and on-demand. Thereby, it can be served as a means to support and extend the scope of conventional teaching and

simultaneously foster independent, lifelong learning and the effective use of ICT. Once the appropriate allocations and blend in terms of instructional designs, learning objectives, and the necessary infrastructure are selected, the content and process can be fine-tuned to create a solid basis for better development of the blended teaching initiative. If contemporary students, commonly referred to as digital natives, require to be provided with expanded opportunities for online learning, the instructional community should strive to fulfil the diverse needs of such learners, regardless of their linguistic, social, or economic backgrounds. Simultaneously, instructional processes, contents, and policies need to be structured so as to provide knowledge, skills, and abilities required by learners to be more creative, autonomous, and critical in the workforce. Moreover, among the challenges that a teacher must cope with is interaction. It is insufficient to employ technology-based interaction only; rather, teachers should be prepared to implement both face-to-face and technology-based interaction. Technological restrictions, which can prove to be a challenging issue for many learners, are another key element worth emphasising. Calls for sympathy on the part of the teacher in the form of assisting learners in accessing the internet and providing training intended to increase their digital/technical proficiency levels. Despite the fact that the online platform requires minimal proficiency in ICT integration, it is necessary that all learners enrolled in blended classes are given as many opportunities as possible to succeed. This involves offering support services for students via the university.

Another important finding is that the consistent minority of learners who did not embrace the educational transformation due to the technological innovations in course delivery. A teacher must listen to and educate this category of learners on emerging technologies and how such innovations are changing the world. Furthermore, the blended delivery format can be strategically used to allow learners to develop the digital skills required in their workplaces. While teachers may present the use of technology as a learning outcome required for professional success, some students may still struggle to leave their comfort zone and adopt such changes. It should thus not

be assumed that modern learners can grasp technological tools without guidance. The teacher should be attentive to the reality that not all learners have the same level of digital skills while also ensuring that support services are available to aid novice online learners. Such support may be required regarding several facets of online activities (e.g., uploading course materials, posting discussion threads, submitting quizzes, accessing grades, and working collaboratively in online classes). Teachers should initiate a blended programme with an orientation phase for all group members. In particular, teachers should initiate such a programme by modelling and outlining the instructional technologies to be utilised, therefore minimising the anxiety of novice e-learners.

The blended format represents a unique and meaningful opportunity to introduce learners to online teaching approaches while establishing a personal presence in the classroom. However, even when students successfully do so, a number of limitations remain involving the need for constant support and training from qualified staff in the use of technology for both teachers and students. They also require guidance and support from faculty staff who are adequately equipped to ensure that the blended teaching program is of a high-quality level in terms of cost-effectiveness, flexibility, and credibility within the educational community. Before launching any blended teaching programme, a preliminary NA should be conducted to identify possible advantages and limitations. Such a process should ideally be undertaken by an interdisciplinary group (comprised of teachers, curriculum designers, technical support groups, and administrative and pedagogical stakeholders) responsible for evaluating instructional problems ranging from infrastructure to human resource accessibility. The outcomes of an NA could serve as a solid basis for subsequent actions.

Beyond the preliminary NA, a thorough assessment of management strategies in the form of an iterative process may be required; such an assessment should be adopted and extended through time based on course objectives, requirements, and feedback channels across various phases of programme implementation. Administrators should also be aware of the potential of

computer courses in terms of allowing teachers to increase their digital literacy and provide teachers with a full range of school-based training courses in terms of blended teaching concepts, curriculum utilisation and development skills, and the design and implementation of teaching activities. These courses can be integrated into teacher training programmes. This kind of training should be conducted via a combination of theory and practice and focus on providing teachers with a variety of blended instruction scenarios to offer reference paradigms for teachers' further development.

Since teachers are regarded as a bridge between the online teaching program and students, they have a significant role in accomplishing the targets of such a programme. Therefore, taking training courses in online teaching is the underpinning for teachers to develop rewarding instruction capabilities. Teachers should also make learners aware of how online courses supplements their learning and assists them in recognising the authentic functions of computers and software program. Therefore, all blended teaching programmes should offer facilities for teachers to attain innovative didactic skills (e.g., facilitating virtual communication, assessing learners' digital skills improvement, and designing tasks that correspond with course objectives). Failing to achieve this may result in unfocused course outcomes and a mere replication of classical face-to-face approaches (Vaughan, 2007) or teachers and learners rejecting the incorporation of innovative technologies in instructional contexts. In addition, future researchers are encouraged to emphasise further investigation into how such training and blends can be established and how factors such as an appropriate facilitator–learner ratio can be achieved and maintained. According to Mbaty and Minnaar (2015), this issue is among the most critical interests in online learning, taking into account the large number of learners per facilitator. Nevertheless, instructional stakeholders seem to commonly disregard this issue.

Although the results of this research demonstrate the transformative potential of the blended programme, there might be an issue in generalising the results to other courses within a

higher education context. It is thus imperative that future studies investigate the impacts of implementing the blended programme in different contexts across different courses. Moreover, recommendations resulting from this research involve ongoing research regarding participants' satisfaction with various blended formats of English for computing courses, associated with longitudinal research to establish long-term effectiveness.

### **6.5. Limitations and Recommendations for Further Studies**

Despite its meticulous planning, the current study had several flaws that should be addressed in subsequent research. There is a possibility that some biases have influenced the results. The limitation of the study was that it only included students from a single discipline at Mostaganem University (computer science). Further research could be conducted with diverse universities, age groups, and academic and non-academic disciplines. Universities, budgets, material concerns, and students' learning styles affect how future studies are designed. Additionally, this study used a small sample size ( $N = 50$ ). Future research may include larger sample sizes, randomisation of groups, and delayed interview. Additionally, the findings of this study were restricted to ESP students' overall satisfaction with BL in the computing discipline. However, researchers in this field could benefit from data on the average time required to answer questions, students' attitudes and motivation, and willingness to participate in interactive tasks in ESP courses. Further insight could be gained by collecting longitudinal data on the impact of the blended teaching approach on students' perspectives. Despite these drawbacks, the researchers gained experience developing a blended course and understood the benefits of a blended teaching approach when creating instructional materials.

### **6.6. Reflections of the Researcher**

I initially assumed that conducting a needs analysis and evaluation research would take little time. Later in the research process, I realised that the time required for such studies was a

real constraint. However, this research has taught me how to manage and plan my time effectively. Additionally, it has enabled me to recognise the importance of both needs analysis and evaluation as practical aspects of language course design and development, not just in theory. Additionally, the experience of conducting this research taught me some valuable lessons and equipped me with research skills that I previously lacked. For instance, it has helped me significantly improve my interviewing and communication skills by exposing me to and interacting with students, teachers and information technology staff. Additionally, I have learned how to use SPSS to generate descriptive and inferential statistics. Additionally, it has taught me how to think independently, critically, and objectively.

I am familiar with the context of this study, the events discussed, and the issues raised due to my teaching of the ESP course. However, I did not impose my personal views on any aspect of this research, including its participants and outcomes. I removed myself from the study, reflecting and critically examining it on a continuous basis in order to increase its validity and acknowledge its limitations. As an insider researcher, my primary responsibility was to conduct research on the issues raised in order to develop the current ESP course. In short, I had no desire to portray anything positively or negatively.

Indeed, the experience of conducting this research has taught me a great deal that cannot be covered in this short space. I will use this experience to design and develop blended ESP courses and syllabi while serving on committees or curriculum teams. This experience, I believe, will benefit me regardless of the challenges and obstacles posed by events, administrations, programmes, and bureaucracy during the curriculum development process.

## **CONCLUSION**

To learn more about the target needs and purposes of the various learners, it is necessary to take a more serious and original approach to NA while creating a blended ESP course. Additionally, in line with learners' learning objectives, it necessitates a more sophisticated comprehension of ESP theory and practice. Without sufficient training, collaboration between ESP instructors, language instructors, and subject-matter specialists will not be possible. Similarly, to ensure a flexible transition from a traditional classroom to a blended learning environment, teaching ESP online involves education, exposure, expertise, and access to the required tools. The proposed ideas, if adequately carried out, will unquestionably raise ESP training to a new level, where technology and pedagogy are intricately interwoven in real-world and virtual environments to assist students in achieving their learning objectives.

## GENERAL CONCLUSION

The present situation of ESP teaching at Mostaganem University, particularly in the Department of Computer Science, reveals issues that necessitates immediate action and cost-effective solutions at multiple pedagogical and administrative levels, most notably in relation to theory and practice. As a result, this research examines the value of blended teaching in ESP as a growing instructional approach that is increasingly being used in international institutions and academic settings to leverage the potential of integrating both traditional and digital teaching in higher education. Therefore, the focus of this research is to confirm or reject the assumption that blended learning enhances ESP students' performance and encourages them to make sense of what they have learned. Computer science students at Mostaganem University were opted for as the case study and representative of the entire ESP field.

A needs analysis interview and questionnaire, a quasi-experiment, and course evaluation were utilised as part of a mixed research method to compile pertinent data on the topic and draw the right conclusions for further recommendations. The evaluations of the current and target situations show that it is imperative to improve the productive skills of computer science students. They also reported dissatisfaction with the way ESP courses are currently taught in the traditional classroom and a willingness to implement new pedagogical approaches, such as blended teaching. As a result, a quasi-experiment was conducted to ascertain the utility and significance of implementing the blended teaching approach in English for Computer Science courses in order to increase learners' language proficiency level and engagement. Following exposure to authentic online materials and tools, the null hypothesis was rejected, and the alternative hypothesis was confirmed using statistical procedures such as the T-test and size effect calculation. The success level of the online course that the students had completed was finally ascertained using the course evaluation checklist form, which was based on their evaluations of various course designs,

resources, objectives, and tests. They praised the interaction, prompt feedback, and the usefulness and applicability of online tasks in their field. However, they also highlighted several weaknesses, such as the absence of instructional rigour in one-on-one interaction and artificial human-machine interaction. It is suggested that language teachers receive ESP practitioner training in collaboration with subject-specific teachers in order to create a multidisciplinary alliance dedicated to promoting both the theory and practice of ESP as a requirement for practitioners to deliver effective ESP instruction that is catered to learners' needs. This may address all of the issues raised by blended ESP practice. Without adding diverse data collection techniques into the NA process, this latter issue cannot be fully assessed. Additionally, because it incorporates the best of both design and delivery approaches, blended learning is a highly suggested method for incorporating web-based education into conventional ESP settings. The final objective is to gain appropriate teaching implications that will allow ESP practitioners to use technology to meet the needs of learners and assist in their success in university or at work.

The study alerted the stakeholders to another aspect connected to the teachers' excessive and unplanned usage of technology. As a result, a teacher can use pre-made materials and adopt them without altering or customising them to fit the demands of his or her class. This could be the reason for the unquestioning adoption of technology that gave rise to unprincipled teaching practices. In order to ensure the effective use of technology without worrying that it will compromise pedagogical practises, the current study sought to highlight this issue, which calls for striking a balance between the use of technology and the principles of effective pedagogy by taking into account the content, students' needs, the infrastructure required to launch modern technology, and current pedagogical practices.

Even though the current study met its objectives, it did have some limitations and weaknesses. First of all, the sample size of the study was constrained by the participants' accessibility, as only two groups of Computer Science Master's Students were involved, preventing

results from being generalized to a broader sample of ESP students. In order to guarantee the validity of the findings of the study, a larger number of participants from different ESP disciplines should have participated in the study. Second, the duration of the blended course treatment for the participants was only one semester, which is a relatively short time frame for evaluating the effectiveness of the treatment on their performance. Additionally, the weekly online assignments for students and the one class session of English study per week did not provide a significant instructional load that would enable participants to reach the right conclusions. A longer period of time would be ideal. Third, the one-group pretest/posttest quasi-experiment employed in this research appears to lack the validity necessary for a real experiment, which calls for a mean difference between the experimental and control groups. Therefore, it can seem like there is not much empirical evidence for the proposed experiment. The experiment was carried out and reviewed by the researchers, and her subjectivity may have influenced a number of scenarios involving the analysis and interpretation of the results. As a result, the procedure may sound incredibly objective if an external observer participates in the process. Further study in the area of integrated ESP training will be required in order to address these issues, providing an explanation that is more empirical and objective-based to reinforce the results and address the aforementioned limitations. Despite these drawbacks, the researchers gained experience developing a blended course and understood the benefits of a blended teaching approach when creating instructional materials.

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## APPENDICES

### Appendix 1. Students' Semi-structured Interview Schedule

1. To what extent do you think English is important in your current studies and future careers?
2. Do you think it is necessary to have oral and written skills to be a successful computer science expert?
3. Do you think ESP courses meet your current studies and target careers needs?
4. What do you like and do not like about ESP courses?
5. To what extent ESP courses are helpful in improving your level of:  
language skills  
grammar  
vocabulary (general, computing)
6. What are the problems that you have encountered when learning ESP ?
7. What suggestions or comments would you like to add for improving ESP courses at the computer science department to make them more effective and relevant to your needs?

**Thank you very much for your time and participation.**

**Note: Students' answers are refined by the researcher**

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**Appendix 2: Sample of Students' Interviews****(Student 5)**

1. To what extent do you think English is important in your current studies and future careers?  
I believe reading is important because in my subject areas, I am required to read extensively in order to obtain the necessary knowledge from our teachers' handouts... Regarding listening, it is necessary to some extent because I need to comprehend what our subject teachers are saying during lectures... It is important for writing, particularly during examinations, when my subject teachers ask me to write brief paragraphs about various computing topics... I wish I could speak English, but our subject teachers do not allow us to speak too much, that is why I believe it is unimportant.
2. Do you think it is necessary to have oral and written skills to be a successful computer science expert? Yes, without a doubt, if one wants to work as a computing professional, one should be fluent in both oral and written English.
3. Do you think ESP courses meet your current studies and target careers needs? Not much, because I still lack important language skills, like speaking.
4. What do you like and do not like about ESP courses? I dislike the grading system. The course assessment scheme instils in me the belief that I should obtain as many points as possible regardless of how much language I actually learn... I like Computing Terminology handouts.
5. To what extent ESP courses are helpful in improving your level of: language skills, Grammar, vocabulary (general, computing)? It is beneficial, but only slightly. The course was somewhat beneficial in terms of improving my listening, writing, reading, and grammar... but not sufficiently beneficial in terms of speaking. It has been extremely beneficial in terms of expanding my vocabulary, particularly my computing vocabulary.

6. What are the problems that have encountered when learning English at the computer science department? Yes, I do have some problems. To begin, the method of explaining and clarifying the lessons is completely inadequate... While some handouts are good, teachers frequently fail to explain important points clearly... They also do not make the lessons very interesting. Also, some teachers use Arabic in the classroom.
7. What suggestions or comments would you like to add for improving ESP courses at the computer science department to make them more effective and relevant to your needs? Extra time is required, as the course is too short. Additionally, technology should be incorporated into the teaching of our courses... Computer-related topics should be included in handouts, and the current assessment scheme should be modified.

**Thank you very much for your time and participation.** Thanks.

**Appendix 3: Students' Needs Analysis Questionnaire**

Dear student,

This questionnaire constitutes an essential part of my Doctoral thesis on needs analysis of Computer Science students with regards to the ESP courses they are studying. The purpose of this questionnaire is to identify your needs with specific English skills and functions in computer science discipline based on your current academic studies and future careers in order to develop ESP courses based on the blended teaching approach in Computing English for first-year Master students. The information you supply will provide us insights into what you want to be taught in your ESP classes so as to develop an ESP program that meet various needs, lacks and wants in learning computing English.

I would appreciate your voluntary participation and help in this research project. Let me assure you that your responses will be kept anonymous, strictly confidential and be used for research purposes, only.

Instructions: Where applicable, please tick (√) the appropriate option for your answer or make full responses to express your opinion where a broken line is provided.

1. Why are you learning English? Tick ( ) more than one option if applicable

I am learning English because:

- a. ( ) it is a compulsory subject
- b. ( ) it is interesting, and I enjoy learning it
- c. ( ) I am interested in various English cultures
- d. ( ) I need it to help me in my academic studies
- e. ( ) it is simple; thus, I can get good grades and upgrade my average grade
- f. ( ) I need it in order to obtain my degree
- g. ( ) I will need it in my target profession
- h. ( ) it will assist me to be a successful computing professional
- i. ( ) I need it for my daily life
- j. ( ) it will broaden my knowledge and perception
- k. ( ) it will make me a prestigious and better-educated person
- l. ( ) I need it when I travel abroad

Other, please specify.....

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2. Which language do you prefer to communicate with in your target career?

English	Arabic	English and Arabic

3. How do you find ESP classes at the university level?

Very enjoyable	Quite enjoyable	Not very enjoyable	Not enjoyable at all

4. Please indicate the importance of the ESP courses for your current academic studies and target career.

	Very important	Quite important	Not very important	Not important at all
For my academic studies, ESP course is:				
For my target career, ESP course is:				

5. Please indicate the importance of these skills for your current academic studies and target career.

For my current <b>studies</b> , this skill is:				Skills	For my target <b>career</b> , this skill is:			
Very Important	Quite Important	Not very Important	Not important at all		Very important	Quite important	Not very important	Not important at all
				Listening				
				Speaking				
				Reading				
				Writing				

6. Please indicate your proficiency level in each skill, and rate the extent to which ESP courses helped you in improving the language skill.

7.

My current proficiency level in this language skill is:						Language Skills	The help of ESP courses in improving this skill was:			
Excellent	Very good	Good	Satisfactory	Poor	Very poor		Very Helpful	Somewhat	Not very Helpful	Not at all Helpful
						Listening				
						Speaking				
						Reading				
						Writing				
						Grammar				
						General Vocabulary				
						Computing Vocabulary				
						English Overall				

8. What skill do you believe ESP courses you experienced improved most?

Listening	Speaking	Reading	Writing

9. To what extent do you believe that the current ESP courses are appropriate to your language needs?

Very Appropriate	Quite appropriate	Not very Appropriate	Not appropriate at All

10. In a broader sense, how would you evaluate the ESP course?

Very successful & Effective	Successful & effective in most of its aspects	Successful & effective in some of its aspects	Not successful & effective at all

11. Please rate each COURSE OBJECTIVE THREE TIMES in the section below. First, indicate the importance of the objective for your current academic studies. Second, indicate the importance of the objective for your target career after graduation.

For my current studies, this objective is:				Course Objectives	For my target career, this objective is:			
Very important	Quite Important	Not very important	Not important at all		Very Important	Quite important	Not very Important	Not important at all
				To incorporate new computing terms into all four language skills				
				To employ computer-related terminology in professional communication				
				To become familiar with all computer systems and associated computing courses.				
				To understand, read, and write brief computing reports using computing terminology.				
				To state your ideas clearly and adhere to proper writing techniques				
				To apply grammatical rules in written and spoken English				
				To understand any spoken or written English instruction				
				To formulate common statements and questions				
				To communicate with teachers about students' problems in spoken English with fluency and accuracy of pronunciation.				
				To think in English and build a linguistic competence as well as performance				



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14. Thank you very much for your time, participation and assistance. If you have any further suggestions for improving the ESP courses and making them more effective and appropriate, please write them down briefly.

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### Appendix 4. Course Evaluation Questionnaire

Dear student,

This questionnaire help us to evaluate the ESP courses and measure how well your learning needs and purposes are being met.

I would like to assure you that all answers you provide would be treated anonymously and used exclusively for the purpose of this research.

1. Please indicate to what extent do you agree or disagree with the statements by putting a tick ( ) under the box that best expresses your opinions.

Statements	Strongly Agree	Agree	Disagree	Strongly Disagree	No Answer
<b>Evaluating the Instructor</b>					
Lecturer is knowledgeable about the subject					
Lecturer is prepared					
Lecturer motivates participation					
lecturer is helpful in her teaching					
Lecturer is enthusiastic about teaching					
<b>Evaluating the Learning Materials</b>					
Variety of learning materials (e.g. videos, audios, encyclopaedias, and texts) are used.					
The materials fit the course objectives.					
The learning materials motivate me to be more engaged.					
Learning materials help me in improving my learning					
Learning materials motivate me to learn more					
The materials motivate me to be more engaged in the learning process.					
<b>Evaluating Courses and Activities</b>					
Courses and activities are related in content to computer science discipline.					
Courses have met my needs to function satisfactorily in my academic studies and target career.					
The language used in the courses is related to my discipline					
<b>Evaluating the Course Objectives</b>					
My learning objectives are specific					
The course objectives are clearly identified					

The course objectives are entirely achieved					
<b>Evaluating Tests</b>					
The difficulty level of tests is appropriate					
The tests cover all the learning points					
The tests' grading scale is acceptable					
<b>Evaluating the Classroom Assignments</b>					
Assignments are in the right level of difficulty of the course					
Assignments help me learn the Material					
Assignments given for class are interesting					
Assignments meet my learning Needs					
<b>Evaluating the Online Assignments</b>					
Assignments are explicitly instructed.					
Assignments are in the appropriate level of difficulty of the course					
Assignments help me learn the material					
Assignments serve the objectives of the course.					
Assignments have motivated me to develop the needed language skills of the course.					
Assignments meet my needs					
Assignments make learning dynamic.					
Assignments are interesting					
I am given the opportunity to work in groups or pairs					

**2. Evaluating the Accomplishment of Online Assignments**

Statements	Always	Often	Sometimes	Rarely	Never	No Answer
How often do you check the assignments?						
How often do you accomplish the assignments?						
How often do you copy the answers from your classmates?						
How often do you enjoy doing the assignments?						
How often do you find the assignments relevant to the course?						
How often do you receive feedback from the instructor?						
How often do you use the resources to accomplish the assignments?						

3. Thank you very much for your kind participation. Please feel free to add your comments or recommendations to improve the ESP course.

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The lecturer:  
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## Appendix 5. Screenshot of the ECP Course Homepage

Moodle Description Selma Alst

**ENGLISH FOR SPECIFIC PURPOSES**  
Dashboard / Course / ENGLISH FOR COMPUTER SCIENCE Turn editing on

**Announcements**  
General news and announcements

**Introduction**  
How to Give a Successful Presentation's Practical Information  

1. Repertoire of Presentation Phrases
2. Slide show - Successful Presentations: A Few Tips

 Learning vocabulary: tips and techniques  

1. Guessing meaning from context
2. Organizing vocabulary
3. Using a dictionary

 Introduction

**Computers today**  

1. Computer users
2. Computer essentials
3. Inside the system
4. Buying a computer

 Listening: Computer Users   
 Computers today

**Input/ output devices**  

1. Types, uses and tasks
2. Capture your favorite image
3. Choosing a printer
4. Devices for the disabled

 Input/ output devices

**Storage devices**  

1. Magnetic storage
2. Optical storage
3. Flash memory

 Storage devices

**Basic software**  

1. The operating system (OS)
2. Word processing (WPT)
3. Spreadsheets and databases

 Basic software

**Faces of the Internet**  

1. The internet and email
2. The web
3. Internet security/ internet crime, Malware: viruses, worms, trojans, and spyware Preventive tips

 Faces of the Internet

**Creative software**  

1. Graphics and design
2. Desktop publishing
3. Multimedia
4. Web design

 Listening: Designing a website   
 Creative software

**Programming/ jobs in ICT**  

1. Program design and computer languages
2. Java
3. Jobs in ICT

 Listening: Program design and computer languages   
 The following is an interview with Donald Knuth, the most impactful computer scientist talking about Program design and computer languages. Watch the video and write a short paragraph about the art of Computer Programming.

A video thumbnail featuring Donald Knuth. The text on the thumbnail reads: "Donald Knuth #02 Lex Fridman". The image shows Donald Knuth, an elderly man with glasses, looking down thoughtfully.

Programming Language   
 Programming/ jobs in ICT

**Computers tomorrow**  

1. Communication systems
2. Networks
3. Video games
4. New technologies
5. Artificial Intelligence

 Video Games   
 Networking Quiz

Two diagrams illustrating network concepts. The left diagram shows a network topology with nodes and connections, labeled "Network Topology". The right diagram shows a network diagram with various components and connections, labeled "Network Diagram".

Computers tomorrow

**Glossary of computing terms Irregular verbs Acronyms and abbreviations**  
 Glossary of computing terms Irregular verbs Acronyms and abbreviations

**Forums & discussions**  
 ENGLISH FOR COMPUTING PURPOSES

**Help and documentation**  
 You are logged in as Selma Alst (Log out)  
 Home  
 Data retention summary  
 Get the Moodle app

## Appendix 6. Online Course in Moodle LMS

☰ Moodle Description

🔔 💬 Selma Aleb

📖
**ENGLISH FOR COMPUTER SCIENCE**

- 👤 Participants
- 🏆 Badges
- ✅ Competencies
- 📊 Grades
- 📁 General
- 📁 Introduction
- 📁 Computers today
- 📁 Input/ output devices
- 📁 Storage devices
- 📁 Basic software
- 📁 Faces of the internet

Creative software

---

### Programming/ jobs in ICT

1. Program design and computer languages
2. Java
3. Jobs in ICT

Listening: Program design and computer languages

The following is an interview with, Donald Knuth, the most impactul computer scientist talking about Program design and computer languages.

Watch the video and write a short paragraph about the art of Computer Programming

## Appendix 7. Screenshot of Online Assignments

Moodle Description Selma Aleb

## ENGLISH FOR SPECIFIC PURPOSES

[Dashboard](#) / [Courses](#) / [ENGLISH FOR COMPUTER SCIENCE](#) / [Programming/ jobs in ICT](#) / [Listening: Program design and computer languages](#)

### Listening: Program design and computer languages

The following is an interview with, Donald Knuth, the most impactful computer scientist talking about Program design and computer languages.

Watch the video and write a short paragraph about the art of Computer Programming



The video player thumbnail shows a man with glasses, Donald Knuth, with the text 'Donald Knuth #62 Lex' overlaid on the image.

## Appendix 8. Discussion Forum

Moodle Description
Setma Aleb

---

### ENGLISH FOR SPECIFIC PURPOSES

Dashboard / Courses / ENGLISH FOR COMPUTER SCIENCE / Forums & discussions / ENGLISH FOR COMPUTING PURPOSES / Living in a digital age

---

### ENGLISH FOR COMPUTING PURPOSES

Living in a digital age

[Settings](#)

---

Display replies in nested form
Move this discussion to ...
Move

**Living in a digital age**  
by [Setma Aleb](#) - Wednesday, 27 February 2019, 11:40 AM

Discuss these questions:

Which computer applications you think is the most important or useful in everyday life.

How are/were computers used in your school?

How do you think computers will be used in school in the future?

Give reasons for your answers.

[Permalink](#) [Edit](#) [Delete](#) [Reply](#)

---

**Re: Living in a digital age**  
by [redacted] - Wednesday, 27 February 2019, 2:08 PM

When it comes to technology, many of us have become reliant and use tech on a daily basis for work, pleasure, or both. More specifically, we have become reliant on internet tech and computers for many purposes. We go online using our laptop or desktop computers for everything from shopping for groceries to doing work, enjoying entertainment, and socializing with friends and family. In addition, there are many people who rely on computers for educational purposes. Computers and the internet play a huge part in the world of education these days, and they can benefit every learner. Getting a computer for the home can be a worry for some people due to cost, but you can make big savings by using promotions such as Alienware promo codes. When it comes to education, investing in a computer and internet access for the home can be hugely beneficial. Computers have become so vital in the world of education.

[Permalink](#) [Show parent](#) [Edit](#) [Split](#) [Delete](#) [Reply](#)

---

**Re: Living in a digital age**  
by [redacted] - Wednesday, 27 February 2019, 6:23 PM

Also I can add to Ahmed's list my side of opinion which: Computers are used extensively in all types of manufacturing. Their main uses revolve around product design, logistics, personnel management, and especially automation of machinery; Most of the logistics of a factory, including material stocks, scheduling, and job tracking, are managed via computers.

[Permalink](#) [Show parent](#) [Edit](#) [Split](#) [Delete](#) [Reply](#)

---

**Re: Living in a digital age**  
by [redacted] - Wednesday, 27 February 2019, 6:31 PM

I agree with Soumia in the point that computer enables us to control machinery, robots, production lines, lists of products, etc. By using computer-aided manufacturing software, engineers can simulate and test designs before parts are actually produced.

[Permalink](#) [Show parent](#) [Edit](#) [Split](#) [Delete](#) [Reply](#)

---

**Re: Living in a digital age**  
by [redacted] - Wednesday, 27 February 2019, 7:05 PM

Computers are used for performing complex calculations, sifting through large amounts of data, and transmitting data. Computer becomes very important nowadays because it is very much accurate, fast and can accomplish many tasks easily. Otherwise to complete those tasks manually much more time is required. It can do very big calculations in just a fraction of a second. It can store huge amount of data in it.

[Permalink](#) [Show parent](#) [Edit](#) [Split](#) [Delete](#) [Reply](#)

---

**Re: Living in a digital age**  
by [redacted] - Wednesday, 27 February 2019, 7:37 PM

Computers are essentially complex machines.

And by that definition, it is simply a tool people use to improve their lives. From your smartphones to the apartment in our houses, we become extremely reliant to them everyday.

I am not too sure about the near future though. You know, that future where machine surpasses people in every aspect, and develops a conscious mind of their own.

Then, maybe computers are the ones making tools out of us people.

[Permalink](#) [Show parent](#) [Edit](#) [Split](#) [Delete](#) [Reply](#)

---

**Re: Living in a digital age**  
by [Setma Aleb](#) - Wednesday, 27 February 2019, 7:53 PM

Dear students, thank you for your participation.  
Of course, computers have become an essential part of our lives.

**Note: Prepare the following tasks for the next session**

1) Listen to four people talking about how they use computers at work. ( Refer to Listening section of UNIT1)  
Write each speaker's job in the table.  
electrical engineer /secretary /librarian/ composer

2) In small groups, choose one of the areas in the diagram below and discuss what you can do with computers in that area. Look at the Useful language box below to help you.

**Useful language:**  
Formula 1 cars: design and build the car, test virtual models, control electronic components, monitor engine speed, store (vital) information, display data, analyse and communicate data  
Entertainment: download music, burn CDs, play games, take photos, edit photos, make video clips, watch movies on a DVD player, watch TV on the computer, listen to MP3s, listen to the radio via the Web  
Factories and industrial processes: design products, do calculations, control industrial robots, control assembly lines, keep record of stocks (materials and equipment)  
School/University: access the Internet, enrol online, search the Web, prepare exams, write documents, complete exercises online, do research, prepare presentations  
Computers are used to...  
A PC can also be used for...  
People use computers to ...

3) Write a short presentation summarizing your discussion. Then ask one person from your group to give a summary of the group's ideas to the rest of the class.

See you next session inshaAllah

[Permalink](#) [Show parent](#) [Edit](#) [Split](#) [Delete](#) [Reply](#)

---

→ Glossary of computing terms Irregular verbs Acronyms and abbreviations
Jump to...

## Appendix 9. Online Quiz in Moodle

☰ Moodle Description
🔔 🗨 Selma Aleb 

---

### ENGLISH FOR SPECIFIC PURPOSES

Dashboard / Courses / ENGLISH FOR COMPUTER SCIENCE / Computers tomorrow / Networking Quiz / Preview

**Question 1**  
Not yet answered  
Marked out of 1.00  
[Flag question](#)  
[Edit question](#)

This network typically consists of two or more local area networks, covering a large geographical area.

- a. WAN
- b. LAN
- c. Intranet

[Next page](#)

Quiz navigation

This network typically consists of two or more local area networks, covering a large geographical area.

1

2

3

4

5

6

7

8

Finish attempt ...

Start a new preview

← Video Games

Jump to... ▾

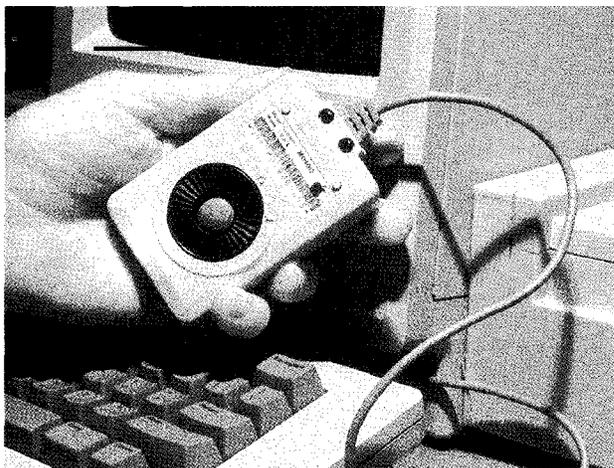
Computers tomorrow ▶

**Appendix 10. Sample of ESP Course**

**Start-up**

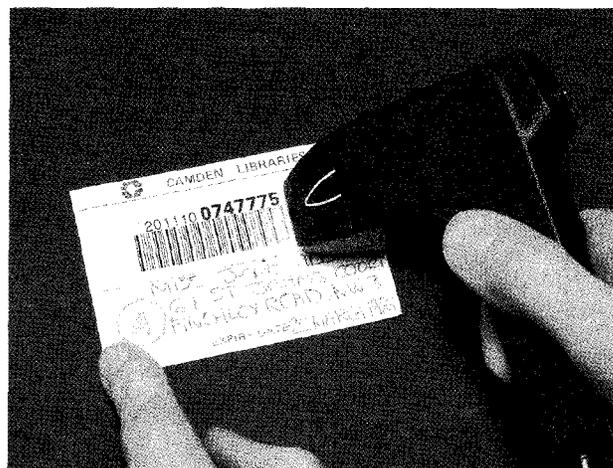
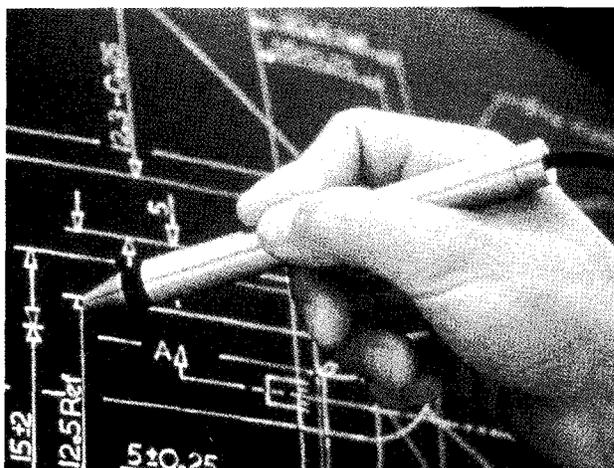
Task 1 a

Name these devices. What are they used for?



b

d



**Listening**

Task 2

You will hear two interviews between a market researcher and visitors to a computer exhibition. As you listen, fill in the missing information in the table opposite.

Interview 1

Interview 2

Name:

Occupation:

Type of PC used: \_\_\_\_\_

Reasons for choice: 1

2

3

**Task 3**



Read this extract from Interview 2 and fill in the gaps. To help you, the first letter of each missing word is given.

INTERVIEWER: Do you own a PC?

ENRIQUE: Yes, I have an Apple Macintosh.

INTERVIEWER: Why did you c<sup>e</sup> *choose* \_\_\_\_\_<sup>1</sup> a Mac as opposed to an IBM or an IBM c\_\_\_\_\_<sup>2</sup>?

ENRIQUE: I think Macs are e\_\_\_\_\_<sup>3</sup> to use than IBM PCs. I use the m\_\_\_\_\_<sup>4</sup> feature a lot, which is s\_\_\_\_\_<sup>5</sup> on all Macs. Then there's the graphical user interface and the windows.

INTERVIEWER: Graphical user interface? Could you explain that?

ENRIQUE: Well, put simply, it means that you click on i\_\_\_\_\_<sup>6</sup> instead of typing in c\_\_\_\_\_<sup>7</sup>.

INTERVIEWER: I see. You mentioned windows. Doesn't IBM also use windows?

ENRIQUE: Yes, but I think their windows are harder to s\_\_\_\_\_<sup>8</sup> u\_\_\_\_\_<sup>9</sup>. In any case, I'm u\_\_\_\_\_<sup>10</sup> t\_\_\_\_\_<sup>11</sup> the Mac.

Now listen again to the interview and check your answers.

---

**Reading**

---

**Task 4**

Before reading the text on the following page, match each word with the correct definition:

- |                    |  |
|--------------------|--|
| 1.Mainframe        | a. the set of software that controls a computer system                               |
| 2.Mouse            | b. a very small piece of silicon carrying a complex electrical circuit               |
| 3.Icon             | c. a big computer system used for large-scale operations                             |
| 4.operating system | d. a device moved by hand to indicate position on the screen                         |
| 5.Software         | e. a visual symbol used in a menu instead of natural language                        |
| 6.Hardware         | f. data, programs, etc., not forming part of a computer, but used when operating it. |
| 7.microchip        | g. the physical portion of a computer system   |

---

Now read the text and decide on a suitable title for it.

**Task 5**

In 1952, a major computing company took a decision to get out of the business of making mainframe computers. They believed that there was only a market for four mainframes in the whole world. That company was IBM. The following year they reversed their decision.

In 1980, IBM decided that there was a market for 250,000 PCs, so they set up a special team to develop the first IBM PC. It went on sale in 1981 and set a world-wide standard for IBM-compatibility which, over the next ten years, was only seriously challenged by one other company, Apple Computers. Since then, over seventy million PCs made by IBM and other manufacturers have been sold. Over this period, PCs have become commodity items. Since IBM made the design non-proprietary, anyone can make them.

The history of the multi-billion dollar PC industry has been one of mistakes. Xerox Corporation funded the initial research on personal computers in their Palo Alto laboratory in California. However, the company failed to capitalize on this work, and the ideas that they put together went into the operating system developed for Apple's computers. This was a graphical interface: using a mouse, the user clicks on icons which represent the function to be performed.

The first IBM PC was developed using existing available electrical components. With IBM's badge on the box it became the standard machine for large corporations to purchase. When IBM were looking for an operating system, they went initially to Digital Research, who were market leaders in command-based operating systems (these are operating systems in which the users type in commands to perform a function). When the collaboration between IBM and Digital Research failed, IBM turned to Bill Gates, then 25 years old, to write their operating system.

Bill Gates founded Microsoft on the basis of the development of MS/DOS, the initial operating system for the IBM PC. Digital Research have continued to develop their operating system, DR/DOS, and it is considered by many people to be a better product than Microsoft's. However, without an endorsement from IBM, it has become a minor player in the market. Novell, the leaders in PC networking, now own Digital Research, so things may change.

The original IBM PC had a minimum of 16K of memory, but this could be upgraded to 512K if necessary, and ran with a processor speed of 4.77MHz. Ten years later, in 1991, IBM were

so making PCs with 16Mb of memory, expandable to 64Mb, running with a processor speed of 33MHz. The cost of buying the hardware has come down considerably as the machines have become commodity items. Large companies are considering running major applications on PCs, something which, ten years ago, no one would have believed possible of a PC. In contrast, many computers in people's homes are just used to play computer games.

The widespread availability of computers has in all probability changed the world for ever. The microchip technology which made the PC possible has put chips not only into computers, but also into washing-machines and cars. Some books may never be published in paper form, but may only be made available as part of public databases.

Networks of computers are already being used to make information available on a world-wide scale.

---

When you read the text to decide on a title, which of the following did you do?

**Task 6**

Did you:

**Vocabulary**

commodity items (I. 2 3) — items which can be produced and traded freely non-proprietary (I. 24) — not belonging to any single company capitalize on (I. 3 3) — profit from, turn to one's advantage

read the text slowly and try to understand every word?

Fl read quickly and try to understand the main theme?

underline or mark sentences that you thought were important? make notes about important points?

Which of these reading strategies do you think is most appropriate for this kind of task? Which do you think is least appropriate?

**Task 7**

Answer these questions about the text.

- 1 How many mainframes did IBM think it was possible to sell in 1952?
- 2 How many PCs have now been sold?
- 3 Who paid for the initial research into PCs?
- 4 Which company later used the results of this research to develop their operating system?
- 5 What are command-based operating systems?
- 6 DR/DOS is an acronym. What does it stand for?
- 7 Since the invention of the IBM PC, many of its features have been improved. Which of the following features does the text *not* mention in this respect?
  - a memory
  - b speed
  - c size
  - d cost
- 8 Give three examples from the text of how the availability of computers has 'in all probability changed the world for ever'.

---

Using the line references given, look back in the text and find words that have a similar meaning to:

- Task 8**
- 1 international (lines 10-15)
  - 2 contested (lines 15-20)
  - 3 errors (lines 25-30)
  - 4 paid for (lines 25-30)
  - 5 buy (lines 45-50)
  - 6 first (lines 60-65)
  - 7 recommendation (lines 65-70)
  - 8 improved (lines 75-80)

### Writing

**Task 9**

Translate the sixth paragraph (starting 'The original IBM PC...') into your own language. Look carefully at the tenses before you start.

### Speaking

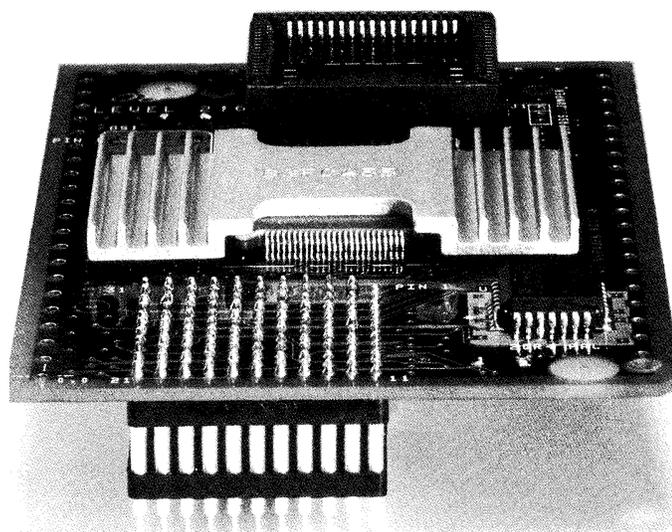
**Task 10**

The article states that 'many computers in people's homes are just used to play computer games'.

Discuss the following questions:

- 1 In what other ways are computers used at home, or outside work?
- 2 If you already have a PC, how do you use it? (If not, how would you use one?)

## The processor



## Reading

**Task11** Read this passage about the structure of the processor and fill in the gaps using the words below.

**Structure of the processor** The processor consists of a<sup>1</sup> \_\_\_\_\_, which is a circuit board on which are mounted<sup>2</sup> \_\_\_\_\_ chips, memory chips, and other components linked together by<sup>3</sup> \_\_\_\_\_ lines or channels in the form of control, address, and data<sup>4</sup> \_\_\_\_\_. In addition, a processor has \_\_\_\_\_, which are electronic circuits providing specialized functions such as graphics, or which connect a system board to \_\_\_\_\_<sup>6</sup> \_\_\_\_\_. The system board also consists of electronic devices, such as an electronic \_\_\_\_\_ for controlling the speed of operation;<sup>8</sup> \_\_\_\_\_, which store numeric data during the course of processing; and various<sup>9</sup> \_\_\_\_\_, including sequence control register, address register, and function register.

*adaptor boards*  
*clock*  
*system board*

*registers*  
*conductive*  
*accumulators*

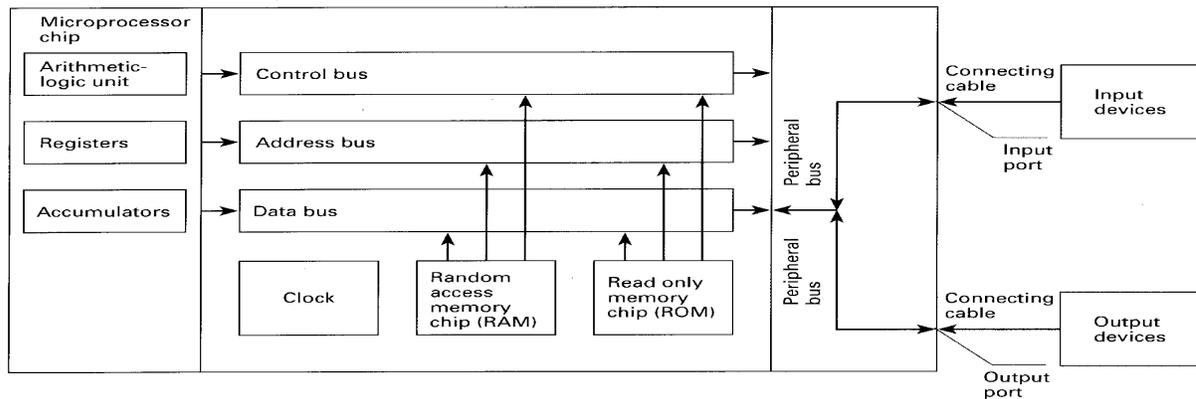
*microprocessor*  
*buses*  
*input or output devices*

## Reading

**Task12** Use the information in the reading passage and the diagram to help you match the terms below with the appropriate explanation or definition.

A processor consists of many different electronic circuits and devices for performing control functions, arithmetic and logic operations, and data transfers. Data may be transferred from backing storage to the internal memory or from the internal memory to the arithmetic unit by means of

5 conductive channels known as buses. The part of the processor which controls data transfers between the various input and output devices is called the control unit.



used to send address details between the memory and the address register  
 consists of an arithmetic-logic unit, one or more working registers to store data being processed, and accumulators for storing the results of calculations a group of signal lines used to transmit data in parallel from one element of a computer to another  
 groups of bistable devices used to store information in a computer system for high-speed access

an electronic circuit, usually a quartz crystal, that generates electronic pulses at fixed time intervals to control the timing of all operations in the processor used for storing part of the operating system and application software known as 'firmware'; can only be read; cannot be written to or altered in any way used to store numeric data during processing

a group of signal lines dedicated to the passing of control signals  
 used for the temporary storage of application programs and data; can be written to and read from

- |   |                       |          |
|---|-----------------------|----------|
|   | microprocessor chip a |          |
| 2 | registers             | <b>B</b> |
| 3 | accumulators          | <b>C</b> |
| 4 | control bus           | <b>D</b> |
| 5 | address bus           | <b>E</b> |
| 6 | data bus              | <b>F</b> |
| 7 | clock                 | <b>G</b> |
| 8 | RAM                   | <b>H</b> |
| 9 | ROM                   | <b>I</b> |

### Speaking

#### Task 13

Work in pairs. Write down the list of terms (1-9) in Task 12 on a piece of paper. Without referring to your book, take turns to ask and answer questions about their functions.

1<sup>0</sup> Useful expressions

*What is/are...?*

*What does/do...do%*

# Language focus A

## Contextual reference

Transitional markers are words used to link ideas together so that the text is easier to read. When pronouns such as *it, they, them, I, he, she, which, who, whose, that, such, one*, and demonstrative adjectives such as *this, that, these* and *those*, are used as transitional markers, they refer to a word, or words, mentioned earlier in the sentence or paragraph. Their function is to take your thoughts back to something that has already been mentioned. Other words which are often used to refer backwards are *the former, the latter, the first, second, etc., the last*.

Sample paragraph:

A computer like any other machine, is used because it does certain jobs better and more efficiently than humans. It can receive more information and process it faster than any human. The speed at which a computer works means it can replace weeks or even months of pencil-and-paper work. Therefore, computers are used when the time saved offsets their cost, which is one of the many reasons they are used so much in business, industry, and research.

### Exercise 1

Using the sample paragraph as a model, draw a rectangle around the word, or words, that the circled words refer to. Then join the CD and the =with arrows.

Modern accounting firms use spreadsheet software to do complicated calculations. They can provide their clients with an up-to-date report whenever it is needed. This software has many functions and can be integrated with other software. The spreadsheet's basic component is a cell. This may contain a formula which performs a mathematical operation. It could also contain a label or data. The former describes the information on the worksheet. The latter is the information itself.

The worksheet is the basic work area of a spreadsheet program. It is made up of cells arranged in rows and columns. The number of these varies depending on the software you are using. You can change the width and format of cells. Such parameters are usually quite easy to change with just a few keystrokes.

- Exercise 2**      Using the line reference given, look back at the reading passage in Unit 1, page 6, and find the reference for the words in *italics*.
- 1 anyone can make *them* (line 25)
  - 2 the ideas that *they* put (line 34)
  - 3 *This* was a graphical interface (line 37)
  - 4 it became the standard machine (line 44)
  - 5 *these* are operating systems (line 50)
  - 6 *it* has become a minor player (line 68)
  - 7 *this* could be upgraded (line 76)

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## Appendix 11. Blended ESP Syllabus

University Abdelhamid Ibn Badis, Mostaganem  
Faculty of Exact Sciences and Computer Science  
Department of Computer Science

### Syllabus

#### Course description and course outline

**Course name:** English for Specific Purposes (ESP)

**Course type:** Lecture

**Lecturer:** Salma Aleb

**Email:** salma.aleb.etu@univ-mosta.dz

**Target learners:** First year Master's students

**Time allotted:** 1. 30 h per week

**Academic year:** 2018/2019

#### Course description

ESP is two-semester course for First year Master's students of Computer Science. It aims to deepen students' English knowledge, skills and understanding on the major issues related to the field of computer science. It is a theoretical and practical lecture which is based on developing language skills, functions and knowledge. The course is blended (in-class and online) based. It consists of seminars and online courses in which active participation is required. The emphasis is on the spoken and written areas of English in the computer science field. The course is divided into three areas:

- 1) Oral Proficiency - comprised of discussions and presentations, with consideration of correct pronunciation and manner. Students also train their ability to correctly express constructive criticism verbally.
- 2) Written report: The written part consists primarily of a report on a technical subject, which is defended in accordance with formal opposition procedures. Students are required to read a selection of technical articles in English, and access stipulated multimedia productions.
- 3) Electronic communication: comprised of good communication skills for correspondence via Moodle. Consideration is given to grammar and style

#### Course objectives

By the end of this semester, students will be able to:

##### Knowledge and Understanding

- develop knowledge of English pronunciation and grammar
- understand and recognize how reading texts can be used to acquire knowledge of the appropriate structure, register, and style of technical articles written in English
- understand how reading texts can increase vocabulary and improve fluency in English

##### Skills and Abilities

- discuss and apply technical issues and texts based on the set readings

- show an increased technical vocabulary repertoire within the area of computer science and improve fluency in English
- acquire confidence in English pronunciation and conversational skills within the area of computer science
- choose appropriate styles, forms, register and vocabulary for in-class and electronic communication with fellow students and instructor
- develop familiarity with grammatical structures and functions which are commonly used in their field
- develop the ability to contribute effectively in a small group discussion
- strengthen the knowledge and use of the English language

### **Assessment:**

How will language mastery be measured?

- Students will be tested on key terms and concepts associated with the activities in class.
- They will also take a number of quizzes over reading material on the subject online.
- Additionally they will have one graded assignment online
- Students will be tested on typical computing issues by essay, written project or presentation in class

### **Course Activities (C=in class; 0=online)**

What will students do to achieve mastery?

The course is designed to engage you in a process of pre-class activities (online), in-class activities (face-to-face), and post-class activities (online). Students will prepare through preparatory file work (0) and instructor led file work (C)

### **In-Class Activities (Face-to-Face)**

Students attend a face-to-face class once a week. The face-to-face class is not a lecture but provides time for demonstrations, applications, discussion, polls, and problem-solving. Classroom sessions are intended to supplement and elaborate on the pre-class readings. Occasionally, students will have review sessions or project discussions. You may use class time to ask relevant questions. All face-to-face classes in a given week are the same so students who attend on different days have comparable experiences.

### **Pre- and Post-Class Activities (Online)**

Students will do their best and get the most from this course if they prepare well and read the assigned materials before class. They are responsible for working independently online to complete all assigned activities and discussions in Moodle by the due dates (as applicable). Students should pay close attention to the order of activities and read the units in the order identified in the schedule.

Students should not regard the online sessions as being “off,” but rather to switch into a different style of self-learning, reviewing, practicing, and checking in on discussions during the week. Try to manage your schedule and time on the computer at home to work online activities or assessments by the due dates.

Online activities will range from the following:

#### **1. Pre-Recorded Videos**

Pre-recorded lectures/narrated PowerPoint slides will be posted prior to each week to cover the topics for that particular week. Please actively watch the videos and take notes

as they typically would in class. Students will get to watch (and re-watch) these videos at their own time. There may also be videos posted from a variety of sources this semester, and you will have to watch/listen to a video then reflect on its content or complete a short activity related to the content.

## 2. Online Discussions

Each week, you are required to participate and respond to a series of online discussions posted. You are expected to provide thoughtful, well-articulated responses to the discussion questions to keep conversations on-going throughout the week. Participation in online discussions is required. Instructor will be monitoring the discussions and may reply accordingly.

## 3. Online Quizzes

There will be a practice quiz online each week in Moodle. After completing the pre-class readings and videos, students should complete the practice quiz for that week.

## 4. Online Exams

There are two online exams this semester on the midterm and finals weeks. Online exams will be administered on Moodle. You will be given an adequate amount of time on the exam day to access the exam but once you begin, exams are timed and need to be completed within two hours.

## 5. Independent Project

You will have an assigned project to work on throughout the semester to connect your learning to professional practice. You will be expected to work independently through each project and submit the required deliverable on the due dates assigned. You will be providing feedback to guide you through the project development process.

## Course Format

This course will be delivered in a blended format. It is meant to provide students with some flexibility in their learning. Regarding Course Credit Workload, each course requires one 1h 30 of classroom or direct faculty instruction and 1h 30 of online instruction for 8 weeks.

Contact time is divided into equal learning modes as follows:

50% Online sessions are a blend of self-paced and group activities through Moodle Platform. Activities include interactive modules, group work, discussion forums, quizzes, and reading, written assignments. Students participate in online course discussions, work on group projects and keep current on assignments through an online course portal. Video lessons are posted online along with all other assignments and projects. While students may participate on their own schedule, they must meet course assignment deadlines. The content and learning objectives for these courses are the same as in-classroom courses.

Online activities are for:

- Pre-lecture quizzes so the lecturer knows which topics are most difficult
- Adaptive quizzing tailored to students' unique weak areas
- Videos that provide more example of key concepts
- Reading text, reviewing notes, attending supplemental instruction, using online learning resources

50% Face-to-face sessions are conducted Mostaganem University. Activities include class seminars, written assignments, collaborative learning tasks, individual or group presentations, experiential learning experiences.

Class time is for:

- Explaining and practicing difficult concepts
- Expanding on the lectures to include newer and more advanced information
- Getting an overview of major concepts
- Asking and answering questions

### **Integration between In-Class & Online Components**

How are online and in-class components functionally woven together? (how the online components will support the in-class activities and vice versa)

Students will read texts and listen to recorded lectures, in-person sessions will start with a Moodle Quiz over the assigned reading followed by an in-class discussion of critical elements from the reading.

### **Required Materials:**

#### **Course books**

The content of this course is derived from the following books:

- Basic English for computing
- English for computer science students
- English for computer users
- Oxford English for information technology
- Professional English in use ICT

### **Moodle Course Website**

Resources for this course are also available in Moodle.

Moodle is a learning management system for accessing learning materials online. Depending on the course, the instructor use Moodle to provide course handouts, class notes, videos, assignments, quizzes, links, Articles, PPT presentation, online lectures, Discussion board in Moodle and other course-related materials.

Students should check moodle weekly for updates. They username and password to log in to Moodle at <http://salma-aleb.com/>.

### **Weekly Tasks:**

All the information you need for each week is found under the Weekly links on the Course Content (homepage) with in Moodle. Each chapter link includes:

- Powerpoint or other Instructor handouts
- Read the Assigned Chapter(s) for the week
- Review Powerpoint
- View Moodle videos which walk you through the major areas of each chapter as well as illustrate how to approach and solve homework
- Complete the assigned homework per the schedule. Homework is to be completed in Moodle.
- Continue to work on the group project and submit each task per the class schedule.
- Send any questions about the homework or project to the instructor.

### **Technical Requirements for Online Sessions**

Students should have convenient, dependable, high-speed Internet access to a computer or a smartphone

### **Grading policy**

Exam mark		
Official	Term	exam
(100%)		

Students' grade in ESP course is obtained from the final achievement test (official exam) at the end of the semester. No TD mark is given to students and no other formative assessment is carried out. However, students' participation, discussion and other forms of contribution are highly appreciated and welcomed.

## Résumé

Les approches d'enseignement traditionnelles adoptées dans les cours d'anglais pour objectif spécifique (ESP) conduisent souvent au désengagement des étudiants. Par conséquent, l'approche d'enseignement mixte qui se concentre sur l'intégration du meilleur de la technique et de la pédagogie est devenue plus répandue et a attiré l'attention des chercheurs et des éducateurs. Bien que plusieurs études aient examiné l'efficacité de l'apprentissage mixte (BL) dans divers cours d'EFL, il y a peu d'études examinant l'efficacité du BL dans les cours d'ESP. Cette étude vise à examiner l'efficacité de la mise en œuvre de l'approche d'enseignement mixte dans les cours d'ESP en mesurant la mesure dans laquelle l'approche d'enseignement mixte dans les cours d'anglais pour l'informatique crée un environnement d'apprentissage flexible, approfondi et authentique qui répond aux divers besoins et intérêts des étudiants. Elle s'est appuyée sur une étude de cas utilisant un modèle de recherche à méthode mixte. Les instruments de collecte de données comprennent un entretien semi-structuré mené avec six étudiants, un questionnaire d'analyse des besoins, une quasi-expérience et une liste de contrôle d'évaluation du cours réalisée avec cinquante participants. Les étudiants de première année de Master en informatique de l'Université de Mostaganem (Algérie) ont été sélectionnés comme échantillon d'étude durant l'année universitaire 2018-2019. Les résultats de l'étude indiquent que l'utilisation de différents modes d'enseignement pourrait avoir un impact positif sur les résultats et l'engagement des étudiants et augmenter leur autonomie et leur motivation. Ce changement pédagogique pourrait également être offert comme une approche alternative pour surmonter les obstacles des classes traditionnelles, car la nature conventionnelle des cours d'ESP enseignés tout au long du programme de l'année avant de mettre en œuvre les cours mixtes n'était pas adéquate pour répondre aux besoins académiques et professionnels des étudiants. Les participants avaient une attitude positive à l'égard de la mise en œuvre de l'approche d'enseignement mixte dans les cours d'ESP, car celle-ci pouvait étendre les limites du contexte d'enseignement de la salle de classe traditionnelle à la salle de classe virtuelle, permettant aux étudiants d'apprendre à leur propre rythme. D'après les résultats, les étudiants ont exprimé leur volonté d'utiliser l'enseignement mixte pour que les cours d'ESP soient associés de manière constructive à leurs spécialisations universitaires et professionnelles. Néanmoins, ils ont exprimé leur insatisfaction quant à l'interaction virtuelle pendant l'apprentissage. Les conclusions générales de l'étude révèlent la nécessité croissante de la mise en œuvre d'un cours d'ESP mixte dans le département d'informatique actuel. Ces résultats conduisent à des implications pédagogiques pour envisager la construction de devoirs de cours couvrant les domaines d'intérêt des étudiants en relation avec les fonctionnalités multimédia. Les implications de l'exploitation des ressources numériques des étudiants, du retour critique continu et des pratiques d'enseignement réfléchies ont également été suggérées comme nécessaires à la maîtrise de l'ESP par les étudiants. Une proposition de programme de cours d'ESP basée sur les besoins des parties prenantes dans un environnement d'apprentissage mixte a ainsi été recommandée. L'étude recommande aussi la mise en place d'une formation des enseignants comme première étape vers les améliorations nécessaires.

## المخلص:

إن مناهج التدريس التقليدية المعتمدة في اللغة الانجليزية لأغراض خاصة (ESP) غالباً ما تؤدي إلى عدم تجاوب الطلبة. وعليه فإن منهج التدريس المدمج الذي يتطلب أفضل التكنولوجيا والبيداغوجيا أصبح الأكثر انتشاراً ولفناً للانتباه في أوساط الباحثين والمعلمين. على الرغم من أن العديد من الدراسات عالجت التعلم المدمج في مختلف دروس تعلم اللغة الإنجليزية كلغة أجنبية، إلا أن هناك ندرة في الدراسات التي تعالج فعالية التعلم المدمج (BL) في دروس (ESP). تهدف هذه الدراسة إلى التحقق من فعالية تنفيذ منهج التدريس المدمج في دروس (ESP) من خلال قياس مدى إنشاء منهج التدريس المدمج في دروس اللغة الإنجليزية لعلوم الكمبيوتر كبيئة تعليمية مرنة حقيقية وشاملة تلبي احتياجات الطلاب واهتماماتهم المتنوعة. وتم إعلانه من خلال دراسة حالة باستخدام تصميم بحث متعدد الأساليب، يتضمن أدوات جمع بيانات مقابلة شبه منظمة أجريت مع ستة طلاب، واستبيان تحليل الاحتياجات وشبه التجربة وكذا قائمة مراجعة تقييم الدروس التي تم إجراؤها مع خمسين مشاركاً. تم اختيار طلبة السنة أولى ماستر-علوم الكمبيوتر بجامعة مستغانم (الجزائر) كعينة دراسة خلال الموسم الدراسي 2018-2019. وتشير الدراسة إلى أن استخدام طرق تدريس مختلفة يمكن أن يؤثر إيجاباً على تحصيل الطلاب ومشاركتهم، ويزيد من استقلاليتهم وتحفيزهم. أيضاً يمكن عرض هذا التغيير البيداغوجي كنهج بديل للتغلب على عوائق طرق التدريس التقليدية. ذلك لأن الطبيعة التقليدية لدروس (ESP) التي تدرس على مدار السنة قبل إجراء الدروس المدمجة لم يكن كافياً لتلبية الاحتياجات الأكاديمية والمهنية للطلاب. كان للمشاركين انطباعات إيجابية حول تنفيذ منهج التعليم المدمج في دروس (ESP). حيث يمكن للأخيرة توسيع نطاق التدريس من الفصل الدراسي التقليدي إلى الفصل الدراسي الافتراضي مما يمكن الطلاب من التعلم بالسرعة التي تناسبهم. بناءً على النتائج، أعرب الطلاب عن رغبتهم في التدريس المدمج لجعل دروس (ESP) مرتبطة بشكل بناء مع تخصصاتهم الأكاديمية والمهنية. ورغم ذلك، فقد أعربوا عن عدم رضاهم عن التفاعل الافتراضي أثناء التعلم. النتائج الإجمالية للدراسة تكشف عن الحاجة المتزايدة لتنفيذ دروس (ESP) المدمجة في قسم علوم الكمبيوتر الحالي مما يستدعي النظر في إنشاء مهام البرنامج الدراسي التي تغطي مجالات اهتمام الطلاب فيما يتعلق بخصائص الوسائط المتعددة، ثم أيضاً اقتراح الآثار المترتبة عن الاستفادة من الموارد الرقمية للطلاب والانتقادات المستمرة وممارسات التدريس المنعكسة كضرورة في الإلتقان لطلاب (ESP). أيضاً تمت التوصية ببرنامج (ESP) كمقترح اعتماداً على احتياجات أصحاب المصلحة ضمن بيئة تعليمية مدمجة. كما أوصت الدراسة بتدريب المعلمين كخطوة أولى نحو التحسينات اللازمة.